A Preliminary Mineral-Resource Potential of San Juan County, Northwestern New Mexico

by

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Preface

During the spring, 1985, the U.S. Bureau of Land Management (BLM) and the New Mexico Bureau of Mines and Mineral Resources (NMBMMR) entered a cooperative agreement to prepare a preliminary mineral-resource inventory and assessment of northwestern New Mexico, including Valencia, Cibola, McKinley, San Juan, and western Rio Arriba Counties. This is the fifth of six reports describing the geology and mineral-resource potential of northern New Mexico. The first report describes the methodology and classification of mineral-resource potential used in this report and includes a summary of the mineral-resource potential of San Juan County.

These reports are based upon time consuming analyses of all available data, published and unpublished, by a group of geologists and technical support staff. Without this team effort this project would be impossible. In addition to the co-authors of the final report, many other people at the NMBMMR and BLM provided assistance, especially in reviewing the rough drafts.

This report is organized into a text, appendices (volume 2), and supporting figures, maps (scale 1:100,000), and tables. Known mineral occurrences, mines, and deposits, including material pits, are briefly described in Appendix 1 and plotted on 1:100,000 scale maps. Mineral-resource potential of various commodities is discussed in the text and also shown on 1:100,000 scale maps.

ABSTRACT

A preliminary mineral-resource potential assessment of San Juan County involves analyses of available published and unpublished geologic, geochemical, geophysical, and economic data and a brief field reconnaissance. Mineral-resource potential is an assessment of the favorability that a commodity will occur in substantial concentrations in a given area that can be exploited under current or future economic conditions. A classification of high, moderate, low, very low, or unknown is assigned. A high mineral-resource potential exists in areas where geologic and economic data indicate an excellent probability that economic mineral deposits occur there. Moderate or low mineral-resource potential exists in areas where the data indicate a lesser probability that economic mineral deposits occur. A classification of very low potential is reserved for areas where sufficient information indicates that an area is unfavorable for economic deposits. A classification of unknown mineral-resource potential is assigned to areas where either necessary geologic, geochemical, geophysical, and economic data are inadequate to otherwise classify an area or where any other classification (high, moderate, low, or very low) would be misleading. Some areas have not been evaluated for specific commodities because of lack of usable data.

Energy resources are the most important commodities in San Juan County, although other commodities have been produced. Coal, oil, and gas are currently being produced and have high potentials in various parts of San Juan County. A high resource

potential exists locally for carbon dioxide, clay, helium. sand and gravel, and limestone. Much of the county has a high resource potential for crushed and dimension stone.

A moderate resource potential exists for uranium in the Shiprock district and at the Boyd prospect. A moderate potential exists locally for humate.

Additional geologic mapping and geochemical studies are suggested in areas with active claims, at the Boyd prospect, in areas of aggregate resources, and in areas with potential for silica sand, clay, and zeolites. More drilling and quality analyses are needed to better evaluate the coal resource potential. The significance of barium anomalies along the Kirtland-Fruitland contact and in the Nacimiento Formation needs to be examined.

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INTRODUCTION

Purpose and Scope

The Federal Land Policy and Management Act (FLPMA) of 1976 charges the U.S. Bureau of Land Management (BLM) with responsibility for preparing a mineral-resource inventory and assessment of mineral-resource potential for all of the public lands they manage. These studies are essential to land-use planning and management and they are required prior to BLM actions such as disposal, withdrawal, exchange, or conveyance of land and wilderness designations. In order to meet this statutory requirement, the BLM and the New Mexico Bureau of Mines and Mineral Resources (NMBMMR) entered a cooperative agreement to prepare a preliminary mineral-resource inventory and assessment for northwestern New Mexico, including Valencia, Cibola, McKinley, San Juan, and western Rio Arriba Counties (Fig. 1). NMBMMR staff were already actively involved with compilations and geologic studies of various commodities on all lands within New Mexico, so the requirements of both agencies were satisfied. McLemore (1984) and McLemore et al. (1984) previously evaluated the mineral-resource potential of Torrance County and Sandoval and Bernalillo Counties and adjacent parts of McKinley, Cibola, and Santa Fe Counties (Fig. 1).

This preliminary mineral-resource inventory and assessment is based on analysis of available published and unpublished geologic, geochemical, geophysical, and economic data and brief field reconnaissance as described by McLemore (1985) and McLemore et al. (1986a). A more rigorous and complete analysis of all available information and additional field work could expand the

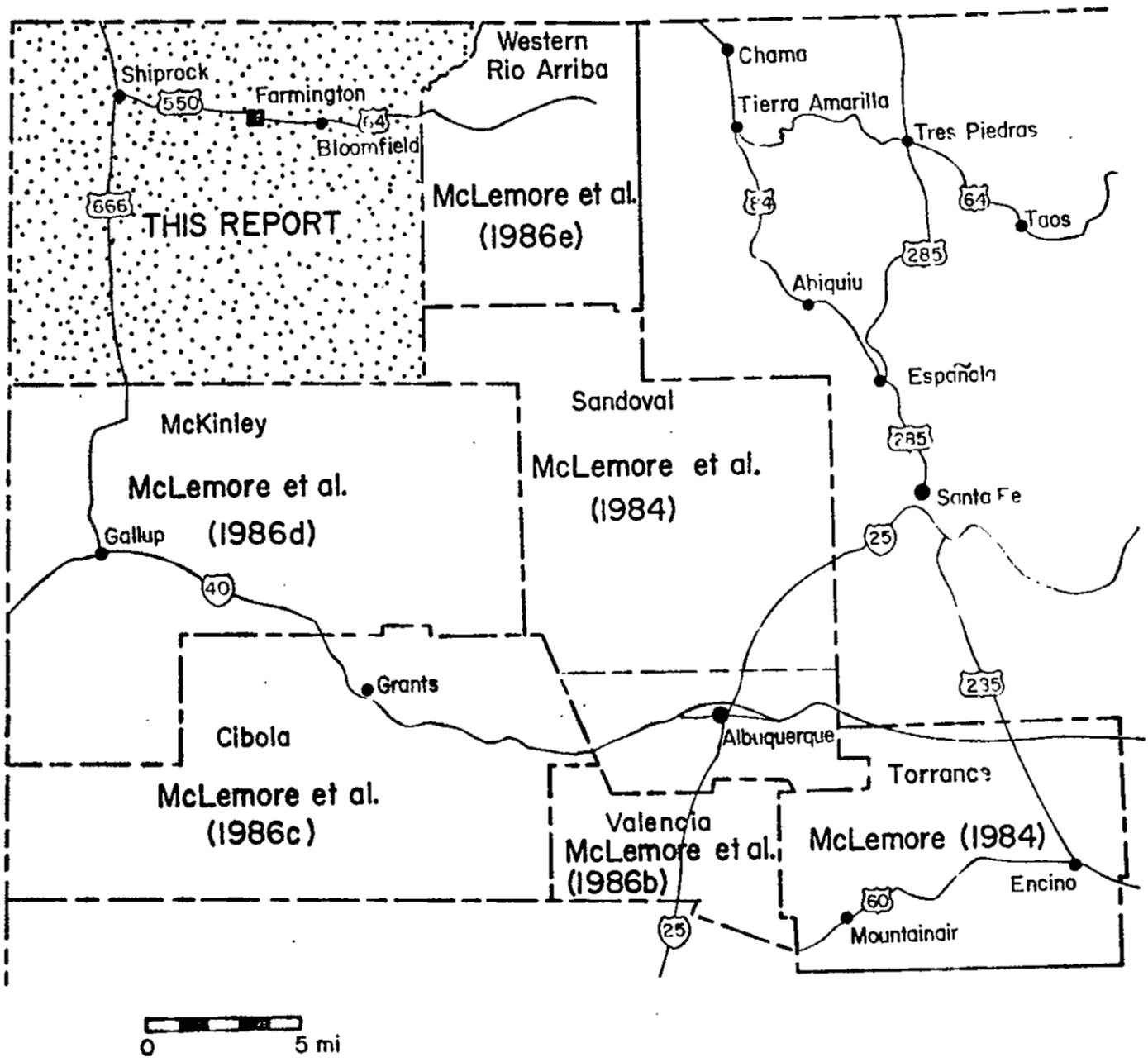


Figure 1. Areas assessed by New Mexico Bureau of Mines and Mineral Resources.

preliminary conclusions of this report.

This report is organized into a text, appendices, and supporting figures, maps, and tables. Known mineral occurrences, prospects, deposits, and mines, including material pits, are briefly described in Appendix 1 and generally described by deposit type in the text. Petroleum tests are tabulated in Appendices 2, 3, and 4. Coal reserves, resources, and coal quality data are tabulated in Appendices 5 and 6. Known mineral occurrences, prospects, deposits, mines, and oil and gas tests are plotted on 1:100,000-scale maps; Figure 2 is an index to 1:100,000-scale topographic maps covering San Juan County. Mineral-resource potential of various commodities is discussed in the text and also shown on 1:100,000-scale maps.

Definitions

Mineral resources are the naturally occurring concentrations of materials (solid, gas, or liquid) in or on the earth's crust that can be extracted economically under current or future economic conditions. Reports describing mineral resources vary from simple inventories of known mineral deposits to detailed, geologic investigations.

A mineral occurrence is any locality where a useful mineral or material occurs. A mineral prospect is any occurrence that has been developed by underground or above ground techniques or by subsurface drilling. These two terms do not have any resource or economic implications. A mineral deposit is a sufficiently large concentration of a valuable or useful mineral or material that may be extracted under current or future economic

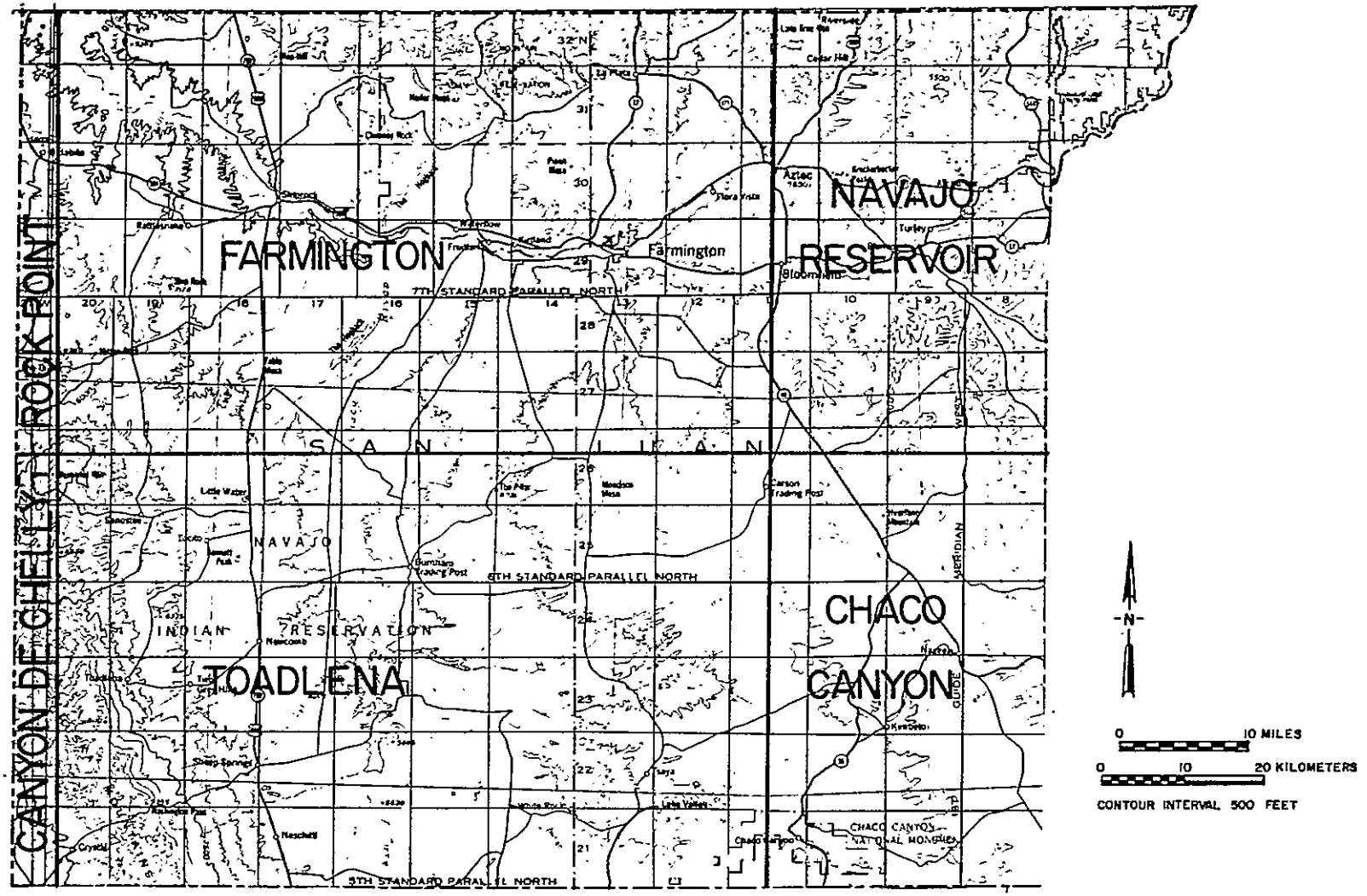


Figure 2. 1:100,000 scale topographic maps covering San Juan County, New Mexico.

conditions. A mine is any prospect which produced or is currently producing a useful mineral or material.

The mineral-resource potential of an area is the likelihood or probability that a mineral will occur in sufficient quantities so that it can be extracted economically under current or future conditions (Taylor and Steven, 1983). Mineral-resource potential is preferred in describing an area whereas mineral-resource favorability is used in describing a specific rock type or geologic environment (Goudarzi, 1984). The mineral-resource potential is not a measure of the quantities of the mineral resources, but is a measure of the potential of occurrence. Factors that could preclude development of the resources, such as the feasibility of extracting the minerals, land ownership, accessibility of the minerals, or cost of exploration, development, production, processing, or marketing, are not considered in assessing the resource potential, although these factors certainly affect the economics of extraction. Total evaluation of mineral-resource potential involves a complete understanding of the known and undiscovered mineral resources in a given area.

Classification of Mineral-Resource Potential

A simple subjective classification of mineral-resource potential is used for the purposes of this report. The potential is simply classified according to availability of geologic data and relative probability of occurrence as high, moderate, low, very low, or unknown (Fig. 3). More detailed descriptions of this classification scheme and evaluation process are by McLemore

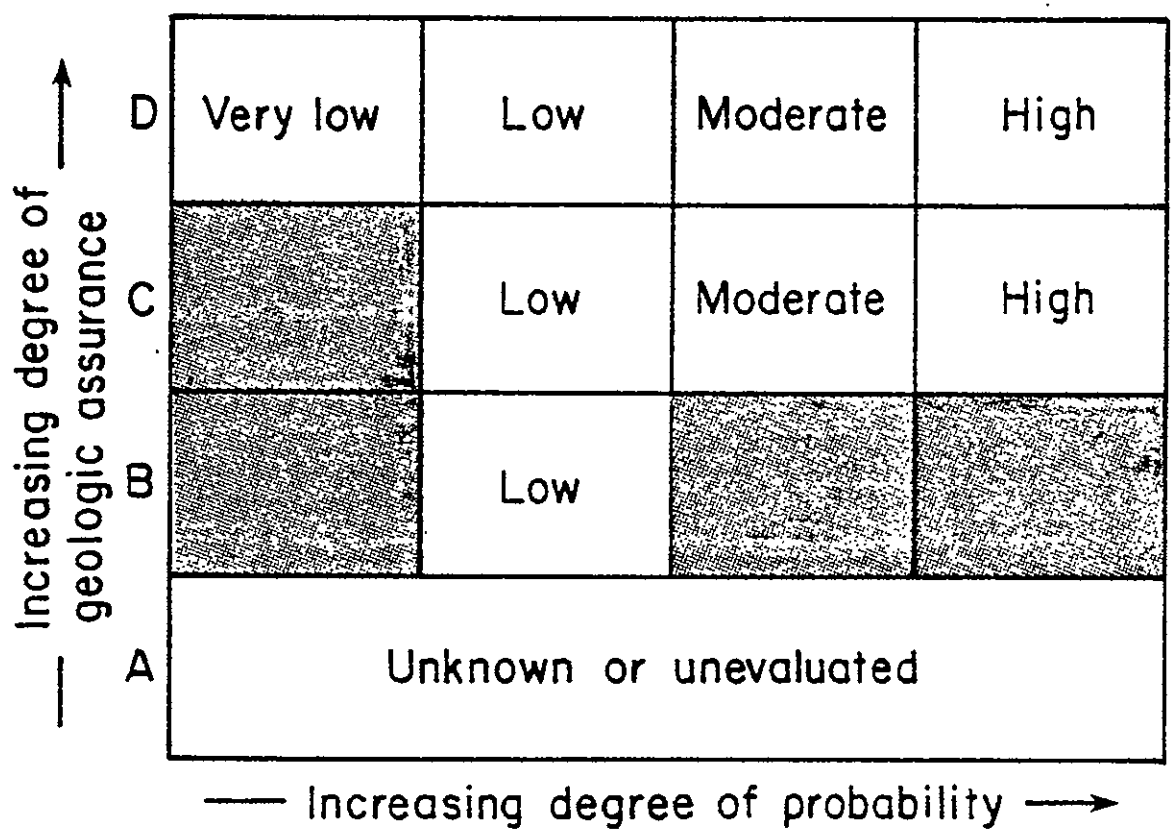


Figure 3–Classification of mineral-resource potential (modified from Taylor and others, 1984 and Goudarzi, 1984). A–D represent four levels of geologic assurance.

(1985) and McLemore et al. (1986a).

A high mineral-resource potential is assigned to areas where there are known mines or deposits or where the geologic, geochemical, or geophysical data indicate an excellent probability that mineral deposits occur. A moderate mineral-resource potential exists in areas where data suggest a reasonable possibility that undiscovered deposits occur in formations or geologic settings known to contain economic deposits in similar geologic settings elsewhere. A moderate to low mineral-resource potential exists in areas where data suggest a reasonable possibility that undiscovered mineralization occurs in an area, but the potential is not as good as moderate. Low mineral-resource potential exists in areas where available data imply the occurrence of mineralization, but indicate a low possibility for the occurrence of a deposit. A classification of very low mineral-resource potential is reserved for areas where sufficient information indicates that an area is unfavorable for economic deposits. Use of the very low classification requires a high level of geologic assurance.

A classification of unknown mineral-resource potential is reserved for areas where necessary geologic, geochemical, and geophysical data are inadequate to otherwise classify an area. This assessment is assigned to areas where the degree of geologic assurance is low and any other classification (high, moderate, low, or very low) would be misleading. These areas should receive high priority for additional study.

The mineral-resource potential of some areas can not be assessed because of lack of useful data. Detailed geologic

mapping at a scale of 1:24,000 may be required before the mineral-resource potential can be assessed. The lack of data does not imply a very low mineral-resource potential. The difference between an unknown resource potential and unevaluated area is that some data exists in an area of unknown resource potential which implies the possibility of the occurrence of resources.

In addition to evaluation of the mineral-resource potential, the potential for development is assessed. The potential for development is classified simply as high, moderate, or low and takes into account such factors as grade, tonnage, current market conditions, and status, and similar economic factors. High potential for development indicates that the area is currently producing a commodity or economic conditions suggest that production of the deposit is economically feasible currently or in the near future. Moderate potential for development exists in areas where production of the deposit would occur if certain geologic or economic conditions became favorable. Low potential for development indicates only a slight possibility, if any, for production of the deposit. The potential for development classification is also a highly subjective judgment, but it does offer an evaluation of the economic feasibility of an area.

Previous Geologic Investigations

The geology of San Juan County is described as part of numerous regional geologic reports on the Colorado Plateau. Many of these reports are cited where appropriate. Much of the county is covered by geologic maps of various scales (Figs. 4, 5, 6).

Two state geologic maps and one regional map (Dane and Bachman, 1957, 1965; New Mexico Geological Society and NMBMMR, 1983) also include San Juan County. Geologic mapping at 1:250,000 scale of each 1- by 2-degree quadrangle (Shiprock and Aztec) are by O'Sullivan and Beckman (1963) and NURE (National Uranium Resource Evaluation).

Specific reports describing the mineral resources in San Juan County are numerous, especially concerning petroleum, uranium, and coal resources. The best source describing all mineral resources in New Mexico is a compilation prepared by the U.S. Geological Survey (1965) in cooperation with various state and federal government agencies. Various reports on uranium resources include Anderson (1957), Siemers and Austin (1979a, b), U.S. Geological Survey and NMBMMR (1981), Anderson (1981), and McLemore (1983a). Schilling (1975) and McLemore (1983a) include bibliographies of additional citations concerning uranium resources. Various reports on coal resources include numerous geologic maps (Figs. 4, 5, 6), Shomaker et al. (1971), U.S. Geological Survey and NMBMMR (1981), and Nickelson (in press). Other mineral reports include Jones (1904), Talmage and Wootton (1937), Bieberman and Weber (1969), Foster and Grant (1974), Logsdon (1982), Austin (1982), Barker et al. (1984), and North and McLemore (1984, 1986). Additional commodity reports concerning this area are cited where appropriate. Production statistics are from various file data, U.S. Geological Survey (1903-1931), U.S. Bureau of Mines (1932-1984), and New Mexico State Mine Inspector (1903-1983). A leasable mineral-land classification map has been prepared by DeCicco et al. (1978a,

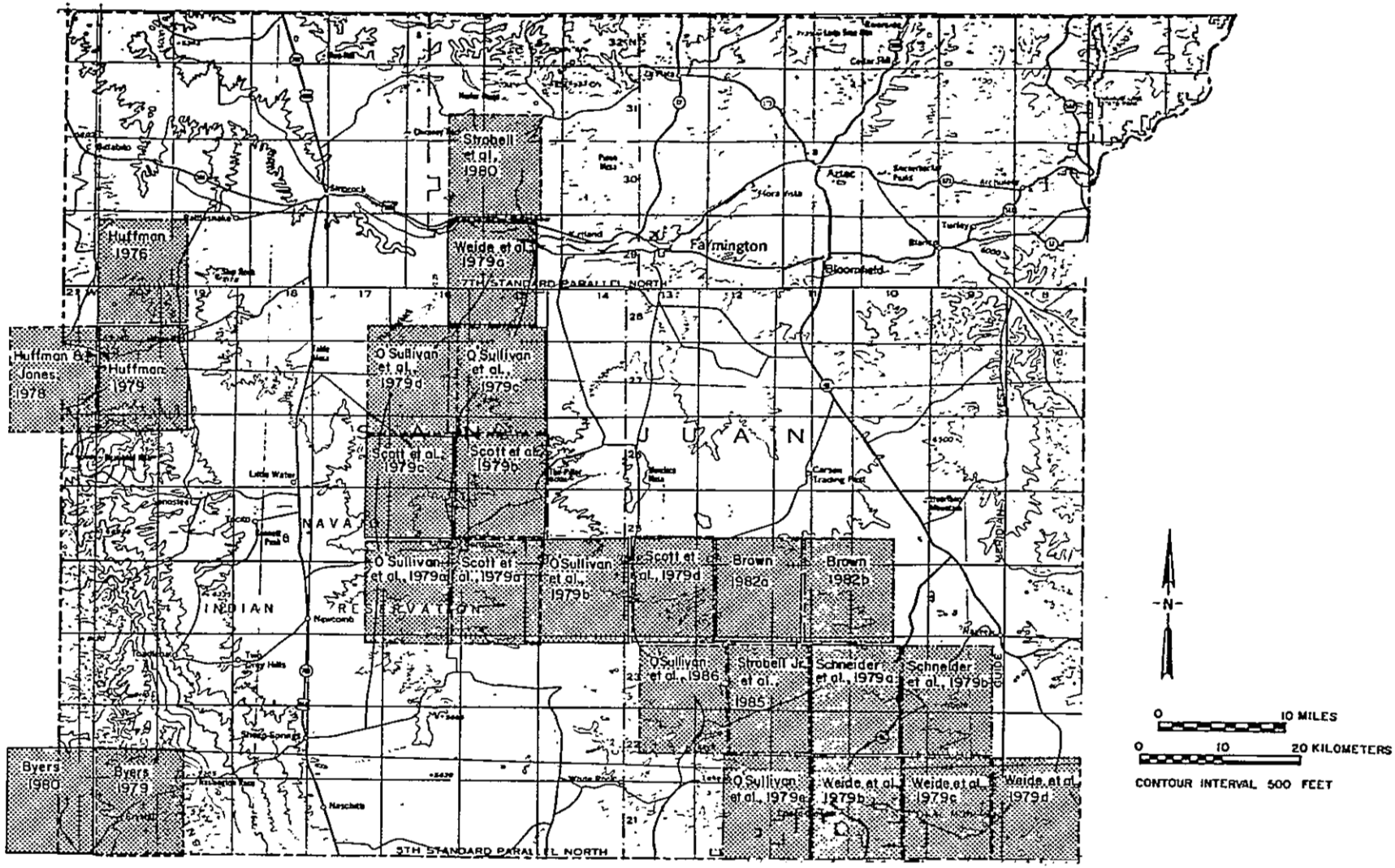


Figure 4. Index of geologic mapping at a scale of 1:24,000 or larger.

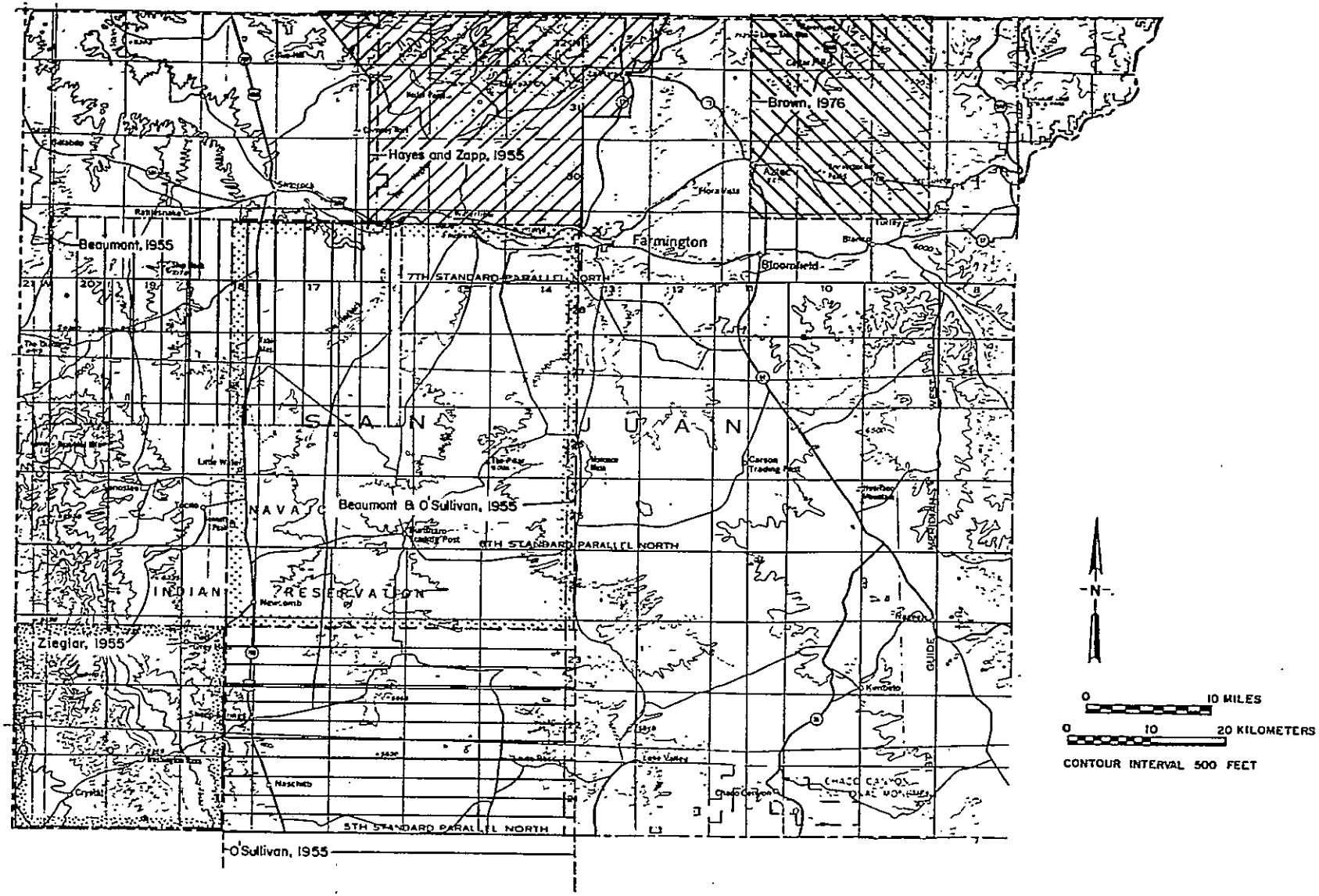


Figure 5. Index of geologic mapping at scales greater than 1:24,000 to 1:63,360.

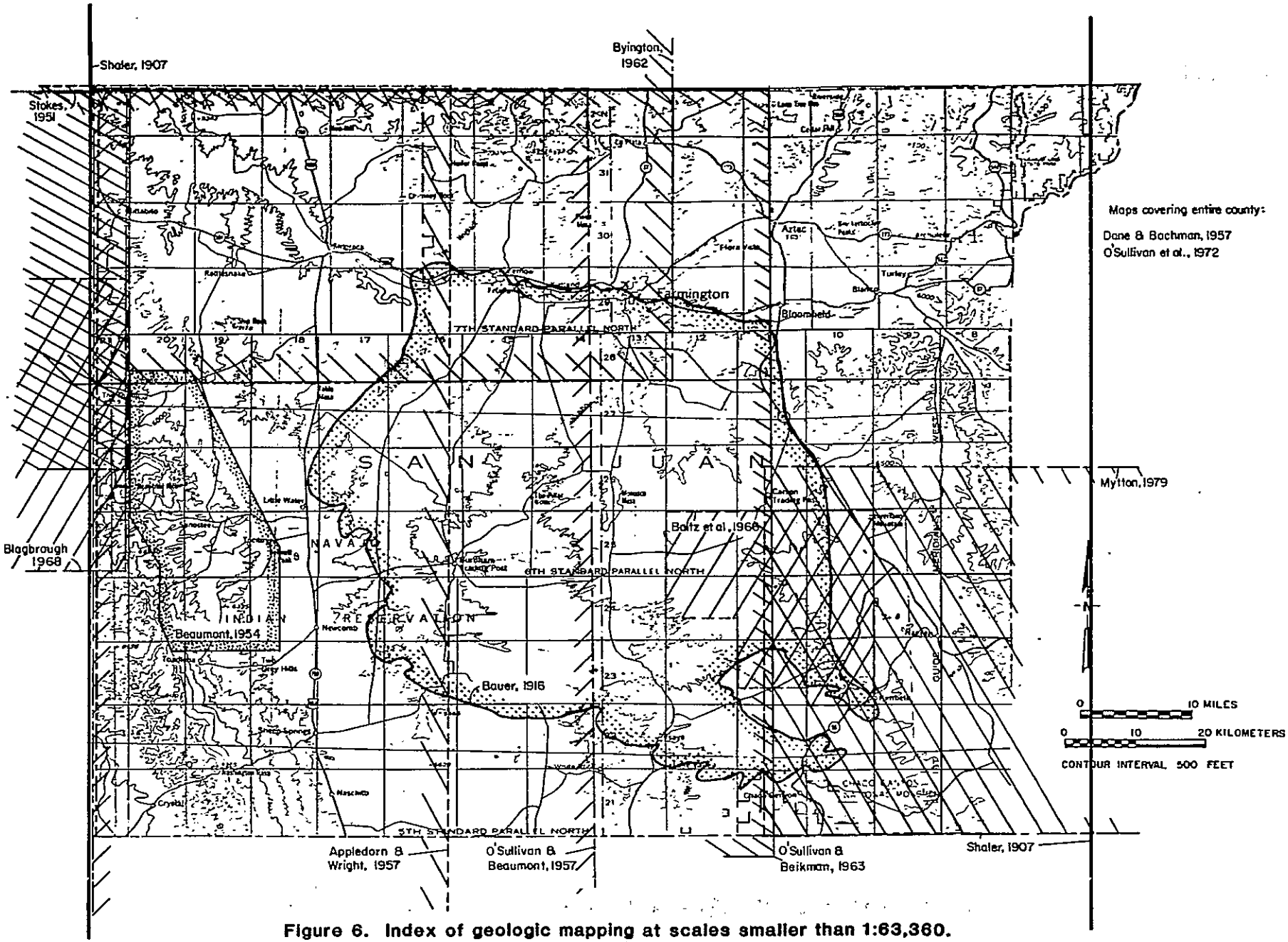


Figure 6. Index of geologic mapping at scales smaller than 1:63,360.

b). As part of the U.S. Department of Energy's NURE, much of San Juan County was examined (Green et al., 1982a, b).

ACKNOWLEDGMENTS

This project was completed under a cooperative agreement between the Bureau of Land Management (BLM) and the NMBMMR. The coordinators for the BLM include Henry Wilson, William Jonas, Carl Yost, James Olsen, and Pat Hester who provided some of the data needed to evaluate the mineral-resource potential. Warren Bennett, New Mexico State Highway Department, provided data on aggregate resources. Many people on the NMBMMR staff in addition to the co-authors assisted greatly in preparing this report. Lynn Brandvold and associates provided chemical analyses. Robert North and James Barker assisted the senior author in the field. Cherie Pelletier, Cindie Salisbury, Kris Klein, and Lori Baker drafted most of the figures and Lynne McNeil typed the manuscript. This manuscript benefited from critical reviews by George Austin, Sam Thompson, Robert Bieberman, Pat Hester, Dennis Umpshler, Kay Hatton, and Shawn Leppert. Finally, Brian Christiansen, Kris Klein, Linda Frank, Karen Brown, Jose Manrique, Kent Anderson, Shawn Leppert, and Lori Baker assisted in copying, proofreading, compiling the bibliography, compiling the mineral occurrences, compiling the geochemical anomaly maps, and compiling the index to geologic mapping.

PHYSIOGRAPHY AND GEOLOGY

(by V. T. McLemore, R. F. Broadhead, and G. Roybal)

San Juan County lies in the Colorado Plateau physiographic province and is dominated by the San Juan Basin, Defiance uplift, and Four Corners platform (Fig. 7). Two major rivers occur in the northern portion of the county, the San Juan and La Plata Rivers.

Lithologic units range from Paleozoic to Recent (Fig. 8) and many of the stratigraphic intervals contain mineral deposits (Table 1). A brief synopsis of the stratigraphy and history follows; for more detailed information the reader is referred to the references cited.

Paleozoic Stratigraphy

(by R. F. Broadhead)

The oldest rocks exposed in northwest New Mexico are Paleozoic and belong to the Ignacio Formation (Cambrian; Fig. 9). The Ignacio occurs in western San Juan County as erosional remnants in block-faulted grabens (Stevenson and Baars, 1977). It has a maximum thickness of 100 ft. The Ignacio consists of friable to well-indurated, quartzose sandstones with local shale lenses. It is a transgressive marine deposit.

The Aneth Formation (Devonian) unconformably overlies the Ignacio Formation (Fig. 9). Where the Ignacio has been removed by erosion, the Aneth Formation rests unconformably on Precambrian basement. The Aneth occurs in western San Juan County as erosional remnants in grabens (similar to the occurrence of the Ignacio Formation; Stevenson and Baars, 1977).

Table 1 - Stratigraphic units and associated economic commodities in San Juan County.

Age	Unit or Formation	Description	Potential economic commodities present
Quaternary	alluvium and eolian deposits	unconsolidated sand and silt	sand and gravel
	terrace and pediment deposits	surficial veneer of poorly consolidated gravel and sand	sand and gravel
Tertiary	intrusive igneous rocks	a series of dikes (northeast) and plugs (west) of lamphophyre and associated alkalic rocks.	gravel
	Chuska Sandstone	light brown to white crossbedded eolian sandstone.	crushed and dimension stone
	San Jose Formation	massive sandstone and conglomeratic sandstone interbedded with shale	sand
Tertiary-Cretaceous	Nacimiento Formation, Ojo Alamo Sandstone, and Animas Formation	shale interbedded with medium to fine grained sandstone and conglomeratic sandstone	petroleum
Cretaceous	Kirtland Shale and Fruitland Formation	shale, fine grained sandstone, and coal.	coal, petroleum, uranium
	Pictured Cliffs Sandstone	tan crossbedded to massive fine- to medium-grained sandstone	petroleum
	Lewis Shale	dark gray shale with concretionary limestone beds and sandstone (unit is not always present).	
	Cliff House Sandstone	tan to gray crossbedded sandstone with minor interbedded shale	clay, crushed and dimension
	Menefee Formation Point Lookout Sandstone	alternating beds of tan and brown sandstone and gray shale.	petroleum
	Mancos Shale	light to dark gray marine shale with subordinate fine grained sandstone, siltstone, and bedded or concretionary limestone.	
	Dakota Sandstone	tan sandstone and conglomeratic sandstone with lenses of shale and coal.	petroleum
Jurassic	Morrison Formation	fluvial and floodplain deposits with minor lacustrine and eolian deposits consisting of alternating shale, sandstone, conglomeratic sandstone, and siltstone.	uranium
	Summerville Formation	claystone, siltstone, and sandstone.	
	Todilto Limestone	thin bedded limestone with minor sandy intervals in lower part.	building stone
	Entrada Sandstone	reddish-brown, fine- to medium-grained crossbedded eolian sandstone	petroleum
Triassic, Pennsylvanian, Mississippian, and Devonian	---	sandstones, carbonates, and shales	petroleum, CO_2, He

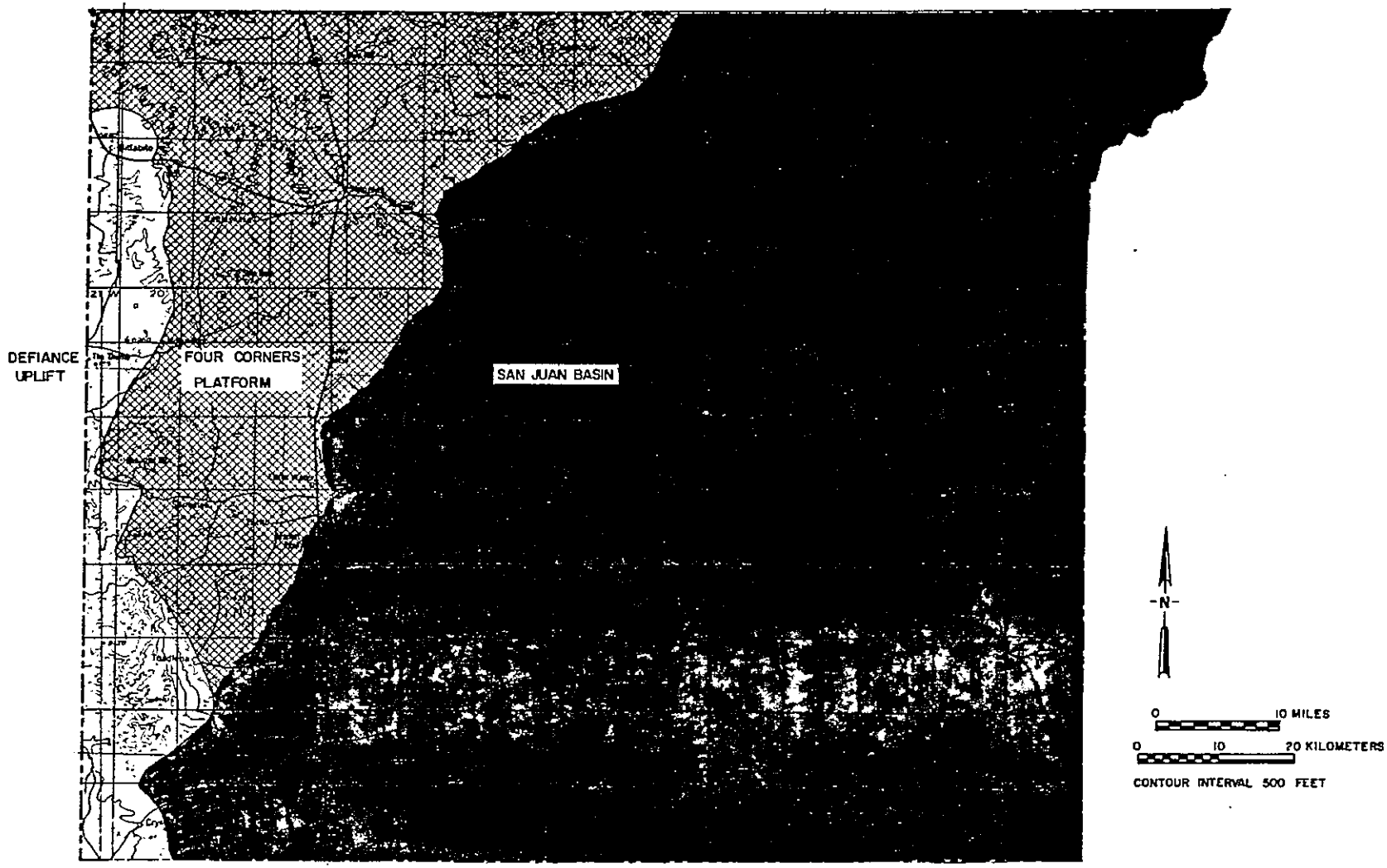
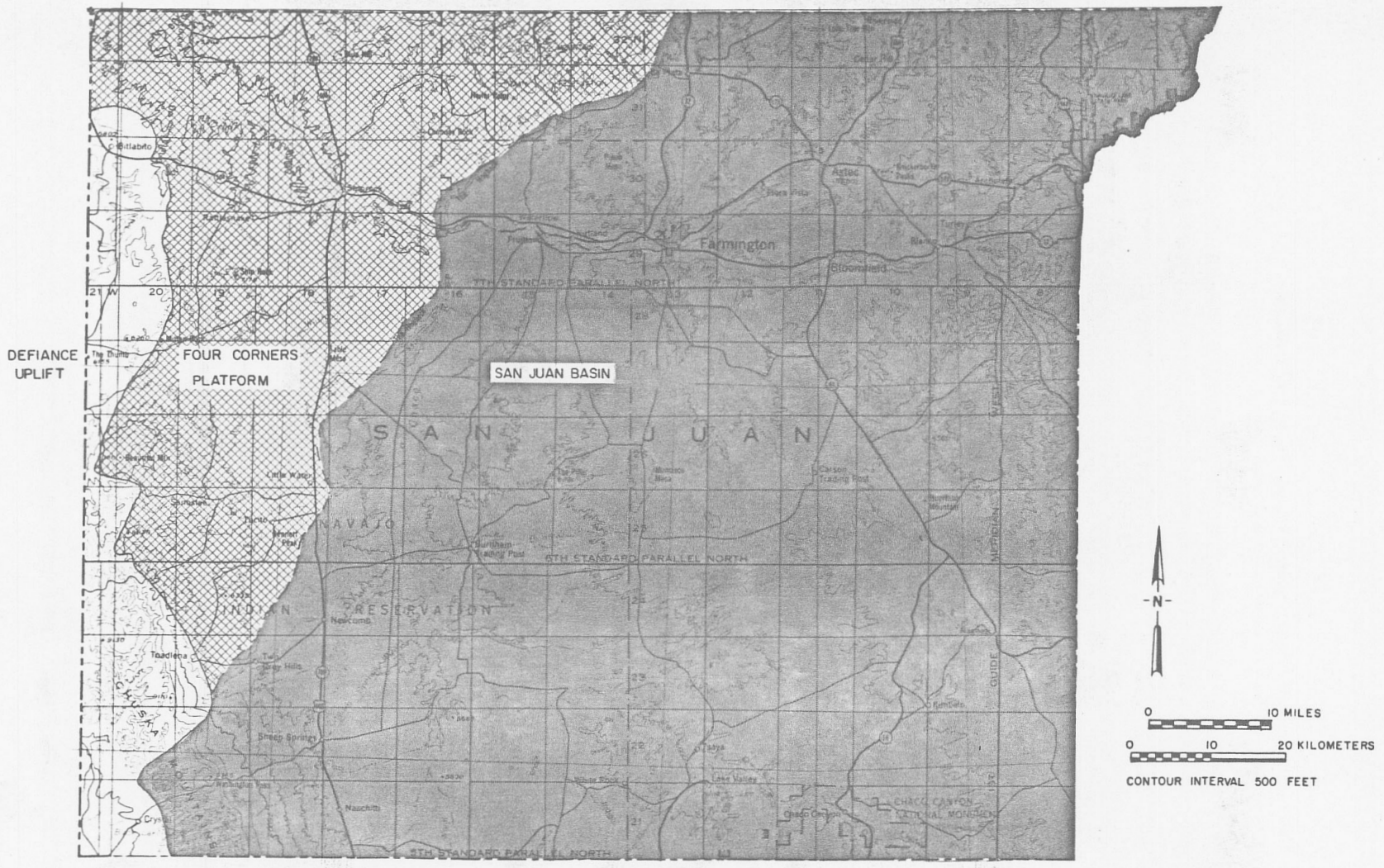


Figure 7. Basins and uplifts in San Juan County, New Mexico. Geologic features after Woodward and Callender (1977).



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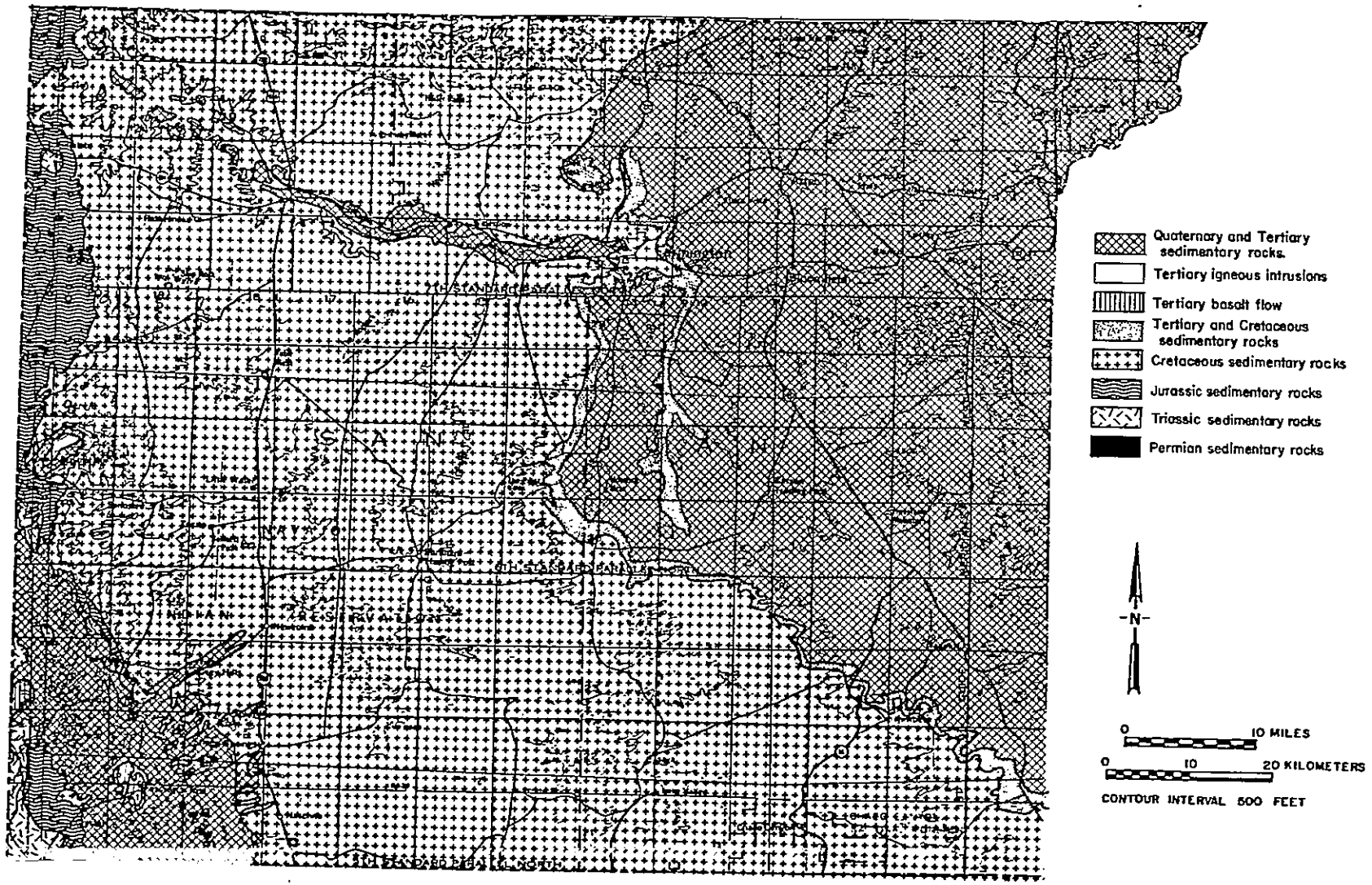

Figure 8. Geologic map of San Juan County, New Mexico . Simplified from Dane and Bachman (1965).

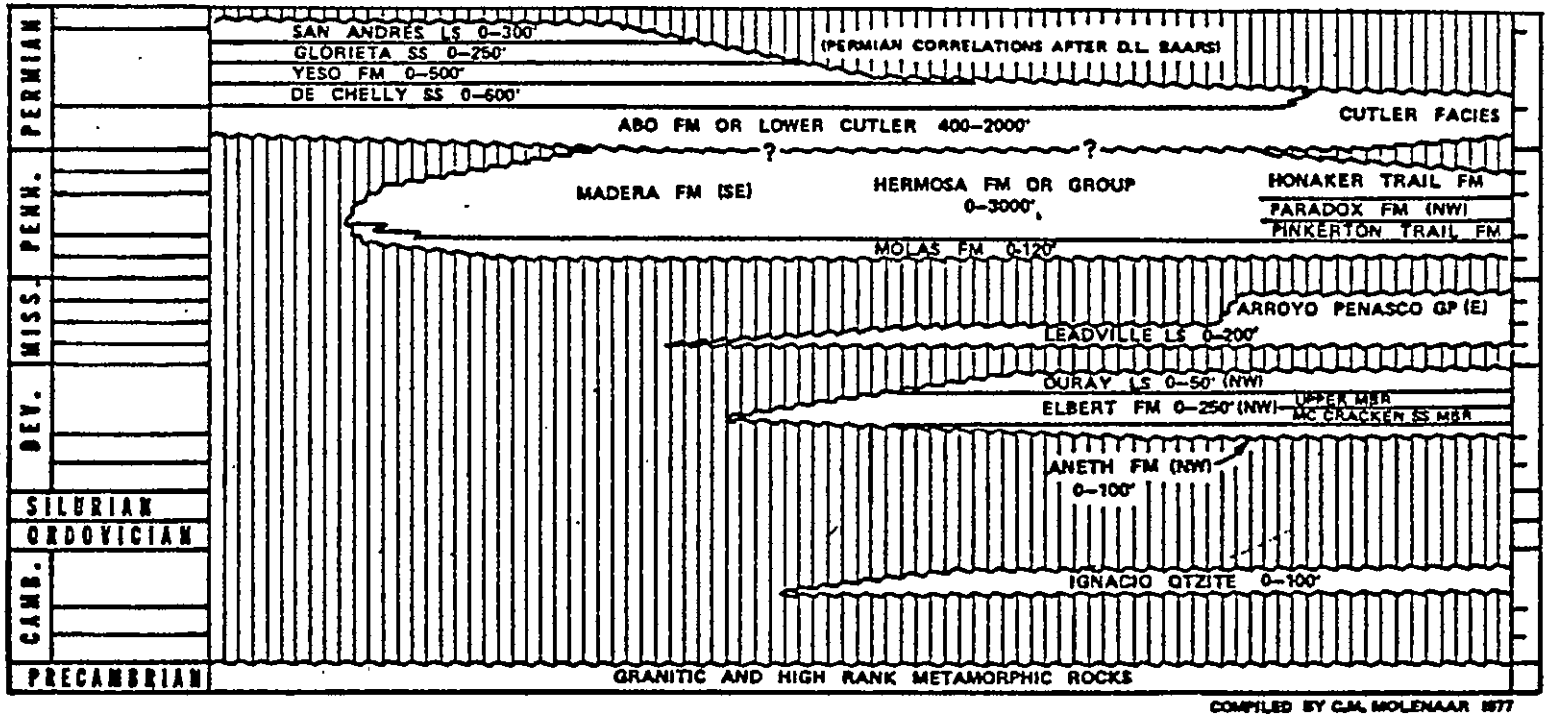

Figure 9. Time-stratigraphic nomenclature chart for Paleozoic rocks of the San Juan Basin (from Molenaar, 1977).

It has a maximum thickness of approximately 75 ft. The Aneth Formation consists of dark resinous limestones, argillaceous dolostones, black shales, and dark siltstones. It is a basal euxinic facies of the Elbert Formation (Stevenson and Baars, 1977).

The Elbert Formation (Devonian) conformably overlies the Aneth Formation (Fig. 9; Stevenson and Baars, 1977). Where the Aneth is absent, the Elbert Formation rests unconformably on Precambrian basement. The Elbert is divided into a lower McCracken Sandstone Member and an unnamed upper member. The McCracken Member is present in western San Juan County where it has a maximum thickness of 175 ft (Stevenson and Baars, 1977). It consists of poorly sorted, fine- to medium-grained, gray to red glauconitic sandstones. The upper member is present in San Juan, western Rio Arriba, northwest Sandoval and extreme northeast McKinley Counties (Stevenson and Baars, 1977). Maximum thickness is 200 ft in San Juan County and thins to the south and east. It consists of green shales, thin-bedded limestones and dolostones, and white glauconitic sandstones.

The Ouray Formation (Devonian) conformably overlies the Elbert Formation (Fig. 9; Stevenson and Baars, 1977). The Ouray Formation is present in San Juan, western Rio Arriba, northeast McKinley, and northwest Sandoval Counties. In northwest New Mexico, it is 0-90 ft thick. The Ouray consists of dark-brown limestones and dolostones. It was deposited in a low-energy marine environment (Stevenson and Baars, 1977).

Mississippian sedimentary rocks are 0-200 ft thick in northwest New Mexico. They are thickest in northwest San Juan

County and thin to the east and south. They are absent from the Zuni and southern Defiance uplifts, and from Cibola and southern Bernalillo Counties.

The Leadville Limestone (Mississippian, Fig. 9) is present in northern San Juan and northern Rio Arriba Counties (Armstrong and Mamet, 1977). The Leadville rests unconformably on Devonian sedimentary rocks. Where the Devonian is absent, the Leadville Limestone rests unconformably on Precambrian basement. The Leadville consists of shallow-marine, crinoidal limestones and dolostones.

The Arroyo Peñasco Group (Mississippian, Fig. 9) is present in southern San Juan, southwestern Rio Arriba, northern McKinley, and Sandoval Counties (Armstrong and Mamet, 1977). The lower part of the Arroyo Peñasco Group is equivalent to the Leadville Limestone of northwest New Mexico and the Kelly Limestone of west-central New Mexico. The Arroyo Peñasco Group comprised of two formations (ascending): the Espiritu Santo and Terrero Formations. The Espiritu Santo consists of quartz conglomerates, sandstones, siltstones, and shales that grade upward into stromatolitic limestones, dolostones, and dedolomitic limestones. The Terrero Formation consists of brecciated limestones, oolitic limestones, and pelletal limestones (Armstrong and Mamet, 1977).

Pennsylvanian sedimentary rocks are present throughout most of northwest New Mexico. They attain a maximum thickness of 2,500 ft in north-central San Juan County (Jentgen, 1977). They thin to zero over the Zuni and southern Defiance uplifts. The Pennsylvanian section thins to less than 500 ft in central

McKinley County and thickens to 2,250 ft in eastern Cibola and western Valencia Counties (Kottlowski, 1959).

The Pennsylvanian section is comprised of two formations, the Sandia Formation and the Madera Formation, throughout most of northwest New Mexico (Fig. 10). The Sandia Formation rests unconformably on Mississippian sedimentary rocks. Where the Mississippian is absent, the Sandia rests unconformably on the Precambrian. The Sandia consists of marine shelf limestones, gray to green shales, and arkosic to quartzose shallow marine sandstones. The Madera consists of biostromal marine-shelf limestones, black, gray, and red shales, and arkosic to quartzose shallow-marine to deltaic sandstones (Kottlowski, 1959; Siemers, 1983).

In the northwest part of the San Juan Basin, the Pennsylvanian section is comprised of the Molas Formation and the Hermosa Group (Fig. 9; Wengerd and Matheny, 1959; Jentgen. 1977). The Molas Formation rests unconformably on the Mississippian and is equivalent to the lower part of the Sandia Formation. Maximum thickness is approximately 150 ft in northwest New Mexico. The Molas Formation is a clastic red-bed sequence that consists of brown to variegated siltstone, red shale, calcareous sandstone, and minor limestone lenses; limestone conglomerates are present in the lower part of the unit (Wengerd and Matheny,1959). According to Wengerd and Matheny (1959), the Molas was deposited as a terra rossa soil on top of the Mississippian carbonates.

The Hermosa Group consists of the Pinkerton Trail, Paradox, Honaker Trail, and the Rico Formations (Fig. 9; Wengerd and Matheny, 1958). The Pinkerton Trail Formation rests conformably

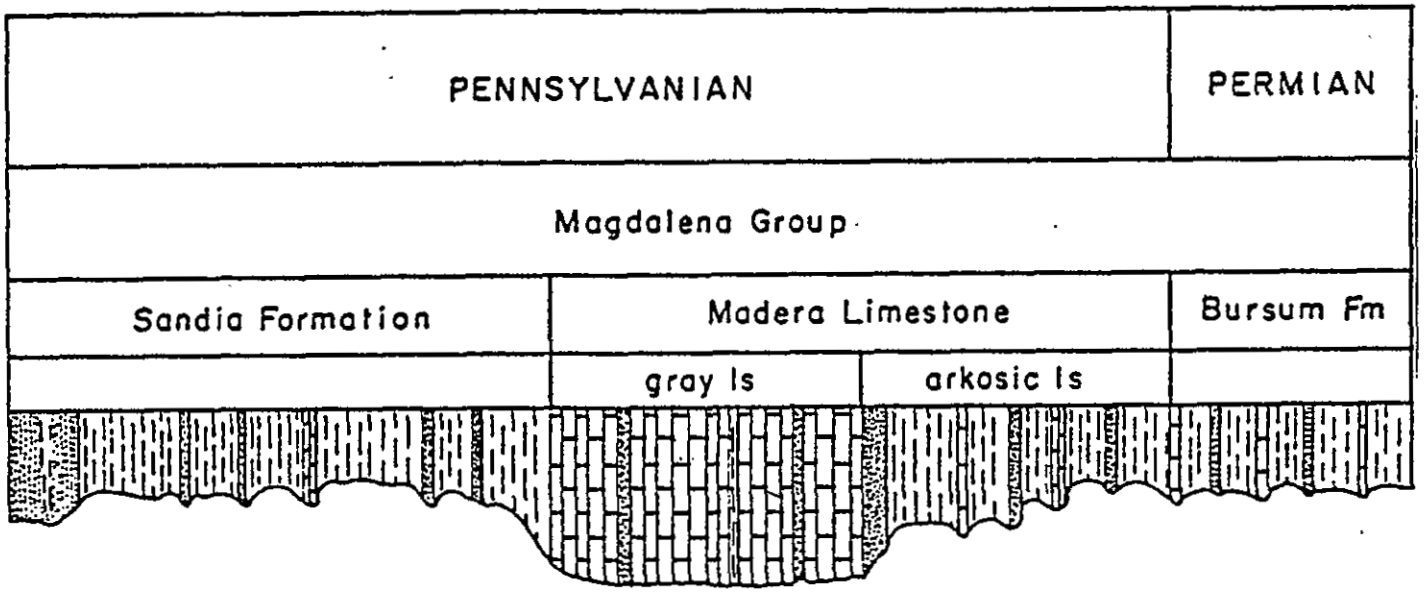

Figure 10. Generalized stratigraphic section of Pennsylvanian sedimentary rocks in west-central New Mexico (from Siemers, 1983).

on the Molas Formation. It is equivalent to the upper part of the Sandia Formation. Maximum thickness is approximately 200 ft. The Pinkerton Trail Formation consists of fine- to medium-crystalline fossiliferous limestones and light- to dark-gray silty shales.

The Paradox Formation conformably overlies the Pinkerton Trail Formation (Fig. 9; Wengerd and Matheny, 1958; Jentgen, 1977). It is equivalent to the uppermost part of the Sandia Formation and the lower part of Madera Formation. The Paradox Formation consists of conglomeratic and cherty limestones, siltstones, and arkosic sandstones; some of the limestones are biohermal. The Paradox Formation has been divided into five zones. In southeast Utah, the five zones are defined by black shale layers that occur between salt cycles. The cyclic stratigraphy is recognizable in the carbonates of the Paradox Formation in northwest New Mexico. The five zones are (ascending): Alkali Gulch, Barker Creek, Akah, Desert Creek, and Ismay.

The Honaker Trail Formation rests conformably on the Paradox Formation (Fig. 9; Wengerd and Matheny, 1958; Jentgen, 1977). It is equivalent to the upper part of the Madera Formation. The Honaker Trail Formation consists of massive cherty limestones and dolostones, calcareous gray shales, siltstones, and arkosic sandstones.

The Rio Formation conformably overlies the Honaker Trail Formation (Wengerd and Matheny, 1958; Jentgen, 1977). It is a transitional unit between marine sedimentary rocks of the Hermosa Group and nonmarine sedimentary rocks of the Cutler Formation

(Permian). The Rico Formation consists primarily of marine carbonates that grade upward into clastic nonmarine red beds.

In the San Juan Basin, the Abo Formation (Permian) overlies the Hermosa Group and Sandia Formation (Pennsylvanian; Fig. 9). The contact appears to be conformable in some places and disconformable in other places. The Abo is generally 1,200-1,600 ft thick in the San Juan Basin; it thins to 600 ft on the Defiance uplift and 200 ft on the Zuni uplift (Baars and Stevenson, 1977; Baars, 1962). The Abo is a red bed sequence; it consists of fluvial and lacustrine arkosic sandstones, conglomerates, and shales. The Abo grades northward into the arkosic Cutler red beds of Rio Arriba and northeast San Juan Counties.

The Yeso Formation (Permian) overlies the Abo Formation with apparent conformity (Fig. 9). The lower part of the Yeso is a sand-rich unit that has variously been called the Meseta Blanca Sandstone Member and the De Chelly Sandstone (Baars, 1962; Baars and Stevenson, 1977). The Meseta Blanca is 200-800 ft thick in northwest New Mexico. It consists of a fine-grained, cross-stratified, orange sandstone. In the San Juan Basin, it is an aeolian deposit. The aeolian sandstones grade southward into shallow-marine sandstones in Valencia, Torrance, and Socorro Counties. The Meseta Blanca grades northward into the arkosic Cutler redbeds of Rio Arriba and northeast San Juan Counties.

The upper part of the Yeso Formation conformably overlies the Meseta Blanca Member (Baars, 1962; Baars and Stevenson, 1977). The upper part of the Yeso Formation is 1,000 ft thick in

Valencia County. It thins northward and pinches out in southern San Juan and northern Sandoval Counties. The upper part of the Yeso consists of red to orange shales, fine-grained limestones, dolostones, and anhydrite and halite beds.

The Glorieta Sandstone (Permian) conformably overlies the Yeso Formation (Fig. 9; Baars, 1962). It is 200-300 ft thick in Valencia and Cibola Counties (Baars, 1962). It thins northward and pinches out in southern San Juan and southern Rio Arriba Counties (Baars, 1962; Baars and Stevenson, 1977). The Glorieta is a white, quartzose, well-sorted, fine- to medium-grained, shallow-marine sandstone.

The San Andres Formation (Permian) conformably overlies and intertongues with the Glorieta Sandstone (Baars, 1962). The San Andres attains a maximum thickness of 400 ft in southern Valencia and Cibola Counties where it consists mostly of marine limestones, dolostones, and anhydrites. It thins northward to 100 ft near the Zuni Mountains where it consists of limestones, dolostones, and Glorieta-like sandstones. Farther north, it pinches out in northern McKinley and central Sandoval Counties. North of the Zuni Mountains, the San Andres consists of a thin sequence of clastic red beds.

The Permian section is unconformably overlain by Triassic red beds in northwest New Mexico. Where the uppermost part of the Permian is represented by carbonate rocks of the San Andres Formation, a karsted topography has generally been developed beneath the unconformity.

Mesozoic Stratigraphy

(by V. T. McLemore and G. Roybal)

Triassic sedimentary rocks belonging to the Chinle Formation unconformably overlie the Permian rocks and consists of a thick section of maroon to red-brown shales with interbedded sandstones, conglomerate, and local thin limestone. The Chinle Formation is divided into five members (in ascending order by age): Shinarump, Monitor Butte, Petrified Forest, Owl Rock Members, and an unnamed upper member (Repenning et al., 1969; New Mexico Geological Society and NMBMMR, 1983). Correlations of the various members may be speculative unless a complete section of the Chinle Formation is exposed. The Chinle Formation varies from 1,100 to 1,700 ft thick in the Colorado Plateau (Repenning et al., 1969) and represents a continental sequence of floodplain and fluvial environments. Thin sandstone lenses of the Wingate Sandstone extend into western parts of San Juan County and overlie Chinle rocks. The precise age of the Wingate is uncertain, but presumed Triassic.

Jurassic sedimentary rocks overlie Triassic rocks and consist of the Entrada Sandstone, Todilto Formation, Summerville Formation, Bluff Sandstone, and the Morrison Formation (Fig. 11). The Entrada Sandstone consists of an eolian massive-bedded sandstone which is correlated with the Exeter Sandstone in eastern New Mexico and the Wingate Sandstone in western New Mexico and Arizona. The Todilto Formation overlies the Entrada Sandstone and consists of two informal members: a basal limestone and an upper gypsum-anhydite. When just the limestone is present, this unit is referred to as the Todilto Limestone. The

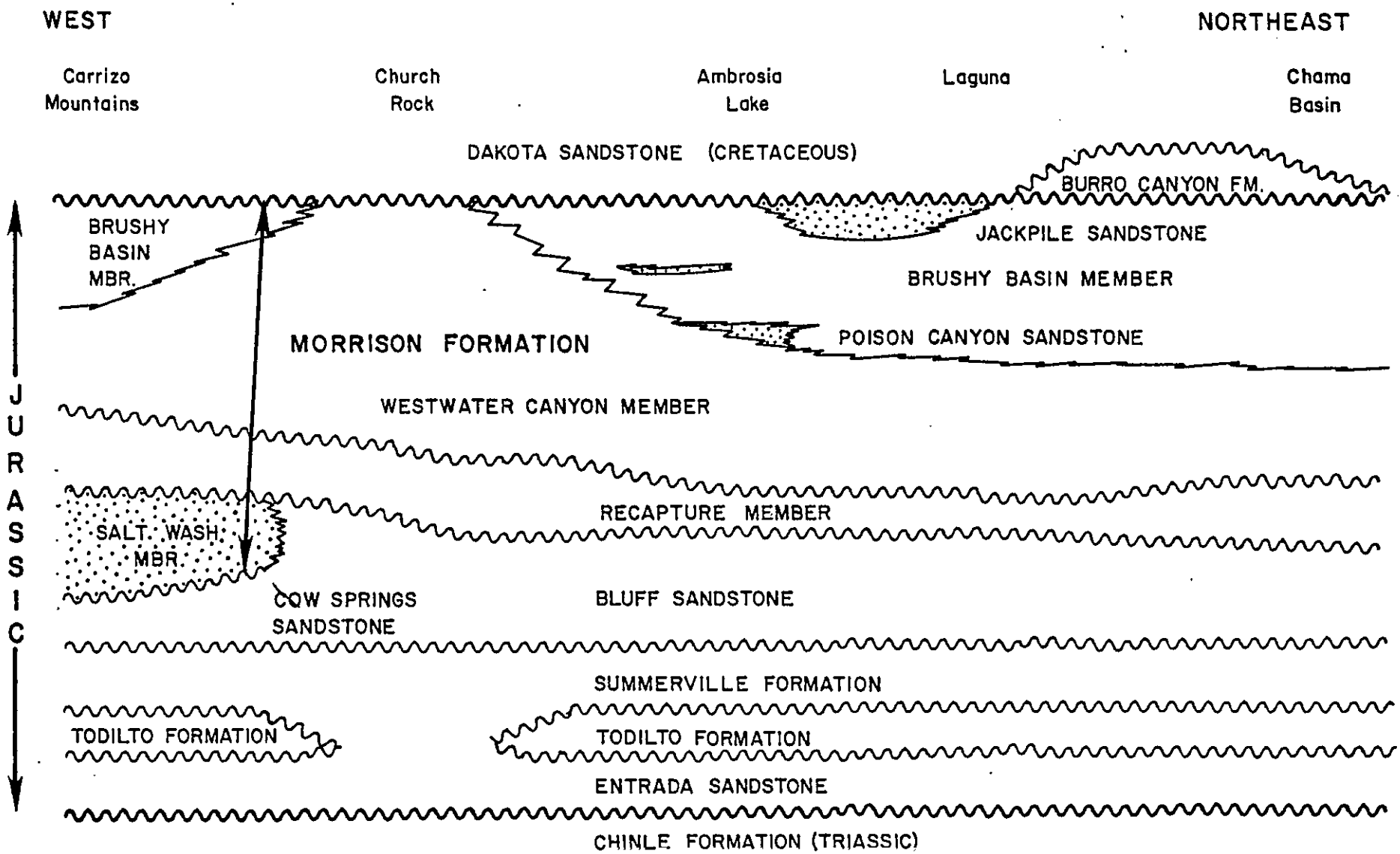

Figure 11. Stratigraphic correlations of Jurassic rocks in the San Juan Basin.

actual depositional environment of the Todilto Formation is controversial. Recent isotopic evidence favors a marine origin (Ridgley and Goldhaber, 1983) rather than a lacustrine origin.

The Summerville Formation and Bluff Sandstone overlie the Todilto Formation. These units consist of a sequence of thin-bedded to massive sandstone and gypsiferous shales.

The youngest Jurassic unit is the Morrison Formation which consists of four members: Salt Wash, Recapture, Westwater Canyon, and Brushy Basin. The Salt Wash Member is exposed only in western San Juan County and consists of sandstone with interbedded shale and siltstone. The Recapture Member consists of alternating maroon and gray shales, siltstones, and fine-grained sandstones (Hilpert, 1969; Green, 1975). Near the top of the Recapture, a disconformity separates the lower eolian-sabkha sequence from the overlying fluvial-lacustrine sequence (Green, 1975). The overlying Westwater Canyon Member consists of sandstones and shales deposited in fluvial and lacustrine environments. The Westwater Canyon Member is the major uranium bearing sequence, although orebodies occur throughout the Morrison. Shales of the Brushy Basin interfinger with the Westwater Canyon Member. Several sandstones occur in the Brushy Basin Member, including the Jackpile sandstone. The Poison Canyon sandstone, of economic usage, is defined as the lower Brushy Basin by industry, but is defined as a tongue of the Westwater Canyon Member by the U.S. Geological Survey. The Jackpile sandstone occurs at the top of the Morrison Formation in eastern San Juan Basin and is not exposed in San Juan County.

Cretaceous stratigraphy in San Juan County includes Early

upper to Middle upper Cretaceous rocks. Figure 12 is a cross section of these units in San Juan County, showing their general stratigraphic relationships. Cretaceous rocks of the San Juan Basin represent five major transgressive-regressive cycles (Molenaar, 1983b). Deposition of most of these sediments occurred during major regressions. Regressive sequences consist principally of marine mudstones, deltaic, interdeltaic, coastal-plain, and alluvial-plain deposits, whereas the major transgressions are characterized by marine shales (Molenaar, 1983b).

The first major transgressive sequence is represented by the Dakota Sandstone and the lower part of the Mancos Shale. The Dakota Sandstone is the oldest Cretaceous unit cropping out in San Juan County. It is located in the extreme western portion of the county, where it unconformably overlies the Jurassic Morrison Formation. The Dakota Sandstone consists mostly of tan, brown, and gray sandstone, with some brownish-gray shale and lenses of coal (O'Sullivan and Beikman, 1963). This unit represents a nonmarine fluvial sandstone, with carbonaceous paludal shale (Molenaar, 1977a, b). Thicknesses of this unit range from 140 ft near Toadlena to 205 ft in northwestern San Juan County (O'Sullivan et al., 1972).

Complex intertonguing occurs between the Dakota Sandstone and Mancos Shale above the main body of the Dakota Sandstone. Recognized tongues include, in ascending order: Clay Mesa Shale Tongue(?) of the Mancos, Paguate Sandstone Tongue of the Dakota, Whitewater Arroyo Shale Tongue of the Mancos, and the Twowells

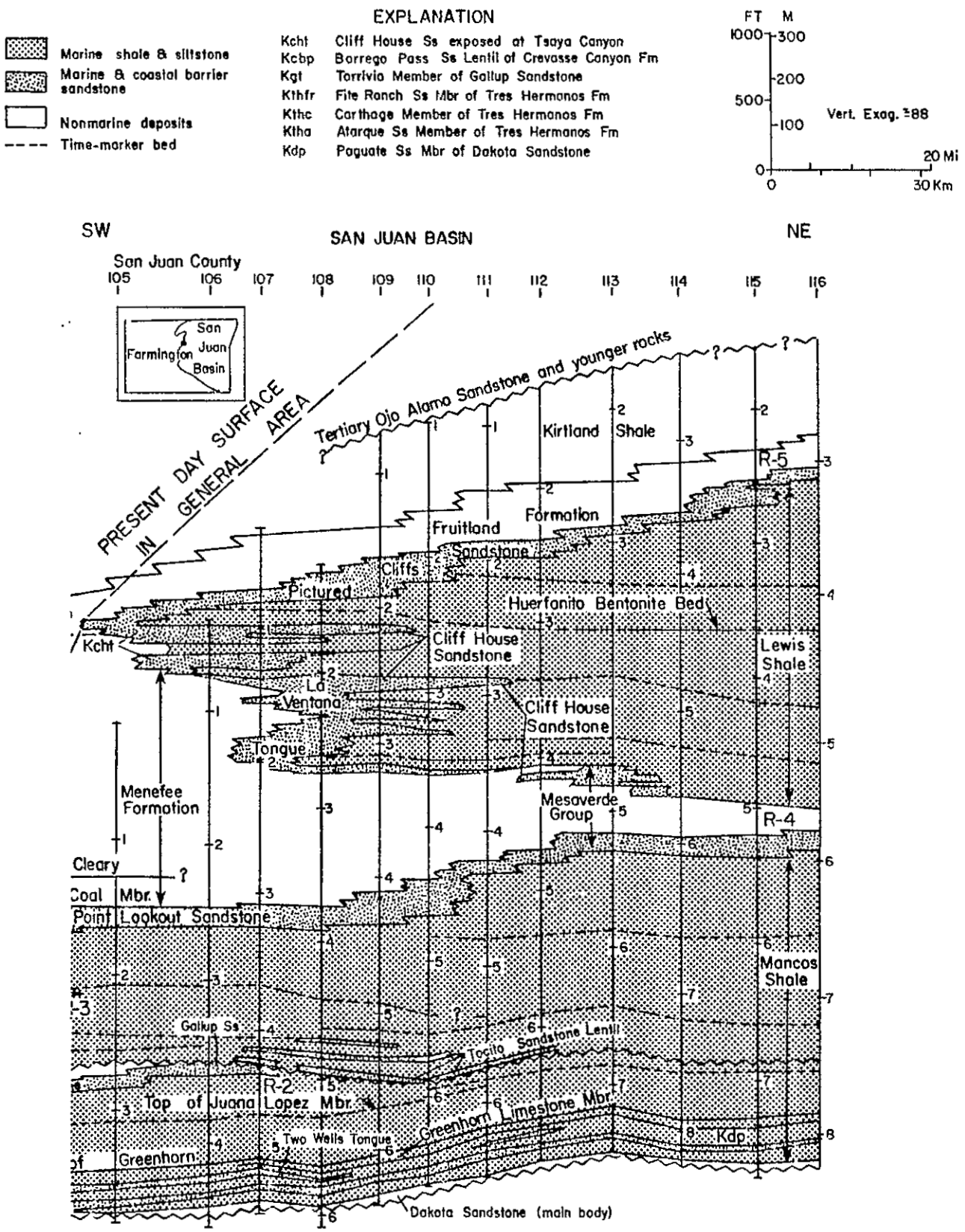

Figure 12. Stratigraphy of Cretaceous Rocks in San Juan County (from Molenaar, 1983a, b).

Sandstone Tongue of the Dakota. All of these tongues represent open marine deposits, with the sandstones representing shallow marine shelf deposits (Molenaar, 1977a).

The lower part of the Mancos Shale is composed predominantly of light to dark gray shale, with subordinate amounts of tan, fine-grained sandstone and siltstone (O'Sullivan and Beikman, 1963). This unit was deposited in open marine conditions. It ranges in thickness from 750 to 850 ft in San Juan County. In San Juan County the lower part of the Mancos Shale can be subdivided into three members: Graneros Shale(?), Greenhorn Limestone, and Juana Lopez Members (Molenaar, 1983a). The Graneros Shale Member is approximately 60 ft thick in the San Juan Basin. It is time-equivalent with the Hartland and the lower part of the Bridge Creek Members of the Greenhorn Limestone (Formation?) on the east side of the San Juan Basin (Molenaar, 1977a). The Greenhorn Limestone Member is 40 to 70 ft thick in the San Juan Basin, and according to Molenaar (1977b) it represents the time of maximum transgression, with the shoreline located 280 miles to the west-northwest. The Juana Lopez Member of the Mancos Shale is composed of thinly interbedded calcarenite with abundant fossil hash, sandstone, and shale (Molenaar, 1977b). In San Juan County, the Juana Lopez Member is unconformably overlain by Gallup Sandstone.

The first major regression and second major transgression are not well represented in San Juan County. However, the second major regression of the Cretaceous seaway is characterized by the Gallup Sandstone. This unit is composed of tan, brown, and pinkish-gray, very fine to very coarse grained sandstone, with

lesser amounts of brown carbonaceous shale, gray shale, and some thin coal seams (O'Sullivan and Beikman, 1963). According to O'Sullivan et al. (1972), the Gallup Sandstone is 135 ft thick near Toadlena, and thins into 25 ft in northwestern San Juan County.

The Tocito Sandstone Lentil is a transgressive offshore bar located seaward (NE) of the Gallup Sandstone. This unit can be distinguished from the Gallup Sandstone in that it is coarser-grained than the Gallup (Molenaar, 1977a, b).

The third major transgression-regression and fourth transgression are very poorly represented in San Juan County by limited exposures of the Crevasse Canyon Formation in the extreme southwestern portion of the county. During this transgressive-regressive-transgressive cycle the upper part of the marine Mancos Shale was being deposited in most of San Juan County. This unit is composed of gray and light-brownish gray shale, with several thin sandy zones and numerous limestone concretions (O'Sullivan et al., 1972). The upper part of the Mancos is approximately 1,400 ft thick near Shiprock and thins southward to 1,000 ft thick near Toadlena (O'Sullivan et al., 1972).

The fourth major regressive sequence is defined by the Point Lookout Sandstone and the lower part of the Menefee Formation (Molenaar, 1983a, b). The Point Lookout Sandstone is an extensive coastal-barrier sandstone (Molenaar, 1977a, b; 1983a, b). This unit consists of tan and brown, fine- to medium-grained quartzose sandstone with lesser amounts of gray sandy shale (O'Sullivan et al., 1972). It forms a gradational and

conformable contact with the underlying Mancos Shale and overlying Menefee Formation. In San Juan County the Point Lookout Sandstone ranges in thickness from 150 to over 200 ft.

The Menefee Formation is a highly variable 400-ft-sequence of tan and brown sandstone, gray and brown claystone and shale, and coal (O'Sullivan and Beikman, 1963). This regressive sequence represents nonmarine-paludal to alluvial-plain environments (Molenaar, 1977a, b). The Menefee Formation can be divided into three members: Cleary Coal Member, Allison Member, and an unnamed upper coal-bearing member. Coals occur with proximity to shorelines (Molenaar, 1977a, b), and the thickest accumulation of coals occurred during stillstands. The Allison Member is not coal bearing and is composed of stacked channel sands, with some fine-grained, overbank mudstones. The upper coal-bearing unit represents a turn-around and final transgression of the Cretaceous seaway.

The fifth major transgression is also characterized by the Cliff House Sandstone and Lewis Shale. The Cliff House Sandstone is a tan and gray, fine- to medium-grained, crossbedded sandstone, with varying amounts of interbedded gray shale (O'Sullivan and Beikman, 1963). The Cliff House Sandstone is 450 to 800 ft thick in San Juan County. The thickness of this unit and complex intertonguing between the Cliff House Sandstone and Lewis Shale suggest that many stillstands and minor regressions occurred throughout this major transgressive cycle (Molenaar, 1977a, b). The Cliff House Sandstone forms a gradational and conformable contact with the overlying Lewis Shale.

The Lewis Shale is a light to dark gray marine shale, with

numerous beds of bentonite. The bentonitic beds serve as marker beds, and can be correlated using resistivity, conductivity, and transit-time logs (Molenaar, 1977a, b). In San Juan County the Lewis Shale is 500 ft thick near the San Juan River and thins to nonexistence near Hunter Wash (O'Sullivan et al., 1972).

The fifth and final regression of the Cretaceous seaway is represented by the Fruitland Formation and Kirtland Shale. The Fruitland Formation represents nonmarine, lower coastal-plain deposits, which were located behind the Pictured Cliffs coastline (Molenaar, 1977a, b). Lithologically, this unit consists of a highly variable sequence of intercalated gray, brown, and black shale, yellowish-brown and tan crossbedded sandstone, and economic quantities of coal (O'Sullivan and Beikman, 1963). The upper part of the formation is much more shaly than the lower portion (O'Sullivan et al., 1972). The thickest coals are located where stillstands and minor transgressions occurred. The thickness of the Fruitland Formation thins southward from 420 ft near the San Juan River to 275 ft at Hunter Wash (O'Sullivan et al., 1972).

The Kirtland Shale conformably overlies the Fruitland Formation and unconformably underlies the Tertiary Ojo Alamo Sandstone and younger rocks. This unit represents upper coastal- or alluvial-plain deposits on the landward side of the Fruitland Formation coal swamps (Molenaar, 1977a, b). The Kirtland Shale can be divided into three units: the lower shale member, Fruitland Sandstone Member, and the upper shale member. The lower shale member consists of greenish-gray shale with a few

thin interbeds of sandstone and siltstone. The Farmington Sandstone Member contains tan, fine- to medium-grained fluvial sandstones, interbedded with shale (O'Sullivan and Beikman, 1963). The upper shale member is also composed of sandstones and greenish-gray shale. The Kirtland Shale thins from the northwest to southeast, with a maximum thickness of 1,950 ft (Molenaar, 1977a, b).

Cenozoic Stratigraphy

(by V. T. McLemore)

Cretaceous rocks in San Juan county are overlain unconformably by Tertiary and Quaternary sediments and volcanics. The Paleocene Ojo Alamo Sandstone overlies Cretaceous units and consists of sandstone, locally conglomeratic with shale lenses (Fassett and Hinds, 1971; O'Sullivan et al., 1972). The Nacimiento Formation interfingers with the Ojo Alamo Sandstone and consists of shales with lenticular beds of sandstone. The San Jose Formation overlies the Nacimiento Formation and consists of four members: Cuba Mesa, Regina, Llaves, and Tapicitos Members. At the base, the Cuba Mesa Member consists of conglomeratic sandstone with lenticular shale beds. The Regina Member overlies the Cuba Mesa and consists of variegated shales. The Llaves Member consists of sandstone with some shale and the Tapicitos Member consists of maroon shale and some sandstone.

In the Chuska Mountains of western San Juan County, the Chuska Sandstone crops out and is about 1,000 ft thick, consisting predominantly of eolian and fluvial sandstones (Blagbrough, 1968). The age is uncertain and may be as old as

Eocene (Gregory, 1917, p. 15, 81) or as young as Pliocene (Repenning et al., 1958, p. 124).

The end of Tertiary times was marked by volcanic eruptions of predominantly basaltic, basaltic-andesite, and kimberlitic composition (Callaghan, 1951; Allen and Balk, 1954). The laccolith of Carrizo Mountain is a diorite porphyry. Most of the other igneous necks, plugs, dikes, and laccoliths between the Four Corners and Gallup are trachybasalt (flow rocks) or minettes (intrusive rocks). The volcanic necks are perhaps the most striking, with Shiprock as the most famous. These necks and plugs, called diatremes, are composed of tuff-breccia and numerous inclusions. Minette dikes transect the plugs (Callaghan, 1951; Shomaker, 1956). Over 300 diatremes occur in the Hopi Buttes volcanic field of Arizona and New Mexico.

Quaternary alluvial and colluvial deposits represent the youngest rocks in San Juan County. Landslide deposits occur in the Chuska Mountains (Blagbrough, 1968). Typical sand and silt deposits occur along drainages.

MINING HISTORY

(by K. B. Brown and V. T. McLemore)

Mining in San Juan County began in prehistoric times. A large number of minerals have been discovered at a site in Chaco Canyon, which was occupied from about 750 to 1150 A.D. Although many were obviously imported (notably copper and lead minerals), local stones include aragonite and calcite (as crystals, tufa, chalk, and limestone), gilsonite and jet (asphaltum and lignite), goethite and limonite (ochre), kaolinite, pyrite, sulfur, and quartz (chalcedony, flint, jasper, agate, petrified wood, and rock crystal). These were utilized for ornamental objects, jewelry, pigment, and tools (knives, scrapers, projectile points, etc.; Northrop, 1959).

Records of more recent mining began in 1912, when the Kirtland limestone was used as lime for local consumption. Coal probably has been produced since the railroad days, beginning in the 1880's. The first oil and gas wells were completed in 1921. Other commodities have been produced since (Table 2).

The area has never been a producer of precious or base metals; but vanadium, known in the Carrizo Mountains (Fig. 13) since the early 1920's, was first mined during World War II. It had been recovered as a byproduct of uranium production from 1950 to the early 1980's.

Commercial uranium production began in 1948; however, a minor amount of uranium was produced from vanadium tailings prior to 1948, as a source of uranium for the atomic weapons developed during World War II (Chenoweth, 1985).

Sand and gravel, crushed stone, and pumice have been

TABLE 2 - Summary of production of various commodities in San Juan County. Value is in dollars at time of production. NA - not available; Est. - estimated figures.

Commodity	Reported production	Value (dollars)	Years produced	Comments	References
Oil	181,474,801 bbls		1921-1984	----	New Mexico Oil and Gas Engineering Comm. (1985)
Gas	9,307,867,537 thousand ft^3		1921-1984	----	New Mexico Oil and Gas Engineering Comm. (1985)
Coal	129,000,000 tons (est.)	$1,700,000,000 (est.)	1898-1984	----	Nickleson (in press) N.M. State Inspector of Mines (1903-1983)
Uranium	492,045 lbs		1948-1983	plus 40,000 lbs recovered by Manhattan Project in 1942-1945	USAEC and DOE records
Vanadium	2,239,242 lbs	NA	1942-1969	additional ore produced 1972-1983, but not available	USAEC records
Iron pigment	NA	NA	1930's	----	U.S. Bureau of Mines (1932-1984)
Crushed and Dimension Stone					
Helium	----	----	----	produced with natural gas	----
Humate	NA	NA	present	----	----
Sand and gravel	15,544,000 tons	15,410,000	1957-1975	additional production was not available	New Mexico State Inspector of Mines (1903-1983)
Sulfur	NA	NA	1953-1985	----	----

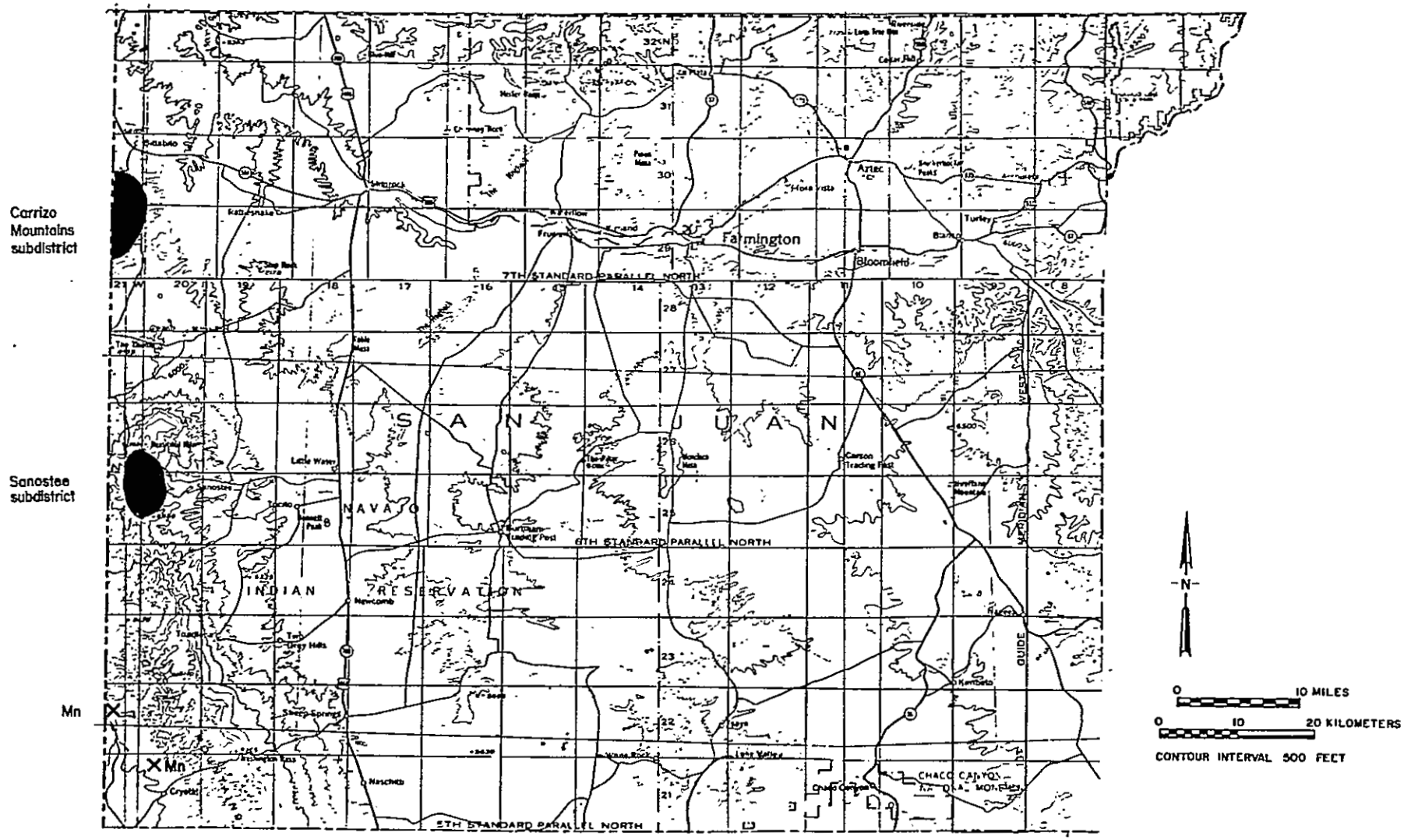

Figure 13. Mining districts and areas in San Juan County, New Mexico.

produced as aggregate in San Juan County. The U.S. Bureau of Mines (1932-1984) reports a total of $15,878,165 worth of aggregate from 1956 through 1983. Clay of unspecified type was produced in 1958; continuous production began in 1971.

Sulfur, a byproduct of natural gas pumped from Barker field, was recovered in 1953 and 1954. Helium production from Beautiful Mountain district near Shiprock began in 1954 and has been continuous through 1983. Some gemstones were produced in 1955, 1959, 1960, and 1961.

Present mining claims, leases, and exploration activity

Hundreds of mining claims cover portions of San Juan County (Fig. 14), although much of the western part of the county is on the Navajo Indian Reservation. Despite the large number of mining claims and leases, only a few mines are currently producing (Fig. 15). Operating coal mines include San Juan, La Plata, Black Diamond, Navajo, De-Na-Zin, and Gateway. Several sand and gravel quarries are still active. Oil and gas are currently being produced and most federal land open to petroleum leasing has been leased and exploration continues.

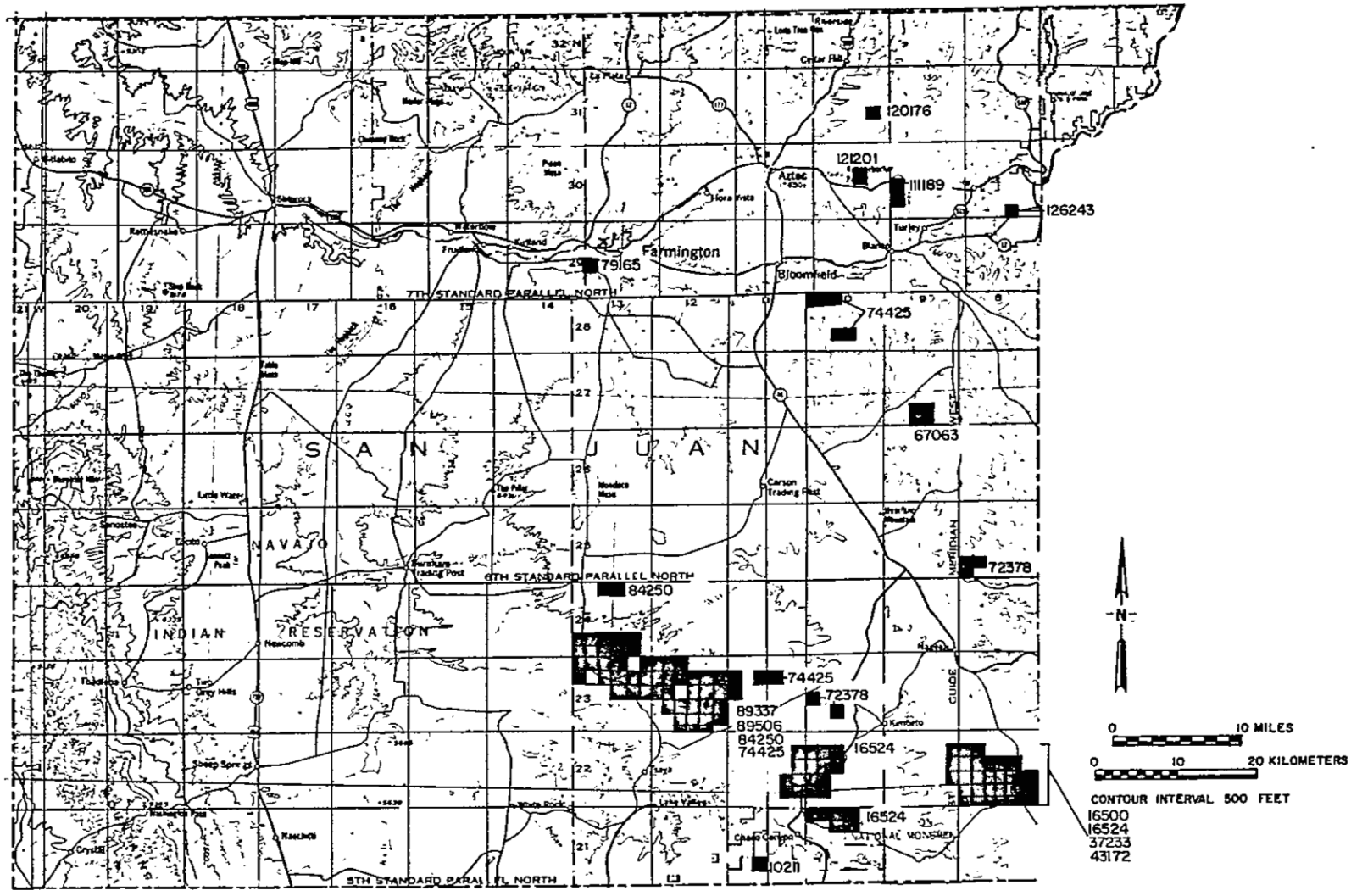

Figure 14. Sections with active mining claims in San Juan County, New Mexico.

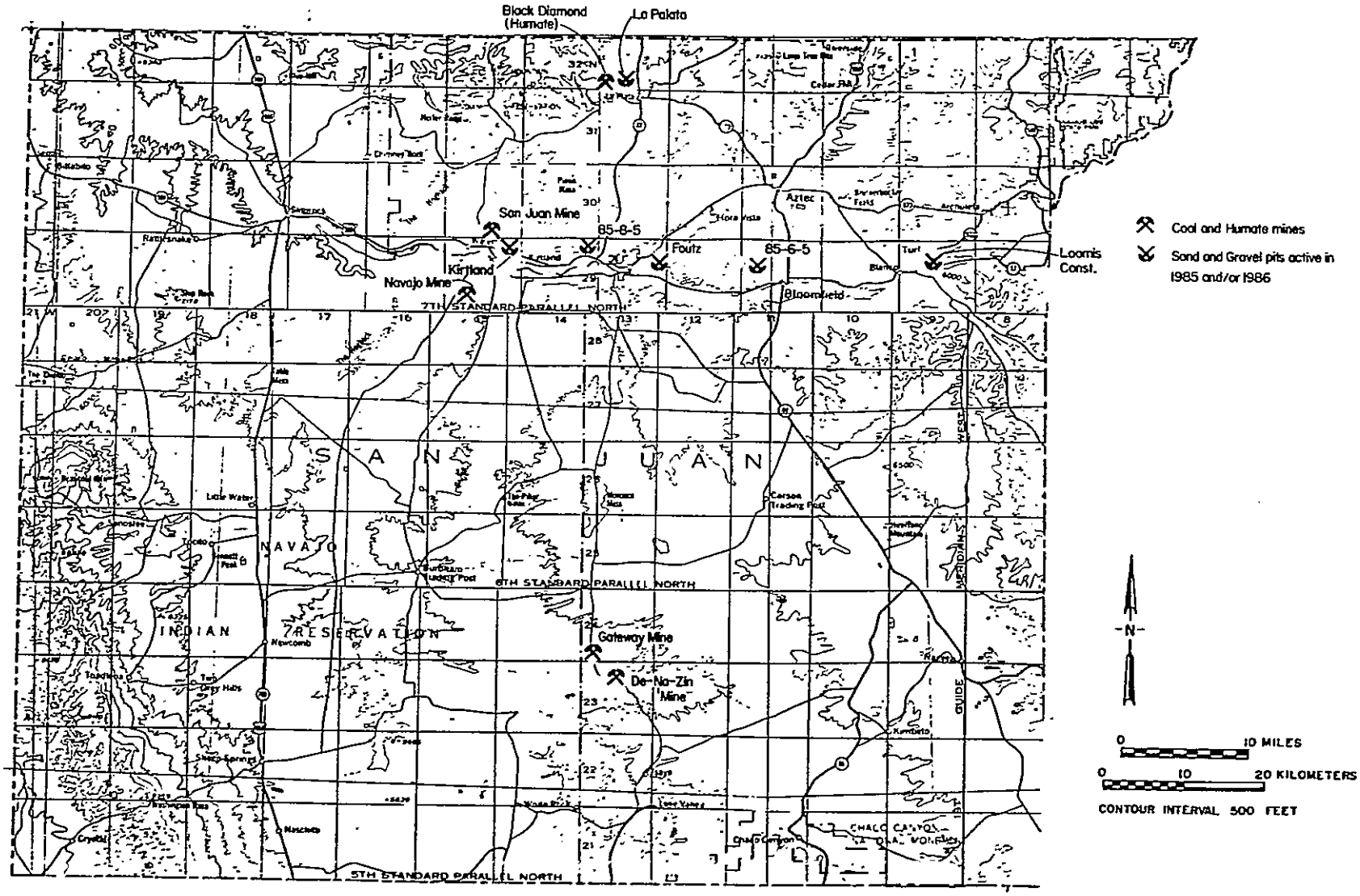

Figure 15. Active mines in San Juan County, New Mexico.

DESCRIPTION OF KNOWN MINERAL DEPOSITS OR RESOURCE POTENTIAL

Petroleum Resources

(by R. F. Broadhead)

PETROLEUM PRODUCTION HISTORY

The Aztec Oil Syndicate No. 1 State, located in sec. 16, T. 30 N., R. 11 W., was completed in 1921 and was the first commercial gas well in San Juan County (Matheny, 1978d). It produced from the Farmington Sandstone Member of the Kirtland Shale (Cretaceous). The Midwest No. 1 U.S.G., located in sec. 36, T. 32 N., R. 14 W., was also completed in 1921 and was the first commercial oil well in San Juan County. Since 1921, approximately 180 million BO (Barrels of Oil) and 9 trillion cubic ft of natural gas have been produced from San Juan County (Table 3). In 1984, San Juan County was the fourth largest producer of oil and the largest producer of natural gas of all counties in New Mexico (Table 3).

KNOWN PETROLEUM OCCURRENCES

Oil and gas have been produced from 127 designated oil and gas pools in San Juan County (Figs. 16-27; Appendices 2, 3). In addition, 161 wells have produced petroleum from accumulations that have not been formally designated as oil or gas pools by the New Mexico Oil Conservation Division (Appendices 2, 4). Most oil and natural gas produced in San Juan County is recovered from Cretaceous reservoirs (Table 4). Oil and gas have also been produced from Tertiary, Jurassic, Pennsylvanian, Mississippian, and Devonian reservoirs.

Geologic production information from each of the 127

Table 3 - Petroleum production in New Mexico by county.

County	Oil production, bbls		Gas production, thousand ft^3	
	cumulative	1984 annual	cumulative	1984 annual
McKinley	23,327,449	668,039	1,586,070	119,064
Mora	0	0	97,281	0
Rio Arriba	52,618,543	3,460,911	4,229,607,919	144,990,376
Sandoval	5,200,229	477,128	27,530,651	3,047,462
San Juan	181,474,801	2,783,062	9,307,867,537	289,662,842
Chaves	109,351,819	2,013,897	245,181,639	58,015,489
Eddy	539,698,364	10,572,034	3,223,020,344	184,469,542
Guadalupe	362	259	0	0
Lea	2,971,857,857	57,858,428	4,695,427,623	262,066,612
Roosevelt	65,362,760	1,401,465	31,212,465	4,385,171

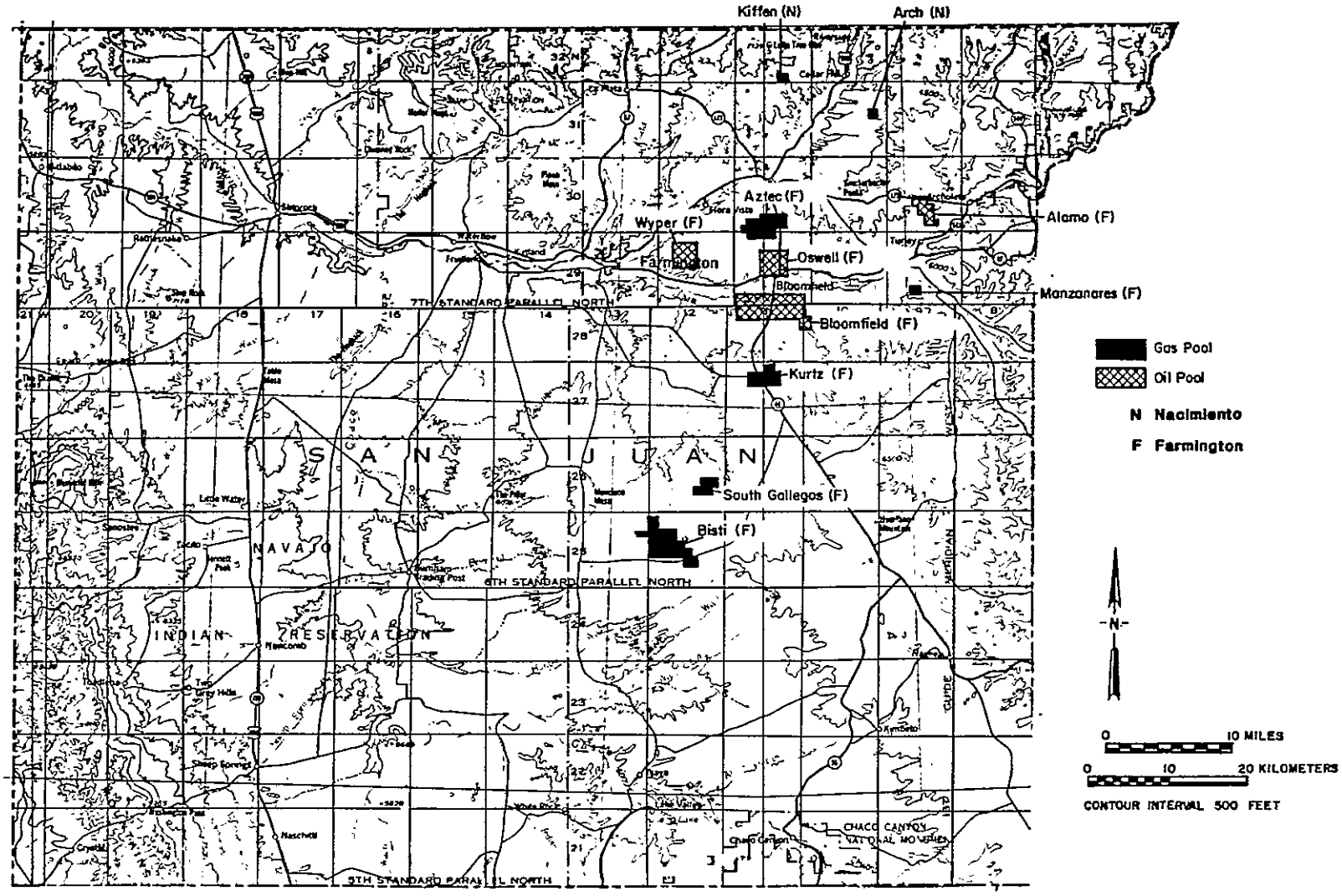

Figure 16. Designated oil and gas pools in San Juan County that produce from the Nacimiento Formation (Teritary) and the Farmington Sandstone Member of the Kirtland Shale (Cretaceous).

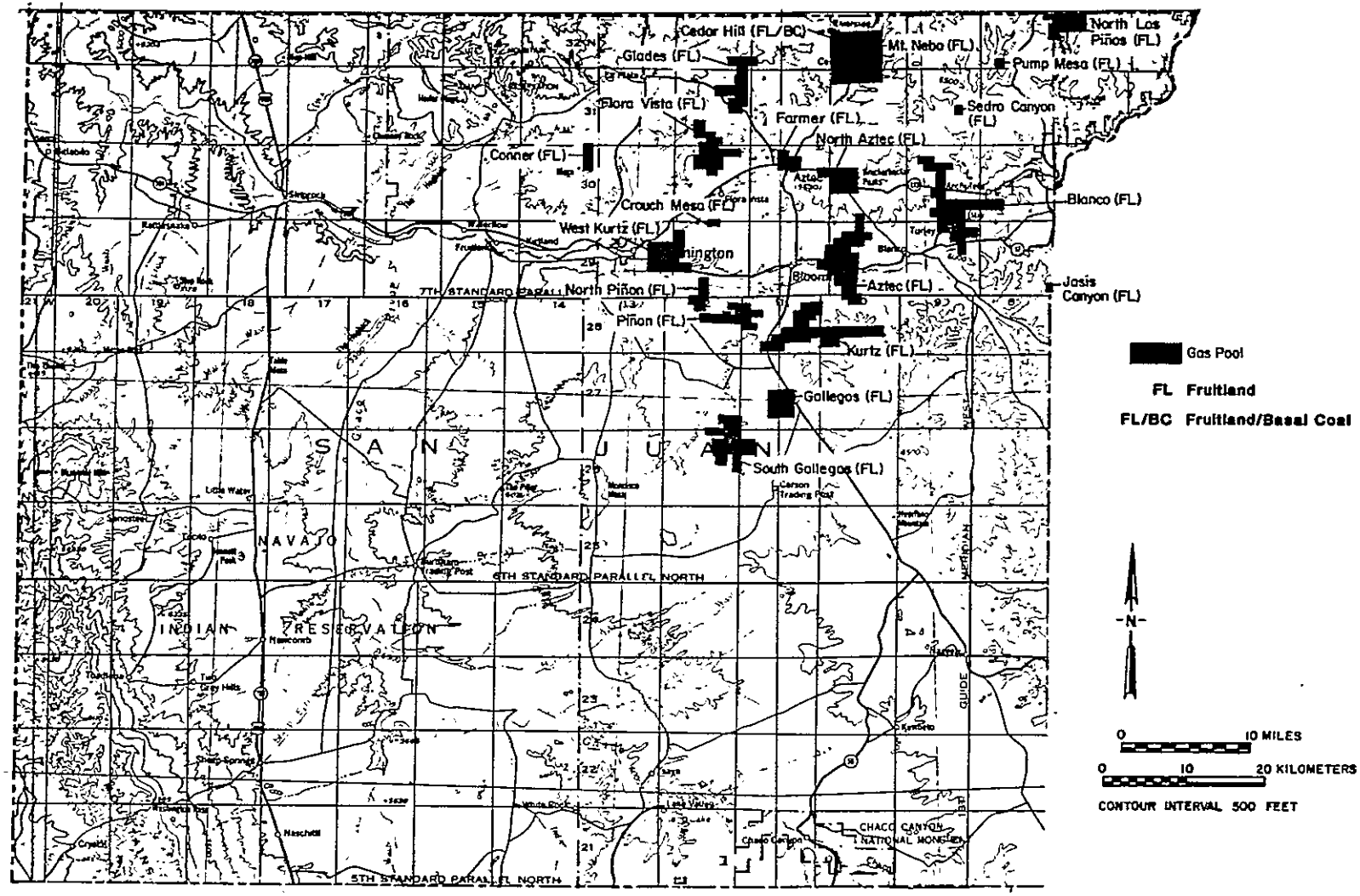

Figure 17. Designated oil and gas pools in San Juan County that produce from the Fruitland Formation.

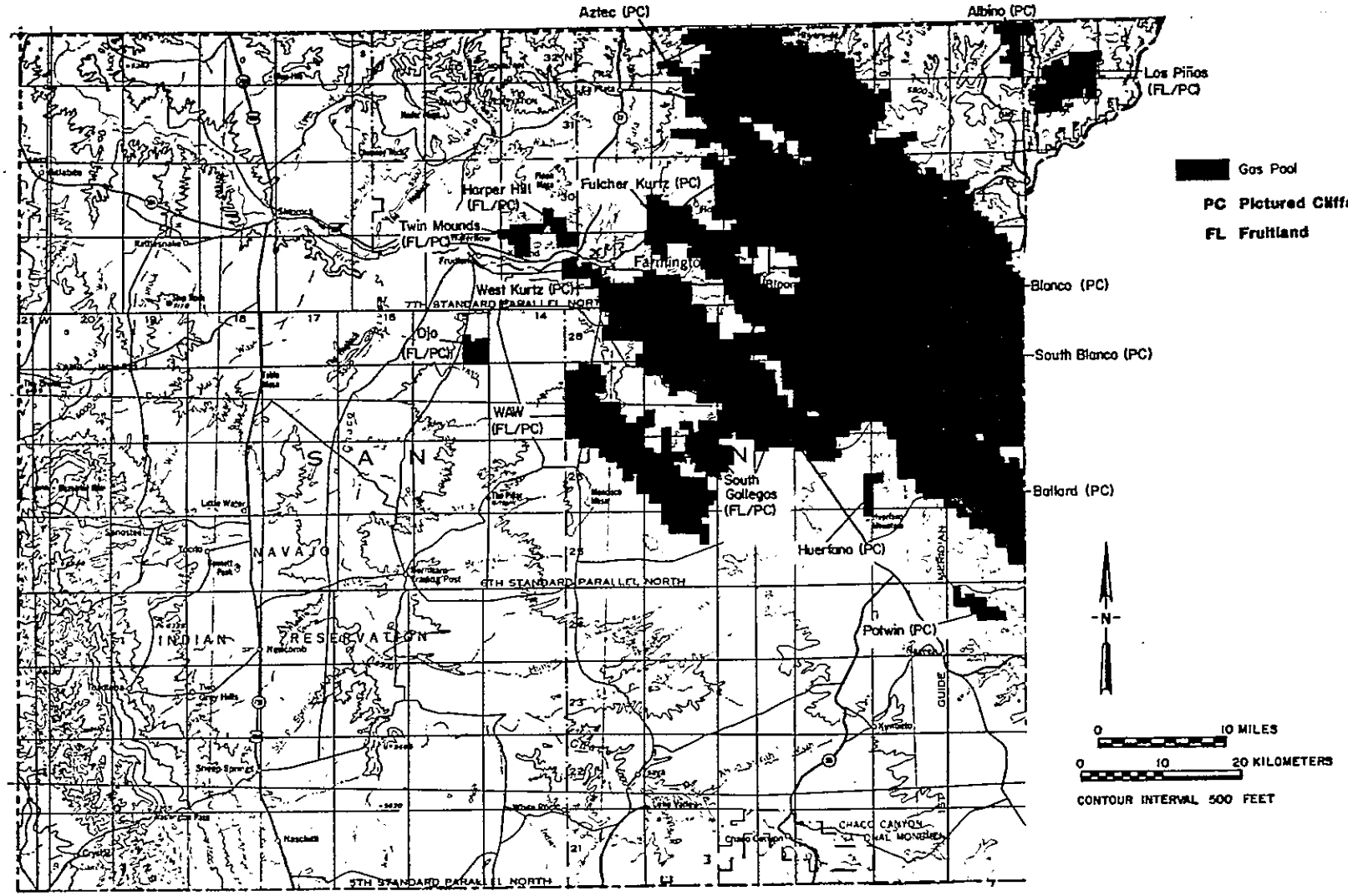

Figure 18. Designated oil and gas pools in San Juan County that produce from the Pictured Cliffs Sandstone or a combination of the Pictured Cliffs Sandstone and the Fruitland Formation (Cretaceous).

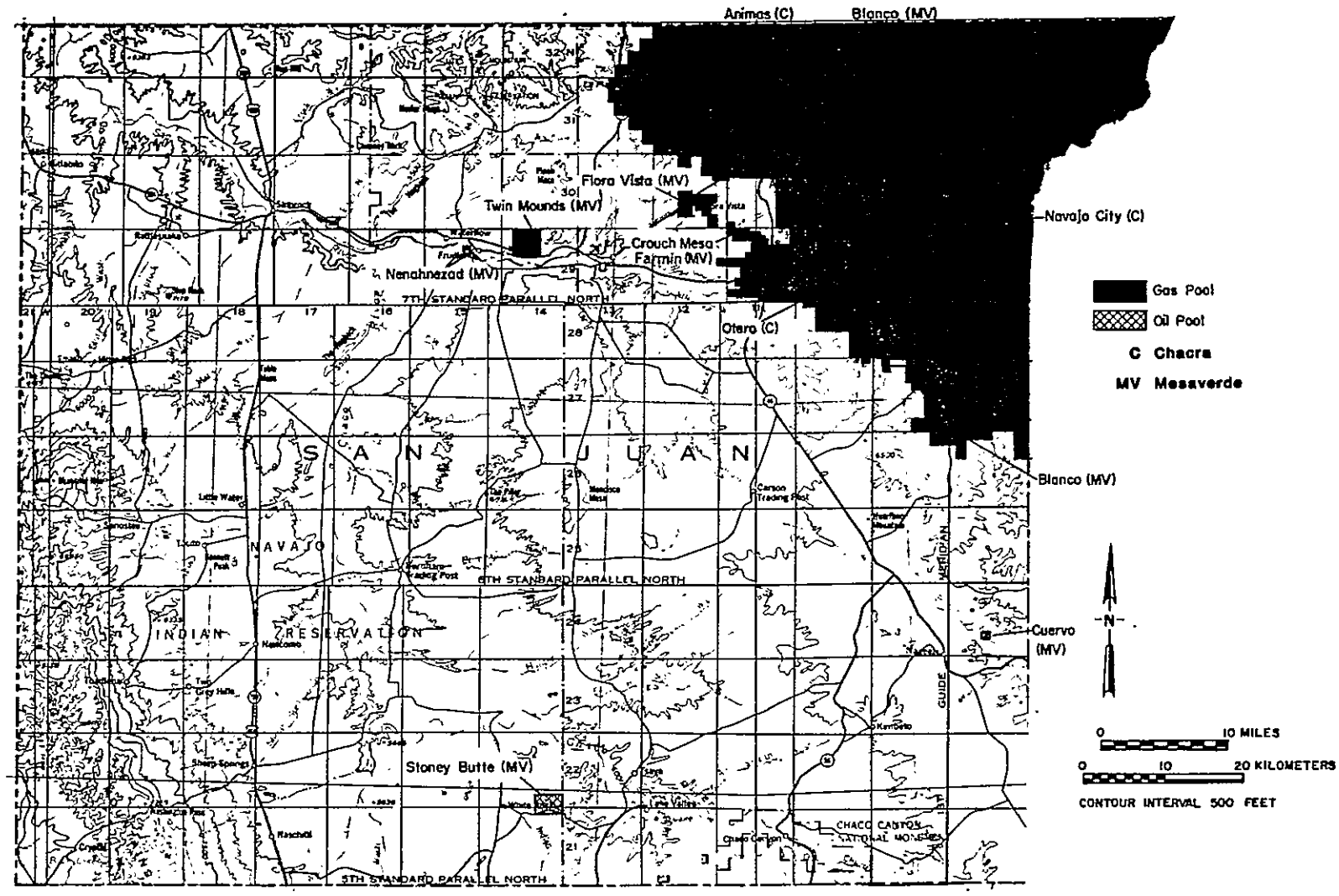

Figure 19. Designated oil and gas pools in San Juan County that produce from the Chacra producing interval or the Mesaverde Group (Cretaceous).

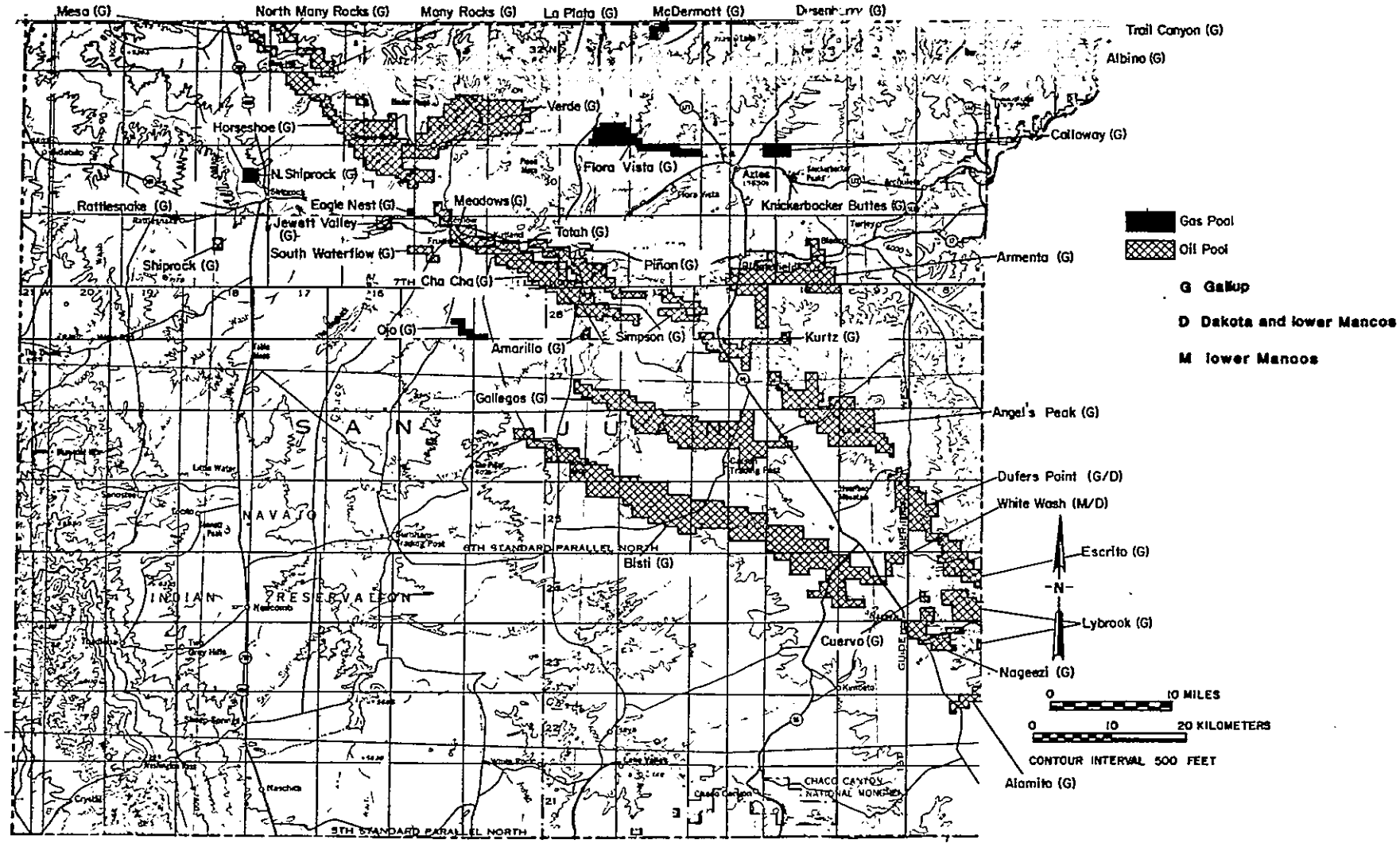

Figure 20. Designated oil and gas pools in San Juan County that produce from the Gallup sandstone (actually basal Niobrara or Tocito sands) or a combination of the Gallup sandstone, lower part of the Mancos Shale, and the Dakota Sandstone (Cretaceous).

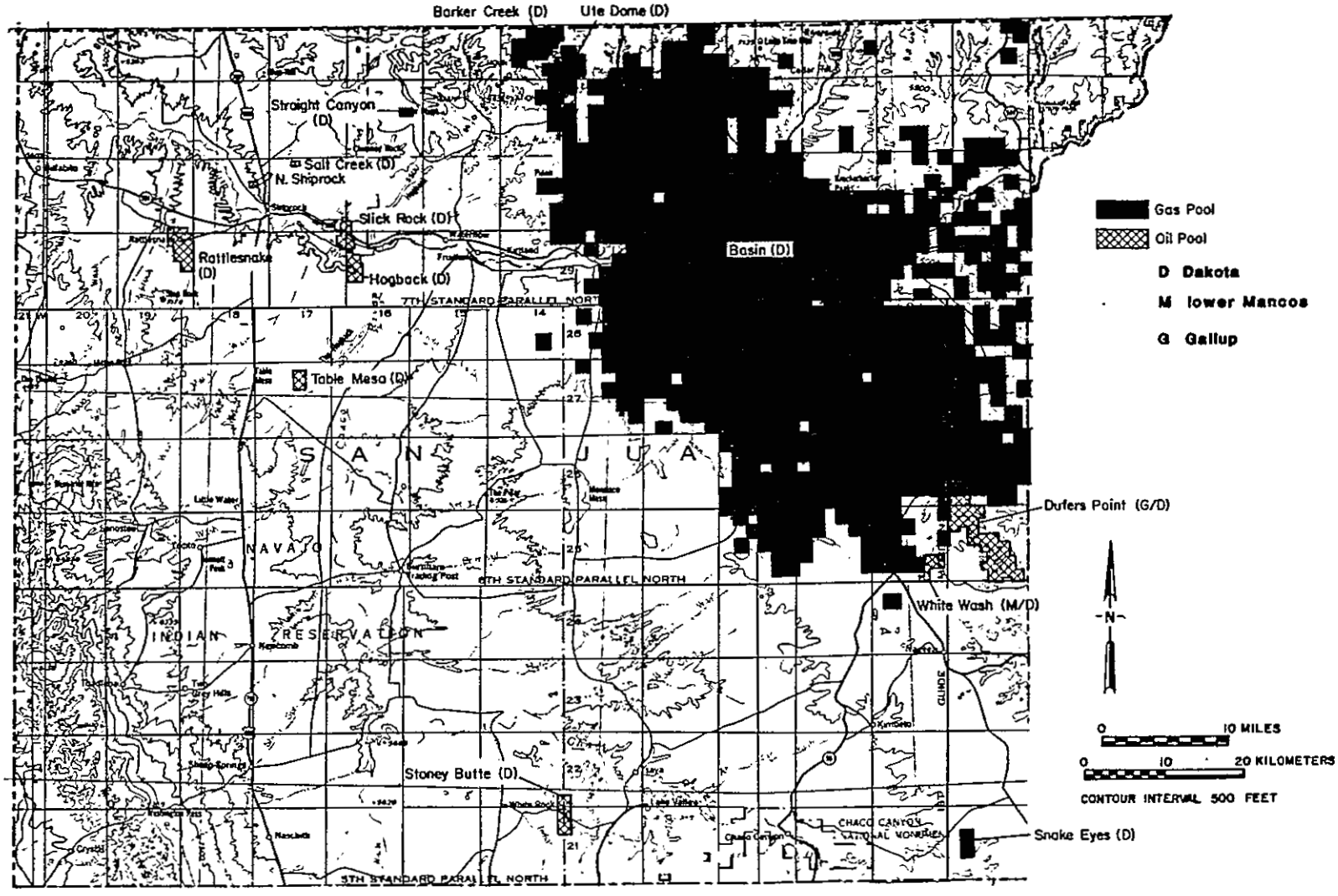

Figure 21. Designated oil and gas pools in San Juan County that produce from the Dakota Sandstone (Cretaceous) or the Dakota and either the lower Mancos shale or the Gallup Sandstone.

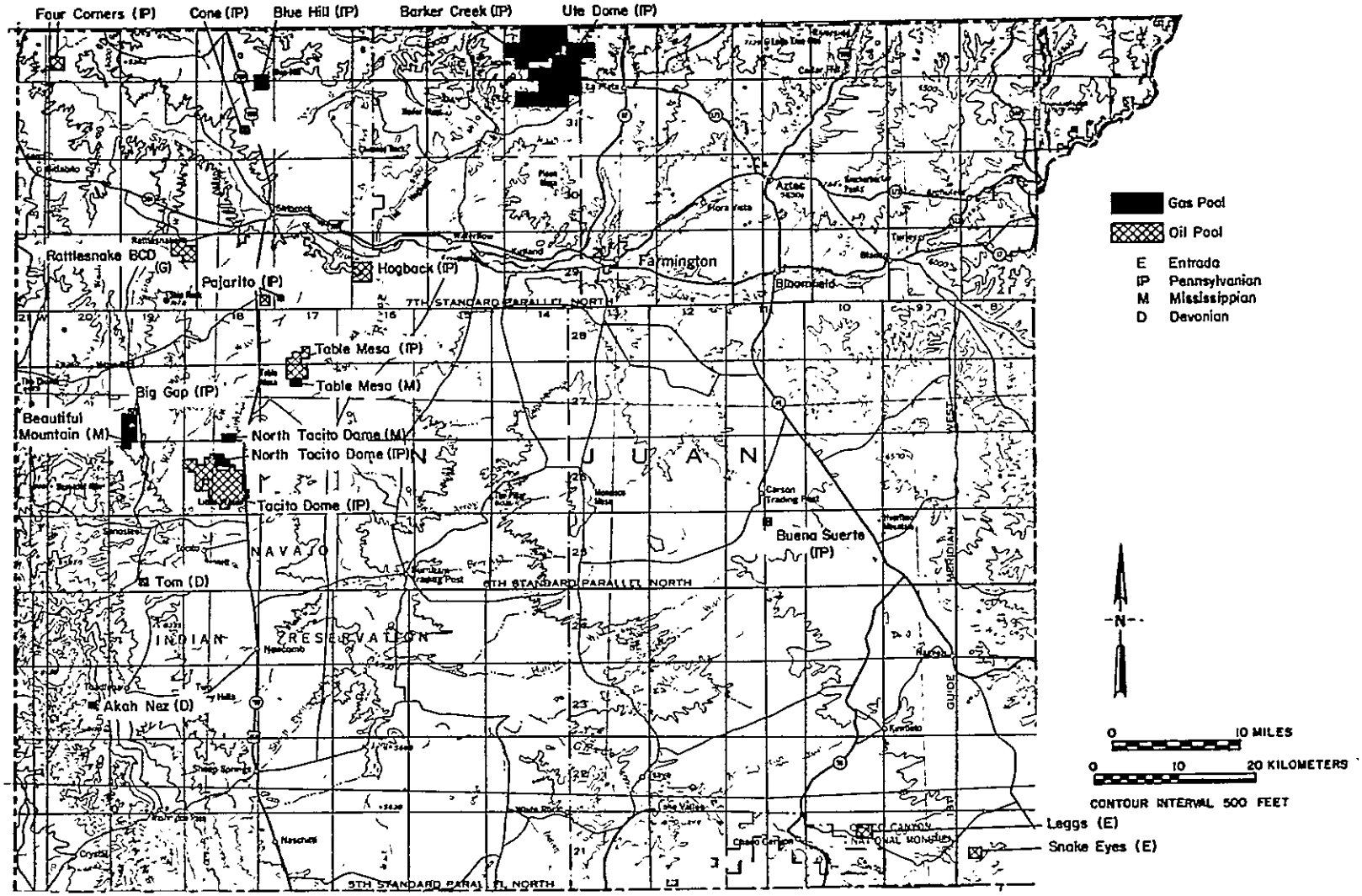

Figure 22. Designated oil and gas pools in San Juan County that produce from the Entrada Sandstone (Jurassic), and reservoirs of Pennsylvanian, Mississippian, and Devonian age.

TABLE 4 - Cumulative production of oil and gas in San Juan County by stratigraphic unit, to 12/31/84. Gas to does not include casinghead gas produced from oil wells. Data compiled from New Mexico Oil & Gas Engineering Committee (1985).

Stratigraphic unit	Oil, bbls	Percentage of oil produced in San Juan County	Gas, million ft^3	Percentage of gas produced in San Juan County
Nacimiento (Tertiary)	480	0.0003	35	0.0004
Ojo Alamo (Tertiary)	4,264	0.002	0	0
Farmington (Cretaceous)	111,469	0.06	1,174	0.01
Fruitland (Cretaceous)	36,002	0.02	62,158	0.66
Pictured Cliffs (Cretaceous)	283,399	0.16	1,654,354	17.61
Chacra (Cretaceous)	8,448	0.01	32,754	0.35
Mesaverde (Cretaceous)	21,482,887	11.84	4,560,017	48.54
Upper Mancos (Cretaceous)	17,496	0.01	0	0
Gallup (Cretaceous)	105,306,532	58.02	9,758	0.10
Gallup, lower Mancos, and Dakota (Cretaceous)	581,615	0.32	83,905	0.89
Dakota (Cretaceous)	38,754,465	21.35	2,802,031	29.83
Entrada (Jurassic)	450,885	0.25	0	0
Pennsylvanian	14,338,536	7.90	182,589	1.94
Mississippian	105,338	0.06	5,479	0.06
Devonian	18,804	0.01	0	0
reservoirs of undetermined stratigraphic position	8,633	0.01	0	0

formally designated pools is summarized in Appendix 3. Pool locations are shown in Figs. 16-22 and in Appendix 2. Geology and production information of wells that produce from undesignated pools is summarized in Appendix 4. Locations of those wells are shown in Appendix 2.

Nacimiento Pools--Two gas pools, the Arch and the Kiffen, produce from the Nacimiento Formation (Tertiary) in San Juan County (Appendix 3; Fig. 16). Production from the Nacimiento is relatively minor and is confined to the northeast part of the county, where the Nacimiento has not been removed by erosion. Nacimiento reservoirs are fluvial channel sands. Nacimiento pools have produced 0.0003% of the oil and 0.0004% of the gas produced in San Juan County.

Ojo Alamo Pool--One well produces oil from an undesignated pool in the Ojo Alamo Formation (Tertiary). The Lee M. Crane No. 1 N Martin, located in sec. 34, T. 30 N., R. 11 W., has produced 4,264 BO from the Ojo Alamo. Nacimiento gas is sweet and contains more than 90% hydrocarbons.

Farmington Pools--Nine pools have produced oil and gas from the Farmington Sandstone Member of the Kirtland Shale (Cretaceous) in San Juan County (Appendix 3, Fig. 16). Five of those pools are gas pools: Aztec, Bisti, Kutz, Manzanares, and South Gallegos. Four of those pools are oil pools: Alamo, Bloomfield, Oswell, and Wyper. In addition, five wells have produced from undesignated Farmington gas pools. Farmington reservoirs have produced 0.06% of the oil and 0.01% of the gas

produced in San Juan County.

Farmington pools are stratigraphic traps. Reservoirs are lenticular channel sandstones. A typical Farmington sandstone lense is 3 ft thick and 30 ft wide (Fassett et al., 1978). In pools with more than one well, production is from several sand lenses. Net pay is generally 10-20 ft. Porosity is variable and ranges from a low of 3% in some pools to a high of 30% in other pools. Farmington oil is light; oil gravity is 50° API or more. Farmington gas is more than 98% hydrocarbons.

Farmington reservoirs generally contain small, uneconomical oil and gas reserves (Fassett and Hinds, 1971). Although pressures in some Farmington reservoirs are initially high, they decline rapidly when production starts. The rapid pressure declines are probably caused by the small size of the reservoirs. Generally, operators do not test gas shows in the Farmington.

Fruitland Pools--Twenty pools produce gas from the Fruitland Formation (Cretaceous) in San Juan County (Appendix 3, Fig. 17). No Fruitland oil pools have been discovered in San Juan County. Minor amounts of oil are produced from the gas pools. Fruitland gas pools are: Aztec, North Aztec, Blanco, Conner, Crouch Mesa, Farmer, Flora Vista, Gallegos, South Gallegos, Glades, Jasis Canyon, Kutz, West Kutz, North Los Piños, Mt. Nebo, Piñon. North Piñon, Pump Mesa, and Sedro Canyon. Fruitland gas pools are generally small. However, some Fruitland pools are large and produce substantial volumes of gas; the Aztec Fruitland pool has 65 productive wells and has produced 33.6 BCF (billion ft^3) gas. Fruitland reservoirs have produced 0.66% of the gas and 0.02% of

the oil produced from San Juan County (Table 4).

Most Fruitland pools are stratigraphic traps. The reservoirs are lenticular channel sandstones. Both sandstones and coals are reservoirs in some pools. Generally, Fruitland pools have 10-20 ft of net pay. Reservoirs have 10-20% porosity. Permeability is generally less than one millidarcy; because of the low permeability, the reservoirs must be artificially fractured before gas can be produced economically. Oil gravity is high, 56-59° API (Fassett and Hinds, 1971). The hydrocarbon content of Fruitland gas ranges from 92.58% to 98.97%. Fruitland gas is sweet.

Pictured Cliffs and Fruitland-Pictured Cliffs Pools--Fifteen pools produce gas from the Pictured Cliffs Sandstone (Cretaceous) in San Juan County (Appendix 3; Fig. 18). No Pictured Cliffs oil pools have been discovered in San Juan County. Pictured Cliffs gas pools are: Albino, Aztec, Ballard, Blanco, South Blanco, Fulcher-Kutz, South Gallegos, Harper Hill, Huerfano, West Kutz, South Los Piños, Ojo, Potwin, Twin Mounds, and WAW. The South Gallegos, Harper Hill, South Los Piños, Ojo and WAW pools produce from both the Pictured Cliffs Sandstone and the Fruitland Formation (Cretaceous). In addition, 12 wells have produced from undesignated Pictured Cliffs gas pools (Table 5, Appendix 4). The Pictured Cliffs and Fruitland-Pictured Cliffs pools have produced 17.61% of the gas and 0.16% of the oil produced in San Juan County (Table 4).

Pictured Cliffs gas pools are stratigraphic traps. Pictured Cliffs reservoirs are northwest-trending, lenticular, bar and

TABLE 5 - Number of oil and gas wells producing from undesignated pools, San Juan County, New Mexico. Data compiled from New Mexico Oil & Gas Engineering Commission (1985) and unpublished records of New Mexico Bureau of Mines and Mineral Resources.

Stratigraphic unit	Oil Wells		Gas Wells	
	Active	Abandoned/Inactive	Active	Abandoned/Inactive
Ojo Alamo Ss (Tertiary)	1	0	0	0
Farmington Ss (Cretaceous)	2	3	5	2
Farmington Ss & Fruitland Fm (Cretaceous)	0	0	1	0
Fruitland Fm (Cretaceous)	0	0	22	5
Fruitland Fm & Pictured Cliffs Ss (Cretaceous) & Ojo Alamo Fm (Tertiary)	0	0	1	0
Pictured Cliffs Ss (Cretaceous)	0	0	5	7
Chacra producing interval (Cretaceous)	0	0	8	1
Mesaverde Gp (Cretaceous)	0	0	1	0
Gallup (basal Niobrara) sandstone (Cretaceous)	29	28	1	0
Gallup (basal Niobrara) sandstone & lower Mancos Sh (Cretaceous)	1	6	0	0
Gallup (basal Niobrara) sandstone & Greenhorn Ls (Cretaceous)	4	0	0	0
Gallup (basal Niobrara) sandstone & Dakota Ss (Cretaceous)	2	1	0	0
Hospah (true Gallup) sandstone (Cretaceous)	0	2	0	0
lower Mancos Sh (Cretaceous)	0	5	0	0
Greenhorn Ls (Cretaceous)	2	2	1	0
Graneros Sh (Cretaceous)	0	1	0	0
Dakota Ss (Cretaceous)	0	1	0	0
Pennsylvanian	0	3	0	2
Mississippian	0	0	1	1
Reservoirs of undetermined stratigraphic position	0	4	0	0

beach sandstones that are sealed by shale. The stratigraphic trapping may be modified by hydrodynamic mechanisms (Silver, 1968). Pictured Cliffs reservoirs are fine- to medium-grained, well-sorted sandstones. Reservoirs have an average porosity of 15-20% and permeabilities that range from 0.5 to 5 millidarcies. Average net pay for individual gas pools ranges from 10 to 40 ft. Because of low permeability, Pictured Cliffs reservoirs must be artificially fractured before gas can be produced economically. The hydrocarbon content of Pictured Cliffs gas ranges from 95.92 to 99.35%. Pictured Cliffs gas is sweet.

Mesaverde Pools--Seven pools produce oil and gas from the Mesaverde Group (Cretaceous) in the San Juan Basin (Appendix 3; Fig. 19). There are four Mesaverde gas pools: Blanco, Crouch Mesa, Flora Vista, and Twin Mounds. There are three Mesaverde oil pools: Cuervo, Stony Butte, and Nenahnezad. The gas pools occur in the northeast part of San Juan County. The oil pools occur southwest of the gas pools. In addition, one well produces gas from an undesignated pool in the Mesaverde Group (Table 5, Appendix 4). Mesaverde reservoirs have produced 48.54% of the gas and 11.84% of the oil in San Juan County. The Blanco Mesaverde Pool has produced 48.27% of the gas produced in San Juan County.

Most Mesaverde pools are combination stratigraphic and structural traps. Mesaverde pools are generally formed by updip pinchouts of sandstones on a structural nose or monocline. The stratigraphic and structural trapping may be modified by hydrodynamic mechanisms (Silver, 1968). Mesaverde reservoirs are

sandstones in the Point Lookout and Cliff House Sandstones and in the Menefee Formation (Pritchard, 1973). Mesaverde sandstones are fine to very fine grained, poorly to moderately sorted, and well cemented (Finley, 1984). Mesaverde pools have an average net pay of 15-200 ft. Porosity ranges from 4 to 14%. Average permeability of Cliff House sandstones is 0.5 millidarcy; average permeability of Point Lookout sandstones is 2 millidarcies (Pritchard, 1973). Because of low permeability, most Mesaverde reservoirs must be artificially fractured before oil and gas can be produced economically. Oil gravity varies from 30° API to 60° API. Mesaverde gas is sweet. Blanco Mesaverde gas contains 98.88% hydrocarbons.

Chacra Pools--Three pools produce gas from the Chacra producing interval (Cretaceous) in San Juan County (Appendix 3; Fig. 19). The Chacra producing interval has been defined by the New Mexico Oil Conservation Division as that part of the Lewis Shale that is 0-750 ft below the Huerfanito bentonite. The La Ventana Tongue of the Cliff House Sandstone is part of the Chacra producing level. The Chacra producing interval was deposited only in the northeast part of San Juan County. Chacra gas pools are: Animas, Navajo City, and Otero. No Chacra oil pools are known to exist in San Juan County, although a small amount of oil is produced from the Animas and Otero pools (Table 4, Appendix 3). In addition to the three designated gas pools, nine wells have produced gas from undesignated Chacra pools (Table 5, Appendix 4). Chacra reservoirs have produced 0.35% of the gas and 0.01% of the oil produced in San Juan County.

Chacra pools have either stratigraphic or fracture trapping mechanisms. The Animas Chacra pool is a stratigraphic trap. It is formed by a lenticular, northwest-trending coastal sandstone in the La Ventana Tongue. The sandstone reservoir is 86 ft thick and is sealed by shale. Net pay is 42 ft of sandstone with 4-6% porosity (Hoppe, 1978b).

The Otero Chacra pool is also a stratigraphic trap. It is formed by a northwest-trending coastal sandstone that is sealed by shale. The reservoir is a fine-grained shaly sandstone, 10-45 ft thick. Net pay is 20-30 ft of sandstone with 6-12% porosity (Hoppe, 1978c).

The Navajo City Chacra pool is a fracture trap. The pool is located on the northwest limb of a northeast-plunging anticlinal nose. The reservoir is a fractured shale (Meibos, 1983a). Fracturing may have been caused by flexure of the shale reservoir.

Chacra reservoirs in San Juan County have low permeability. They must be artificially fractured before gas can be produced economically.

Gallup (basal Niobrara) Pools--Thirty-six pools produce oil and gas from the Gallup Sandstone in San Juan County (Appendix 3; Fig. 20). There are 28 Gallup oil pools in the county: Alamito, Amarillo, Angel's Peak, Armenta, Bisti, Cha Cha, Cuervo, Escrito, Gallegos, Horseshoe, Jewet Valley, Knickerbocker Buttes, Kutz, La Plata, Lybrook, Many Rocks, North Many Rocks, Meadows, Mesa, Nageezi, Piñon, Rattlesnake, Shiprock, Simpson, Totah, Verde, and South Waterflow. There are nine Gallup gas pools in San Juan

County: Albino, Calloway, Dusenberry, Eagle, Flora Vista, McDermott, Ojo, North Shiprock, and Trail Canyon. In addition, 58 wells have produced oil and gas from undesignated Gallup pools (Table 5, Appendix 4).

The true Gallup Sandstone is not the reservoir for the Gallup pools. The reservoirs are transgressive, offshore basal Niobrara (Tocito) sand bodies that are younger than the true Gallup Sandstone (Molenaar, 1973); they are separated from the true Gallup by the basal Niobrara unconformity and generally occur basinward (northeast) of the true Gallup. The basal Niobrara sand bodies are generally referred to as "Gallup" because of early miscorrelations in the San Juan Basin. Gallup reservoirs have produced 58.02% of the oil and 0.10% of the gas produced in San Juan County (Table 4).

Most Gallup oil pools are stratigraphic traps. The traps are formed by northwest-trending, linear, offshore-marine sand bars that are sealed by Mancos Shale. Pool boundaries (Fig. 20) coincide with the areal extent of the northwest-trending, offshore sand bars. At some pools, anticlinal flexure has modified the fundamental stratigraphic trapping mechanism. At other pools, the basal Gallup reservoirs are northwest-trending, strike-valley marine sands (McCubbin, 1969). Productive Gallup is 10-500 ft thick; net pay is 5-80 ft of fine-grained sandstone with 5-20% porosity. Permeability of Gallup reservoirs ranges from 0.5 to 200 millidarcies. Gallup reservoirs with higher permeability produce economic quantities of oil and gas without artificial stimulation. Gallup reservoirs with low permeability must be artificially fractured before economic quantities of oil

and gas can be produced. Reservoirs at the McDermott and Nageezi pools have had their matrix permeability enhanced by natural fractures.

Four Gallup oil pools in San Juan County are fracture traps: Albino, Armenta, La Plata, and Verde. Reservoirs are low-permeability fractured shales, siltstones, and sandstones. The reservoirs are tighter basinward equivalents of the more permeable Gallup sandstones that lie along the main Gallup producing trend. Fractures coincide with structural flexures.

Gallup oil has a gravity of 38-42° API in most pools and is uniform along the main productive Gallup trend. Only southwest of the main trend is Gallup oil appreciably different; oil gravity is 65° API at the Ojo pool, 51° API at the Shiprock pool, and 59-67° API at the Rattlesnake pool. Gallup oil is paraffin based and has a low sulfur content. Gallup gas is sweet and contains approximately 98% hydrocarbons.

Dakota and Lower Mancos Pools--Fourteen pools produce oil and gas from the Dakota Sandstone (Cretaceous) in San Juan County (Appendix 3; Fig. 21). There are five Dakota gas pools in San Juan County: Barker Creek, Basin, Snake Eyes, Straight Canyon, and Ute Dome. There are nine Dakota oil pools in San Juan County: Hogback, Rattlesnake, Salt Creek, North Shiprock, Slick Rock, Stony Butte, Table Mesa, Dufers Point, and White Wash. Dakota production from the Dufers Point pool is commingled with production from the Gallup (basal Niobrara) sandstone and the Graneros Shale. Dakota production from the White Wash pool is commingled with production from the lower part of the Mancos

Shale. The Basin Dakota pool produced from both the Dakota and the Graneros; most production probably comes from the Dakota. In addition to the designated pools, one well has produced from an undesignated Dakota oil pool (Table 5, Appendix 4). Three wells have commingled production from undesignated pools in the Gallup sandstone and the Dakota. Eleven wells have produced oil and gas from the lower Mancos Shale, the Greenhorn Limestone, or the Graneros Shale.

Dakota reservoirs have produced 29.83% of the gas and 21.35% of the oil produced in San Juan County (Table 4). Lower Mancos reservoirs, some of which have production commingled with the Dakota and the Gallup, have produced 0.89% of the gas and 0.32% of the oil produced in San Juan County.

Most Dakota pools in San Juan County are structural traps. Anticlines are the predominant trapping mechanism. Faults may modify trapping on the anticlines. The Basin Dakota gas pool appears to be a combination stratigraphic and hydrodynamic trap. Reservoirs are northwest-trending, lenticular beach sandstones (Hoppe, 1978d). Presumably, shale partially seals the Dakota sandstones. Hydrodynamic force exerted by water entering the Dakota on the basin margins is thought to help contain gas within the basin (Silver, 1968; Deischl, 1973). The internal stratigraphy of the Dakota will control the distribution of the best pay zones within the Basin Dakota pool.

In the Basin Dakota pool, the Dakota Sandstone consists of marine to non-marine shales and fine-grained sandstones and minor conglomerates and coals. The Graneros Shale consists of marine

shale, siltstone, and fine-grained sandstone. Net pay in the Basin Dakota pool is 50-70 ft; pay sands have 5-15% porosity. Matrix permeability is low, 0.1-0.25 millidarcy, but is enhanced by natural fractures. The natural fractures must be present if economic quantities of gas are to be extracted (Hoppe, 1978d). Basin Dakota reservoirs must also be artificially fractured in order to produce economic quantities of gas.

Other Dakota pools have as much as 300 ft of gross pay, which consists mostly of fine-grained sandstones, shales, and some coal. Net pay is generally 10-40 ft of lenticular marine to non-marine sandstones. Average porosity of pay sands varies from 15 to 20% and permeability is highly variable, ranging from less than 1 millidarcy to as much as 1,500 millidarcies. The lenticularity of Dakota sandstones stratigraphically modifies the structural entrapment of oil and gas in the Dakota. Gravity of Dakota oil varies from 40 to 76° API. Generally, Dakota oil is paraffin based and has a low sulfur content. Dakota gas is sweet and consists of more than 95% hydrocarbons.

Entrada Pools--Two oil pools, Snake Eyes and Leggs, produce from the Entrada Sandstone in San Juan County (Appendix 3; Fig. 22). No Entrada gas pools are known to exist in San Juan County, and no gas is produced from the oil pools. The Entrada has produced 0.25% of the oil produced in San Juan County (Table 4). Known Entrada pools are confined to the southeasternmost part of San Juan County. Most Entrada production in the San Juan Basin is from northwest Sandoval County and northeast McKinley County. Most Entrada pools are small and have only one or two producing

wells.

All Entrada pools in San Juan County and in the San Juan Basin are stratigraphic traps. The Entrada is a fine- to medium-grained, well-sorted, rounded to subrounded aeolian sandstone (Reese, 1978c). Oil is trapped by closure resulting from burial of aeolian sand dunes; impervious anhydrites and limestones of the overlying Todilto Formation (Jurassic) seal the Entrada reservoirs (Vincelette and Chittum, 1981). Regionally, the Entrada is 100 ft thick. It is approximately 200 ft thick in Entrada oil pools where aeolian dunes are present. Average pay in the Entrada is 20-35 ft in San Juan County. Pay is confined to the uppermost part of the reservoir; that part of the Entrada below the pay zone is saturated with water. Porosity is approximately 25%. Permeability is more than 600 millidarcies; both vertical and horizontal permeability are high. The high vertical permeability has resulted in a large volume of water being produced with the oil; after the initial few months of production, water-to-oil volume ratios of produced fluids are 100:1, or greater. At most pools, the produced water is reinjected into the Entrada; this helps maintain reservoir pressure. Natural reservoir pressures are low and Entrada oil must be pumped.

Entrada oil is paraffin based and has a low sulfur content. Oil gravity is approximately 30^{o} API and is uniform throughout the San Juan Basin.

Pennsylvanian Pools--Thirteen pools produce oil and gas from Pennsylvanian stratigraphic units in San Juan County (Appendix 3;

Fig. 22). Nine Pennsylvanian oil pools are known to exist in San Juan County: Big Gap, Buena Suerte, Cone, Four Corners, Hogback, Pajarito, Rattlesnake, Table Mesa, and Tocito Dome. Four Pennsylvanian gas pools are known to exist: Barker Creek, Blue Hill, North Tocito Dome, and Ute Dome. Five wells have produced oil and gas from undesignated Pennsylvanian pools (Table 5, Appendix 3). Most Pennsylvanian oil and gas is produced from the Barker Creek zone of the Paradox Formation. The Cone oil pool produces from the Desert Creek zone of the Paradox Formation. The Four Corners oil pool produces from the Ismay zone of the Honaker Trail Formation. Stratigraphic terminology of Pennsylvanian units in the western San Juan Basin has been discussed by Baars et al. (1967). Pennsylvanian reservoirs have produced 7.90% of the oil and 1.94% of the gas produced in the San Juan Basin (Table 4).

Most Pennsylvanian oil and gas pools in San Juan County are combination structural-stratigraphic traps (Appendix 3). Most pools are partially or wholly formed by anticlines or structural noses; faults that occur in the folds form boundaries of some pools. Several Pennsylvanian pools in San Juan County also have a stratigraphic component of trapping. The reservoirs are generally limestones; coral and algal bioherms are the porous zones. Net pay ranges from 10 to 120 ft. Porosity generally varies from 8 to 15% and permeability varies from 2 millidarcies to more than 100 millidarcies. Most operators acidize the limestone reservoirs to increase permeability. Some operators artificially fracture the reservoirs to increase permeability.

Gravity of Pennsylvanian oil varies from 41 to 63° API.

Composition of Pennsylvanian gases varies greatly among pools. Gas at the Hogback, North Tocito Dome, Table Mesa, and Ute Dome pools contains substantial amounts of non-flammable components, chiefly nitrogen, carbon dioxide, and helium.

Mississippian Pools--Four gas pools produce from the Leadville Limestone (Mississippian) in San Juan County (Appendix 3; Fig. 21): Beautiful Mountain, Hogback, Table Mesa, and North Tocito Dome. All three pools are on the Four Corners platform (Fig. 23). Two wells have produced gas from undesignated gas pools in San Juan County (Table 5, Appendix 4). No Mississippian oil pools are known to exist in San Juan County, but small quantities of oil have been produced 0.06% of the gas and 0.06% of the oil produced in San Juan County (Table 4).

Each Mississippian pool has a different trapping mechanism. The Beautiful Mountain pool is a combination fractured and structural trap. The reservoir is a dense, finely crystallized limestone. Porosity and permeability are provided by fractures (Brown, 1978c), which probably originated from flexure of the reservoir during formation of a structural nose.

The Table Mesa pool is a structural trap (Hoppe, 1983). The reservoir is a fossiliferous limestone that has fracture and intercrystalline porosity. The trap is formed by a northeast-trending anticline.

The North Tocito Dome pool is believed to be a structural trap (Riggs, 1978e), but not enough wells have been drilled to determine the exact nature of the trap.

The Hogback pool is a structural trap, formed by a faulted

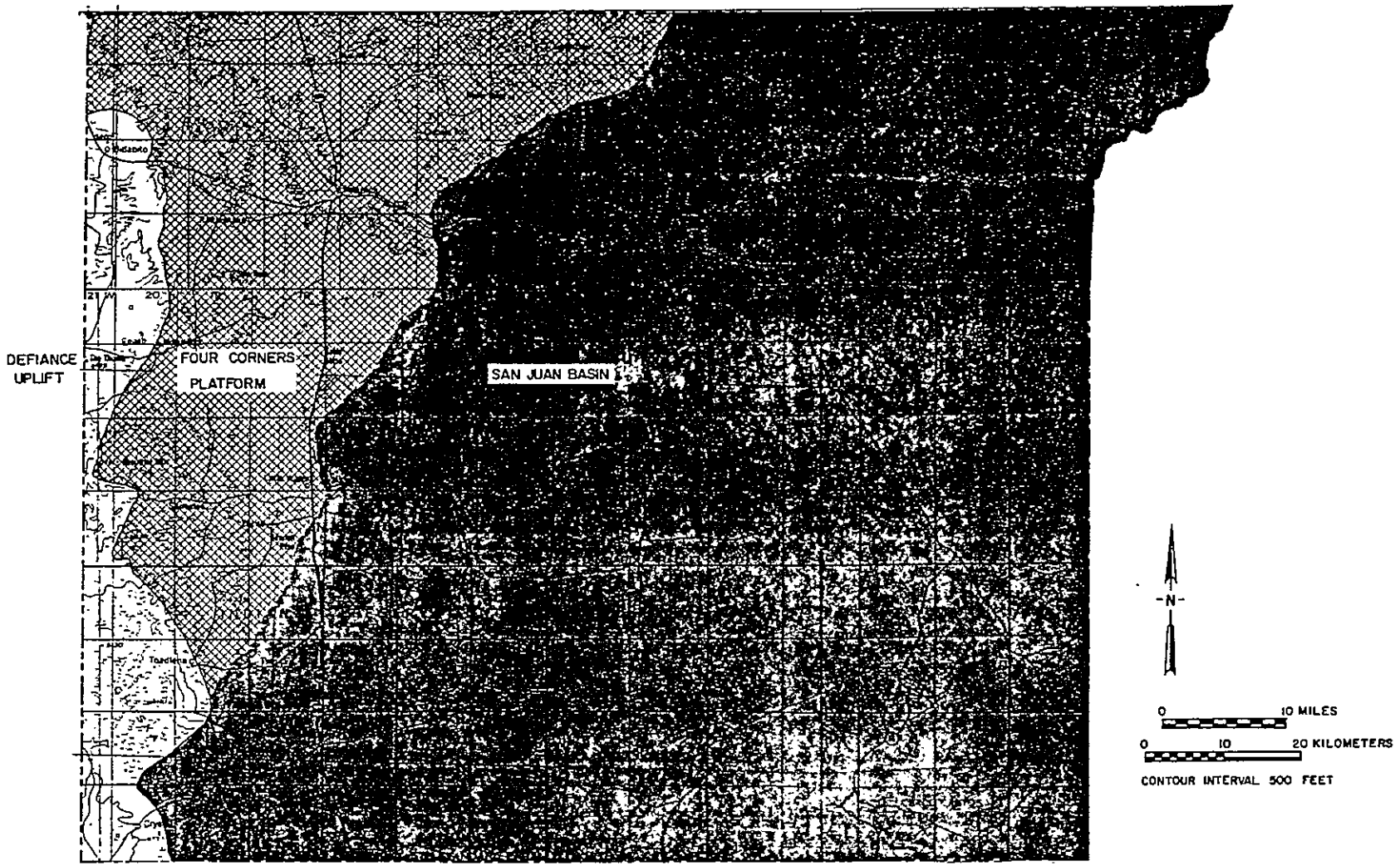

Figure 23. Tectonic elements in San Juan County, New Mexico. Tectonic features from Woodward and Callender (1977).

dome (Maynard, 1978e).

Gas produced from Mississippian reservoirs in San Juan County contains substantial amounts of non-flammable components (Appendix 3), chiefly nitrogen and helium. Gas in the Beautiful Mountain, Hogback, and Table Mesa pools is produced for its helium content.

Devonian Pools--Two oil pools, the Akah Nez and Tom, have produced from Devonian reservoirs in San Juan County (Appendix 3; Fig. 22). Both pools have been abandoned and no longer produce. Devonian reservoirs have produced 0.01% of the oil and 0% of the gas produced in San Juan County.

Both Devonian pools are structural traps formed by north-trending anticlines. Reservoirs are sandstones in the McCracken Sandstone Member of the Elbert Formation. Net pay is approximately 30 ft. Porosity ranges from 3 to 18%. Permeability at the Tom pool is 1.1 millidarcies.

Oil produced from Devonian reservoirs has a gravity of 45-48^{o} API. Associated gas is mostly nitrogen.

Petroleum Resource Potential

San Juan County is divided into two major tectonic elements (Fig. 23), the San Juan Basin and the Defiance uplift. The Four Corners platform is intermediate in structural position between the San Juan Basin and the Defiance uplift, but is generally considered part of the San Juan Basin. The Four Corners platform is separated from the central part of the San Juan Basin by the Hogback monocline (Woodward and Callender, 1977). The platform is separated from the Defiance uplift by the Red Rock and

Defiance monoclines. Structural relief between the Four Corners platform and the central part of the San Juan Basin is 2,500-4,000 ft (Kelley, 1957). Structural relief between the San Juan Basin and the Defiance uplift along the Defiance monocline is approximately 8,000 ft. Most petroleum production in San Juan County is from the San Juan Basin and the Four Corners platform. The Defiance uplift produces only at the small Akah Nez Devonian pool of southwestern San Juan County (Fig. 22).

Five key factors need to be analyzed in order to evaluate the petroleum potential of the San Juan Basin and the Defiance uplift: commercial accumulations of petroleum, source rocks, reservoirs, traps, and preservation of petroleum that has been generated and trapped. Based on geologic analyses of the five factors, the petroleum potential for each tectonic element is evaluated.

The potential for petroleum occurrence in an area is classified as <u>high</u> if geologic analyses indicate that reservoirs and traps are present in that area. Source rocks must be present unless analyses indicate that reservoirs in the area lie along migration paths that connect those reservoirs to source rocks that exist outside the area. Geologic analyses must also indicate that petroleum which has been generated has been preserved. Furthermore, a classification of high in a basin or on an uplift is only warranted if there is petroleum production elsewhere in that basin or on that uplift, or if known but undeveloped commercial petroleum accumulations have been proven to exist (usually by drilling) in that basin or on that uplift.

The potential for petroleum occurrence in an area is classified as moderate if geologic analyses indicate that reservoirs and traps are present unless analyses indicate that reservoirs in the area lie along petroleum migration paths that connect those reservoirs to source rocks that exist outside the area. A moderate classification differs from a high classification because a basin or uplift may be assigned a moderate classification even though there are not any known petroleum accumulations in that basin or on that uplift. Part of a producing basin may be assigned a moderate potential for petroleum occurrence if reservoirs, traps, or source rocks are present to only a limited extent or if there is doubt that petroleum has been preserved.

The potential for petroleum occurrence in an area is classified as low if geologic analyses indicate that source rocks, reservoirs, and traps are questionably present in that area, but the analyses also indicate stratigraphic units in that area are known to contain source rocks and reservoirs elsewhere. An area may also have a low classification if source rocks, reservoirs, and traps are probably present but if geologic analyses indicate that petroleum has almost certainly not been preserved.

The potential for petroleum occurrence in an area is classified as very low if geologic analyses indicate that source rocks, and more importantly, reservoirs are probably not present in that area. A classification of very low is almost always reserved for areas of outcropping Precambrian igneous or metamorphic rocks that have not been thrust over a Phanerozoic

section that might have petroleum potential. A classification of very low is also assigned for areas where extensive intrusive volcanism has occurred, such as in a volcanic caldera.

San Juan Basin--Those parts of the San Juan Basin present in San Juan County, the central part of the basin and the Four Corners platform, are assigned a high potential for petroleum occurrence. Major oil and gas pools are known to exist on the Four Corners platform and in the central part of the basin (Figs. 16-22; Maps 63-72). Source units of oil and gas also exist in the central basin and on the platform. Cretaceous reservoirs are definitely present throughout the San Juan Basin. Jurassic and upper Paleozoic reservoirs may be present throughout large parts of the basin. It is also known that structural, stratigraphic, and hydrodynamic traps exist. Oil and gas that have been generated and trapped within the San Juan Basin have also been preserved within the basin.

Source rocks of oil and gas are known to exist in the San Juan Basin. Marine Mancos (Cretaceous) shales are considered the source of oil that is produced from several pools in the Farmington, Mesaverde, Gallup, lower Mancos, and Dakota (Ross, 1980). Marine Mancos shales are present throughout most of the subsurface of the San Juan Basin in San Juan County, but their thermal maturity and kerogen content have not been analyzed. However, the presence of several oil pools in Cretaceous reservoirs indicates that Mancos source rocks exist in San Juan County. Those source rocks have probably been matured to the oil-generation stage in at least part of San Juan County. It is

possible that Mancos source rocks have been matured past the stage of oil generation and preservation in extreme northeast San Juan County where burial depths are greater and heat flow is higher (Reiter and Clarkson, 1983). Similar relationships may also apply to the Lewis Shale (Cretaceous).

Shales in the nonmarine Mesaverde Group (Cretaceous) are sources of both oil and gas in the San Juan Basin. The Mesaverde appears to be the source of the nonassociated gas that is produced from the Point Lookout, Hosta, and Cliff House Sandstones (Rice, 1983). The Mesaverde may also be a source of the oil produced from Dakota reservoirs in western San Juan County (Fig. 21; Ross, 1980), although it is possible that Dakota oil was generated in the nonmarine, lower part of the Dakota (Rice, 1983).

The Fruitland Formation (Cretaceous) is another source rock in the San Juan Basin. Fruitland coals overlie the Pictured Cliffs Sandstone (Cretaceous) and appear to be the source of nonassociated gas produced from the Pictured Cliffs (Rice, 1983).

The Todilto Formation (Jurassic) is the source of oil produced from the Entrada Sandstone (Jurassic) in the San Juan Basin (Vincelette and Chittum, 1981; Ross, 1980). In eastern San Juan County, the Todilto consists of a lower unit of dark-brown, fetid limestone and an upper unit of anhydrite. The limestones are source rocks. Visual kerogen analysis indicates they have been matured to the stage of oil generation in southeast San Juan County (Vincelette and Chittum, 1981). In northeast San Juan County, the Todilto has been buried more deeply and also has been

subjected to high heat flows associated with the San Juan volcanic field. Visual kerogen analyses indicate the Todilto has been matured past the stage of oil generation and may have generated gas and condensate (Vincelette and Chittum, 1981). In western San Juan County, the Todilto limestone is light colored and apparently does not have enough organic matter to be a significant source rock.

Limestones and gray to black shales of the Pennsylvanian section are possible source rocks in the San Juan Basin. The organic geochemistry of Pennsylvanian units in the San Juan Basin has not been documented. The presence of 13 oil and gas pools in Pennsylvanian reservoirs indicates that Pennsylvanian oil source rocks are present in the basin and have been matured to the stage of oil generation. Reiter and Clarkson (1983) indicate that deep burial of the Pennsylvanian in northeast San Juan County, combined with high heat flows emitted from the San Juan volcanic field, has been matured past the stage of oil generation and may have accumulations of only dry gas.

Reservoir rocks of oil and gas are known to exist in the San Juan Basin. As previously discussed, Tertiary, Cretaceous, Jurassic, Pennsylvanian, Mississippian reservoirs produce oil and gas in the San Juan Basin (Table 4; Figs. 16-22; Maps 63-72). Possible reservoirs in the productive and nonproductive parts of the basin are Upper Cretaceous sandstones, the Entrada Sandstone (Jurassic), Permian and Pennsylvanian sandstones and carbonates, Triassic sandstones, Mississippian carbonates, and Devonian sandstones and carbonates. Upper Cretaceous sandstones are primary reservoir targets for two reasons. First, Upper

Cretaceous sandstones are prolific producers of oil and gas in the San Juan Basin; the Pictured Cliffs, Chacra, Mesaverde, Gallup (i.e. basal Niobrara), Mancos, and Dakota produce significant amounts of oil and gas in San Juan County. Second, Upper Cretaceous sandstones have intercalated and intertonguing relationships with shaly Cretaceous source units: Mesaverde shales, the Mancos Shale, and the Lewis Shale. The primary Cretaceous targets are the Pictured Cliffs, Mesaverde, Gallup, and Dakota sandstones. All three units are prolific hydrocarbon producers in San Juan County.

The Pictured Cliffs Sandstone is present in eastern San Juan County. It has been eroded from the western and southwestern parts of the county. It crops out along the Hogback monocline and dips eastward into the central part of the San Juan Basin. Geologic quadrangle maps and stratigraphic and hydrologic studies (Stone et al., 1983; Strobell et al., 1980; O'Sullivan et al., 1979a, 1979b; Weide et al., 1979a, b, c, d) indicate that the Pictured Cliffs Sandstone is well developed throughout the San Juan County part of the San Juan Basin. The Pictured Cliffs Sandstone consists of shoreface, estuarine, lagoonal, and inner-shelf sandstones (Finley, 1984). The Pictured Cliffs was deposited in a progradational strandplain system and sandstone beds have widespread lateral continuity.

Sandstones of the Mesaverde Group are present throughout the San Juan County part of the San Juan Basin. The most significant and widespread Mesaverde reservoirs are the Point Lookout and Cliff House Sandstones, which produce from the Blanco Mesaverde

pool (Fig. 19). The Point Lookout crops out along the Hogback monocline and dips eastward into the central part of the San Juan Basin. The Cliff House crops out along the Hogback monocline and also crops out in the southwest part of San Juan County; it dips to the east and northeast into the central part of the San Juan Basin. Non-marine channel sandstones of the Menefee Formation of the Mesaverde Group are important reservoirs that are present in all but the extreme northeast part of San Juan County.

Molenaar (1983b) indicates that the true Gallup Sandstone is present only in southwestern San Juan County. The Gallup consists of fluvial-deltaic deposits which prograded northeast from a source area to the southwest. The Gallup strandline trends northwest. The true Gallup Sandstone does not produce in San Juan County and produces relatively minor amounts of petroleum in McKinley County. Nevertheless, the true Gallup in San Juan County appears to consist of widespread, reservoir-quality sands.

Basal Niobrara, or Tocito, sands are generally referred to as "Gallup" sands in the San Juan Basin. They are major producers of oil and gas in the San Juan Basin (Fig. 20; Table 4). The basal Niobrara sands are younger than the real Gallup Sandstone and are separated from the real Gallup by the unconformity at the base of the Niobrara Shale (Molenaar, 1983b). Furthermore, the basal Niobrara sands are present seaward (northeast) of the extent of the true Gallup. The best basal Niobrara reservoirs are northwest-trending shallow-marine sand bars that produce at the Bisti, Cha Cha, Gallegos, and other Gallup pools (Fig. 20). Although the best basal Niobrara

reservoirs are developed along the trend of the Bisti and Cha Cha pools, oil has also been produced to the northeast, where basal Niobrara sediments are finer grained and more basinal (Reese, 1977). Therefore, it appears that Gallup and basal Niobrara reservoirs are present throughout the subsurface of San Juan County.

Detailed stratigraphic and hydrologic studies (Owen, 1973; Stone et al., 1983) indicate that the Dakota Sandstone is well developed throughout the San Juan County part of the San Juan Basin. The Dakota of the San Juan Basin consists of fluvial, deltaic, and coastal sand deposits (Owen, 1973). Both marine and non-marine Dakota facies produce oil and gas in the San Juan Basin. Because those facies are present throughout the San Juan County part of the San Juan Basin, the Dakota is a major objective.

Other Upper Cretaceous reservoirs in the San Juan County part of the San Juan Basin are the Farmington Sandstone Member of the Kirtland Shale, coals and channel sandstones of the Fruitland Formation, and marine sandstones and fractured shales of the "Chacra producing interval" of the Lewis Shale. Fractured upper Mancos shales are possible reservoirs but they produce only marginal amounts of oil in the San Juan Basin. Fractured reservoirs in the lower Mancos Shale produce significant amounts of oil in the San Juan Basin and are important reservoir targets; the most significant reservoir units in the lower Mancos are the Greenhorn Limestone and the Graneros Shale.

The Entrada Sandstone (Jurassic) is a primary reservoir

target in the San Juan County part of the San Juan Basin. It is present throughout the San Juan County part of the basin. Available data indicate it is a porous and permeable reservoir everywhere except in northeast San Juan County (Vincelette and Chittum, 1981). In northeast San Juan County, the Entrada is "tight" because of silica cementation and burial compaction in the deeper, axial part of the San Juan Basin.

Paleozoic reservoirs are important targets in the San Juan Basin. Few wells have drilled and tested the Paleozoic section outside of the known oil and gas pools (Fig. 22; Appendix 2). Therefore, the reservoir quality of Paleozoic units is not well documented in the San Juan Basin. Permian units that may be good reservoirs are the Glorieta Sandstone, the Meseta Blanca Member of the Yeso Formation, and the Abo Formation. The Glorieta is a fine- to medium-grained sandstone that is generally porous and permeable. It is present in the southern third of San Juan County where it has a maximum thickness of 100 ft (Baars and Stevenson, 1977). The Glorieta pinches out to the north. The Meseta Blanca is a fine-grained, clean, aeolian sandstone. It is 100-800 ft thick in the San Juan County part of San Juan Basin (Baars and Stevenson, 1977), and contains a maximum of 300 ft of porous sandstone (Peterson et al., 1965). The Abo Formation is 1,000-1,600 ft thick in the San Juan County part of the San Juan Basin (Baars and Stevenson, 1977). It consists of interbedded red arkosic sandstones, siltstones, and shales. The Abo contains more, and coarser, sands in the northeast part of San Juan County (Baars, 1962). The San Andres Formation (Permian) is probably not a significant reservoir in the San Juan Basin where it

consists mostly of red beds. Permian reservoirs have a limited petroleum potential in the San Juan Basin because the Permian is apparently devoid of petroleum source rocks.

The Pennsylvanian section in the San Juan Basin is virtually untested outside of the known oil and gas pools. Therefore, the reservoir properties of Pennsylvanian units are poorly known. The Pennsylvanian section is more than 2,500 ft thick in north-central San Juan County (Jentgen, 1977). Productive Pennsylvanian reservoirs in San Juan County are limestones; porous zones are coral and algal bioherms. Sandstones are other possible Pennsylvanian reservoirs.

The Leadville Limestone (Mississippian) is a secondary reservoir target. Armstrong and Mamet (1977) indicate it is present throughout the San Juan County part of the San Juan Basin. The Leadville Limestone reaches a maximum thickness of approximately 150 ft in San Juan County. Reservoir properties of the Leadville are poorly known because few wells have penetrated and tested it. Generally, the Leadville appears to be a dense, finely crystalline limestone. Matrix porosity is poor and must be enhanced by natural fractures if economic levels of production are to be attained. Hydrocarbons in the Leadville Limestone presumably originated in either the Leadville or in overlying Pennsylvanian source rocks, but no data exist to substantiate this.

Devonian reservoirs are secondary targets. The most favorable Devonian target is the McCracken Sandstone Member of the Elbert Formation. The McCracken produced at the now-

abandoned Tom pool (Fig. 22). The McCracken consists of fine- to medium-grained, poorly sorted, glauconitic sandstone. Stevenson and Baars (1977) indicate it is present in the western half of San Juan County where it has a maximum thickness of approximately 175 ft. Other possible, but unlikely, Devonian reservoirs are limestones and dolostones of the Aneth and Ouray Formations.

Possible traps in the San Juan Basin are stratigraphic, hydrodynamic, and structural. Most of the oil and gas produced from the basin is trapped stratigraphically and hydrodynamically in Upper Cretaceous sandstones. Cretaceous facies throughout the San Juan Basin consist of interbedded, generally lenticular, sandstones and shales, and may form stratigraphic traps. In widespread units (Point Lookout, Mesaverde, Gallup, Dakota) that crop out on the basin margins, oil and gas may be trapped by hydrodynamics acting in conjunction with facies variations.

Structural traps also exist in the Cretaceous section. Most of the oil and gas produced from the Dakota on the Four Corners platform is trapped structurally. Most Dakota traps are anticlines, although faults have also acted to trap oil and gas in the Dakota. Structural warps on monoclines, combined with facies variations, may also form traps within the San Juan Basin.

Undiscovered stratigraphic traps may exist in the Entrada Sandstone (Jurassic). In the San Juan Basin, oil is trapped stratigraphically in the Entrada by closure formed on aeolian sand dunes (Vincelette and Chittum, 1981). The Entrada is sealed by overlying impermeable anhydrites of the Todilto Formation. Several undrilled Entrada dunes appear to be present in eastern San Juan County (Vincelette and Chittum, 1981). The proximity of

the Entrada reservoir to the overlying Todilto source rocks in eastern San Juan County increases the probability that undiscovered Entrada traps will be filled with oil. Entrada traps will probably be barren in western San Juan County where the Todilto is not a source rock (Vincelette and Chittum, 1981). This is supported by the absence of oil shows in Entrada tests in western San Juan County (Appendix 2).

Hydrodynamic trapping may occur in the Point Lookout, Mesaverde, Gallup, Dakota, and Entrada. Those units crop out along the margins of the San Juan Basin and dip into the subsurface, toward the basin center. Recharge occurs in topographically high areas (Stone et al., 1983) and exerts hydrodynamic force in a basinward direction. That hydrodynamic force, if sufficient, can prevent oil and gas from rising updip, through the porous reservoir, and to the outcrop.

Undiscovered structural traps may exist in the Paleozoic section. Known Paleozoic oil and gas pools in San Juan County are structural traps. However, the association of porous zones with bioherms in the Pennsylvanian section indicates that undiscovered stratigraphic traps may exist. Facies variations associated with deltaic and shallow-marine Pennsylvanian sands may also form stratigraphic traps. The Paleozoic section has not been drilled sufficiently to establish accurately depositionally dependent porosity zonations.

Any petroleum that has been generated and trapped in the San Juan Basin has probably been preserved. Throughout the basin, geologic conditions are similar in both productive and

nonproductive areas. Reservoirs may be flushed in areas close to where they crop out. Even in those areas, however, petroleum accumulations may be preserved by depositional or diagenetic permeability barriers. Intense volcanism and tectonism that could have destroyed petroleum accumulations are not apparent. The small Cenozoic intrusive centers at Beautiful Mountain and Washington Pass are poor reservoirs and may have thermally degraded previously trapped oil and gas; they are a negative factor when considering the preservation of petroleum.

The San Juan Basin of San Juan County is assigned a high potential for petroleum occurrence (Fig. 24; Appendix 2). Petroleum potential is considered to be high for five reasons. First, the San Juan Basin is a prolific producer of oil and gas in San Juan County, having produced from 127 oil and gas pools. Those pools produce from 15 stratigraphic units (Table 4). Second, identified petroleum source rocks are present in the Fruitland Formation, Mesaverde Group, Lewis Shale, Mancos Shale, Dakota Sandstone, and Todilto Formation. Shaly source rocks may also be present in the Pennsylvanian section. Third, the entire basin is underlain by Cretaceous, Jurassic, and Pennsylvanian reservoirs. Fourth, favorable stratigraphic, hydrodynamic, and structural trapping mechanisms are present. Fifth, most petroleum that has been generated and trapped has probably been preserved. Cretaceous reservoirs may have been flushed by influent water near their outcrop areas in the western part of the Basin. However, petroleum may be preserved in the subsurface by permeability barriers or it may occur in structural traps that are difficult to flush. The drilling density in areas between

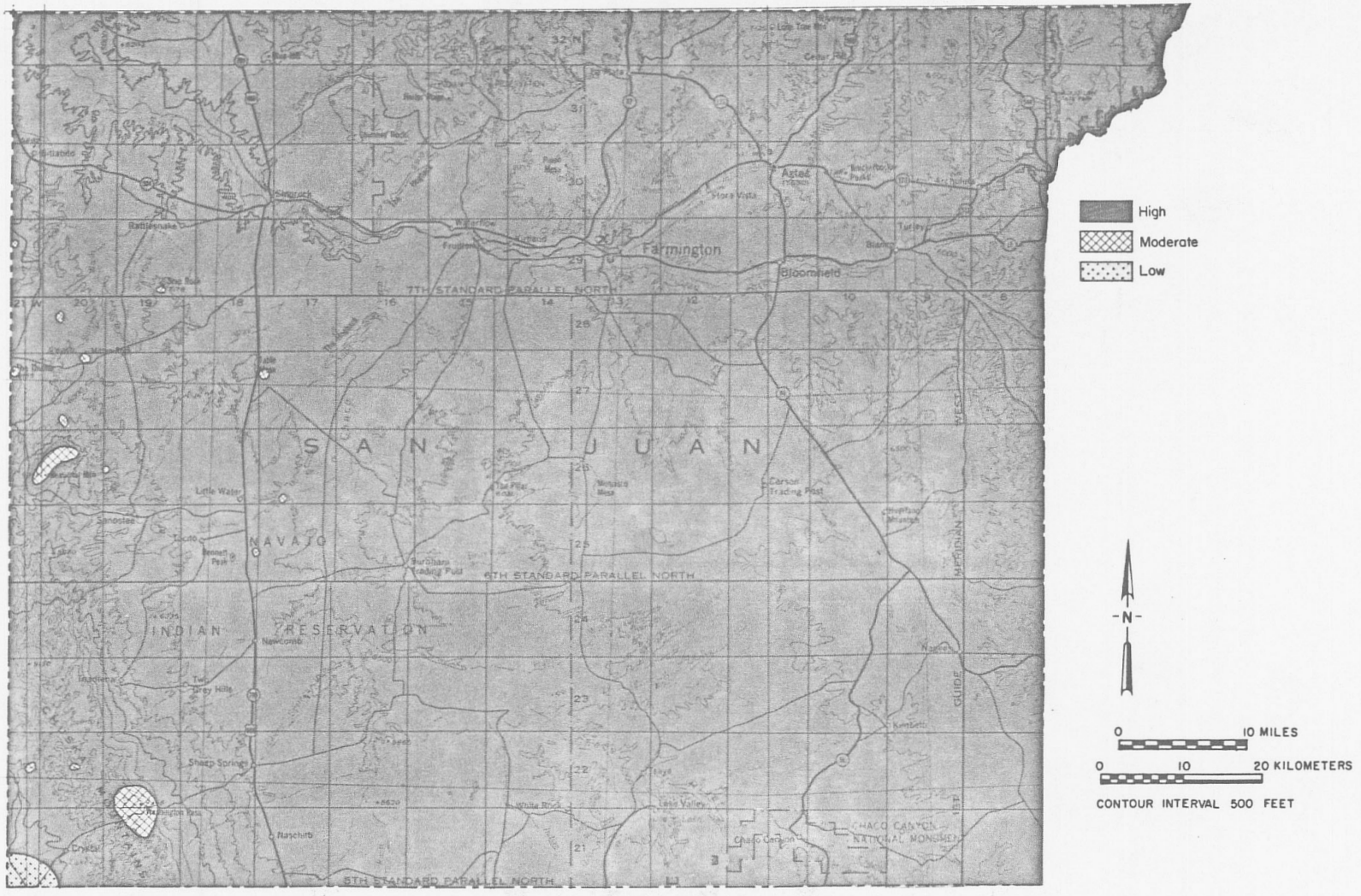

Figure 24. Potential for petroleum occurrence in San Juan County, New Mexico.

productive petroleum pools is relatively high in the northern and eastern parts of San Juan County (Appendix 2); nevertheless, ample space is present that may contain prolific, undiscovered, oil and gas accumulations. In addition, most wells stop in the prolific Cretaceous reservoirs; the Jurassic and Paleozoic sections have not been adequately tested. The San Juan Basin does not produce oil and gas in the southwest part of San Juan County. No shows have been reported from the few wells drilled in that area (Appendix 2). However, the area is sparsely drilled and remains virtually untested. The drilling density is less than one well per township.

The Cenozoic intrusive centers at Beautiful Mountain and Washington Pass are assigned a moderate potential for petroleum occurrence for two reasons. First, heat emitted from those intrusions may have destroyed petroleum that had been trapped in adjacent reservoirs. Second, the intrusive igneous rocks are probably poor reservoirs. However, fractures and vesicles within the igneous body may have trapped petroleum that migrated into the intrusion after it cooled; this has occurred at the Dineh-bi-Keyah oil pool of northeast Arizona (Danie, 1978).

Defiance Uplift--The Defiance uplift of San Juan County is bordered on the east by the Red Rock monocline. The Defiance uplift is capped by Tertiary, Jurassic, and Triassic sedimentary units in San Juan County. Cretaceous sedimentary units have been removed by erosion.

Source rocks on the Defiance uplift are limited to shales and limestones in the relatively thin Pennsylvanian section.

Wengerd and Matheny (1958) indicate the Pennsylvanian attains a maximum thickness of approximately 1,000 ft on the northernmost part of the uplift; from there, it thins to approximately 250 ft in southern San Juan County. Although the Todilto Formation (Jurassic) is present on parts of the Defiance uplift, it is not a petroleum source rock in the uplift part of San Juan County (Vincelette and Chittum, 1981).

Reservoirs in the San Juan County part of the Defiance uplift are Devonian, Mississippian, Pennsylvanian, Permian, Triassic, and Jurassic. The Entrada Sandstone is the only potential Jurassic reservoir, but it has been eroded from all but small parts of the uplift. It has probably been flushed by fresh water where it is present. Triassic sandstones have a limited petroleum potential because the Triassic section is apparently devoid of source rocks. Permian reservoirs on the uplift are the San Andres Formation, Glorieta Sandstone, Yeso sandstones, and Abo sandstones. On the uplift, the San Andres consists of sandstone and shale (Baars, 1962); the sands may be good reservoirs. Pennsylvanian marine limestones may be reservoirs on the uplift, particularly if they have Paradox Basin-type bioherms. Armstrong and Mamet (1977) indicate that carbonates of the Leadville Limestone (Mississippian) attain a maximum thickness of approximately 150 ft on the Defiance uplift. Leadville carbonates produce oil and gas in the San Juan Basin. Possible Devonian reservoirs are limestones and dolostones of the Aneth and Ouray Formations and the McCracken Sandstone. The McCracken produced a small amount of oil from the Akah Nez Devonian pool (Table 4; Fig. 22).

Possible traps on the Defiance uplift are structural and stratigraphic. The crest of the uplift is crossed by several northwest-trending anticlines (Woodward and Callender, 1977), which may form traps. Facies changes in Paleozoic units may form stratigraphic traps. Unconformities within the Paleozoic section on top of the uplift and on the flanks of the uplift may also form traps.

Data are not available to determine if petroleum accumulations in Paleozoic reservoirs were destroyed by tectonic movements that accompanied formation of the Defiance uplift. Petroleum accumulations in Jurassic and Triassic reservoirs may not be preserved because of flushing by influent surface water that may enter those units through outcrops on the uplift.

The Defiance uplift of San Juan County is assigned a low to high potential for petroleum occurrence. The southwesternmost part of the uplift has a low potential for three reasons. First, the Devonian reservoirs that produce at the Akah Nez pool are absent. Second, the only apparent source rocks on the uplift are Pennsylvanian limestones and shales, and the source quality of those units has not been documented by geochemical analyses. However, petroleum could migrate onto the uplift from surrounding basins. Third, and positively, structures appropriate for trapping are present. The remainder of the uplift has a high potential for five reasons. First, the Akah Nez pool produced marginally commercial quantities of oil from the McCracken Sandstone (Devonian) on the uplift. Second, present geologic knowledge indicates the McCracken is present throughout the

northern part of the uplift. Third, Pennsylvanian and Permian sandstones and carbonates are also present and thicken to the north. Fourth, structures appropriate for trapping are present on the uplift. Fifth, the monoclines on the east edge of the uplift could act in conjunction with permeability barriers in Paleozoic units to form combination structural-stratigraphic traps. The only apparent source rocks on the uplifts are Pennsylvanian limestones and shales, and the source quality of those units has not been documented by geochemical analyses. However, petroleum could migrate onto the uplift from source rocks that generated the petroleum produced from Paleozoic reservoirs in the San Juan Basin.

The Defiance uplift has been sparsely drilled. Apart form the two-well Akah Nez pool, only four wells have been drilled on the uplift in San Juan County. One of those wells, the Kerr McGee No. 1 Navajo M, located in sec. 9, T. 23 N., R. 20 W., had a reported gas show; the depth at which the gas show occurred has not been reported. The few wells drilled on the uplift do not condemn it; rather, they provide the only indication that favorable Paleozoic units are present on the uplift.

Potential for Development

Petroleum is a marketable commodity that will be in great demand well into the twenty-first century. The major uses of petroleum are: (1) a major energy source, and (2) feedstock for the petrochemical industry. Because of the great long-term demand for petroleum and the critical role that petroleum plays in the transportation and industrial sectors of the United

States, any accumulations of commercial size discovered in the future in San Juan county will almost certainly be developed and produced. Oil pools are readily developed because oil can be conveniently shipped by trucks from the well site to the refinery. The transportation of natural gas from the well site to the gas processing plant and the consumer is almost always through an underground pipeline. Therefore, gas pools are not developed as quickly as oil pools unless there is a pre-existing pipeline close to the gas pool. The presence of several large gas pipelines in San Juan County (U.S. Geological Survey and New Mexico Bureau of Mines and Mineral Resources, 1981) ensures that any gas pools that will be discovered will also be developed and produced.

Coal Resources
(by K. Cook)

Introduction

San Juan County contains several outcrops of Cretaceous coal-bearing sequences which have been designated as recognized fields. These fields are delineated by the outcrops of the coal-bearing Menefee and Fruitland Formations. The coal fields in San Juan County are the Fruitland, Navajo, Bisti, western Star Lake, Barker, Hogback, Toadlena, Newcomb, and western Chaco Canyon (Fig. 25).

A general physiographic and geologic description and the known characteristics of the coals is given for each field. Coal mining and past production is discussed by individual field except where no recorded activity exists. Production figures for San Juan County and for individual mines are given in Tables 6, 7, and 8. Descriptions of individual mines and prospects are listed in Appendix 1.

Resource (minimum 1.2 ft bed thickness) and reserve figures (minimum 2.5 ft) as defined by Wood et al. (1983) are given in the text and Tables 9 and 10 by field. The data are derived from point source data in the data base which is continually updated as new data are acquired at the New Mexico Bureau of Mines and Mineral Resources. Coal quality data are summarized in Tables 11 and 12. Appendices 5 and 6 contain the raw data (except for confidential data) for both the coal quality and resource figures given in the text. Resource potential for each coal field is shown graphically on Figure 25 and the accompanying 1:100,000 maps (Maps 73-76). The resource potential represented is that

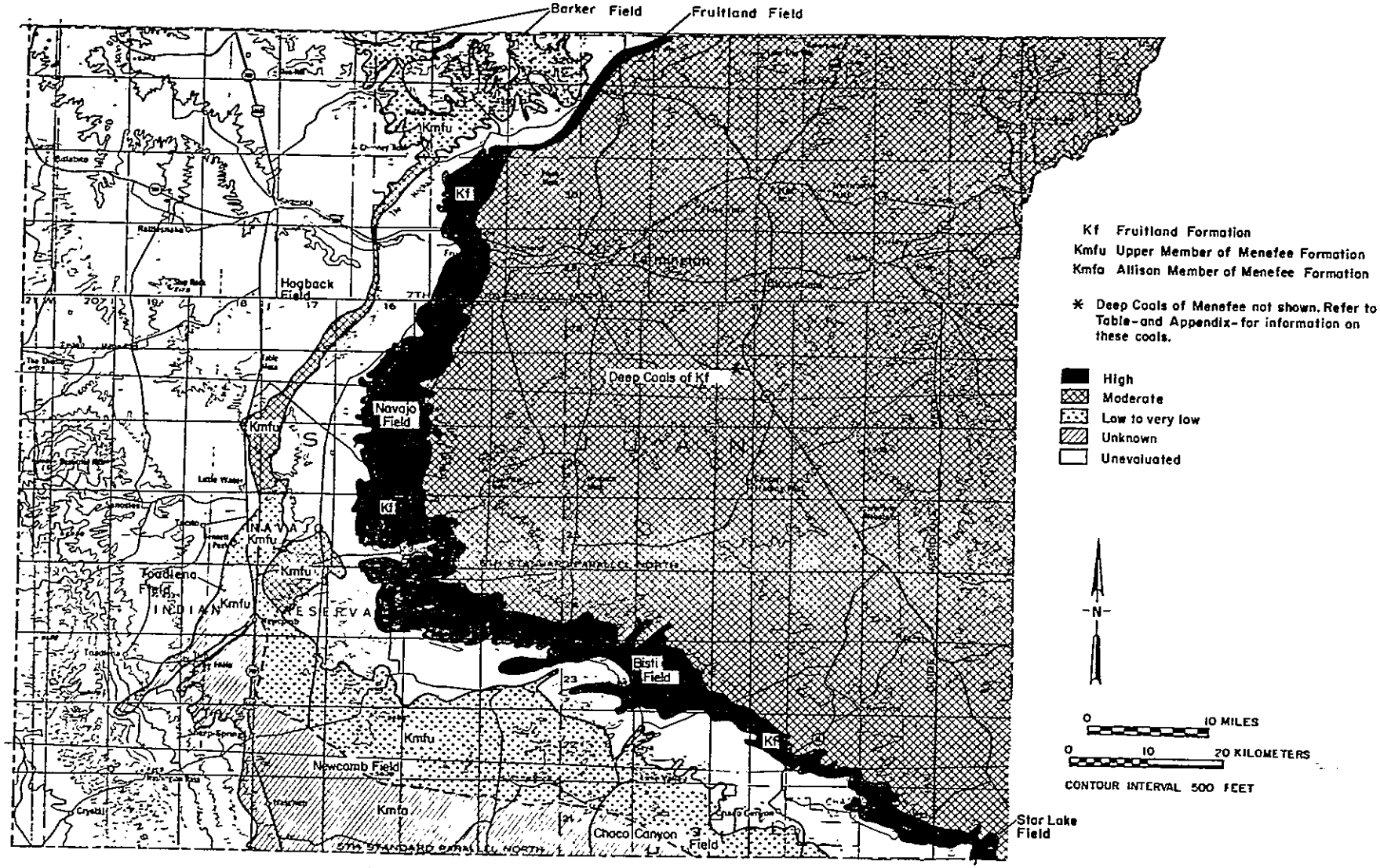

Figure 25. Coal resource potential in San Juan County, New Mexico.

Table 6 - Coal production in San Juan County.

Year	New Mexico State Mine Inspector	USBM Mineral Yearbook (tons)
1892	---	200
1902	---	1,700
1919	---	3,949
1920	---	2,992
1923	---	4,060
1924	---	4,414
1926	---	5,054
1927	---	5,101
1928	10,000	7,032
1929	8,000	6,633
1930	5,375	6,889
1931	---	7,023
1933	2,803	---
1934	3,214	---
1935	1,615	7,600
1936	---	7,343
1940	1,034	---
1941	---	4,972
1942	1,437	6,301
1943	1,887	5,033
1944	1,182	13,841
1945	1,490	14,727
1946	2,174	19,852
1947	---	13,963
1949	4,326	---
1950	4,057	---
1951	3,036	3,798
1952	3,849	3,943
1953	3,507	3,162
1954	2,980	---
1955	2,334	16,032
1956	3,700	9,946
1957	420	---
1958	1,214	6,820
1959	1,393	6,800
1960	1,236	4,209
1961	2,206	3,075
1962	3,190	3,658
1963	---	1,200,763
1971	---	6,665,000
1972	---	6,816,000
1973	---	7,676,000
1974	---	7,873,000
1975	---	7,301,000
1976	---	7,930,006
1977	---	9,265,447
1978	---	8,713,038
1979	---	9,203,534
1980	---	12,323,829
1981	---	11,223,145
1982	---	12,369,880
1983	---	14,518,558
1984	---	13,753,697

Table 7. Mine production in San Juan County.

Mine	Location	Field	Total production (tons)
Bruce	sec. 27, T. 31 N., R. 15 W.	Fruitland	1,400[1]
Thomas	sec. 22, T. 32 N., R. 13 W.	Fruitland	10,275[1]
Stevens	sec. 3, T. 29 N., R. 15 W.	Fruitland	12,207[1]
Stephens	sec. 3, T. 29 N., R. 15 W.	Fruitland	1,200[1]
Keener	sec. 4, T. 29 N., R. 15 W.	Fruitland	1,783[1]
Stevens-Young-Keener	sec. 3-4, T. 29 N., R. 15 W.	Fruitland	20,000[2]
Morgan	sec. 15, T. 32 N., R. 13 W.	Fruitland	500[1]; 250[2]
Kirtland-Hendrickson	sec. 4, T. 29 N., R. 15 W.	Fruitland	7,945[1]; 25,000[2]
Thomas	sec. 22, T. 32 N., R. 13 W.	Fruitland	2,230[1]
Jones	sec. 21, T. 32 N., R. 13 W.	Fruitland	300[1]
Christensen	sec. 4, T. 29 N., R. 15 W.	Fruitland	3,670[1]
Black Diamond	sec. 4, T. 29 N., R. 15 W.	Fruitland	3,210[1]
Smouse	sec. 3, T. 29 N., R. 15 W.	Fruitland	1,240[1]
Pruitt-Kempton	sec. 7, T. 32 N., R. 12 W.	Fruitland	11,327[2]
O'Brien-La Plata	sec. 22, T. 32 N., R. 13 W.	Fruitland	2,500[1,2]
Marcelluis-Caudell	sec. 28, T. 30 N., R. 15 W.	Fruitland	10,319[2]
Enterprise	T. 29 N., R. 15 W.	Fruitland	2,980[1]
Firebaugh-Greer-Morgan-Thomas	sec. 15, T. 32 N., R. 13 W.	Fruitland	7,521[2]
Stalling-Strang	sec. 4, T. 29 N., R. 15 W.	Fruitland	8,245[2]
San Juan	T. 30 N., R. 15 W.	Fruitland	30,746,161[3]
Navajo	T. 25-29 N., R. 15-16 W.	Navajo	95,673,001[3]
Burnham	T. 23-25 N., R. 14-16 W.	Navajo	492,000[3]
Gateway	sec. 32, T. 24 N., R. 13 W.	Bisti	415,000[3]
De-Na-Zin	sec. 9-11, T. 23 N., R. 13 W.	Bisti	473,427[3]
Gov't. Shiprock-Hogback No. 11	sec. 21, T. 30 N., R. 16 W.	Hogback	3,500[1];3,150[2]
Hogback No. 13	sec. 21, T. 30 N., R. 16 W.	Hogback	70,000[2]
San Juan County (undifferentiated)			1,348,361[1]

[1] from New Mexico Mine Inspector's Reports 1898-1962
[2] from Nickelson, in press
[3] from Keystone Coal Industry Manuals 1969-1984

Table 8 - Production (short tons) of recent mines in San Juan County (from Keystone Coal Industry Manual and EMD).

Year	Navajo	San Juan	De-Na-Zin	Burnham	Gateway	La Plata
1969	3,337,419					
1970	6,020,950					
1971	6,652,049					
1972	6,898,262					
1973	7,389,321	350,000				
1974	6,955,000	956,688				
1975	6,073,000	1,245,449				
1976	6,756,236	1,223,669				
1977	7,420,066	1,843,076				
1978	6,100,000	2,613,038				
1979	5,203,000	4,000,534				
1980	7,733,000	4,538,000	13,177	39,652		
1981	6,845,000	4,119,000	211,145	48,000		
1982	7,144,802	4,906,034	229,585	89,459	202,229	
1983	8,958,056	4,975,770	19,165	363,338	213,846	
1984	8,403,000	5,151,579	9,697	31,221	213,846	
1985	6,978,000	5,110,790	34,077	No production	202,733	
1986	6,841,000	5,215,966	31,379	No production	188,168	594,643

Table 9 - Coal resources for San Juan County. (1.2 ft minimum - reported in millions of tons.)

T.	R.	Depth 0-250 ft Meas.	Depth 0-250 ft Ind.	Depth 0-250 ft Total	Depth 250-500 ft Meas.	Depth 250-500 ft Ind.	Depth 250-500 ft Total	Depth 500-1000 ft Meas.	Depth 500-1000 ft Ind.	Depth 500-1000 ft Total
Fruitland Field										
30N	15W	116.96	106.46	223.42	93.67	---	93.67	54.37	---	54.37
32N	12W	25.35	26.18	51.53	37.49	73.18	110.67	---	---	---
32N	13W	57.86	83.70	141.56	45.64	170.14	215.78	8.33	---	8.33
Navajo Field										
23N	15W	1.82	---	1.82	---	---	---	---	---	---
24N	14W	85.10	143.11	228.21	1.12	---	1.12	---	---	---
24N	15W	54.54	146.38	200.92	---	---	---	---	---	---
24N	16W	3.21	18.41	21.62	---	---	---	---	---	---
25N	16W	51.38	288.46	339.84	---	---	---	---	---	---
25N	15W	15.95	112.61	128.56	---	---	---	---	---	---
26N	16W	13.08	103.73	116.81	---	---	---	---	---	---
29N	15W	9.60	15.06	24.66	---	---	---	---	---	---
Bisti Field										
21N	9W	144.36	87.24	231.09	4.64	5.35	9.99	---	---	---
22N	9W	5.37	9.23	14.60	8.26	65.79	74.05	---	---	---
22N	10W	66.71	429.50	496.21	20.57	124.60	145.17	---	---	---
23N	11W	8.90	16.56	25.46	35.24	276.87	312.11	---	---	---
23N	12W	116.88	299.75	416.63	19.38	117.00	136.38	---	---	---
23N	13W	76.60	86.44	163.04	3.07	---	3.07	---	---	---
24N	13W	62.89	116.53	179.42	17.24	39.13	56.37	---	---	---
Star Lake Field										
21N	8W	132.47	302.48	434.95	28.91	81.07	109.98	---	---	---
22N	8W	1.18	9.41	10.59	---	---	---	5.66	45.24	50.90
Barker Field										
31N	14W	0.45	---	0.45	8.91	12.67	21.58	1.49	---	1.49
31N	15W	4.59	---	4.59	---	---	---	---	---	---
31N	16W	2.04	16.29	18.33	1.36	10.86	12.22	---	---	---
32N	14W	12.92	14.47	27.39	22.60	28.61	51.21	---	---	---
Hogback Field										
27N	16W	47.88	243.18	291.06	---	---	---	---	---	---
Newcomb Field										
23N	17W	8.15	65.14	73.29	---	---	---	---	---	---
25N	17W	4.30	34.38	38.68	1.36	10.86	12.22	---	---	---
Chaco Canyon Field										
21N	9W	2.26	18.10	20.36	---	---	---	---	---	---
21N	11W	1.55	11.05	12.60	---	---	---	---	---	---
21N	12W	0.32	2.53	2.85	---	---	---	---	---	---

Table 10. Coal Reserves for San Juan County (2.5 ft minimum--reported in millions of tons).

T.	R.	Depth 0-250 ft			Depth 250-500 ft			Depth 500-1000 ft		
		Meas.	Ind.	Total	Meas.	Ind.	Total	Meas.	Ind.	Total
Fruitland Field										
30N	15W	112.40	106.46	218.86	90.77	--	90.77	53.50	--	53.50
32N	12W	23.27	26.18	49.45	36.62	73.18	109.80	--	--	--
32N	13W	54.24	70.68	124.92	43.29	159.43	202.72	8.33	--	8.33
Navajo Field										
23N	15W	1.82	--	1.82	--	--	--	--	--	--
24N	14W	75.98	128.64	204.62	1.12	--	1.12	--	--	--
24N	15W	47.05	126.17	173.22	--	--	--	--	--	--
24N	16W	2.44	14.00	16.44	--	--	--	--	--	--
25N	15W	15.95	112.61	128.56	--	--	--	--	--	--
25N	16W	51.38	288.46	339.84	--	--	--	--	--	--
26N	16W	10.68	84.62	95.30	--	--	--	--	--	--
29N	15W	9.60	15.06	24.66	--	--	--	--	--	--
Bisti Field										
21N	9W	124.94	80.63	205.57	4.64	5.35	9.99	--	--	--
22N	9W	3.73	--	3.73	7.76	61.83	69.59	--	--	--
22N	10W	63.18	412.15	13.84	19.01	112.29	131.30	--	--	--
23N	11W	8.10	13.84	273.71	34.74	272.91	307.65	--	--	--
23N	12W	107.88	273.71	381.59	18.93	114.68	133.61	--	--	--
23N	13W	65.01	78.76	143.77	3.07	--	3.07	--	--	--
24N	13W	49.43	93.64	143.07	13.83	31.89	45.72	--	--	--
Star Lake Field										
21N	8W	114.84	276.50	391.34	27.58	73.65	101.23	--	--	--
22N	8W	1.18	9.41	10.59	--	--	--	5.66	45.24	50.90
Barker Field										
31N	14W	--	--	--	8.91	12.67	21.58	1.49	--	1.49
31N	15W	4.59	--	4.59	--	--	--	--	--	--
31N	16W	2.04	16.29	18.33	1.36	10.86	12.22	--	--	--
32N	14W	12.22	10.82	23.04	21.28	28.61	49.89	--	--	--
Hogback Field										
27N	16W	38.65	196.66	235.31	--	--	--	--	--	--
Newcomb Field										
23N	17W	6.34	50.67	57.01	--	--	--	--	--	--
25N	17W	4.30	34.38	38.68	0.91	7.24	8.15	--	--	--
Chaco Canyon Field										
31N	9W	2.26	18.10	20.36	--	--	--	--	--	--
31N	11W	1.29	9.33	10.62	--	--	--	--	--	--

Table 11 - Quality analyses of coals in San Juan County (by field).

	No.	Avg.	S.D.	Max.	Min.
Fruitland					
Prox. Moisture:	163	8.12	5.78	34.14	2.33
Prox. Ash:	163	23.1	10.7	66.80	6.70
Volatile Matter:	157	31.83	5.24	41.70	14.23
Fixed Carbon:	156	37.26	7.37	48.34	11.99
Ult. Moisture:	14	9.96	1.82	13.16	4.80
Carbon:	14	56.87	2.77	60.70	50.71
Hydrogen:	14	4.37	0.25	5.00	3.95
Nitrogen:	14	1.18	0.11	1.30	0.87
Sulfur:	160	0.81	0.43	3.00	0.34
Org. S.:	2	0.57	0.17	0.69	0.45
Pyr. S.:	2	0.12	0.09	0.18	0.05
Sul. S.:	1	0.02	0.00	0.02	0.02
Ult. Ash:	14	16.63	2.72	22.26	13.39
Oxygen:	14	10.41	1.46	15.10	9.09
*Btu:	162	9651	2018	12650	3012
**mmmf Btu:	162	12865	1670	14964	6969
Navajo					
Prox. Moisture:	94	12.65	1.93	23.90	6.70
Prox. Ash:	94	21.00	7.00	43.80	8.10
Volatile Matter:	94	31.86	4.26	44.60	21.50
Fixed Carbon:	94	34.35	6.22	46.90	12.20
Ult. Moisture:	1	9.20	0.00	9.20	9.20
Carbon:	1	55.60	0.00	55.60	55.60
Hydrogen:	1	4.90	0.00	4.90	4.90
Nitrogen:	1	1.20	0.00	1.20	1.20
Sulfur:	94	0.83	0.39	2.20	0.40
Org. S.:	1	0.37	0.00	0.37	0.37
Pyr. S.:	1	0.16	0.00	0.16	0.16
Sul. S.:	1	0.02	0.00	0.02	0.02
Ult. Ash:	1	18.70	0.00	18.70	18.70
Oxygen:	1	19.00	0.00	19.00	19.00
*Btu:	94	9082	989	11320	5814
**mmmf Btu:	94	11773	910	16446	9025
Bisti					
Prox. Moisture:	47	14.33	3.94	25.28	4.52
Prox. Ash:	47	20.3	7.20	33.20	6.20
Volatile Matter:	43	28.67	3.57	34.50	20.70
Fixed Carbon:	43	35.70	5.62	47.80	25.60
Ult. Moisture:	40	15.39	2.53	25.28	10.30
Carbon:	40	48.38	6.06	59.40	37.50
Hydrogen:	40	4.60	0.97	6.80	2.90
Nitrogen:	40	0.84	0.28	1.20	0.05
Sulfur:	47	0.54	0.12	0.80	0.30
Org. S.:	24	0.39	0.09	0.55	0.23
Pyr. S.:	24	0.12	0.05	0.23	0.04
Sul. S.:	17	0.02	0.01	0.05	0.01
Ult. Ash:	39	21.40	8.95	52.40	8.24
Oxygen:	40	20.02	6.86	32.40	8.27
*Btu:	47	8739	1127	11035	6630
**mmmf Btu:	47	11187	734	13090	9375
Star Lake					
Prox. Moisture:	3	12.73	0.66	13.60	12.00
Prox. Ash:	3	19.2	8.65	30.50	9.50
Volatile Matter:	3	31.9	2.26	33.60	28.70
Fixed Carbon:	3	36.17	6.84	44.90	28.20
Ult. Moisture:	3	12.73	0.66	13.60	12.00
Carbon:	3	52.50	7.76	62.00	43.00
Hydrogen:	3	5.33	0.39	5.70	4.80
Nitrogen:	3	1.03	0.21	1.30	0.80
Sulfur:	3	0.67	0.23	1.00	0.49
Org. S.:	0	---	---	---	---
Pyr. S.:	0	---	---	---	---
Sul. S.:	0	---	---	---	---
Ult. Ash:	3	19.2	8.65	30.50	9.50
Oxygen:	3	21.27	1.16	22.90	20.40
*Btu:	3	9190	1406	10950	7510
**mmmf Btu:	3	11561	467	12221	11207

Table 11 (cont'd)

Barker

Prox. Moisture:	3	10.23	0.93	11.30	9.60
Prox. Ash:	3	7.00	5.00	12.70	3.40
Volatile Matter:	3	38.40	1.08	39.30	37.20
Fixed Carbon:	3	44.33	3.33	46.50	40.50
Ult. Moisture:	0	---	---	---	---
Carbon:	0	---	---	---	---
Hydrogen:	0	---	---	---	---
Nitrogen:	0	---	---	---	---
Sulfur:	0	---	---	---	---
Org. S.:	0	---	---	---	---
Pyr. S.:	0	---	---	---	---
Sul. S.:	0	---	---	---	---
Ult. Ash:	0	---	---	---	---
Oxygen:	0	---	---	---	---
*Btu:	3	11497	844	12090	10530
**mmmf Btu:	3	12434	199	12551	12204

Hogback

Prox. Moisture:	4	10.25	0.37	10.60	9.80
Prox. Ash:	4	3.90	0.90	5.00	3.10
Volatile Matter:	4	38.60	1.36	39.90	36.70
Fixed Carbon:	4	47.28	1.65	49.60	45.80
Ult. Moisture:	2	10.15	0.49	10.50	9.80
Carbon:	2	67.25	1.77	68.50	66.00
Hydrogen:	2	5.95	0.07	6.00	5.90
Nitrogen:	2	1.40	0.00	1.40	1.40
Sulfur:	4	0.90	0.29	1.30	0.60
Org. S.:	0	---	---	---	---
Pyr. S.:	0	---	---	---	---
Sul. S.:	0	---	---	---	---
Ult. Ash:	2	4.10	1.27	5.00	3.20
Oxygen:	2	13.75	9.26	20.30	7.20
*Btu:	4	11783	537	12240	11010
**mmmf Btu:	4	12317	614	12695	11399

Newcomb

Prox. Moisture:	6	17.25	1.48	19.10	15.30
Prox. Ash:	6	11.30	6.10	22.70	6.60
Volatile Matter:	6	32.27	2.69	35.50	27.70
Fixed Carbon:	6	39.17	4.08	42.70	31.10
Ult. Moisture:	6	17.25	1.48	19.10	15.30
Carbon:	6	54.67	5.59	59.10	43.90
Hydrogen:	6	5.83	0.29	6.30	5.50
Nitrogen:	6	1.12	0.13	1.30	0.90
Sulfur:	6	0.93	0.34	1.40	0.50
Org. S.:	3	0.57	0.14	0.72	0.45
Pyr. S.:	3	0.11	0.08	0.20	0.04
Sul. S.:	3	0.15	0.19	0.37	0.04
Ult. Ash:	6	11.78	6.35	22.70	6.60
Oxygen:	6	26.13	2.55	30.80	23.30
*Btu:	6	9515	1001	10410	7660
**mmmf Btu:	6	10837	592	11312	10021

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* Btu - British thermal unit, a calorific value
** mmmf Btu - moist mineral matter free Btu, determines rank of coal

TABLE - 12

Comparison of Quality of San Juan Coals

	Fruitland			Menefee		
	No.	Avg.	S.D.	No.	Avg.	S.D.
Prox. Moisture:	377	10.97	4.96	217	12.84	5.55
Fixed Carbon:	366	35.55	6.79	195	41.28	6.74
Prox. Ash:	377	22.20	9.30	217	11.10	6.10
Volatile Matter:	367	31.25	4.62	195	35.59	4.10
Ult Ash:	124	22.01	8.85	134	12.21	7.26
Ult Moisture:	125	13.46	2.67	122	14.94	4.21
Carbon:	125	49.38	7.05	134	56.85	7.96
Hydrogen:	125	4.20	0.76	133	4.68	0.88
Nitrogen:	125	0.94	0.25	134	1.08	0.34
Oxygen:	125	13.58	6.33	134	13.95	6.74
Total Sulfur:	374	0.72	0.38	214	1.06	0.74
Org S.:	29	0.41	0.10	71	0.58	0.22
Pyr S.:	29	0.12	0.05	70	0.32	0.34
Sul S.:	21	0.02	0.01	40	0.05	0.10
Btu:	376	9185	1641	213	10595	1412
mmmf Btu:	376	12094	1435	213	12062	1340

Table 13 - Coal leases and PRLA's in San Juan County (by field).

Lease Number	Location	Lessee
Fruitland Field		
State Leases		
M15356	T. 30 N., R. 15 W., sec 2	Riggs Elliot
M14014	T. 30 N., R. 15 W., sec. 16	Bank of Am. Trustee
M15417	T. 30 N., R. 15 W., sec. 16	Bank of Am. Trustee
M19340	T. 30 N., R. 15 W., sec. 16, 36	San Juan Coal
M15354	T. 30 N., R. 15 W., sec. 32	Bank of Am. Trustee
M19173	T. 29 N., R. 15 W., sec. 2	Independence Energy
M19339	T. 30 N., R. 14 W., sec. 30	San Juan Coal
Federal Leases/PRLA's		
NM 045196	T. 30 N., R. 15 W., sec. 2,3,9,10,21,28,33	Utah International
NM 045217	T. 30 N., R. 15 W., sec. 3,4,9,10	Utah International
NM 045197	T. 30 N., R. 15 W., sec. 15,22,27,34	Utah International
Bisti Field		
State Leases		
M15238	T. 22 N., R. 10 W., sec. 16	Peabody
M19029	T. 22 N., R. 10 W., sec. 16	Gulf Oil
M15299	T. 22 N., R. 11 W., sec. 2	Meadows Resources
M15237	T. 23 N., R. 11 W., sec. 32	Thermal Energy Co.
M18866	T. 23 N., R. 11 W., sec. 16	Meadows Resources
M18973	T. 23 N., R. 12 W., sec. 2	Meadows Resources
M16523	T. 23 N., R. 12 W., sec. 16	Thermal Energy Co.
M15296	T. 23 N., R. 13 W., sec. 2	Sunbelt
M19332	T. 23 N., R. 13 W., sec. 16	Paragon (PNM)
M15298	T. 23 N., R. 13 W., sec. 16	Sunbelt
M14297	T. 24 N., R. 13 W., sec. 32	Sunbelt
M18872	T. 24 N., R. 13 W., sec. 36	Paragon (PNM)
Federal Leases		
NM 8129	T. 22 N., R. 9 W., sec. 33,34,30,29,19	Peabody/Thermal
NM 3918	T. 22 N., R. 10 W., sec. 17,19,22-25,30	Ark Land Co.
NM 3919	T. 22 N., R. 10 W., sec. 14,15	Ark Land Co.
NM 6804	T. 22 N., R. 10 W., sec. 3,9,10	Western Assoc. Coal
NM 8745	T. 22 N., R. 10 W., sec. 21	Ark Land Co.
NM 9764	T. 22 N., R. 10 S., sec. 21,28	Peabody/Thermal
NM 3755	T. 22 N., R. 11 W., sec. 4,6,8,10,12	Ark Land Co.
NM 10931	T. 23 N., R. 11 W., sec. 29-31	Western Assoc. Coal
NM 3837	T. 23 N., R. 11 W., sec. 24-28, 33-35	Western Assoc. Coal
NM 3836	T. 23 N., R. 11 W., sec. 15,17-23	Western Assoc. Coal
NM 6803	T. 23 N., R. 10 W., sec. 18,19,30,31	
	T. 23 N., R. 11 W., sec. 10,11,13,14	Western Assoc. Coal
NM 3835	T. 23 N., R. 12 W., sec. 1-5,11,12,24	Western Assoc. Coal
NM 3838	T. 24 N., R. 12 W., sec. 31	Western Assoc. Coal
NM 3753	T. 23 N., R. 12 W., sec. 9,10,13-15	Ark Land Co.
NM 3752	T. 23 N., R. 12 W., sec. 17-23,36	Ark Land Co.
NM 3754	T. 23 N., R. 12 W., sec. 27-30	Ark Land Co.
NM 7235	T. 23 N., R. 12 W., sec. 36	Western Assoc. Coal
NM 6802	T. 23 N., R. 12 W., sec. 6	?
NM 6801	T. 24 N., R. 13 W., sec. 19-24	
	T. 24 N., R. 12 W., sec. 19	Western Assoc. Coal
NM 11916	T. 24 N., R. 13 W., sec. 25-28,35	PRLA
NM 0186612	T. 24 N., R. 13 W., sec. 31	Paragon (PNM) and Valencia Energy
	T. 23 N., R. 13 W., sec. 5-9,17,18	
NM 0186615	T. 23 N., R. 13 W., sec. 1,10-12	Paragon (PNM) and Valencia Energy
Star Lake Field		
State Leases		
M15261	T. 21 N., R. 8 W., sec. 16	Chaco Energy Co.
M19325	T. 21 N., R. 8 W., sec. 2	Chaco Energy Co.
M15266	T. 21 N., R. 8 W., sec. 36	Chaco Energy Co.
M15624	T. 21 N., R. 8 W., sec. 36	Thermal Energy Co.
M15625	T. 21 N., R. 8 W., sec. 16	Thermal Energy Co.
M19328	T. 22 N., R. 8 W., sec. 36	Chaco Energy Co.
Federal Leases/PRLA's		
NM 8128	T. 21 N., R. 8 W., sec. 8-10,15,17,22, 25-27,34,35	Peabody and Thermal Energy Co.
NM 11670	T. 21 N., R. 8 W., sec. 7,17,18	Peabody and Thermal Energy Co.

for the outcropping coal-bearing sequences.

Fruitland Formation coal fields

The Fruitland Formation contains the largest coal resources of all the coal-bearing formations in New Mexico and attains a maximum thickness of 445 ft near the Colorado border. The Fruitland Formation consists of shales, sandstones, shaly sandstones, and sandy shales, and coals. Fields in San Juan County that contain coals of the Fruitland Formation are the Fruitland, Navajo, Bisti, and Star Lake.

Fruitland Field

General Description--The Fruitland coal field is defined by the Colorado-New Mexico state line to the north, and the San Juan River to the south (Map 74). The field is bounded to the east by the contact between the Kirtland Shale and Fruitland Formation and on the west by the contact between the Pictured Cliffs Sandstone and the Fruitland Formation. The Fruitland field encompasses an area of approximately 206 sq mi.

Strata in the Fruitland field are relatively flat-lying (less than 3 degrees), with an easterly dip. The dip progressively increases to 40 degrees in the northern portion of the field as strata are influenced by the Hogback monocline. Faults associated with the Hogback monocline are present in the northern portion of the field. These faults have a definite impact on mining at the La Plata and Black Diamond mines. Faulting is not as prevalent in the southern end of the field. The northern part of the field is characterized by narrow ridges and valleys near the Hogback monocline and mesas tilted to the

east (Beaumont, 1971). The southern end of the field is marked by broad alluvial plains and sandstone-capped cuestas.

Coal in the Fruitland field is located near the base of the Fruitland Formation. At least three zones of coal can be recognized in the Fruitland field. The lower zone is the thickest and most continuous of the three zones. The average thickness of coal in this zone is 11.3 ft, with a maximum thickness of 30 ft near the Colorado state line. The middle zone contains between 1-3 beds of coal, each bed averaging 5 ft in thickness. This zone also contains the largest number of partings of the three zones in the field. The upper zone contains 1-2 coal beds, with an average thickness of 5 ft per bed. In general, all three zones are thickest in the northern portion of the Fruitland field and thin to the south.

Individual analyses for 163 coal samples from the Fruitland field are reported in Appendix 5, and a statistical breakdown of these analyses is given in Table 11. The average ash content for Fruitland field coals is 23.1%, which is very close to the average ash content for all Fruitland Formation coals (Table 12). The average total sulfur content (0.81%) is slightly higher than the average for all Fruitland Formation coals. An average mmmf Btu of 12,865 Btu/lb indicates that the coals in the Fruitland field are of a volatile C bituminous rank.

Mining and Past Production--Several small mines have operated in the Fruitland field in the past. These mines operated from the 1890's-1950's, with most activity occurring in the early 1900's. Most of these mines are located in T. 32 N.,

R. 12-13 W., and in T. 29-30 N., R. 15 W. Most of the coal mined was used for domestic purposes. Coal from one mine, the O'Brien-La Plata mine, was mined for the Phelps Dodge Mining and Smelting Co. to determine if the coal was suitable to fuel their copper smelters in Arizona (Nickelson, in press).

Currently three mines, the San Juan mine, Black Diamond mine, and La Plata mine are operating in the Fruitland field. The San Juan mine is the largest mine in the Fruitland field and the second largest mine in New Mexico (Hatton and Stockton, 1984). It supplies coal to the San Juan generating station, which is located on the mine's property. The mine started operating in 1973, producing 350,000 tons of coal in that year. In 1986 the San Juan mine produced over 5 million tons of coal (Table 8). Quality data from the San Juan mine indicate that coals contain 20% ash, 0.80% sulfur, and have a heating value of 9,400 Btu/lb (Nickelson, in press). The La Plata mine, north of Farmington near the Colorado state line, was permitted in January 1986 and began production in August 1986. It also supplies coal to the San Juan generating station, and produced 594,643 tons of coal in 1986 (Table 8). The Black Diamond mine, a permitted mine, is mining humates under contract to NL Baroid.

Resource and Development Potential--Resources and reserves were estimated using drill hole and outcrop data. The total resource estimate for Fruitland field coals from depths of 0 to 250 ft is 416.2 million tons. Total reserve estimates for these coals is 393.2 million tons (Tables 9, 10). The coal resource potential in the Fruitland field is high because outcrop

patterns, drill hole data, and mining activity indicate that coal beds are fairly continuous, relatively thick, and contain few partings.

The development potential in the southern (low dip) portion of the field is high due to the thickness and continuity of the beds. Major county and state roads are numerous, and three mining companies share an interest in the field. However, thick coal beds in the northern half of the field are not considered as mineable because the steep dip (up to 40°) of these beds removes them from a 20:1 stripping ratio in a relatively short distance. The Black Diamond mine is located in this area of steeply dipping beds and the La Plata mine is also located where dip is a factor. In these cases the thickness of the coals has outweighed the dip factor.

Navajo field

General Description--The Navajo field is located on the Navajo Indian Reservation of San Juan County (Map 73, 74). The field extends from the San Juan River in the north to Hunter's Wash and Coal Creek in the south. The field is further delineated by the eastern boundary of the Navajo Reservation in the east and the contact between the Pictured Cliffs Sandstone and Fruitland Formation in the west. The field encompasses 406 sq mi, making it the largest coal field in the San Juan Basin.

The field is structurally simple. Significant faults are not present, and beds dip less than 5 degrees to the east-northeast. Physiographically, the field is dissected by the Chaco River. The northern portion of the field is characterized

by badlands topography, whereas the southern half consists of mesas and undulating hills.

Major coal beds are located near the base of the Fruitland Formation. The number of mineable beds increases from north to south (Shomaker, 1971a). Individual coal beds are up to 26 ft thick, with an average thickness of 7.5 ft. In general, the thickness of these beds decreases from north to south.

Ninety-four analyses are available for Navajo field coals (Appendix 5). Averages for these analyses is shown in Table 11. Coals from the Navajo field are high volatile C bituminous, as indicated by an average mmmf Btu of 11,773 Btu/lb. This value and the average ash content (21.0%) are relatively close to the average mmmf Btu (12,094 Btu/lb) and ash content (22.2%) determined for all Fruitland Formation coals. The average sulfur content (0.83%) is slightly higher than the average sulfur content (0.72%) for the entire Fruitland Formation (Table 12).

Mining and Past Production--A few mines have operated in the past, supplying coal to the Navajo Indians for domestic use. These mines were located in T. 29 N., R. 15 W., in the extreme north end of the Navajo field. Nickelson (in press) indicates that these mines were active in the 1930's and 1950's. These mines became part of Utah International's Navajo lease and have been mined out by Utah's strip mining operation. Production figures for these early mines are not available.

The Navajo mine is presently operating in the Navajo coal field. The Navajo mine is the largest mine in New Mexico and ranks as one of the 20 largest mines in the nation. It began

operation in 1963, supplying coal to the Four Corners power plant for steam generation. Eight mineable beds are present in the mine, but due to the lenticularity and position of these beds only 4 beds can be mined in any given location (Nickelson, in press). In 1986 the Navajo mine produced approximately 6.8 million tons of coal. A second mine, the Burnham (or Con Paso) mine, began operation in 1979. This mine was originally intended to supply coal to a coal gasification complex (Nickelson, in press), but due to legal complications coal has been sold to industrial and thermal electric interests in Arizona (Hatton and Stockton, 1984). In 1984 the Burnham mine produced 31 thousand tons of coal, but the mine has produced more coal on an annual basis in the past (Table 8). Burnham suspended mining in mid-1984.

Resource and Development Potential--Estimates of coal resources in the Navajo field are based principally on drill hole data and mining activity. Total resources to a depth of 250 ft were estimated at 1,062 million tons. total reserve estimates for these depths are 984 million tons (Tables 9, 10). Beds of coal in the Fruitland Formation are relatively thick and continuous, with a slight thinning of beds to the south. From this information the resource potential of the Navajo field is high.

The development potential for the Navajo field is also high. Most strippable tracts were leased from the Navajo Indian Reservation by Utah International and the Consolidation Coal Company-El Paso Natural Gas Company. Road access is good. with

Federal Route 666 running subparallel to the length of the field. Additional leases may be difficult to secure because the properties are on the Navajo Indian Reservation.

Bisti Field

General Description--The Bisti coal field is delineated by the western boundary of T. 23-24 N., R. 13 W., and the eastern boundary of the field is located at the contact between the Ojo Alamo Sandstone and Fruitland Formation, and the field extends southward to Chaco Wash (Maps 73, 76). The Bisti field covers an area of 270 sq mi.

The Fruitland Formation has a regional dip of less than 1 degree and a strike to the northwest in the Bisti field. Faults are not present in the field. The western portion of the field is characterized by badlands topography and the eastern half by gently rolling plains.

There are at least three coal zones in the Bisti field. The thickness and presence of these zones varies considerably throughout the field. All of these zones show a general thinning to the southeast. The lower zone is the most consistent in thickness of the three zones in the Bisti field. There are 1-2 coal beds, which average 7.8 ft, present in the lower zone. These beds show the least variation in vertical position of any coal bed in the Bisti field. The middle zone is the most laterally continuous zone and contains the thickest coals in the field. An average thickness of coal in this zone is 8.9 ft. The upper zone contains the fewest number of partings of all the zones in the Bisti field. One to two coal beds, with an average

thickness of 6 ft per bed, are present in the upper zone. In general the thickest coals in the entire Bisti field occur in the middle of the field, where the upper and middle coal zones converge.

Up to 47 samples (Appendix 5) of coal were analyzed from the Bisti coal field, and a statistical breakdown of these analyses is shown in Table 11. The average ash content (20.3%) and average mmmf Btu (11,187 Btu/lb) correlate relatively well with averages for all Fruitland Formation coals. However, the average total sulfur content (0.54%) for coals from the Bisti field is significantly lower than the average (0.72%) for all coals in the Fruitland Formation (Table 12).

Mining and Past Production--Two mines, De-Na-Zin and Gateway, are currently operating in the extreme northwestern corner of the Bisti field. The De-Na-Zin mine has been active since 1980, supplying coal to the San Juan generating station. In 1985 the De-Na-Zin mine produced 34,077 tons of coal, but it had produced approximately 230 and 211 thousand tons in 1981 and 1982 (Table 8). The Gateway mine produced over 202 thousand tons of coal in 1985. The Gateway mine has been active since 1982 providing steam coal to the San Juan generating station and Plains Electric. Production figures for 1986 for both mines are presently not available.

Resource and Development Potential--According to Shomaker (1971b) the Bisti coal field represents the greatest undeveloped reserves in the San Juan Basin. Fairly continuous coal beds of

strippable thickness are located throughout most of this field. Based on drill hole data total resources at depths between 0 and 250 ft are estimated at 1,526.5 million tons, and total reserves at 1,375.0 million tons (Tables 9 and 10). These figures indicate that the resource potential for the Bisti field coals is high.

Development potential of the Bisti field is moderate. Access throughout the field is sparse. Most of the roads are dirt, with a few major paved county roads. Furthermore, most mineral ownership in the area is held by the federal government, which at present (1986) continues its moratorium on the sale of federal coal leases. Therefore, the present development potential for the Bisti field does not look hopeful.

Star Lake Field

General Description--The only portion of the Star Lake field in San Juan County is T. 21 N., R. 8 W. and the southwestern corner of T. 22 N., R. 8 W. (Map 76). The remainder of this field is located in Sandoval and McKinley Counties. This field is the smallest of the Fruitland Formation fields. The northern boundary of the field is defined by the contact between the Ojo Alamo Sandstone and Fruitland Formation, and the southern boundary by the Fruitland Formation and Pictured Cliffs Sandstone contact.

Faults are not present in the western portion of the Star Lake field, and the regional dip of the Fruitland Formation is less than 5 degrees to the northeast. The topography of the area is characterized by gentle relief, with low southward-facing

cuestas dissected by sandy arroyos (Shomaker and Lease, 1971).

Coals in the Star Lake field are irregular in thickness and contain many thin partings. The content of coal decreases from west to east. Coals in the west end of the Star Lake field are hard, bright, clean, and have good cleat. The field contains three coal zones. The thickest coals are located in the lower zone. An average of two beds are present in this zone, with an average thickness of 8.5 ft in each bed. The middle zone contains three beds. The average thickness of each of these beds is 4 ft and the thickest beds are up to 25 ft. The upper zone contains the thinnest coals. Two beds are present in the upper zone. The average thickness of the coal is less than 2.5 ft per bed, although coal beds 6-9 ft thick are present in the western end of the field.

Only three samples of coal were analyzed from the western portion of the Star Lake field (Appendix 5). Due to the limited number of analyses available, ash content, total sulfur content, and mmmf Btu were not compared with other quality data from Fruitland Formation coals. The average ash content, total sulfur content and mmmf Btu were 19.2%, 0.67%, and 11,561 Btu/lb, respectively. A subbituminous A or high-volatile C bituminous coal rank is indicated by the mmmf Btu value.

Resource and Development Potential--Estimates of total resources for the western portion of the Star Lake field are 445.5 million tons (Tables 9 and 10), and the total reserve estimates are 401.9 million tons. Considering the small area of this field in San Juan County the reserves are fairly high. Coal

beds in the Star Lake field are very lenticular and according to Shomaker and Lease (1971) few can be traced more than one or two miles without a significant change in thickness and lithologic makeup. However, considering the small area encompassed coupled with the high total resource estimates the resource potential for the San Juan County portion of the Star Lake field is high to moderate.

The development potential for the Star Lake coals in T. 21-22 N., R. 8 W. is low. Peabody and Thermal Energy Company have secured federal leases or PRLA's for most of T. 21 N., R. 8 W. (Table 13), but at the present time no federal lease sales have been activated to free up PRLA's for further coal leasing. Chaco Energy has some state leases but has not developed these due to a lack of transportation. Most of the roads in the Star Lake field are dirt. State Route 56 is the nearest paved road. The building of the Star Lake railroad would greatly enhance the development potential of this area.

Menefee Formation Coal Fields

The Menefee Formation is divided into three members: the Cleary Coal Member, the Allison Member, and the upper coal zone. The Cleary Coal Member overlies the Point Lookout Sandstone throughout most of the San Juan Basin. The Allison Member conformably overlies the Cleary Coal Member and contains yellowish-gray sandstones, sandy shales, mudstones, carbonaceous shales and shaly coals. The upper coal zone is present throughout most of San Juan County, but thins to zero to the south (Campbell and Roybal, 1984). Menefee coal fields present

in San Juan County are the Barker, Hogback, Toadlena, Newcomb, and Chaco Canyon (Fig. 25).

Barker Coal Field

General Description--The Barker coal field is located entirely in San Juan County, encompassing portions of T. 31-32 N., R. 13-17 W. (Map 74). The area is defined from the Colorado-New Mexico state line to the southern boundary of T. 31 N. The Pictured Cliffs Sandstone and Hogback monocline bound the area to the east, and the contact between the Point Lookout Sandstone and Menefee Formation delineates the fields western boundary. The entire field covers approximately 150 sq mi.

Due to the presence of the Hogback monocline, beds in the Barker field have steep dips (20-30 degrees). Faulting is not apparent in the area. Topography is influenced to the east by the Hogback monocline, which exhibits as much as 700 ft of relief over the San Juan Basin (Fassett and Hinds, 1971). To the west the area is characterized by cuestas dissected by steep sided canyons.

According to Shomaker (1971c), two coal zones are present in the upper Menefee Formation. The upper zone coals obtain a maximum thickness of 19.2 ft, and multiple, thin beds of coal in the lower zone obtain a cumulative thickness up to 17.3 ft.

Only a limited number of analyses (Appendix 5) are available for samples of coal collected in the Barker field. Three samples were analyzed for total sulfur content. Results of all of these analyses are insufficient to compare with other Menefee coals.

Resource and Development Potential--Total coal resources and

reserves were estimated from outcrop data and a few drill hole data in the Barker field. Total resources to a depth of 250 ft for Barker coals are 50.8 million tons (Table 9). Total reserves for these coals are 46.0 million tons (Table 10).

Due to the lack of available data the coal resources potential for the Barker field is low. Coals in the area are generally very thin and erratically distributed. More drilling and quality analyses are needed to better evaluate the coal resource potential for this part of the Barker field.

The development potential for the Barker field is very low because either coal beds dip too steeply to be strippable, or they are overlain by a significant thickness of Cliff House Sandstone (Shomaker, 1971c). Access to the area is remote and restricted to a few county, mostly dirt, roads. The Ute Indian Reservation is located in the Barker field which may make coal leases difficult to secure. Shomaker and Holt (1973) cite four areas which might be suitable for auger mining on the Ute Indian Reservation and Barker field. These areas are: near Salt Canyon, Middle Canyon, the south side of Purgatory Canyon, and from North Salt Canyon south and eastward to Barker Creek.

Hogback Coal Field

General Description--The Hogback field is delineated by the northern boundary of T. 30 N., R. 15-16 W., and the southern boundary of T. 26 N., R. 17-18 W. (Map 74). The contact between the Pictured Cliffs Sandstone and Menefee Formation is the eastern boundary of the field, and the Point Lookout Sandstone-Menefee Formation contact is the western limit. The field covers

an area of 140 sq mi.

The Hogback monocline is the major structural feature in this field. Beds influenced by the monocline dip 40 degrees to the east, but the dip of the beds gradually decreases to 10 degrees to the northeast in the southern end of the field. Major faults are not present in the field. The topography in the Hogback field is also influenced by the Hogback monocline, and is characterized by steep, sharp relief to the east, and gentler, westward-facing slopes in the west (Lease, 1971a).

Individual coal beds in the Hogback field average 6.6 ft in thickness, with two coal zones present in the field. Coals in the lower zone range in thickness from several inches to 11 ft. The upper zone beds are very lenticular and contain many partings. Cumulative thickness of upper zone beds range from 2.5-38 ft, with a maximum thickness of individual beds being 22 ft.

Four samples of coal from the Hogback field were analyzed to determine ash content, total sulfur content, and mmmf Btu (Table 11). Averages for these analyses are 3.9% for ash content, 0.90% for total sulfur content,and 12,317 Btu/lb for mmmf Btu. As with the Barker field these results are not sufficient to compare with other Menefee coals.

Mining and Past Production--Previous mining operations for coal in the Hogback coal field were restricted to Coal Creek in T. 30 N., R. 16 W. At least 17 small mines are located in this area (Hayes and Zapp, 1955). Most of these mines operated from the early 1900's through 1950, with the last mine ceasing

operation in 1976 (Nickelson, in press). Coal from these mines was used for domestic purposes only. There is no mining activity at the present time in the Hogback field.

Resource and Development Potential--Total coal resource and reserves in the Hogback field were estimated from drill hole and outcrop data. Total coal resources are 291.1 million tons for coals buried up to 250 ft beneath the surface (Table 9). Total reserves for these coals are 235.3 million tons (Table 10).

The resource potential for the Hogback field is moderate. Resources indicate that the area contains an appreciable amount of coal. However, the coal beds are very lenticular and contain many thin partings. More data is needed to better evaluate the resource potential in this field.

The development potential for this field is low. As with the Barker field, the dip of coal beds is too steep for strip mining. The area has good access, with two major highways, 666 and 550, near the field. The Hogback field is on the Navajo Indian Reservation, therefore leases may be difficult to obtain.

Toadlena Coal Field

General Description--The Toadlena coal field is located in T. 23-24 N., R. 18-19 W. It is defined by the outcrop of the Menefee Formation east of the Defiance monocline and south of the Tocito dome. The western boundary of the field is the contact between the Point Lookout Sandstone and the Menefee Formation (Map 73).

Strata in the Toadlena field dip 4 to 12 degrees to the

southeast. Major faults are not apparent. Topographically, the area consists of mesas dissected by east-flowing streams (Lease, 1971b).

Coal beds in the Toadlena field are relatively thin. Most beds are 1.5-2.5 ft thick and commonly occur in pairs with shale partings. No quality analyses are available for this field.

Resource and Development Potential--Due to the lack of drill hole and outcrop data, estimates of total coal resources and reserves are not available. As a result, the resource potential for this area must be classified as unknown. Lease (1971b) states that one exposure in the area indicates the beds are very thin (less than 2.3 ft), contain a number of partings, have steep dips, and a thick overburden. Lease (1971b) also indicates that surface water is sparse and groundwater resources have not been developed. Based on this work, resource and development potentials might be classified as very low.

Newcomb Coal Field

General Description--The Newcomb coal field is located from T. 25 N., R. 17 W. to the eastern boundary of the Navajo Indian Reservation (T. 21-23 N., R. 14 W.; Map 73). The field covers an area of approximately 140 sq mi.

The Newcomb field is structurally simple. Beds are relatively flat-lying, with a dip of less than 5 degrees. The topography of the field is characterized by sandstone-supported cuestas. In some areas, isolated hills and irregular ridges are formed by the erosion of shales and sandstones, which were baked by burning coal beds (Shomaker, 1971d).

Coal beds are located in the Upper Menefee Formation in the Newcomb field. These beds are irregularly distributed both geographically and stratigraphically. The average thickness of individual beds is 5.5 ft, with approximately 21 ft of interburden between beds.

Six samples from the Newcomb field have been analyzed for mmmf Btu, ash content, and total sulfur content (Table 11). A high volatile C bituminous rank is indicated by an average mmmf Btu of 10,387 Btu/lb. Average ash content in the Newcomb field coals is 11.3%, and the average total sulfur content is 0.93%. As with the other Menefee fields in the San Juan Basin, the quality data from the Newcomb field is too sparse to compare with total Menefee Formation coal analyses.

Resource and Development Potential--Only a limited amount of drill hole and outcrop data are available for estimating the total coal resources and reserves for the Newcomb field. Estimates indicate total coal resources of 112.0 million tons for depths between 0 and 250 ft (Table 9). Total coal reserves are 95.7 million tons for this depth category (Table 10).

The resource potential of the Newcomb field is low, due to the lenticularity and distribution of the beds, and the sparsity of available data. The northern portion of the field appears to have the highest relative potential (moderate?) of the entire field, and the southern end of the field contains very little known resources (very low-unknown). More drill hole data is needed to adequately evaluate the resource potential of this field.

The development potential for the Newcomb field is low. According to Shomaker (1971d), T. 24 N., R. 16-17 W. and T. 23 N., R. 17 W. show the greatest promise for development. The entire field is on the Navajo Indian Reservation, which may make it difficult to acquire coal leases in this field. Route 666 is to the west of the Newcomb field and is the only major road near the area. Additional access to the area may be obtained by dirt roads.

Chaco Canyon Coal Field

General Description--The Chaco Canyon coal field is located from T. 23-24 N., R. 14 W. to T. 21-20 N., R. 8 W. (Maps 73, 76) The southeast portion of this field is located in McKinley County. The field is delineated to the northern edge of the Allison Member of the Menefee Formation.

Structurally, the field is relatively simple. Beds dip less than 3 degrees to the northeast and major faults are not present in the area. Topographically, the field is characterized by northwest-trending mesas and valleys to the southeast and broad, grass-covered mesas, deeply cut by the Chaco River, to the northwest.

Coal beds are located in the Allison Member of the Menefee Formation. The average thickness of coal beds in the Chaco Canyon field is 3.5 ft. Coals in the northern and western portions of the field are thin and discontinuous, but coals near the San Juan-McKinley County line are more continuous and vary in thickness from 1 inch to 2.5 ft (Lease, 1971c).

Five samples of coal were analyzed on an as-received basis

for this field (Table 11). A high volatile C bituminous coal is indicated by an average mmmf Btu of 11,326 Btu/lb. Average sulfur content for these samples is 1.36% and the average ash content is 18.6%. The number of analyses is too small to compare with analyses of all Menefee Formation coals.

Resource and Development Potential--Only a limited amount of drill hole and outcrop data is available for the Chaco Canyon field. As a result, total coal resources and reserves for the San Juan portion of this field are sparse. Only 35.8 million tons of total coal resources are reported for Chaco Canyon coals which are buried less than 250 ft beneath the surface (Table 9). Of this amount 31.0 million tons are reported as total coal reserves (Table 10). Lease (1971c) indicates that the coals in the Chaco Canyon field are fairly continuous to broadly lenticular, and generally thin (less than 2.5 ft). As a result of these geologic characteristics and the lack of information the coal resource potential for the San Juan County portion of the Chaco Canyon field is very low to low.

The development potential is very low for the Chaco Canyon field due to the thinness of coal beds and excessive thickness of overburden. Access to the field is restricted mainly to dirt roads. More drilling and quality analyses are needed to better evaluate the coal resource and development potential for this part of the field. Until this is done the outlook for development in the Chaco Canyon field does not look hopeful.

Deep Coals

General Description--Several oil and gas wells in San Juan County penetrate coal beds in the Fruitland and Menefee Formations at depths greater than 250 ft (Table 14). Information from these holes is discussed below.

The Fruitland Formation coals are overlain by as much as 4,000 ft of strata in the San Juan Basin. The greatest accumulation of overburden in San Juan County (3,500 ft) occurs in the extreme northeastern corner of the county. Overburden thickness generally decreases to the west and southwest. Individual coal seams in the Fruitland Formation show a general increase from west to east, with the thicker coals (20 ft) being located in the deeper parts of the basin. Shomaker and Whyte (1977) show that the cumulative thickness of all Fruitland coals show a similar trend to the overburden pattern. In general, coals with a cumulative coal thickness between 60 and 70 ft occur in the northeastern corner of San Juan County, and this thickness decreases to the west and southwest.

Deep coals in the Menefee Formation are difficult to correlate because of the lenticularity and thinness of beds, as well as the lack of closely spaced drill holes. Isopach contours by Shomaker and Whyte (1977) show that, unlike the Fruitland Formation, the thinnest coals (5-10 ft) are located in the deepest (4,500 ft) part of the basin (east and northeast San Juan County). The thickest coals (20-30 ft) occur in the south-central portion of San Juan County in T. 25 N., R. 11 W.

Resource and Development Potential--Total resources of Fruitland and Menefee deep coals in San Juan County with minimum

Table 14 - Resources for deep coals in San Juan County (reported in millions of tons).

Depth	Coal Thickness		
	2.5 ft	5 ft	10 ft
Fruitland Field			
250- 500	1206.57	1016.95	786.76
500-1000	112.83	102.27	93.50
1000-2000	333.36	152.75	---
2000-3000	1306.24	1038.89	557.30
3000-4000	1137.47	950.03	532.11
Menefee Field			
250- 500	91.84	100.21	38.14
500-1000	1.49	0.83	---
1000-2000	16.29	---	---
2000-3000	---	---	---
3000-4000	24.97	10.72	---

thickness categories of 2.5, 5, and 10 ft are reported in Table 14. The resource potential for deep coals located in the Fruitland Formation is moderate to high. Drill hole data indicate that a significant amount of coal is present. The resource potential for the Menefee coals is very low, due to the lenticularity and thinness of beds, and sparsity of data.

The development potential of all deep coals is very low for conventional uses. The depth of these coals would require new methods of extraction and production, which at present are not economically feasible. Choate et al. (1982) show high coal bed methane contents (greater than 5 Bcf) in deep Fruitland Formation coals, which are correlative with deeper parts of the San Juan Basin (northeastern San Juan County). They state that the deep coals in the basin exhibit all the necessary geologic criteria, suggesting a high coal bed methane production potential, but Choate et al. (1982) caution that additional studies should be conducted to determine the extent of gas production.

Uranium Resources

(by V. T. McLemore and W. L. Chenoweth)

Introduction

Total uranium production from San Juan County through 1983 is 492,045 lbs of U_3O_8 (Table 15). Total uranium production from the San Juan Basin is over 334 million lbs of U_3O_8 (Table 16; McLemore, 1983a, b). The majority of production from San Juan County has been from the Morrison Formation in the Shiprock district. Mineralization also occurs in the Morrison Formation at Tocito dome, in the Fruitland-Kirtland Formation at the Boyd prospect, Cretaceous beach-placer sandstone deposits, and in the Ojo Alamo Sandstone.

Shiprock District

The Shiprock district is located on the Navajo Reservation in northwestern San Juan County and in New Mexico is subdivided into two subdistricts, the Chuska (or Sanostee) and Carrizo Mountains (Fig. 26; Maps 77-81). The majority of the uranium deposits occur in the Salt Wash and Recapture Members of the Morrison Formation, although some low-grade ore also was produced from the Todilto Limestone. Since 1948, over 495,000 lbs of uranium have been produced from this district (Table 17). Only one mine, the Enos Johnson mine in the Chuska subdistrict, has been active during recent times. This mine closed in 1982 because of a lack of a market.

The Salt Wash Member is the lowest member of the Morrison Formation in the area (Fig. 11) and consists of fine- to medium-grained sandstones and sandy and silty shales. The Salt Wash is

Table 15 - Uranium production by county from New Mexico from 1948 to 1983 (in pounds U_3O_8).

Year	San Juan	McKinley	Cibola	Other	Total
1948	7,614				7,614
1949	15,091				15,091
1950	22,178		70	-	22,248
1951	11,597	5,740	499	-	17,836
1952	13,092	57,671	9,883	-	80,646
1953	28,626	277,473	557,445	-	863,544
1954	26,736	508,230	796,997	531	1,332,494
1955	20,604	641,302	571,239	3,670	1,236,815
1956	10,601	765,136	4,986,801	12,481	5,775,019
1957	5,369	643,007	4,471,626	49,274	5,169,276
1958	9,040	3,057,138	4,997,211	894	8,064,283
1959	2,896	9,636,313	4,017,570	948	13,657,727
1960	4,195	12,109,951	3,670,231	362	15,784,739
1961	8,163	12,187,865	3,500,587	261	15,696,876
1962	25,448	12,980,226	2,775,794	6,031	15,787,499
1963	25,314	8,209,405	2,016,420	14,547	10,265,686
1964	18,260	7,616,783	1,791,400	5,942	9,432,385
1965	11,182	7,566,313	1,841,465	-	9,418,960
1966	15,422	7,929,956	1,837,821	1,106	9,784,305
1967	8,353	9,539,740	2,084,671	-	11,632,764
1968	5,486	9,347,432	3,533,898	-	12,886,816
1969	974	8,984,386	3,434,711	-	12,420,071
1970	2,856	8,220,453	3,889,697	-	12,113,006
1971-1983	193,564	99,246,634	56,115,303	48,409	155,603,910
TOTAL 1948-1983	492,661	219,531,154	106,901,339	144,456	327,069,610

Table 16 - Uranium production by host formation in the San Juan Basin, New Mexico from 1948 through 1984 (from U.S. Department of Energy records tabulated by W. Chenoweth and E. Lerned). [1] member of the Morrison Formation; [2] approximate figures (rounded to the nearest 1,000 pounds).

AREA	HOST FORMATION	PRODUCTION (LBS U_3O_8)	% of TOTAL NEW MEXICO	PERIOD
Nacimiento, Farmington	Ojo Alamo, Fruitland, Dakota, Morrison, Todilto, Chinle, and Cutler Formations	2,298	---	1954-1959
Shiprock-Carrizo Mts. and Sanostee	Salt Wash Member[1]	161,708	0.05	1948-1967
Sanostee	Recapture Member[1]	331,777	0.10	1952-1982
	Todilto Limestone	14	---	1954
Grants District	Dakota Sandstone	492,000[2]	0.15	1951-1970
	Morrison Formation (Brushy Basin and Westwater Canyon Members, Jackpile sandstone, Poison Canyon sandstone)	321,790,000[2]	96.34	1951-1984
	breccia pipe	134,014	0.04	1953-1956
	Todilto Limestone	6,736,520[2]	2.02	1950-1981
	mine water	4,330,000[2]	1.30	1963-1984
	TOTAL	333,980,000[2]		1948-1984

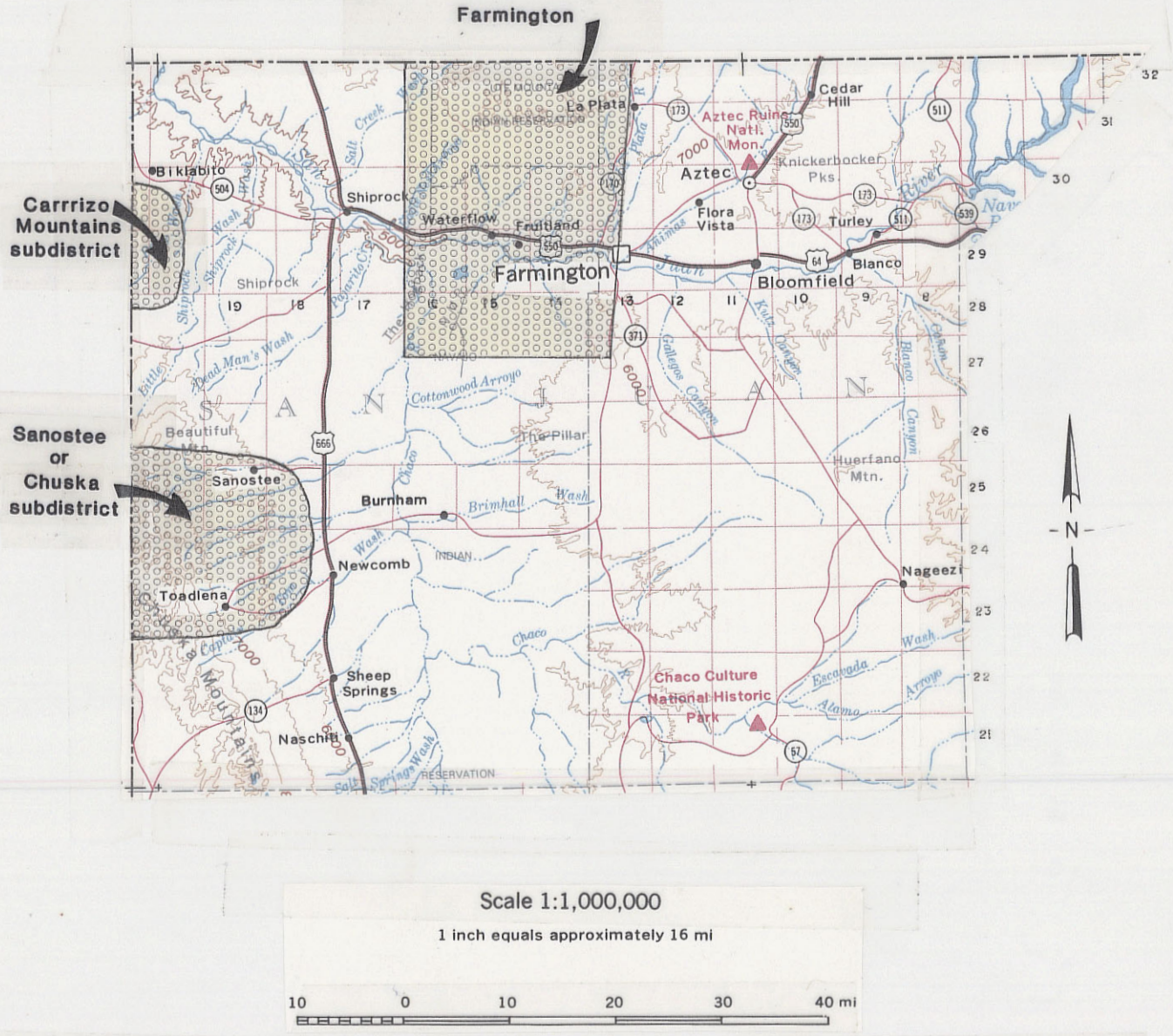

Figure 26. Uranium subdistricts and areas in the Shiprock district. (approximate boundaries)

220 ft thick at Oak Creek in the Carrizo Mountains subdistrict and thins to the north due to a Bluff high at the Four Corners. At Sanostee (Chuska subdistrict), the Salt Wash is only 50 ft thick. Farther southeast, in the Toadlena area and southern San Juan County, the Salt Wash is absent (Hilpert, 1969) due to non-deposition.

The Recapture Member overlies the Salt Wash Member and consists of locally conglomeratic sandstones and minor interbeds of siltstone and shale. The Recapture Member is about 500 ft thick at Sanostee and thins northward, where it grades into a sandstone-shale sequence.

The Westwater Canyon Member ranges from 140 to 270 ft thick and consists of arkosic to subarkosic sandstones and shales (Hilpert, 1969). The Brushy Basin Member ranges from 150 to 400 ft in thickness and consists primarily of shale with a few arkosic to subarkosic sandstones (Hilpert, 1969; Green et al., 1982a). The sandstones in these members are typical of the mineralized sandstones in the Grants uranium district; however, detrital organic material is absent in the outcrops (Green et al., 1982a). At least one subeconomic ore deposit is known to occur in the Westwater Canyon Member in this district, and there are a few occurrences and radioactive anomalies in Brushy Basin sandstones (Appendix 1; Green et al., 1982a). In addition, similar lithologies, depositional environments, and alteration between the sandstones in the Shiprock district and the Grants district suggest that these sandstones could contain uranium orebodies (Green et al., 1982a; U.S. Department of Energy, 1980).

Uranium mineralization occurs in the Todilto Limestone;

however, only one property produced ore which was above 0.10% U_3O_8 (Appendix 1). Todilto mineralization is spotty and discontinuous, and does not constitute an economic resource in this area (Green et al., 1982a).

Carrizo Mountains Subdistrict--The Carrizo Mountains subdistrict forms the northern portion of the Shiprock district in the eastern Carrizo Mountains along the New Mexico and Arizona border (Fig. 26). Much of the district lies in Arizona (Scarborough, 1981). Uranium and vanadium mineralization was discovered in the Salt Wash Member in 1918 by John Wade (Chenoweth and Learned, 1980). Radium ore was produced from one lease, owned by George O. Williams and Nephi Johnson from 1923 to 1927 (Bureau of Indian Affairs files, 1927). The area remained inactive from 1927 until 1942, when Curran Brothers and Wade, and the Vanadium Corporation of America (VCA) obtained mining leases for vanadium in Arizona and New Mexico. Subsequently 12 plots or claims were issued to VCA and the entire lease was commonly referred to as the East Reservation Lease (lease no. I-149-IND-57075). Early production from the East Reservation Lease from 1942 to 1946 amounted to 10,216 tons of ore averaging 2.47% V_2O_5. Much of the uranium in the ore was recovered at Monticello, Utah, for the Manhattan project. The total amount of recovered U_3O_8 is estimated to be 44,000 lbs (Chenoweth, 1985).

The Atomic Energy Commission was created in 1947 and, as a result of an ore procurement program, VCA began prospecting and mining on their East Reservation Lease for uranium. The first uranium ore shipments were in April 1948. Mining in the Carrizo

Mountains ceased in 1968. From 1948 to 1968, 160,772 lbs of U_3O_8 were produced from the New Mexico portion of the Carrizo Mountains subdistrict (Table 17).

Uranium and vanadium mineralization in the Carrizo Mountains subdistrict is restricted to the Salt Wash Member. Orebodies tend to form clusters that are elongated and blanket-like. Unlike uranium deposits in the Grants uranium district, the ore deposits in the Carrizo Mountains subdistrict are high in vanadium and are controlled by paleostream channels (Hilpert, 1969; Chenoweth and Malan, 1973; Huffman et al., 1980). The U:V ratio averages about 1:10 and ranges from 1:6 to 1:19. Orebodies tend to parallel paleostream channels and are associated with organic material derived from adjacent sandbar, swamp, and lake deposits. Most orebodies are small and irregular, and only a few deposits have yielded over 1,000 tons of ore (Appendix 1; Hilpert, 1969). It is likely that additional ore deposits may occur in the area (Hilpert, 1969; Scarborough, 1981; U.S. Department of Energy, 1980; Green et al., 1982a), especially downdip of King Tutt Mesa (Fig. 27; Map 77) in a projection of a mineralized paleochannel system (unpublished reconnaissance by the authors). Additional orebodies may also occur on Horse Mesa (Fig. 27).

The source of uranium and vanadium in the Salt Wash Member is not known, but could have been derived from nearby volcanic terrains or volcanic detritus within the Morrison Formation (Thamm et al., 1981; Scarborough, 1981). The time of deposition is also not known, but is presumed to be pre-Laramide in age

TABLE 17 - Uranium production by district in San Juan County, New Mexico. [1]Member of Morrison Formation.

District or area	Host Formation	Production (lbs U_3O_8)	% of total New Mexico	Period
Shiprock				
Carrizo Mountains	Salt Wash Member[1]	159,850	0.05	1948-1967
Sanostee	Recapture Member[1]	331,777	0.10	1952-1982
(Chuska)	Salt Wash Member[1]	1,858	--	1948-1967
	Todilto Limestone	14	--	1954
Farmington				
Hogback	Point Lookout Sandstone (beach placer deposit)	3	--	1954
Boyd prospect	Fruitland-Kirtland Formation	74	--	1955
Farmington-Aztec (exact location unknown)	Ojo Alamo Formation	48	--	1954
	TOTAL SAN JUAN COUNTY	493,624	0.15	1948-1982

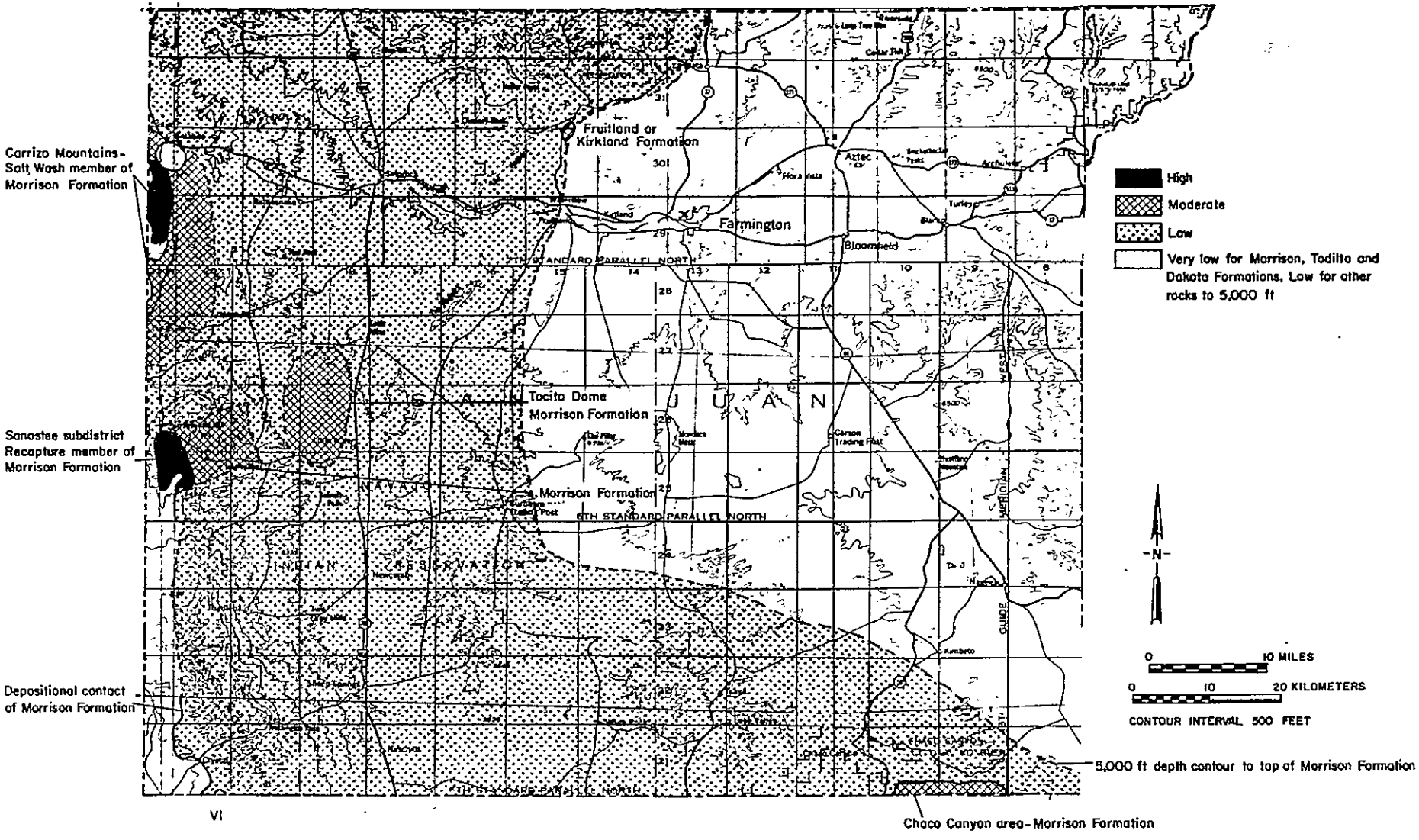

Figure 27. Uranium (vanadium) resource potential in San Juan County, New Mexico.

(Scarborough, 1981).

Chuska Subdistrict--The Chuska or Sanostee subdistrict is in the southern portion of the Shiprock district in the Chuska Mountains (Fig. 26). Uranium and vanadium mineralization was discovered in the Salt Wash and Recapture Members and the Todilto Limestone in the early 1950's and the first ore shipments were made in 1952. From 1952 to 1982, approximately 333,700 lbs of U_3O_8 were produced from 16 properties. The only active mine in recent years in this subdistrict is the Enos Johnson mine, which is the largest producing mine outside the Grants uranium district.

Uranium in the Salt Wash and Recapture Members occurs as grain coatings, cement, and tabular orebodies in sandstones and is associated with organic material. Mineralized carbonized logs are common. The upper Recapture sandstones contain the largest and richest deposits in the Chuska subdistrict. The U:V ratio in the Salt Wash ranges from 1:1 to 1:5, and in the Recapture ranges from about 1:1.75 to 1:0.43, similar to U:V ratios found in the Grants district (Hilpert, 1969). Two types of ore are present. A black ore is associated with organic material and a red ore is associated with hematite. The lack of vanadium and high quantities of clay have hindered the marketing of this ore at mills in Durango and Shiprock. Orebodies may parallel paleostream channels as in the Carrizo Mountains subdistrict, but nonchannel-controlled peneconcordant orebodies are common (Green et al., 1982a; Blagbrough et al., 1959). The orebodies in the Salt Wash are small, ranging from 25 to 50 ft in diameter and up

to 2 ft in thickness (Blagbrough et al., 1959). The orebodies in the upper Recapture are larger, ranging up to 500-600 ft in length, 150-200 ft in width and up to 20 ft in thickness. Ore grades in both units average about 0.20% U_3O_8. The source and timing of these deposits are unknown, but probably related to the deposits in the Carrizo Mountains subdistrict. It is likely that additional ore deposits may exist in the Salt Wash and Recapture Members in this area (Map 79; Blagbrough et al., 1959; Hilpert, 1969; U.S. Department of Energy, 1980; Green et al., 1982a).

Boyd Prospect

The Boyd prospect is located northwest of Farmington in San Juan County and is included on the San Juan Coal Company's mining lease. In 1955, 74 lbs of U_3O_8 at an average grade of 0.05% U_3O_8 were produced from this mine (Appendix 1). One 10 ton shipment assayed 0.10% U_3O_8. The uranium mineralization is finely disseminated and occurs at the base of a 2- to 3-ft thick sandstone belonging to the lower Kirtland or upper Fruitland Formations. Hematitic alteration and finely disseminated organic material are associated with uranium mineralization. A selected sample assayed 0.182% U_3O_8 (Table 18), but assays up to 0.19% U_3O_8 are reported (Chenoweth, 1958).

The stratigraphic position of this occurrence has been the subject of some controversy. The massive brown, uraniferous sandstone has been correlated with the Pictured Cliffs Sandstone, the Kirtland Formation, and the Fruitland Formation (Chenoweth, 1958). The mineralized sandstone rests on a fossiliferous bluish-gray lag conglomerate and gray to bluff shale.

Table 18 - Chemical analyses of uranium deposits in San Juan County, New Mexico.

Sample number	Location	Name	U_3O_8 %	V_2O_5 %	Other
7973	23N.19W.14	Toadlena	.024	-	No Au, Ag
7974	23N.19W.31	Sanostee	.032	-	No Au, 0.5 oz/ton Ag
7983	29N.21W.24	King Tutt mine	.235	3.4	-
3164	30N.15W.3	Boyd	.182	-	-

Continental fluvial environments are indicated by vertebrate, mollusk, and plant fossils, thereby eliminating the Pictured Cliffs correlation. The absence of coal beds overlying the mineralized sandstone suggests correlation with lower Fruitland Formation; however, additional stratigraphic studies are required.

The Boyd prospect is unique, as there are no other major uranium occurrences in middle Cretaceous rocks in the central San Juan Basin, excluding minor isolated occurrences in coal beds. The origin of mineralization is not known but may be related to faulting in the vicinity. The resource potential of the Boyd prospect is moderate (Fig. 27) but the potential for development is probably low judging from low-grade ore shipments and thin mineralized zones at the surface. Subsurface extent of this mineralized zone is unknown.

Tocito Dome

Uranium deposits are reported to occur in the Westwater Canyon Member on Tocito dome, northeast of Sanostee, by Exxon Minerals Co., USA (Nuclear Fuel, 3/1/81). Very little information, including the exact location, is known but drill hole records indicate drilling in sec. 3 and 4, T. 26 N., R. 18 W. Depth to the Westwater averages about 1,560 ft. Presumably these deposits are similar to deposits in the Grants uranium district.

Beach-placer sandstone deposits

Beach-placer sandstone deposits are concentrations of heavy minerals that form on beaches or in long-shore bars in a

marginal-marine environment (Mickle and Mathews, 1978; Mickle, 1978; Mathews et al., 1979). Numerous beach-placer sandstone deposits are found in northern New Mexico (Appendix 1), and at least three wells have penetrated similar deposits in the subsurface (Chenoweth,1957). All of these deposits except the Cimarron deposit in Colfax County are in the San Juan Basin (Fig. 28). Although beach-placer sandstone deposits are found in strata of all ages, the deposits in New Mexico are restricted to Upper Cretaceous rocks in the Gallup, Dalton, Point Lookout, Pictured Cliffs, and Trinidad Sandstones (Chenoweth, 1957; Houston and Murphy, 1977).

The beach-placer sandstones are radioactive due to radioactive zircon, monazite, and columbium-bearing minerals. In addition, minerals such as ilmenite, anatase, leucoxene, magnetite, hematite, zircon, garnet, and tourmaline are common in these sandstones. Anomalously high concentrations of Ti, Fe, Sc, Zr, Ag, Nb, Th, U, and rare-earth elements are characteristic. Chemical analyses of two deposits in San Juan County are in Table 18. These sandstones range from olive-gray, rust-brown, brownish-black to maroon, and are commonly called "black sandstone deposits." Beach-placer sandstone deposits occur at the top of beach sandstones and at places in two or more intervals. They represent regressive sequences and typically occur near major coal beds.

Only one locality in New Mexico, the Hogback #2 property in San Juan County, has been mined; where 8 tons of "no-pay" ore yielding 3 lbs of U_3O_8 (0.02%) were produced from the Point

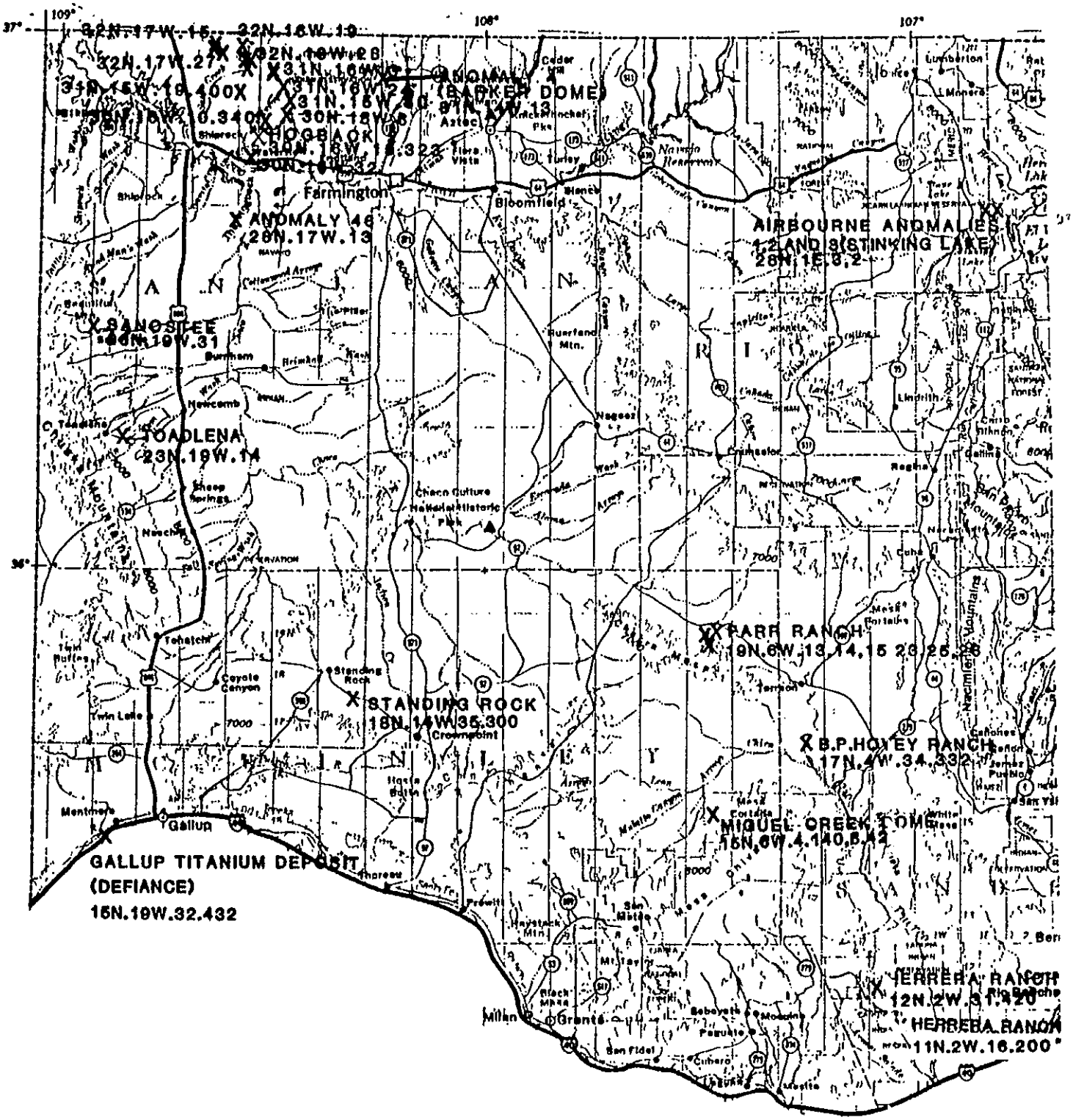

Figure 28. Beach placer deposits in the San Juan Basin, New Mexico.

Lookout Sandstone in 1954.

Many of the beach-placer sandstone deposits in New Mexico are low-tonnage and low-grade and remain undeveloped. However, it is estimated that a total of 4,751,200 tons of ore containing 12.82% TiO_2, 2.07% ZrO_2, 15.51% Fe, and less than 0.10% $eThO_2$ (radiometric equivalent ThO_2) are present in the San Juan Basin in New Mexico (Dow and Batty, 1961). The reliability of this estimate is uncertain.

Additional deposits probably remain undiscovered in the area. Drilling is required along strike and behind known deposits. The small size, low-grade, and difficulty in recovery of individual deposits prevent large-scale mining of them despite their economic potential. In addition, Recent beach-placer sandstone deposits in Florida and Georgia are mined for titanium, and thorium is recovered as a byproduct from monazite. Monazite from these deposits constitutes only 0.3 to 1.0% of the heavy minerals recovered. Thorium may be as high as 5% in the monazite. Thus the amount of thorium produced in the future will probably come from these Recent deposits or as by-product of other mining ventures. The resource potential is moderate and the development potential is low.

Ojo Alamo Sandstone

In the spring of 1954, a 22-ton shipment assaying 0.11% U_3O_8 and 0.06% V_2O_5 was received at the ore buying station at Shiprock. The shipper was the Meadows Mining Company and the property was identified as Claim 14 in San Juan County, New Mexico. Notes in the AEC files report that the shipment came

from the Ojo Alamo Sandstone in the Farmington-Aztec area. No other information on the shipment is available. Efforts by W. L. Chenoweth to locate the source of the shipment in the late 1950's were in vain; however, the BLM files lists a Meadows mine in sec. 3, T. 30 N., R. 15 W. (Appendix 1). We are not sure if this is the same property.

The Ojo Alamo is known to contain uranium minerals in the Cuba, New Mexico area, but there are no reported occurrences in western part of the San Juan Basin, and the source of the Meadows Mining Company shipment is still a mystery. The resource potential for uranium in the Ojo Alamo Sandstone is unknown.

Geothermal Resources

(by V. T. McLemore and K. Klein)

Geothermal resources refer to the natural concentration of heat, generated within the interior of the earth, that can be extracted economically (Muffler, 1981). In New Mexico, geothermal energy is used for space heating (Hatton and Peters, 1982); several areas are being investigated for potential use in generating electricity.

The Geothermal System Act of 1970 established criteria for the U.S. Geological Survey to utilize in designating areas that are prospectively valuable for geothermal energy; these areas are termed KGRA's (Known Geothermal Resource Areas; Godwin et al., 1971). The New Mexico State Land Office also designates favorable areas for potential geothermal resources; these areas are termed KGRF's (Known Geothermal Resource Fields; Hatton, 1977, 1980, 1981a, b; Hatton and Peters, 1982).

There are no KGRA's or KGRF's delineated by the U.S.G.S. or the New Mexico State Land Office in San Juan County. A few wells in San Juan County suggest anomalously high heat flow in some areas, especially near volcanic and intrusive rocks in western San Juan County (Maps 82-85; Table 19). However, there is no indication of any potential for geothermal reservoirs in San Juan County and the resource potential is very low.

Table 19 - Geothermal wells and springs in San Juan County.

Name	Location	Temp °C	Temp °F	Depth of well (m)	Comments	References
Spring	28N.18W.10	20	68			Summers (1965b); Stearns (1937); Gilbert (1875); Peale (1886); Jones (1904)
Spring	24N.18W.3	>18	>65			Summers (1965b); Peale (1886); Jones (1904)
Well	23N.12W.3	31	88	383	bottom hole temp.	Swanberg (1980)
Flowing well	23N.14W.3 W1/2	61	142	925	bottom hole temp.	Swanberg (1980)
Well	25N.12W.13.300	34	93	396	bottom hole temp.	Swanberg (1980)
Well	25N.13W.26	35	95	427	bottom hole temp.	Swanberg (1980)
Well	26N.9W.4	41	106	635	bottom hole temp.	Swanberg (1980)
Well	26N.11W.7 W1/2	33	91	436	bottom hole temp.	Swanberg (1980)
Well	26N.12W.17	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	26N.12W.19.200	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	26N.12W.21 S1/2	35	95	398	bottom hole temp.	Swanberg (1980)
Well	26N.12W.29	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	26N.12W.31	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	26N.13W.12	38	100	399	bottom hole temp.	Swanberg (1980)
Well	26N.13W.36 N1/2	33	91	412	bottom hole temp.	Swanberg (1980)
Well	26N.14W.8&17	81	178	1700	bottom hole temp.	Swanberg (1980)
Well	27N.8W.8	67	153	902	bottom hole temp.	Swanberg (1980)
Well	27N.10W.31	49	120	648	bottom hole temp.	Swanberg (1980)
Well	27N.11W.17&20	42	108	641	bottom hole temp.	Swanberg (1980)
Well	27N.13W.24&25	29	84	312	bottom hole temp.	Swanberg (1980)
Well	27N.13W.36.200	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	28N.8W.15	48	118	770	bottom hole temp.	Swanberg (1980)
Well	28N.8W.25	49	120	771	bottom hole temp.	Swanberg (1980)
Well	28N.8W.32	49	120	829	bottom hole temp.	Swanberg (1980)
Well	28N.8W.33	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	28N.10W.19 N1/2	47	116	626	bottom hole temp.	Swanberg (1980)
Well	28N.11W.10 S1/2	42	108	523	bottom hole temp.	Swanberg (1980)
Well	28N.11W.13	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	28N.11W.22	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	29N.9W.23.200	56	133	747	bottom hole temp.	Swanberg (1980)
Well	29N.9W.28	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	29N.10W.5	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	29N.10W.9	56	133	707	bottom hole temp.	Swanberg (1980)
Well	29N.10W.13	56	133	661	bottom hole temp.	Swanberg (1980)
Well	29N.10W.14	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	29N.10W.32	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	29N.10W.36	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	29N.11W.24	70	158	479	bottom hole temp.	Swanberg (1980)
Well	29N.11W.26 N1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	29N.12W.18&19	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	29N.12W.28 N1/2	34	93	397	bottom hole temp.	Swanberg (1980)
Well	29N.12W.35 N1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	29N.14W.13 N1/2	27	81	295	bottom hole temp.	Swanberg (1980)
Well	29N.19W.12	33	91	283	bottom hole temp.	Swanberg (1980)
Well	29N.19W.13	33	91	302	bottom hole temp.	Swanberg (1980)
Well	30N.8W.29	52	126	905	bottom hole temp.	Swanberg (1980)
Well	30N.9W.8	56	133	951	bottom hole temp.	Swanberg (1980)
Well	30N.9W.25.100	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	30N.10W.32	51	124	739	bottom hole temp.	Swanberg (1980)
Well	30N.11W.20	43	109	658	bottom hole temp.	Swanberg (1980)
Well	30N.16W.1.200	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	30N.16W.2 N1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	30N.16W.3 N1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	30N.16W.4 N1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	30N.16W.5 N1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	30N.16W.6 N1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	30N.16W.9 N1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	30N.16W.10 N1/2	53	127	911	bottom hole temp.	Swanberg (1980)
Well	30N.16W.16 N1/2	43	109	403	bottom hole temp.	Swanberg (1980)
Well	30N.16W.29 S1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	30N.16W.30 S1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	31N.16W.6 S1/2	46	115	546	bottom hole temp.	Swanberg (1980)
Well	31N.16W.16 S1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	31N.16W.18 S1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	31N.16W.19	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	31N.16W.20	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	31N.16W.22	45	113	457	bottom hole temp.	Swanberg (1980)
Well	31N.16W.28 S1/2	42	108	394	bottom hole temp.	Swanberg (1980)
Well	31N.16W.29 S1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	31N.16W.30 S1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	31N.17W.1.200	39	102	385	bottom hole temp.	Swanberg (1980)
Well	30N.8W.24	>50	>122		bottom hole temp.	Wentz (1984)
Well	31N.17W.1&12	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	31N.17W.2 N1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	31N.17W.5.200	36	97	368	bottom hole temp.	Swanberg (1980)
Well	31N.17W.13 S1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	31N.17W.14 S1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	31N.17W.24 S1/2	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	31N.17W.26&35	32	90	293	bottom hole temp.	Swanberg (1980)
Well	32N.13W.31.200	47	117	753	bottom hole temp.	Swanberg (1980)
Well	32N.17W.22.400	38	100	412	bottom hole temp.	Swanberg (1980)
Well	32N.17W.24	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	32N.17W.26	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	32N.17W.28.300	20-50	68-122		bottom hole temp.	Swanberg (1980)
Well	32N.17W.36.300	46	115	546	bottom hole temp.	Swanberg (1980)

Metals

(by V. T. McLemore and W. L. Chenoweth)

Deposit Types

Minor metallic mineralization occurs sporadically in San Juan County. Vanadium has been produced in the Shiprock district. Molybdenum and selenium also occur in these uranium-vanadium deposits but have not been recovered. Minor occurrences of manganese are reported, but no economic deposits have been found. Unfortunately, production of metals in San Juan County is not likely to occur in the near future.

Vanadium

Introduction--The principle use of vanadium is as an alloying agent in steel. Vanadium also is used as catalysts in producing sulfuric acid and organic compounds. A large portion of vanadium production and present reserves are from byproduct production of uranium in the Colorado Plateau, including New Mexico, Colorado, Utah, and Arizona (Fischer, 1965; Kuck, 1985). Over 2 million pounds of V_2O_5 were mined as vanadium prior to 1946 and as a byproduct of uranium mining in San Juan County (Table 20).

The majority of the uranium ore mined in San Juan County was shipped to Durango, Colorado, where the vanadium was recovered by the Vanadium Corporation of America (VCA) which operated the mill there. The Shiprock mill of Kerr McGee Oil Industries Inc. only recovered about 58% of the vanadium in the ores processed at Shiprock because of milling problems (Albrethsen and McGinley, 1982). The mill tailings at Shiprock have recently been

stabilized under the Uranium Mill Tailings Radiation Control Act of 1978 and the contained vanadium is no longer available as a resource.

Table 20 - Vanadium production from uranium ores in New Mexico (in pounds V_2O_5). Not all of the vanadium from 1950 to 1970 was recovered by the mills. w = withheld.

Year	San Juan	McKinley	Cibola	Other	Total
1942	100,069	--	--	--	100,069
1943	346,730	--	--	--	346,730
1944	56,730	--	--	--	56,730
1945	582	--	--	--	582
1946	0	--	--	--	0
1947	623	--	--	--	623
1948	67,386	--	--	--	67,386
1949	174,222	--	--	--	174,222
1950	219,069	--	38	--	218,107
1951	121,514	2,394	210	--	124,118
1952	99,124	56,272	8,630	--	164,026
1953	195,755	99,464	51,649	--	346,868
1954	201,279	360,481	391,822	404	953,986
1955	146,804	147,882	339,822	1,043	635,299
1956	73,267	524,224	2,606,636	5,244	3,209,371
1957	54,299	155,765	2,185,166	2,814	2,398,044
1958	20,297	139,224	--	--	159,521
1959	12,782	33,262	--	340	46,384
1960	35,191	--	--	--	35,191
1961	14,344	--	--	--	14,344
1962	86,696	--	--	--	86,696
1963	73,607	--	--	--	73,607
1964	32,820	3,931	--	--	36,751
1965	17,069	3,415	--	--	20,484
1966	58,740	3,014	--	--	61,754
1967	24,457	640	--	--	25,097
1968	4,757	42	--	--	4,799
1969	1,011	42	--	--	1,053
1970	--	--	--	--	0
1971	--	--	--	--	0
1972 through 1983	w	w	w	--	94,452
TOTAL	2,239,224	1,529,922	5,583,721	9,749	9,457,072

Geology--Vanadium occurs in most of the uranium deposits in the Morrison and Todilto Formations in the Shiprock district (Fig. 27), however, production of vanadium is dependent upon uranium production. Most of the uranium-vanadium deposits in San Juan County contain less than a few tens of percent V_2O_5. Most of the vanadium in primary uranium deposits occurs in organic compounds, clay minerals, and chlorites. Additional information concerning the geology of uranium-vanadium deposits is presented elsewhere in this report.

Resource and development potential--Reserves of about 25,000 tons of byproduct vanadium ore are in uraniferous sandstones of the Colorado Plateau (Kuck, 1985). However, most of these reserves and marginal reserves occur in Colorado and Utah. Specific estimates for New Mexico deposits are unknown. Mill tailings also contain large resources of vanadium, but estimates are unknown and the tailings are unavailable for reprocessing.

The resource potential for vanadium as a byproduct of uranium production is similar to the uranium-resource potential, as previously discussed (Fig. 27; Maps 77-81). Vanadium-resource potential is high in the Morrison Formation in the Shiprock district and moderate surrounding these areas. The potential for development of vanadium is low to moderate and dependent upon the uranium market.

Miscellaneous

Minor occurrences of other metals occur in San Juan County, but not in economic quantities. Beach-placer sandstone deposits, discussed under uranium resources (Fig. 28), also contain minor

quantities of titanium, iron, rare-earth elements, and zircon. These deposits are small and low grade. Molybdenum and selenium occur in minor amounts in some uranium-vanadium deposits in the Shiprock district.

Placer gold is reported from the San Juan River and at least one gravel operation uses a sluice (Carl Yost, personal communication, July, 1986). Extremely fine, flour gold was produced downstream along the San Juan River in Utah from Chinle Creek to Zahn's Camp, from 1892 to about 1915. Gold occurs in sand and gravel bars a few feet above the present river level and in ancient terrace remnants of coarse gravel and sand (Miser, 1924). The Nephi claim, 4 miles below the Honaker Trail in Utah yielded $3,000 worth of gold in thirty days during the 1890's. Other claims yielded significant quantities of gold. However, the resource potential for placer gold in New Mexico is unknown.

An iron-pigment deposit occurs near Farmington in the Farmington Sandstone Member of the Kirtland Shale. Iron oxides, once mined for local usage, occurs as streaks in clay and cement in the sandstone (Bieberman, 1951; Talmage and Wootton, 1937). The resource potential for iron as pigment on a commercial scale is probably low, although during the 1930's total production averaged about $150 a year.

Manganese occurrences are found in the Chuska Mountains near Crystal (sec. 11 T. 22 N., R. 21 W., sec. 4 T. 21 N., R. 20 W.; Appendix 1). Several shallow pits exposed zones of manganese oxides in soft, friable white to buff sandstone, possibly of the Chuska sandstone. The zones were up to 15 ft thick and averaged 21% manganese (Farnham, 1961). Other similar occurrences are

found in the area (Allen, 1951). The resource potential is probably low.

Industrial Materials

(by J. M. Barker)

Introduction

Industrial materials are very difficult to classify. They have often been called "non-metallics" or "industrial minerals", among many terms. Both terms are inadequate because industrial materials include solids, liquids (brine), and gases (carbon dioxide, nitrogen, etc.) along with minerals, rocks, manufactured products (lime), and some metals (boron, lithium, silicon) in a strict chemical sense. The end use of the material is typically the defining factor in classification so that coal, lignite, bitumen, asphalt, uranium/thorium and others are, in certain instances, considered "industrial materials", the term used in this report.

Details of the classification problems of industrial materials are in Wright and Burnett (1962), Fisher (1969), Bates (1969), Kline (1970), Dunn (1973), and Blair (1981).

Classification schemes span a broad spectrum from end-use through economic ones. In between are mixed parameter ones based on geologic end use or geologic economic schemes. For this study, Bates' (1960) classification (modified) is most illustrative (Table 21). A simple case differentiates chemical materials (used for what they contain) from physical materials (used for what they do).

Chemical materials are often used captively by a fully integrated producer/consumer and predominantly serve one end use in this context. Physical materials are rarely used by the producer and serve multiple end uses (Blair, 1981). Fuels and

metallic materials have an inherent or intrinsic value. Industrial materials have an implied or inferred value (Blair, 1981). Synthetic products form a third class in that they are manufactured from industrial material feed stock.

Table 21 - Classification of Industrial Minerals.

Aspect	Mainly rocks	Mainly minerals
Relative Production	Large	Small
Unit Value	Low	High
Place Value	High	Low
Imports and Exports	Few	Many
Occurrence	Widespread	Restricted
Geology	Simple	Complex
Processing	Simple	Complex
Typical End Use	Physical	Chemical
Specifications	Undifferentiated	Differentiated

The geography, industrial base, and demographics of northwest New Mexico cause certain aspects to be preferentially emphasized. New Mexico has a small population but is areally large. Heavy industry is nearly absent and large chemical facilities are not abundant. This leads to restricted local commodity markets centered on the Rio Grande Valley and the interstate highway routes. Thus, place value, the location of the deposit relative to consumption centers, is quite important in New Mexico. The relative remoteness of New Mexico compared to large industrial/chemical centers makes transport cost a key component for exporting industrial materials. These relationships are summarized in Table 22. San Juan County has a low population/industrial base even by New Mexico standards. Thus, many potential economic materials are uneconomic solely on

Table 22 - Some relationships between industrial materials based on conditions within New Mexico.

Rank by Output (1)	Relative Production	Number of Producers	Place Value (2)	Unit Value (3)	Specification Category (4)	Remarks
Sand & Gravel	Large	very high	High	Low	P	abundant in New Mexico
Crushed Stone	Large	very high	High	Low	P	abundant in New Mexico
Potash	Large	moderate	Low	High	C	abundant in New Mexico
Perlite	Medium	moderate	Low	Medium	P	abundant in New Meixco
Cement	Medium	1	Low	Medium	C	small market in New Mexico
Gypsum	Medium	moderate	High	Low	C,P	abundant in New Mexico
Salt	Medium	moderate	High	Low	C	abundant in New Mexico
Sulfur (H_2SO_4)	Small	1	High	Medium	C	expensive transport, by product
Clay	Small	few	Moderate	Low	C,P	uncommon in New Mexico
Humate (5)	Small	few	Low	Medium	C	abundant in New Mexico
Dimension Stone	Small	few	High	Low	P	abundant in New Mexico
Mica	Small	1	Low	Medium	P	largest producer in West

NOTES

(1) does not include CO_2, helium, or lime produced in New Mexico.
(2) high place value usually implies that commodity must be near consumers.
(3) low = <$25/ton, med = $25-100/ton, high = >$100/ton.
(4) P = physical material used for what it does; C = chemical material used for what it contains.
(5) includes "leonardite" and weathered coal.

a place-value basis. Of the materials produced, only humate has a possibility of rapid expansion in agriculture if its efficacy can be demonstrated (Gosz et al., 1977, 1978; McCaslin and Boyle, 1980; Roybal and Barker, 1985, 1986).

Twenty-two dozen major end uses for industrial materials have been identified (Lefond, 1983) along with about 100 major and several hundred minor industrial materials unevenly distributed throughout the major categories. A very simplified geologic versus end use matrix is presented in Table 23a-c to highlight this diversity. Resources and possible resources for San Juan County are also emphasized. This matrix by no means covers all the possible industrial material types. Building or dimension stone, for example, has at least 56 types of stone used in this capacity. Many of these types of stone occur within San Juan County but only those with a favorable combination of quality, quantity, markets, and transportation can be distributed and sold.

Industrial materials, which are for chemical end uses or are minerals, tend to be highly differentiated products compared to undifferentiated ones such as copper, gold, and mercury, among many. Specifications for undifferentiated products, which are for physical end uses or are rock-based industrial materials, are the same for each producer. They have ready-made, highly-visible markets with set prices and standard, generally simple specifications. In contrast, differentiated materials are highly diverse with no central market, no set price, and complex specifications. This relationship is often seen in the extreme where each customer for a differentiated industrial material sets

Mineral Yearbooks) · = Austin (1982).

Geology				Sedimentary Rocks			Metamorphic Rocks	Igneous Rocks: Plutonic Rocks (subsurface)		Igneous Rocks: Volcanic Rocks (surface)	
Rock, Mineral, Material	Composition	End use		Clastic	Chemical & CO_3's	Organic		Deep	Shallow including hydro-thermal	Flow	Pyro.
Aggregate	sand, gravel			P[3]							
Alunite	$K\,Al_3(SO_4)_2(OH)_6$	3,14							X[4]		
Amblygonite	$(Li,Na)Al(PO_4)(F,OH)$	3									
Andalusite	$Al_2\,SiO_5$	2,21									
Asbestos Minerals	various silicates	15,16,22									
Asphaltite	mixture of hydrocarbons					X[1]					
Barite	$BaSO_4$	2,3,15,19,22			X[1]						
Bauxite Minerals	various	2,3,15,21,22									
Beryl	$Be_3Al_2Si_6O_{18}$	2,3									
Borate Minerals	various	2,3,11,14,16,19			X[1]						
Bromine	Br	3									
Brucite	$Mg(OH)_2$	14,21									
Carbon Materials	C or C-compounds	2,15,16,19,21,22									
Celestite	$SrCO_3$	3									
Chalcocite	CuS_2	14									
Chalcopyrite	$CuFeS_2$	14									
Chromite	$FeCr_2O_4$	2,3,17,19,21									
Clay Minerals	layer silicates	1,2,5,15,16,17, 19,21,22		P[3] X[1]							
Cordierite	$Mg_2Al_4Si_5O_{18}$	2									
Corundum	Al_2O_3	1									
Cuprite	Cu_2O	14									
Diaspore	$AlO(OH)$	2,21									
Diatomite	$SiO_2 \cdot nH_2O$	15,21,22									
Dolomite	$Ca,Mg(CO_3)_2$	2,4,9,11,14,15, 16,19,21,22									
Dumortierite	$(Al,Fe)_7BSi_3O_{18}$	2									
Epsomite	$MgSO_4 \cdot 7H_2O$	14			X[1]						
Feldspar Group	silicate	1,2,8,11,15,16,19									
Fluorspar	CaF_2	2,3,16,19									
Galena	PbS	22									
Garnet	silicate	1									
Gases	various	13,14,16									
Gems	various	1,2	unknown[3]	P		P[1]					
Glauconite	silicate	14,15									
Graphite	C	2,21									
Gypsum/Anhydrite	$CaSO_4 \cdot nH_2O$	2,3,8,10,13,14, 15,19,22									
Halite	NaCl	2,3,8,22									
Helium	He				P?	P[3]					
Humate	humic acid	14				X[4]					
Ilmenite	$FeOTiO_2$	22,16									
Iron Oxide Minerals	$Fe_xO_y \cdot nH_2O$	1,2,16,20,22									
Iodine Materials	I	3									
Kyanite	Al_2SiO_5	2,21									
Limestone	$CaCO_3$	2,3,4,9,11,13- 16,19,21,22			P[3]						
Lithium Materials	various	2,3									
Magnesite	$MgCO_3$	2,3,11,14,21									
Manganese	various	8									
Mica Minerals	various	13,15,16,22									
Molybdenite	MoS_2	14									
Nepheline Syenite	rock	2,11,15,19									
Nitrate Materials	various	2,3,14									
Ocher	hydrated iron oxide			X[1]							
Olivine	$(Mg,Fe)_2SiO_4$	2,14,17									
Periclase	MgO	2,14									
Perlite	volc. glass	5,11,15,21,22									
Phosphate Materials	$Ca_5(PO_4)_3(OH,F,Cl)$	3,14									
Potash Minerals	KCl, etc.	2,3,14,16,19,22									
Psilomelane	$(Ba,H_2O)_2Mn_5O_{10}$	14		X[1]							
Pumice											P[3]
Pyrite	FeS_2	3,19,20									
Pyrolusite	MnO_2	3,14									
Pyrophyllite	$Al_4(Si_8O_{20})(OH)_4$	2,15									
Pyrrhotite	Fe_xS	3									
Rare Earths & Thorium	various	3,19									
Siderite	$FeCO_3$	20,22									
Silica Materials	SiO_2	1-4,9,11,13, 15-17,19,21,22									
Sillimanite	Al_2SiO_5	2,21									
Sodium Minerals	various	2,3,11,19,21,22									
Sphalerite	$(Zn,Fe)S$	14									
Spodumene	$LiAlSi_2O_6$	2,3									
Staurolite	$(Fe,Mg,Zn)_2Al_9Si_4O_{23}(OH)$	17									
Stone	various	1,2,4-9,12,14, 15,19,20	P	unknown[3]							
Strontianite	$SrCO_3$	13									
Sulfur	S	3,14				P recovered from N. Gas[2]					
Talc	$Mg_6(Si_8O_{20})(OH)_4$	2,15									
Titanium Minerals	TiO_2	2,3,15,16									
Tourmaline	complex silicate	2									
Trona	Na_2CO_3	3									
Vermiculite	complex silicate	5,11,15,21									
Wollastonite	$Ca(SiO_3)$	2,15									
Witherite	$BaCO_3$	3									
Zeolite	[illegible]	[illegible]									

Table 23b - List of industrial materials to accompany Table 23a.

Alunite
Amblygonite
Andalusite
Asbestos
  chrysotile crocidolite
  actinolite anosite
  anthophyllite tremolite
Barite
Bauxite (Gibbsite, Boehmite)
Beryl
Borate
  borax
  colemanite
  kernite
  probertite
  tincalconite
  ulexite
Bromine
Brucite
Carbon
  amorphous
  graphite
  coal (anthracite)
  lignite
  peat
  gilsonite, elaterite, wurtzilite
  bitumen, albertite, grahamite, impsonite
  asphalt
Celestite
Cerussite
Chalcocite

Magnesite
Mica Minerals
  muscovite (sericite)
  phlogopite
  biotite
  lepidolite
Molybdenite
Nepheline Syenite
Nitrate Materials
  guano
  niter, nitre (KNO_3)
Olivine
Periclase
Perlite
Phosphate Materials
  apatite
  allophane (colloid)
Potash Minerals
  sylvite carnallite
  langbeinite polyhalite
  kieserite
  potassium sulphate
  potassium carbonate
    (pearl ash)

Psilomelane
Pyrite
Pyrolusite
Pyrophyllite
Pyrrhotite

Strontianite
Sulfur
Talc
Titanium Minerals
  rutile, anatase, brookite
  titania, titanite (sphene)
Tourmaline
Trona
Vermiculite
Wollastonite
Witherite
Zeolite
Zirconium (Hafnium) Minerals

Chalcopyrite
Chromite
Clay Minerals
  kaolin, dickite, metahalloysite, halloysite, endellite
  illite
  smectite, montmorillonite, bentonite, hectorite
  attapulgite/seprolite/meerschaum
Cordierite
Corundum
  emery
Cuprite
Diaspore
Diatomite
Dolomite (see limestone)
Dumortierite

Epsomite
Feldspar
  potassium (orthoclase, microcline)
  sodium (albite)
  calcium (anorthite)
  perthite
Fluorspar
  cryolite
Galena
Garnet
Gases
  nitrogen sulfur dioxide
  helium hydrogen sulfide
  carbon dioxide noble

Rare Earths & Accessory Minerals
  bastnoesite thorium
  monazite yttrium
  xenotime
Siderite
Silica
  opaline
  flint
  chert
  agate
  rottenstone
  tripoli
  ground
  novaculite
  colloidal
  quartzite
  pebbles (beach, river)
  sandstone
  garnister
  crystal
Sillimanite
Sodium
  sodium sulfate (salt cake)
  sodium carbonate (soda ash, trona)
  sodium nitrate (caliche)
  NaI
  NaBr
  sodium bicarbonate

Gems (semi-precious and precious)
Glauconite
Graphite
  amorphous
  flake
Gypsum/Anhydrite
  calcined
  selenite
Halite
Humate
Ilmenite
Iron Oxide
  rouge goethite
  crocus limonite
  ochre limonite

  sienna hematite
  umber magnetite
  micaceous
Iodine Materials
Kyanite
Limestone
  calcite vaughanite (lithographic)
  aragonite shell
  chalk (whiting) coquina
  dolomitic caliche
  argillaceous
Lithium Minerals
  brine amblygonite
  spodumene

Sphalerite
Spadumene
Staurolite
Stone
  limestone granite
  dolomite syenite
  dolomitic
    limestone anorthosite
  marble aplite
  calcareous marl andesite
  shell dacite (porphyry)
  coquina rhyolite
  coral trachyte
  travertine felsite
  onyx gabbro
  sandstone basalt
  graywacke diabase
  chert traprock
  shale norite
  argillite diorite
  quartzite peridotite
  gneiss tuff
  schist pumice, pumicite
  slate perlite

  amphibolite volcanic glass
  talc volcanic rock
  serpentine volcanic cinders
  greenstone volcanic breccia
  arkosic
    quartzite scoria

Table 23c - List of end use categories for industrial minerals as numbered on Table 23a.

End Use	Number on Table 23a
Abrasive	1
Creamics/Art	2
Chemical	3
Crushed Stone	4
Lightweight Aggregate	5
Sand and Gravel	6
Slag	7
Cement	8
Dimension and Cut Stone	9
Gypsum and Anhydrite	10
Insulation	11
Roofing	12
Electronics and Optical	13
Fertilizer	14
Filler, Filter, Absorbent	15
Flux	16
Foundry Sand	17
Precious/Semi-Precious Gem	18
Glass	19
Mineral Pigment	20
Refractory	21
Well Drilling	22

Source: Lefond (1983)

unique specifications that must be met, basically on a custom basis, over the long term by the producer. Frequently, continually varying specifications of delivered materials are contractual grounds for abrogation of formal sales agreements. Producers catering to different markets may have dozens of "products" based on one material, each slightly different, because of each consumer's preference for slight differences in grain size, shape, purity, and other characteristics.

The relationships described above lead to the dominance of price, product specifications, customer location, transportation, and production costs over geology. Many industrial materials are potentially present in San Juan County (Table 23a-c). Only in the broadest sense are they a resource because no markets exist for them or end-user specifications cannot be met.

Barite and Fluorite (by V. T. McLemore)

Although no barite or fluorite deposits are reported from San Juan County, a belt of anomalous barium values occur in NURE stream-sediment samples along the Kirtland-Fruitland contact and in the Nacimiento Formation in northern San Juan and southern Rio Arriba Counties (McLemore et al., 1984). Strontium and sodium anomalies are also present. Barite concretions have been reported in the Kirtland and Nacimiento Formations (Talmage and Wootton, 1937; Donald Wolberg, NMBMMR, personal communication, June, 1984). These barium anomalies may be related to the concretions. The significance of these anomalies is unknown, but they may represent bedded barite and strontianite mineralization so additional work is suggested.

Carbon Dioxide Resources (by R. F. Broadhead)

Carbon Dioxide Occurrences--San Juan County has not yet produced commercial quantities of carbon dioxide (CO_2) gas. Natural gas produced in San Juan County consists partly of CO_2 (Table 24; Fig. 29), but the CO_2 is not separated from the gas and subsequently sold. Most gases in Cretaceous and Tertiary reservoirs in San Juan County consist of less than 3% CO_2 (Table 24). Gases produced from Pennsylvanian and Mississippian reservoirs have CO_2 contents ranging from 0.1% to 20% (Table 24). Nonproductive wells drilled in San Juan County have recovered gas that is 90% CO_2 from Mississippian reservoirs (Table 25). Gas that is 10-20% CO_2 has been recovered from Pennsylvanian reservoirs by nonproductive wells in San Juan County (Table 25). No analyses of Paleozoic gases are available for the eastern part of San Juan County.

CO_2 gas is produced commercially from McElmo dome in southwest Colorado. Reserves at McElmo dome are an estimated 17 trillion ft^3 of 98% pure CO_2 (Gerling, 1983). The reservoir is the Leadville Limestone (Mississippian). McElmo dome CO_2 is transported by pipeline to the Permian Basin, where it is used for enhanced oil recovery.

CO_2 is found in porous rock reservoirs and is trapped similarly to natural hydrocarbon gases. In the reservoir, it is mixed with other gases, chiefly hydrocarbons. Helium and nitrogen may be present in substantial quantities. Generally, gas with less than 90% CO_2 is not produced for its CO_2 content. With future increased demand for CO_2, it is possible that gases

TABLE 24. Carbon dioxide content of gases produced from oil and gas pools, San Juan County.

Pool	Location (township, range)	Reservoir	Percent carbon dioxide in gas
Arch Nacimiento Gas Pool	31N, 10W	Nacimiento (Tertiary)	0.88
Albino Pictured CLiffs Gas Pool	21N, 8W	Pictured Cliffs (Cretaceous)	1.51
Angel's Peak Gallup Oil Pool	26-27N, 9-10W	Gallup (Cretaceous)	0.59
Armenta Gallup Oil Pool	28-29N, 10-11W	Gallup (Cretaceous)	0.46
Barker Creek Dakota Gas Pool	32N, 14W	Dakota (Cretaceous)	0.23
Basin Dakota Gas Pool	25-32N, 8-14W	Dakota (Cretaceous)	3-5
Bisti Farmington Gas Pool	25N, 12W	Farmington (Cretaceous)	0.15
Blanco Mesaverde Gas Pool	27-32N, 6-13W	Mesaverde (Cretaceous)	0.85
Cuervo Gallup Oil Pool	24N, 8W	Gallup (Cretaceous)	0.50
Escrito Gallup Oil Pool	24N, 8W	Gallup (Cretaceous)	0
Flora Vista Gallup Gas Pool	30-31N, 12-13W	Gallup (Cretaceous)	0.92
Flora Vista Mesaverde Gas Pool	30N, 12W	Mesaverde (Cretaceous)	0.60
South Gallegos Farmington Gas Pool	26N, 12W	Farmington (Cretaceous)	0.08
South Gallegos Fruitland Gas Pool	26-27N, 12W	Fruitland (Cretaceous)	0.03
Glades Fruitland Gas Pool	32N, 12W	Fruitland (Cretaceous)	0.37
Harper Hill Fruitland-Pictured Cliffs Gas Pool	29-30N, 14W	Fruitland & Pictured Cliffs (Cretaceous)	0.47
Huerfano Pictured Cliffs Gas Pool	26N, 10W	Pictured Cliffs (Cretaceous)	0.43
Knickerbocker Buttes Gallup Gas Pool	30N, 10W	Gallup (Cretaceous)	0.96
Kutz Gallup Oil Pool	27N, 10-11W	Gallup (Cretaceous)	0.05
North Los Piños Fruitland Gas Pool	32N, 7W	Fruitland (Cretaceous)	2.08
South Los Piños Fruitland Gas Pool	31-32N- 6W	Fruitland (Cretaceous)	4.0
Lybrook Gallup Oil Pool	23-24N, 8W	Gallup (Cretaceous)	0
Many Rocks Gallup Oil Pool	31-32N, 16-17W	Gallup (Cretaceous)	0.02
North Many Rocks Gallup Oil Pool	32N, 17W	Gallup (Cretaceous)	0.02
Mesa Gallup Oil Pool	32N, 18W	Gallup (Cretaceous)	0.02
Mt. Nebo Fruitland Gas Pool	32N, 10W	Fruitland (Cretaceous)	1.6
Ojo-Fruitland-Pictured Cliffs Gas Pool	28N, 15W	Fruitland & Pictured Cliffs (Cretaceous)	2.30
Ojo Gallup Gas Pool	28N, 14-15W	Gallup (Cretaceous)	2.38
Piñon Fruitland Gas Pool	28N, 12W	Fruitland (Cretaceous)	0.13
Potwin Pictured Cliffs Gas Pool	24N, 8W	Pictured Cliffs (Cretaceous)	0.08
Sedro Canyon Fruitland Gas Pool	31N, 9W	Fruitland (Cretaceous)	7.38
Straight Canyon Dakota Gas Pool	31N, 16W	Dakota (Cretaceous)	0.13
Barker Creek Paradox Gas Pool	32N, 14W	lower zone of Barker Creek (Pennsylvanian)	13.5
Big Gap Pennsylvanian Oil Pool	27N, 19W	Barker Creek (Pennsylvanian)	0.18
Blue Hill Paradox Gas Pool	31-32N, 18W	Barker Creek (Pennsylvanian)	11.2
Four Corners Paradox Oil Pool	32N, 20W	Ismay (Pennsylvanian)	7.60

TABLE 24 (cont'd)

Pool	Location (township, range)	Reservoir	Percent carbon dioxide in gas
Hogback Pennsylvanian Oil Pool	29N, 16W	Paradox (Pennsylvanian)	2
Pajarito Pennsylvanian Oil Pool	29N, 17-18W	Barker Creek (Pennsylvanian)	12.9
Rattlesnake Pennsylvanian BCD Oil Pool	29N, 19W	Hermosa (Pennsylvanian)	0.5
Table Mesa Pennsylvanian Gas Pool	27-28N, 17W	Barker Creek (Pennsylvanian)	0.60
Tocito Dome Pennsylvanian D Oil Pool	26N, 18W	Paradox (Pennsylvanian)	0.8
North Tocito Dome Pennsylvanian Gas Pool	26N, 18W	Paradox (Pennsylvanian)	2.1
Ute Dome Paradox Gas Pool	31-32N, 14W	Barker Creek (Pennsylvanian)	2.1
Beautiful Mountain Mississippian Gas Pool	26N, 19W	Leadville (Mississippian)	1.62
Hogback Mississippian Oil Pool	29N, 16W	Leadville (Mississippian)	20
Table Mesa Mississippian Gas Pool	27N, 17W	Leadville (Mississippian)	1.4
North Tocito Dome Mississippian Gas Pool	26N, 18W	Leadville (Mississippian)	0.10

[1] Data from Fassett (1978a, 1978b, 1983).

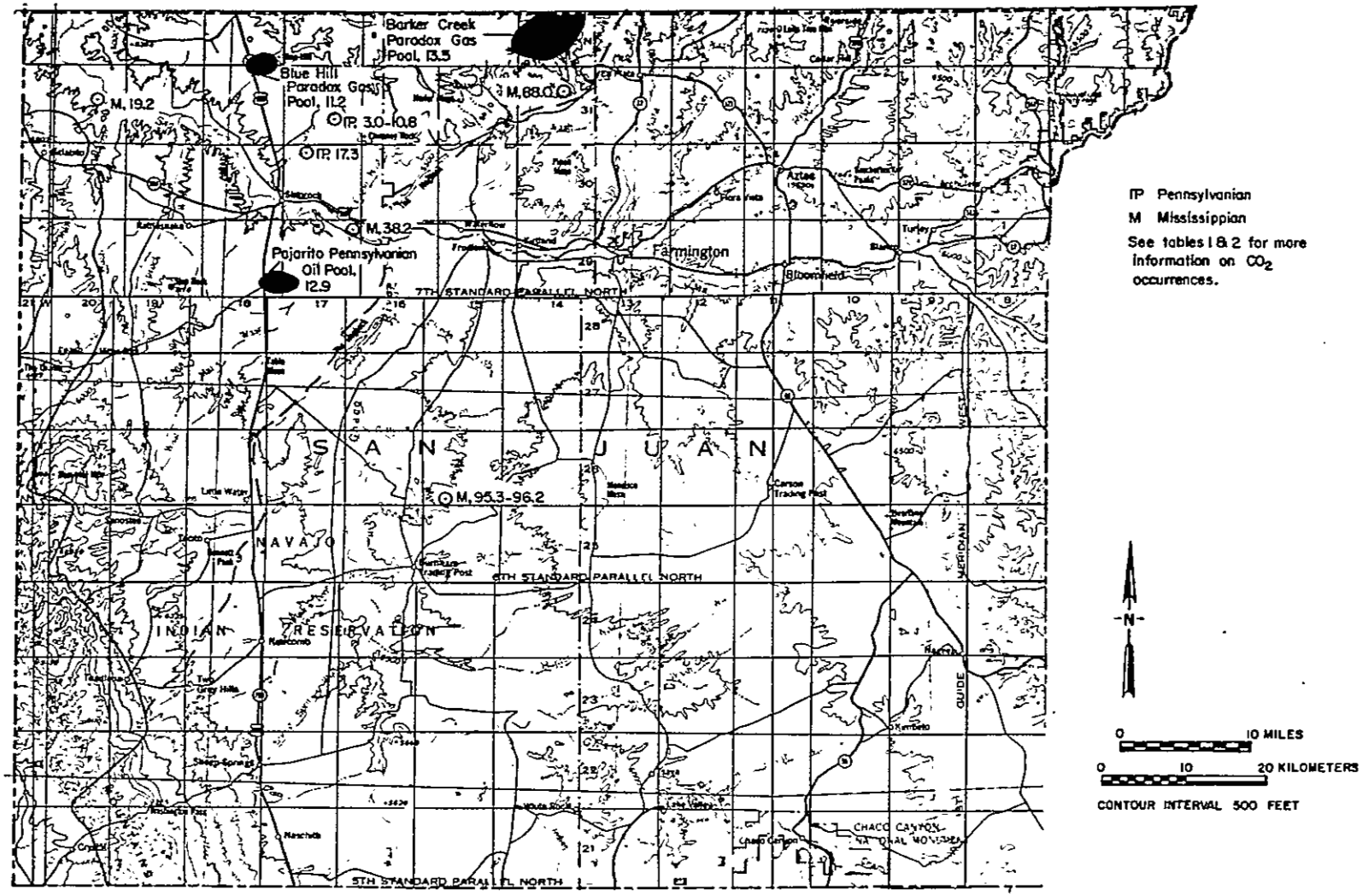

Figure 29. Occurrences of natural gas that consist of 10% or more carbon-dioxide. Numbers are mole percent CO_2 in gas.

TABLE 23. Carbon dioxide content of gases recovered from Paleozoic and Triassic units in nonproductive wells in San Juan County. Data from Moore (1976a, 1976b)

Operator, well number, and lease	Location (section-township-range)	Reservoir unit	Percent CO_2 in gas
Kerr McGee Corp. No. 1 Navajo I	34-24N-20W	Cambrian	0.3
Champlin Petroleum Co. No. 1 Navajo Humble	16-25N-19W	Aneth (Devonian)	0
Pure Oil Co. No. 1 Navajo	32-26N-15W	Mississippian	95.3-96.2
Sinclair Oil & Gas Co. No. 49 Navajo	23-26N-18W	Mississippian	0.1
Amerada Petroleum Corp. No. 1 Navajo Tract 381	5-25N-19W	Hermosa (Pennsylvanian)	0
		McCracken (Devonian)	0
		Aneth (Devonian)	trace
Gulf Oil Corp. No. 1 Navajo BB	25-26N-20W	Mississippian	0.2
Amerada Petroleum Corp. No. 1 Navajo Tract 4	20-27N-17W	Mississippian	trace-0.5
		Devonian	0.1
Sinclair Oil & Gas Co. No. 1 Navajo Tribal 141	34-27N-18W	Pennsylvanian	0.1
Texaco Inc. No. 1 Navajo AW	7-27N-20W	Pennsylvanian	0.2
		Devonian	0.1
Pan American Petroleum Corp. No. 1 Navajo C	11-29N-17W	Paradox (Pennsylvanian)	trace-4.3
		Mississippian	38.2
San Juan Drilling Co. No. 1 Hamrah	11-29N-17W	Paradox (Pennsylvanian)	0.1
U.S. Bureau of Mines No. 1-G Rattlesnake	13-29N-19W	Ouray (Devonian)	1.9
Phillips Petroleum No. 1 Navajo	5-30N-17W	Hermosa (Pennsylvanian)	17.3
Continental Oil Co. No. 1 Biclabito	13-30N-21W	Chinle (Triassic)	0.2
		Mississippian and Ouray (Devonian)	0.1
Pan American Petroleum Corp. No. 1 Ute Mountain	10-31N-14W	Mississippian	88.0
Pan American Petroleum Corp. No. 1 Ute Mountain Tribal O	10-31N-14W	Mississippian	88.0
Three States Natural Gas Co. No. 1 Navajo	27-31N-17W	Hermosa (Pennsylvanian)	3.0-10.8
Texas Co. No. 1 Navajo	34-31N-17W	Paradox (Pennsylvanian)	1.35
Humble Oil & Refining Co. No. 1 Navajo Tract 24	15-31N-18W	Desert Creek (Pennsylvanian)	0.3
		Barker Creek (Pennsylvanian)	0.1
British American Oil Corp. No. 1 Navajo E	15-31N-20W	Pennsylvanian	0.4
		Mississippian	19.2
crevice near surface fault	16-32N-14W		15.5

with as little as 10-20% CO_2 could be produced for their CO_2 content. The CO_2 could be extracted from the gas; if the remainder of the gas is a valuable commodity (hydrocarbons or helium), it could also be sold.

Carbon Dioxide Resource Potential--Four key factors were analyzed in order to evaluate the CO_2 potential of San Juan County: (1) known accumulations, (2) reservoirs, (3) traps, and (4) presence of hydrocarbon gases that could dilute CO_2 to insignificant concentrations in the reservoir. Those four key factors were analyzed for both of the tectonic subdivisions of San Juan County (Fig. 30): San Juan Basin and Defiance uplift. Reservoirs and traps were discussed in detail in the section on petroleum resource potential and are only summarized here. Although sources of CO_2 are an important consideration when evaluating the potential for CO_2 occurrence in an area, CO_2 sources are not evaluated in this report because little information is available. There are five theories of the origin of natural CO_2 gas (Picard, 1962; Foster and Jensen, 1972): volcanic emanations, breakdown of limestone adjacent to igneous intrusions, solution of limestones by ground water, bacterial or thermal decomposition of organic matter, and de-gassing of Precambrian basement. Picard (1962) concluded that CO_2 in the Four Corners area originated by alteration of limestone; that idea is supported by the association of CO_2-rich gases with Mississippian limestone reservoirs.

San Juan Basin--The potential for CO_2 occurrence in the San Juan Basin part of San Juan County is rated moderate to high

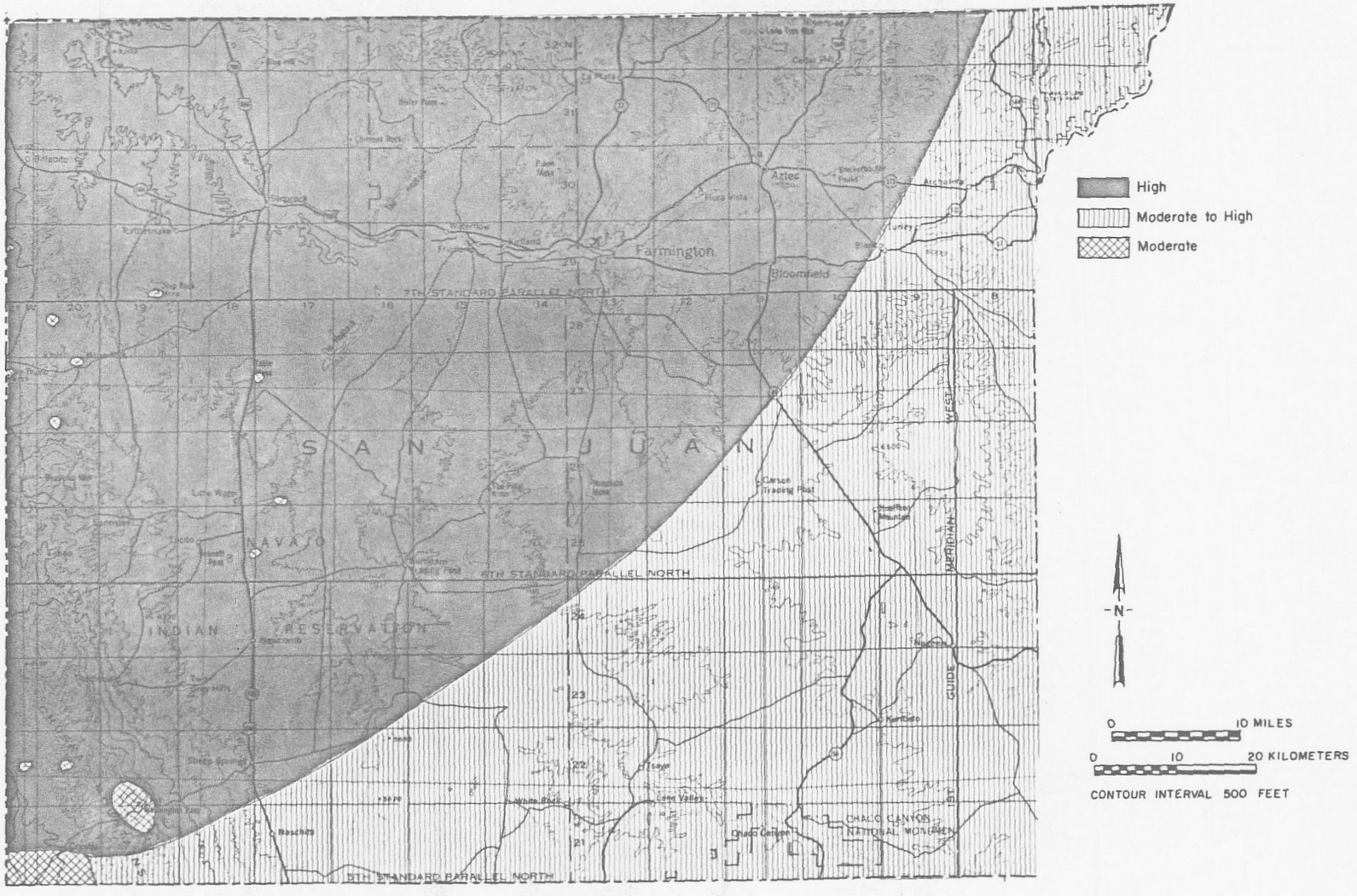

Figure 30. Potential for carbon-dioxide occurrence in San Juan County, New Mexico.

(Fig. 30). The Four Corners platform and the northern and western parts of the central basin are assigned a high CO_2 potential. Natural gas that consists of more than 10% CO_2 has been discovered in several wells and oil and gas pools (Fig. 24), but economic quantities of CO_2 gas have not yet been discovered on the Four Corners platform. CO_2 is produced commercially at McElmo dome, 20 miles north of the New Mexico part of the Four Corners platform. Reservoir quality Cretaceous sands are present throughout the Four Corners platform and central part of the basin. However, Cretaceous traps appear to be filled with petroleum; CO_2 in Cretaceous traps has probably been diluted to insignificant concentrations. Other reservoirs are the Entrada Sandstone (Jurassic), Triassic sandstones, Permian sandstones, Pennsylvanian carbonates, Mississippian sandstones, and carbonates, and Devonian sandstones and carbonates. Analyses of gases in the Paleozoic reservoirs (Fig. 29; Tables 24, 25) indicates they are prone to be CO_2 rich. Gas in the Paleozoic section may be trapped stratigraphically and structurally. The Paleozoic section has been sparsely tested in San Juan County.

Cenozoic intrusive bodies are assigned a moderate potential for CO_2 occurrence because the igneous rocks that form them are poor reservoirs. It is possible that fractures and vesicles within the intrusive rocks could serve as reservoirs for CO_2 that migrated into the intrusives from adjacent sedimentary units.

The southern and eastern parts of the San Juan Basin in San Juan County are assigned a moderate-to-high potential for CO_2 occurrence (Fig. 30). Reservoirs and traps are probably similar to those in the northern part of the county, but no analyses are

available to indicate that CO_2-rich gas is present in the southern part of the county. Also, Armstrong and Mamet (1977) indicate that the Mississippian (the primary CO_2 reservoir in the Four Corners area) is less than 150 ft thick in the southern part of the county. The boundary between the areas of high and moderate-to-high potential is transitional. Because so little data are available, that boundary can be placed only in an approximate and general position. Should gas analyses become available that indicate CO_2-rich gases are present in the area of moderate to high potential, then the potential of that area should be changed to high.

Defiance uplift--The Defiance uplift of San Juan County is assigned a moderate to high potential for CO_2 occurrence. The northern part of the uplift is assigned a high potential. Possible reservoirs on the northern part of the uplifts are Triassic sandstones, Permian sandstones, Pennsylvanian carbonates and sandstones, Mississippian carbonates, and Devonian sandstones and carbonates. The Pennsylvanian and Mississippian units contain CO_2-rich gas on the adjacent Four Corners platform. Structural and stratigraphic traps probably exist on the uplift.

The southernmost part of the uplift is assigned a moderate potential because reservoirs are not as favorable as they are on the northern part of the uplift. Mississippian carbonates, the main CO_2 reservoirs in the Four Corners area, are absent. Pennsylvanian carbonates, which are also important CO_2 reservoirs in the Four Corners area, are thin. Also, Devonian reservoirs may not be present. Remaining reservoirs are sandstones in the

Triassic, Permian, and Pennsylvanian.

Cenozoic intrusive bodies on the northern part of the Defiance uplift are assigned a moderate potential for CO_2 occurrence because the igneous rocks that form them are poor reservoirs. It is possible, but unlikely, that fractures and vesicles within the intrusive rock bodies could serve as reservoirs for CO_2.

Potential for development--Carbon dioxide has many commercial uses. The main use of CO_2 is for enhanced recovery of oil (Foster,1980; Broadhead, 1985). Other uses of CO_2 are in refrigeration (dry ice), beverages, cryogenics, and as a chemically inert shield (Foster and Jensen, 1972). Although current CO_2 supplies are adequate, demand will increase as more CO_2 is used for enhanced oil recovery. Demand will also increase as present CO_2 sources are depleted by production. Long-term demand will increase well into the twenty-first century. Therefore, natural gases rich in CO_2 will eventually be produced for their CO_2 content. The potential for development of (yet) undiscovered CO_2 accumulations in San Juan County is high because of proximity to three oil-productive basins: (1) Permian Basin of southeast New Mexico and west Texas, (2) San Juan Basin of northwest New Mexico, and (3) Paradox Basin of southeast Utah.

Clay (by K. B. Brown)

General description--Clays and shales have a variety of ceramic, bulk filling, absorbent and fluid properties. They are commercially categorized as common clay, kaolin, ball clay, fire

clay, fullers earth, bentonite, and common clay.

Natural clay mixtures contain various proportions of smectite, kaolinite, illite, and less common clay minerals; as well as impurities such as sand, iron, resistant minerals, and carbon. The percentage of each clay mineral, determined by x-ray diffraction methods, influences the strength, plasticity, thixotropy, swelling and shrinkage percent, fired color, and vitrification range of a given clay (Patterson and Murray, 1983).

Common clay, a mixture of kaolinite, illite, and smectite, is used to make structural brick, tile, and pottery (Patterson and Murray, 1983). High percentages of smectite cause shrinkage and cracking upon drying and firing, making it unsuitable for bricks (with silt and sand), filling abandoned oil and gas wells, and tamping blast holes (Patterson and Murray, 1983). Illitic shale containing sulfur and carbon will bloat upon heating, making it useful as a lightweight aggregate (Patterson and Murray, 1983).

Fire clay, ball clay, and kaolin are high in kaolinite. Fire clay is used to make refractory brick. It must have a pyrometric cone equivalent (PCE) of 20 or more to be satisfactory for this purpose. Clays with higher PCE produce higher-duty refractory brick (Patterson and Murray, 1983). Ball clay (70% or more kaolinite) is very plastic and most widely used in ceramics. Most kaolin is mined as an inexpensive white filler for paper (Severinghaus, 1983).

Bentonite clays (smectite-rich) are valuable for their thixotropic, swelling, and cation exchange properties. Sodium bentonite has a high cation exchange capacity (CEC). It also

forms a thixotropic gel in water. This gel has been used as drilling mud in the oil industry for decades. Palygorskite (attapulgite) is a magnesium bentonite that does not lose thixotropy in the presence of salty fluids (as sodium bentonite does). Calcium bentonites can absorb a great deal of water, and swell as a result. Shrinkage upon drying makes them unsuitable for structural uses, but quite valuable as desiccants, absorbents, and filters. Fullers earth, a commercial filter, is a bentonitic calcium smectite. Smectites are also valuable as fire retardants, fillers, carrying media for chemical products, and as sealants in lining waste pits and tailings ponds.

Clays are alteration products of igneous and metamorphic minerals; alteration is caused by hydrothermal action or surficial weathering. Many important clays also are diagenetic alteration of less useful clay minerals. Most commercial deposits are residual pockets of concentration caught in low-energy environments after erosion from areas of alteration. Important accumulations of clay minerals are found in river floodplains, lakes, lagoons, and low-energy marine environments (Carroll, 1970).

The clay mineral formed is dependent upon the parent rock type and conditions of alteration. Kaolinite is formed by tropical weathering of igneous rocks. If transported to the sea, it flocculates relatively near the shore, whereas co-transported smectites are deposited further into the basin. Smectites and bentonites are weathering products of volcanic ash and accumulate in alkaline environments where little leaching takes place

(Carroll, 1970; Parham, 1964).

Production--The U.S. Bureau of Mines (1932-1983) reports clay production in San Juan County in 1958 and from 1971 through 1983 (the most recently available yearbook). No locations, clay types, or dollar and/or tonnage amounts were reported.

Occurrence--The geology of San Juan County is dominated by the San Juan Basin, a structural depression active from Cretaceous time through mid Tertiary. It extends from San Juan County into adjacent counties in New Mexico and into the other "Four Corners" (Colorado, Utah, and Arizona) states. Cretaceous strata exposed in San Juan County include shales of the Mancos, Menefee, Fruitland, and Kirtland Formations (O'Sullivan and Beikman, 1963). The Mancos Shale is mostly smectite, with moderate potential of exploitation; it also may contain thin bentonite beds, though potential of occurrence is low (Molenaar, 1977a, b). The Menefee Formation is high in smectite (Allen and Balk, 1954), though some high-kaolinite underclays occur locally below coals (Carmichael, 1982). There is moderate potential of small, exploitable kaolinite clays occurring in this formation. Some shales of the Fruitland and Kirtland Formations may be bentonitic. Thin deposits within channels from alteration of volcanic ash are small and local, however, potentially valuable specialty clay. Foster (1966) tested samples of the Fruitland Formation and determined many to be suitable as a lightweight aggregate in expanded form. Potential of occurrence of lightweight-aggregate shale is high in the Fruitland and other Cretaceous shales. Further testing is needed to determine the

quality of a particular shale. Potential for development is low due to competition from other lightweight aggregate resources.

Little shale has been deposited in the Tertiary section of strata in the county. Local Quaternary and Tertiary floodplains of rivers have high potential of occurrence of clay/sand mixtures suitable for adobe, and lesser potential for residual deposits of pottery kaolin. Hydrothermal activity and alteration in the county is virtually unknown, therefore it has a very low potential for the occurrence of hydrothermally-formed clays.

Crushed Stone (by M. R. Bowie)

Practically all of San Juan County contains surficial rocks potentially suitable for crushed stone applications. The rocks range from Paleozoic and Mesozoic sedimentary rocks to Cenozoic basaltic intrusives and flows, and eolian and alluvial deposits (Table 26). Crushed stone quarried in the county has been used primarily as construction aggregate, mostly for primary and secondary county roads. Historical production of stone in San Juan County is listed in Table 27.

The resource potential for all areas of San Juan County is high (Fig. 31, Maps 90-93). However, although the whole county contains surficial deposits potentially suitable for crushed stone, only limited testing of the materials has been done to assess their commercial capabilities. Detailed mapping, sampling, and drilling is required to adequately separate good stone from less desirable material and to test the stone for specific industrial applications.

Although the resource potential for crushed stone is high

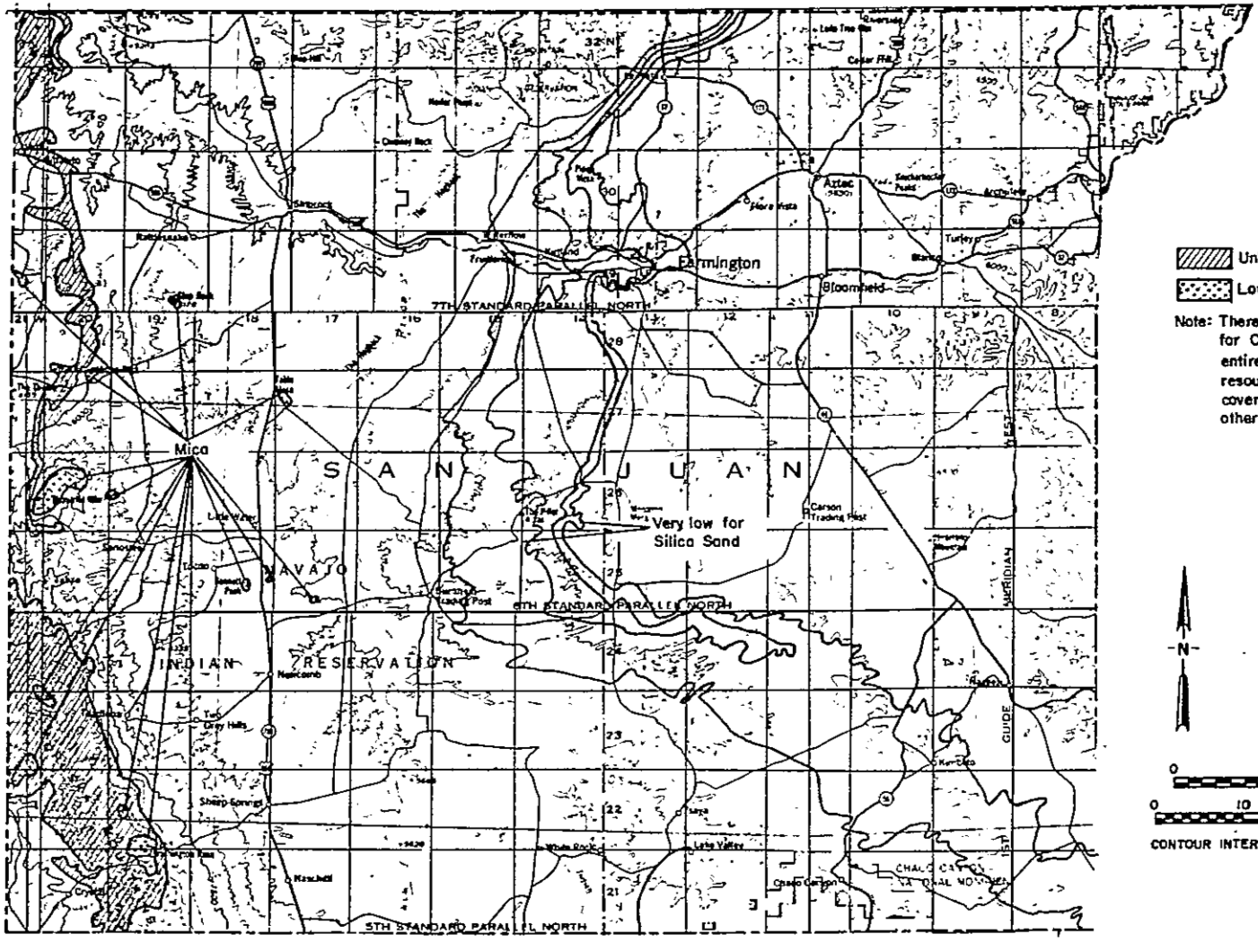

Figure 31. Resource potential for crushed stone, mica, silica sand, and zeolite in San Juan County, New Mexico.

TABLE 26 - Currently exploited and potential crushed stone resources in San Juan County.

Age	Rock Unit
Quaternary	eolian, colluvial, and alluvial deposit
Tertiary	basaltic intrusives and flows, Chuska Sandstone, San Jose Formation, Nacimiento Formation, Ojo Alamo Sandstone
Cretaceous	Kirtland SHale, Pictured Cliffs Sandstone, Lewis Shale, Mesaverde Group, Mancos Shale, Dakota Sandstone
Jurassic	Morrison Formation, Todilto Limestone, Summerville Formation, Entrada Sandstone
Triassic	Wingate Sandstone, Chinle Formation

TABLE 27 - Historical stone production in San Juan County (source: U.S. Bureau of Mines Annual Reports). W = data withheld to avoid disclosing confidential company production.

Year	Production (in st)	Value (in $)
1958	1,000	3,600
1962	125	250
1963	200	200
1964	847	1,271
1965	472	708
1966	W	
1967	9,180	13,830
1968	640	1,230
1969	26,066	57,026
1970	33,000	65,000
1971	W	
1972	32,000	34,000
1974	W	
1975		12,000
1980	W	

throughout the county, the potential for development of the resources is variable. Generally, the development potential is influenced by the nature and quality of the stone, the distance from major transportation routes and potential markets, the expense of mining, and competition from other nearby stone resources. The development potential for crushed stone resources in San Juan County is high along primary county roads, railways, and near population centers. Stone resources in remote areas have only low to moderate development potentials.

Several rock types merit top consideration as sources of crushed stone in the county. These include Tertiary basaltic intrusives and flows on the Navajo Indian Reservation, notably those at Washington Pass, Beautiful Mountain, Bennett Peak, Ford Butte, Foster Peak, and those north of Shiprock (Allen, 1955). Basaltic gravel from the terrace north of Shiprock has been crushed for concrete aggregate in construction blocks. Allen (1955) notes that the igneous rock is weather resistant as it is hydrophobic and contains little clay or other material which upon wetting will swell and weaken the rock.

Coal beds on the Navajo Reservation north and southeast of Burnham have burned along their outcrop and underground, producing large amounts of coal ash, slag, clinker, and baked shale (Allen, 1955). This material is widespread at the surface and may provide a low-cost alternative to other,more resistant rock for road surfacing where it has a transportation cost advantage.

The Todilto Limestone has been crushed for road surfacing and ground for use as a soil conditioner. It also has potential

use as rip-rap and flagstone (Allen, 1955). On the reservation, the Todilto crops out along the Arizona line from Todilto Park to Beautiful Mountain. The unit is only 7 to 14 ft thick, and consequently, will be economic to extract only where the dip of the bed is low and the overburden minimal. A series of mesas west of Sanostee and south of Beautiful Mountain are capped by the Todilto (Allen, 1955). The limestone averages 7 ft in thickness over 2 sq mi without appreciable overburden. Allen (1955) estimates that there are up to 56 million tons of reserves.

Volcanic ash and pumicite exposed in several localities in the Chuska Mountains may be crushed for use as pozzolanic material in portland cement (Allen, 1955). The pozzolanic mixture would produce a more resistant and impervious concrete than one made without it.

Dimension Stone (by M. R. Bowie)

San Juan County has an abundance of potential dimension stone resources (Fig. 32, Maps 90-93; Table 28). Historically, the demand for dimension stone in the county has been small and little published data is available regarding the commercial capabilities of stone resources.

Several sandstones targeted as potentially marketable dimension stone in McKinley County (McLemore et al., 1986d), crop out in San Juan County. These include abundant tan, orange, brick-red, and darker colored sands exposed within the Fort Defiance and Tohatchi quadrangles (Allen and Balk, 1954) and the Navajo Indian Reservation (Allen, 1955). In the past, local

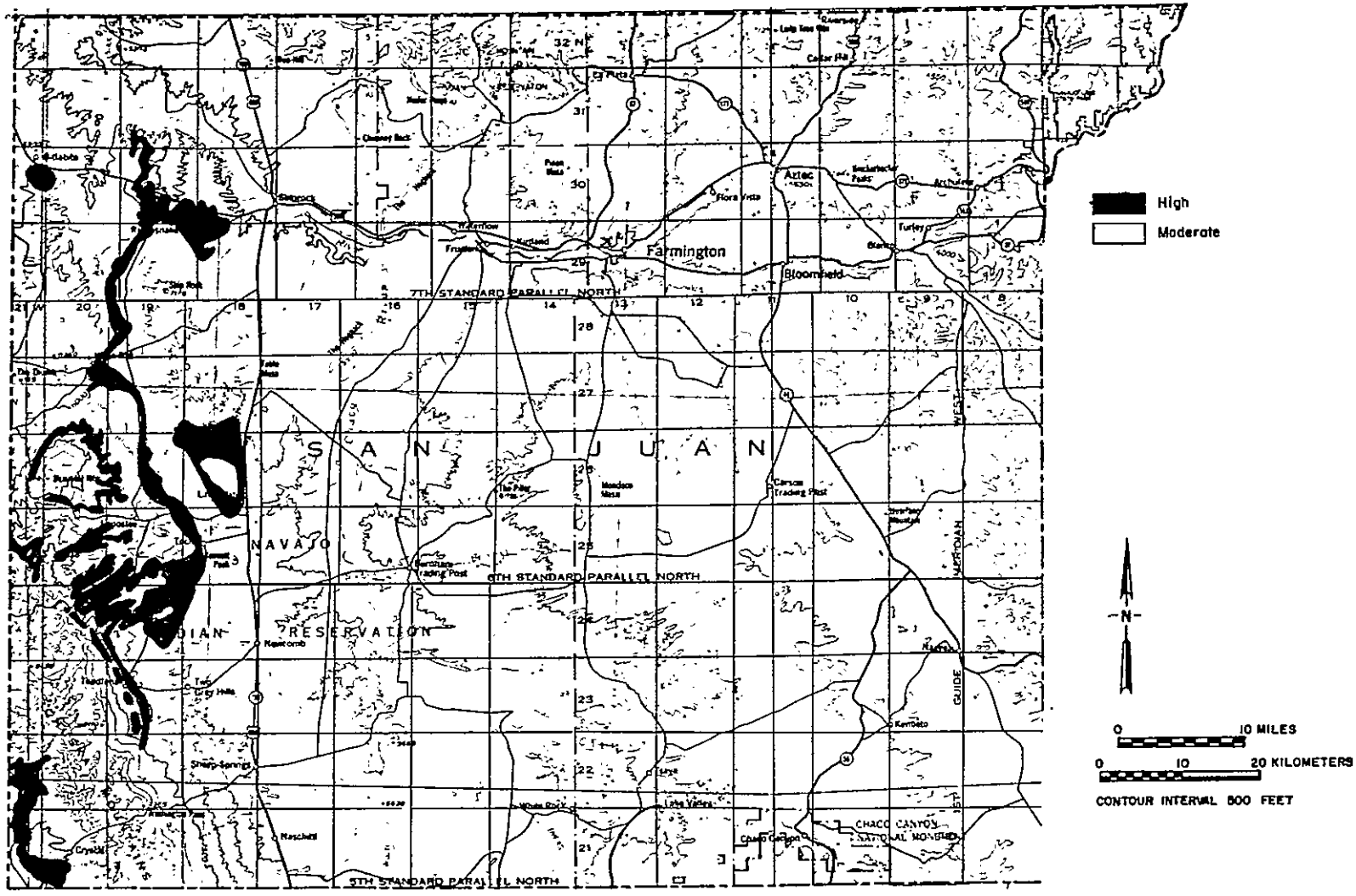

Figure 32. Resource potential for dimension stone in San Juan County, New Mexico.

TABLE 28 - Current and potential sources of dimension stone in San Juan County.

Age	Rock Unit	Resource potential for dimension stone
Tertiary	Chuska Sandstone	moderate
	San Jose Formation	moderate
	Nacimiento Formation	moderate
	Ojo Alamo Sandstone	moderate
Cretaceous	Mesaverde Group	moderate
	Gallup Sandstone	high
	Mancos Shale	moderate
	Dakota Sandstone	moderate
Jurassic	Morrison Formation	moderate
	Zuni Sandstone	moderate
	Bluff Sandstone	moderate
	Todilto Limestone	moderate
	Summerville Formation	moderate
	Entrada Sandstone	moderate to high
Triassic	Wingate Formation	high
	Chinle Formation	moderate

stones have been used in buildings at Tohatchi, Mexican Springs, and other communities. These stones may, in the future, provide flood protection along stream channels, in the form of channel linings or rip-rap for abutments.

The Chinle Formation, Entrada Sandstone, Summerville Formation, Todilto Limestone, Morrison Formation, and the Dakota Sandstone and other Cretaceous sandstones have been briefly examined for their commercial stone capability (Allen and Balk, 1954). These units generally crop out in the extreme western part of the county, far from major population centers. The lower part of the Chinle Formation consists of several gray to brick-red, fine-grained sandstone lenses which break easily into large slabs 2 to 5 inches thick. The material is suitable for flagstone and decorative products, such as garden facing or sidewalk plates. A pale-green, very fine-grained, mildly silicified pellet-conglomerate, about 3 inches thick, occurs near the top of the formation. This well indurated rock may furnish durable construction material, possibly for use in heavy masonry, bridge abutments, and dams (Allen and Balk, 1954).

The Entrada Sandstone has been suggested as a possible source of building material and may be targeted for large-scale commercial operations. The unit is a well-exposed, massive, fine-grained sandstone of uniform and pleasing color which crops out near several fair-weather roads.

The Summerville Formation consists of a thick sequence of gray and pink sandstones. Locally significant variations in color and physical properties may inhibit the stone from conforming to certain commercial specifications. Additionally,

the sand layers generally break into slabs too thick for flagstone, yet too thin for building stone (Allen and Balk, 1954). Detailed assessment work is needed to identify more homogeneous zones which break into slabs suitable for commercial uses.

Sandstones of the upper Morrison Formation may be locally suitable for dimension stone but are not as marketable as other nearby sandstones. Morrison sandstones are generally less indurated than the other sandstones and have an erratic distribution of coarse, gritty zones which detract from the appearance of large blocks. Furthermore, nearly all the larger exposures of these sandstones are too far from roads to encourage large-scale quarrying.

A "pink sandstone" at the top of the Cretaceous Gallup Sandstone has been quarried from several localities near Gallup in McKinley County for use in local buildings (Sears, 1925). Extensions of the Gallup Sandstone into San Juan County have high resource potential for dimension stone. Other Cretaceous sandstones exposed in the Fort Defiance and Tohatchi quadrangles locally are too erratic in composition, split irregularly, or are situated too far from transportation routes and potential markets to be of economic significance. Further work is needed to locate more homogeneous zones closer to markets.

The potential for development of the possible dimension stone resources listed in Table 28 is dependent not only upon the quality and desirability of the stone, but also upon projected quarrying and transportation costs. In general, the development

potential of stone near population centers is moderate to high, whereas it is low to moderate in more remote areas.

Gemstones and Mineral Specimens (by R. M. North)

San Juan County has no recorded gemstone production and no well-known mineral specimen localities. Reported collectible minerals in the county include petrified wood, agate, jasper, the uranium minerals tyuyamunite, carnotite, and cuprosklodowskite, and possibly gem-quality olivine (peridot) and garnet.

Petrified wood, agate, and jasper are widespread throughout the San Juan Basin. The San Juan River, Bisti area, and Blanco Trading Post area have been especially productive. No commercial operations are known.

Uranium minerals also have been reported for the area. Northrop (1959) reports museum specimens of carnotite and tyuyamunite from the Shiprock mining district on the east flank of the Carrizo Mountains. Kimbler and Narsavage (1981) report tyuyamunite and cuprosklodowskite from a locality in the S1/2, SW1/4 sec. 36, T. 25 N., R. 21 W., southwest of Sanostee.

Northrop (1959) also reports two vague localities for olivine and garnet (subspecies unspecified) from San Juan County. The olivine is said to occur as "large crystals near Washington Pass, Chuska Mountains, northeast of Crystal" (Northrop, 1959, p. 383). No mention is made as to the quality of the crystals. The garnet locality is near Thumb Rock, about 4 miles west of Mitten Rock. Northrop quotes J. C. Carrera as having said "the most beautiful garnets and rubies occur in the San Juan Valley" (Northrop, 1959, p. 256), suggesting the garnets are reddish

pyrope, similar to those that occur at Buell Park in McKinley County. No production of gem-quality olivine or garnet is known.

Helium Resources (by R. F. Broadhead)

Helium Production History--Helium has been produced in San Juan County since 1943. First production was from the Ouray Formation (Devonian) and Leadville Limestone (Mississippian) in the Rattlesnake Mississippian gas pool (Fig. 33). The gas produced at the Rattlesnake pool contained 7-8% helium. The helium was extracted from the gas at a U.S. Bureau of Mines plant located near the town of Shiprock. In San Juan County, helium has been extracted from gas produced at the Rattlesnake, Hogback, Table Mesa, North Tocito Dome, and Beautiful Mountain pools (Casey, 1983). Presently, helium-rich gas produced in San Juan County is processed at the Navajo Refined Helium plant, located approximately 5 miles south of the town of Shiprock. The U.S. Bureau of Mines plant has been abandoned.

Statistics regarding the total amount of processed helium produced in San Juan County are not available. However, the total amount of gas produced from pools with helium-rich gas is known (Table 29).

Helium Occurrences--Natural gas from several wells and oil and gas pools in San Juan County is rich in helium (Figs. 33-35; Tables 31, 31). In this report, helium-rich gas is considered to be gas that contains more than 0.1% helium. Helium-rich gas occurs in Triassic, Permian, Pennsylvanian, Mississippian. Devonian, and Cambrian reservoirs. Commercial production has been obtained from Permian, Pennsylvanian, Mississippian, and

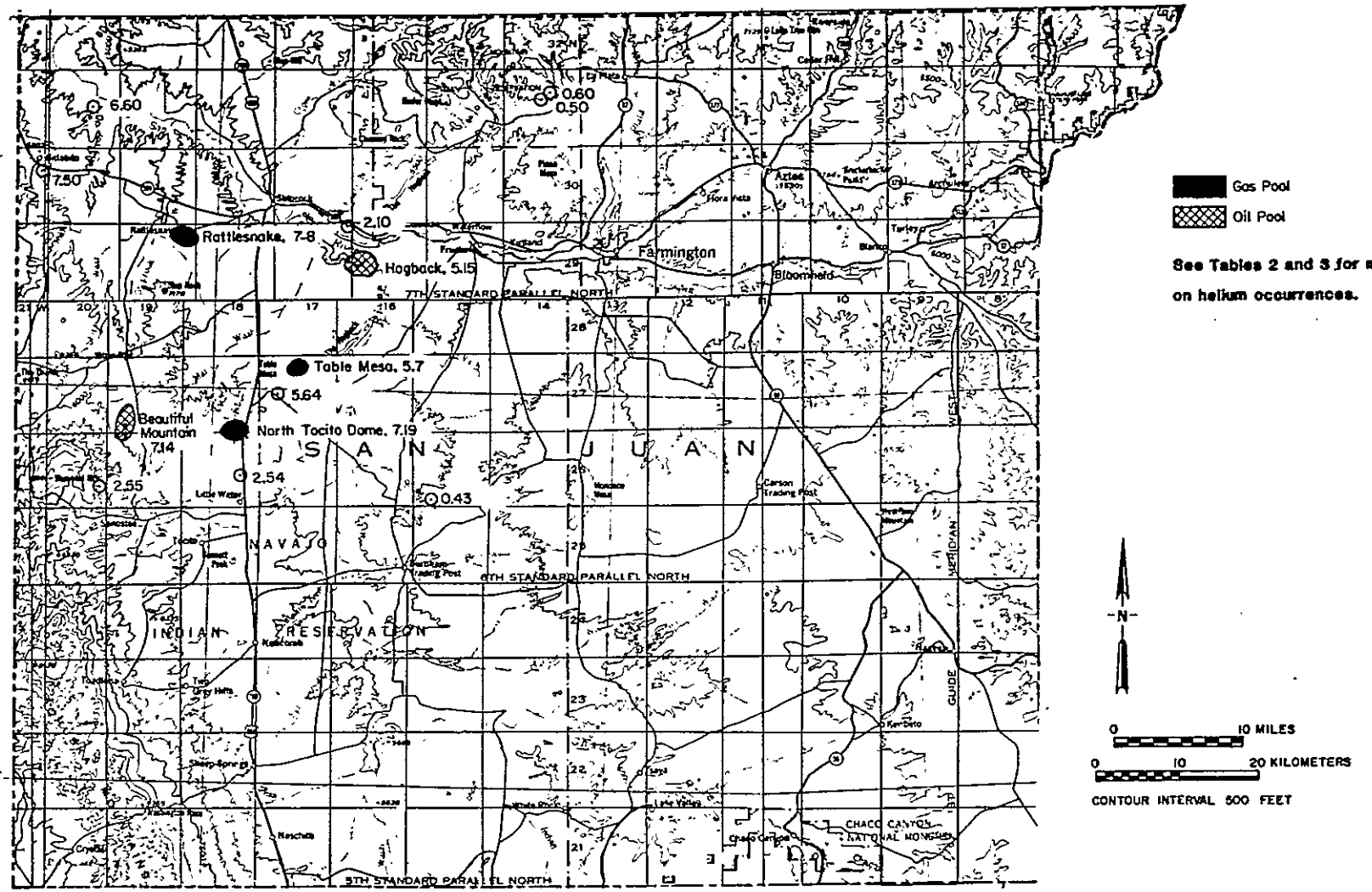

Figure 33. Occurrences of helium-rich gas in Mississippian reservoirs, San Juan County, New Mexico. Numbers are mole percent helium in gas.

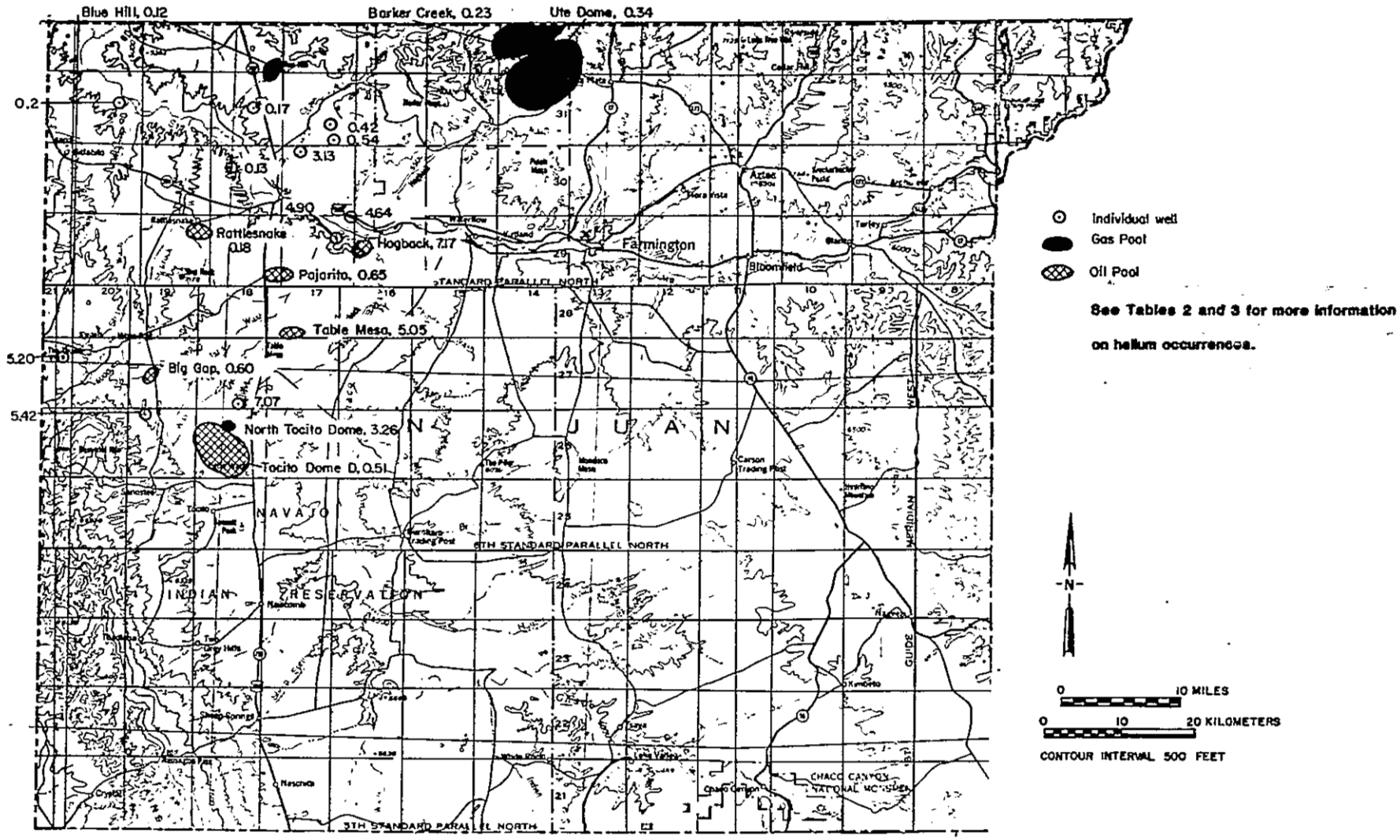

Figure 34. Occurrences of helium-rich gas in Pennsylvanian reservoirs, San Juan County. Numbers are mole percent helium in gas.

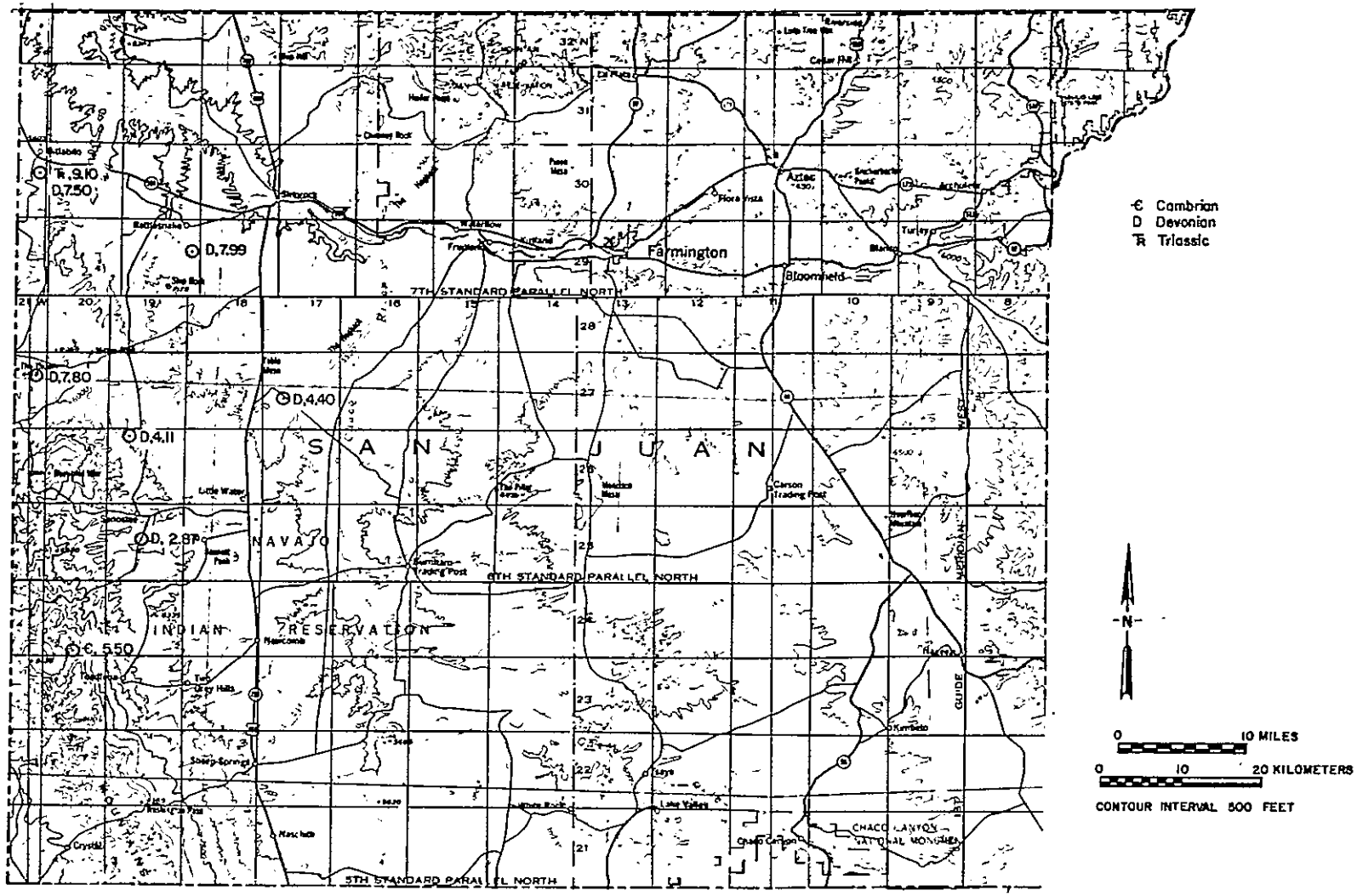

Figure 35. Occurrences of helium-rich gas in Triassic, Devonian, and Cambrian reservoirs. Numbers are mole percent helium in gas.

TABLE 29 - Cumulative production of gas from oil and gas pools that contain helium-rich gas in San Juan County, New Mexico and aproximate percentage of helium in that gas.

Pool	Location (township, range)	Reservoir	% helium in gas[1]	Cumulative gas production to 12/31/84 (million ft^3)[2]
Beautiful Mountain	27N, 19W	Ouray (Devonian) & Leadville (Mississippian)	7.14	3,048
		Organ Rock	5-5.5	275
Hogback	29N, 16W	Mississippian	5.15	50
		Pennsylvanian	7.17	20,100
North Tocito Dome	27N, 18W	Mississippian	7.19	1,105
		Pennsylvanian	3.26	
Table Mesa	27N, 17W	Mississippian	5.7	1,193
Rattlesnake	29N, 19W	Ouray (Devonian) & Leadville (Mississippian)	7-8	2

[1] Data from Moore (1976a, 1976b), Fassett (1978a, 1978b), Casey (1983).
[2] Data from New Mexico Oil & Gas Engineering Committee (1985).

TABLE 30 - Helium content of gases produced from Paleozoic oil and gas pools, San Juar County.

Pool	Location (township-range)	Percent helium in gas[1]
Big Gap Pennsylvanian Oil Pool	27N, 19W	0.60
Hogback Pennsylvanian Oil Pool	29N, 16W	7.17
Pajarito Pennsylvanian Oil Pool	29N, 17-18W	0.65
Rattlesnake Pennsylvanian BCD Oil Pool	29N, 19W	0.18
Table Mesa Pennsylvanian Gas Pool	28N, 17W	5.05
Tocito Dome Pennsylvanian D Oil Pool	26N, 18W	0.51
North Tocito Dome Pennsylvanian Gas Pool	26N, 18W	3.26
Barker Creek Paradox Gas Pool	32N, 14W	0.23
Blue Hill Paradox Gas Pool	31-32N, 18W	0.12
Ute Dome Paradox Gas Pool	31-32N, 14W	0.34
Beautiful Mountain Mississippian Gas Pool	26-27N, 19W	7.14
Hogback Mississippian Oil Pool	29N, 16W	5.15
Rattlesnake Mississippian Gas Pool	29N, 19W	7-8
Table Mesa Mississippian Gas Pool	27N, 17W	5.7
North Tocito Dome Mississippian Gas Pool	27N, 18W	7.19

[1] Data from Fassett (1978a, 1978b), Moore (1976a, 1976b).

TABLE 31 - Helium content of gases recovered from Triassic and Paleozoic reservoirs in wells drilled in San Juan County. Data from Moore (1976a, 1978b).

Operator, well number, and lease	Location (section-township-range)	Reservoir unit	Precent helium in gas
Kerr McGee Corp. No. 1 Navajo 1	34-24N-20W	Cambrian	5.50
Champlin Petroleum Co. No. 1 Navajo Humble	16-26N-19W	Aneth (Devonian)	2.87
Pure Oil Co. No. 1 Navajo	32-26N-15W	Mississippian	0.43-0.45
Sinclair Oil & Gas Co. No. 49 Navajo	23-26N-18W	Mississippian	2.54
Amerada Petroleum Corp. No. 1 Navajo Tract 381	5-26N-19W	Hermosa (Pennsylvanian)	5.42
		McCracken (Devonian)	4.05
		Aneth (Devonian)	4.16
Gulf Oil Co. No. 1 Navajo BB	25-26N-20W	Mississippian	2.55
Amerada Petroleum Corp. No. 1 Navajo Tract 4	20-27N-17W	Paradox (Pennsylvanian)	5.70
		Mississippian	4.96-6.14
		Devonian	4.40
Sinclair Oil & Gas Co. No. 1 Navajo Tribal 141	34-27N-18W	Pennsylvanian	7.07
Texaco Inc. No. 1 Navajo AW	7-27N-20W	Pennsylvanian	5.20
		Devonian	7.80
Pan American Petroleum Corp. No. 1 Navajo C	1-29N-17W	Paradox (Pennsylvanian)	2.40-6.90
		Mississippian	2.10
San Juan Drilling Co. No. 1 Hamrah	11-29N-17W	Paradox (Pennsylvanian)	4.90
U.S. Bureau of Mines No. 1-G Rattlesnake	13-29N-19W	Ouray (Devonian)	7.99
Phillips Petroleum Co. No. 1 Navajo	5-30N-17W	Hermosa (Pennsylvanian)	3.13
Continental Oil Co. No. 1 Biclabito	13-30N-21W	Chinle (Triassic)	9.10
		Mississippian & Ouray (Devonian)	7.50
Pan American Petroleum Corp.No. 1 Ute Mountain Tribal D	10-31N-14W	Mississippian	0.50

TABLE 31 (cont'd)

Operator, well number, and lease	Location (section-township-range)	Reservoir unit	Precent helium in gas
Pan American Petroleum Corp. No. 1 Ute Mountain Tribal O	10-31N-14W	Mississippian	0.60
Three States Natural Gas Co. No. 1 Navajo	27-31N-17W	Hermosa (Pennsylvanian)	0.52-0.66
Texas Co. No. 1 Navajo	34-31N-17W	Paradox (Pennsylvanian)	0.54
Humble Oil and Refining Co. No. 1 Navajo Tract 24	15-31N-18W	Desert Creek (Pennsylvanian)	0.10
		Barker Creek (Pennsylvanian)	0.10
		lower Pennsylvanian	6.60
British American Oil Corp. No. 1 Navajo E	15-31N-20W	Pennsylvanian	0.2
		Mississippian	6.60
Crevice near surface fault	16-32N-14W		trace
Southern Union Gas Co. No. 1A Navajo	36-32N-18W	Paradox (Pennsylvanian)	0.10-0.18

Devonian reservoirs. Most occurrences are in Pennsylvanian and Mississippian reservoirs. The Cretaceous section contains substantial reserves of hydrocarbon gas, but those gases contain insignificant amounts of helium.

Helium-rich gas has been recovered from only the northwest part of San Juan County. This may be explained by the paucity of wells that penetrate the Paleozoic section in the southern and eastern parts of the county (see Appendix 2). No gas analyses are available to indicate an absence of helium-rich gas in Paleozoic reservoirs in the southern and eastern parts of San Juan County.

Principles of Helium Occurrence--Helium is found in porous rock reservoirs and is trapped similarly to natural hydrocarbon gases. In the reservoir, it is mixed with other gases, chiefly nitrogen, carbon dioxide, and hydrocarbons. Helium is usually less than 10% of the total gas in the reservoir. Most natural gases contain less than 0.05% helium. Helium is extracted from the gas that is produced from the reservoir, and then it is marketed. Generally, gas with less than 0.3% helium is considered uneconomic (Hertweck and Miller, 1981; Casey, 1983; Spencer, 1983).

Helium in reservoir rocks originated from the radioactive decay of uranium and thorium. There are three natural sources of radioactive material that may generate significant amounts of helium (Casey, 1983): (1) sediments containing uranium or thorium, (2) Precambrian basement rocks that contain uniform, low concentrations of radioactive materials, and (3) deep-seated

igneous intrusives that de-gas as they rise and cool. Picard (1962) concluded that helium in the Four Corners area originated by de-gassing of the Precambrian core of the Defiance uplift. Casey (1983) listed two important factors that may lead to the accumulation of helium: (1) presence of porous reservoir rock, and (2) deep fault systems that could serve as conduits for the helium to pass from the source to the reservoir rock. However, deep fault systems are not required if sedimentary uranium and thorium are the radioactive helium sources because the reservoirs and the sources may occur in the same sedimentary units. The accumulation of significant amounts of helium is controlled by the presence or absence of large quantities of hydrocarbon gases in the reservoir; large quantities of hydrocarbon gases dilute the helium in the reservoir.

Helium Resource Potential--Five key factors were analyzed in order to evaluate the helium potential of San Juan County (Fig. 36): (1) known accumulations, (2) proximity to a possible source, (3) reservoirs, (4) traps, and (5) presence of other gases, especially hydrocarbons. Those five key factors were analyzed for the two tectonic subdivisions of San Juan County (Figs. 7, 23), the San Juan Basin and the Defiance uplift. Reservoirs, traps, and the occurrence of hydrocarbons were discussed in detail in the section on petroleum resource potential and are only summarized here.

San Juan Basin--The helium potential of the San Juan Basin is rated moderate to high. The Four Corners platform (Fig. 7) has a high potential and the central part of the basin has a

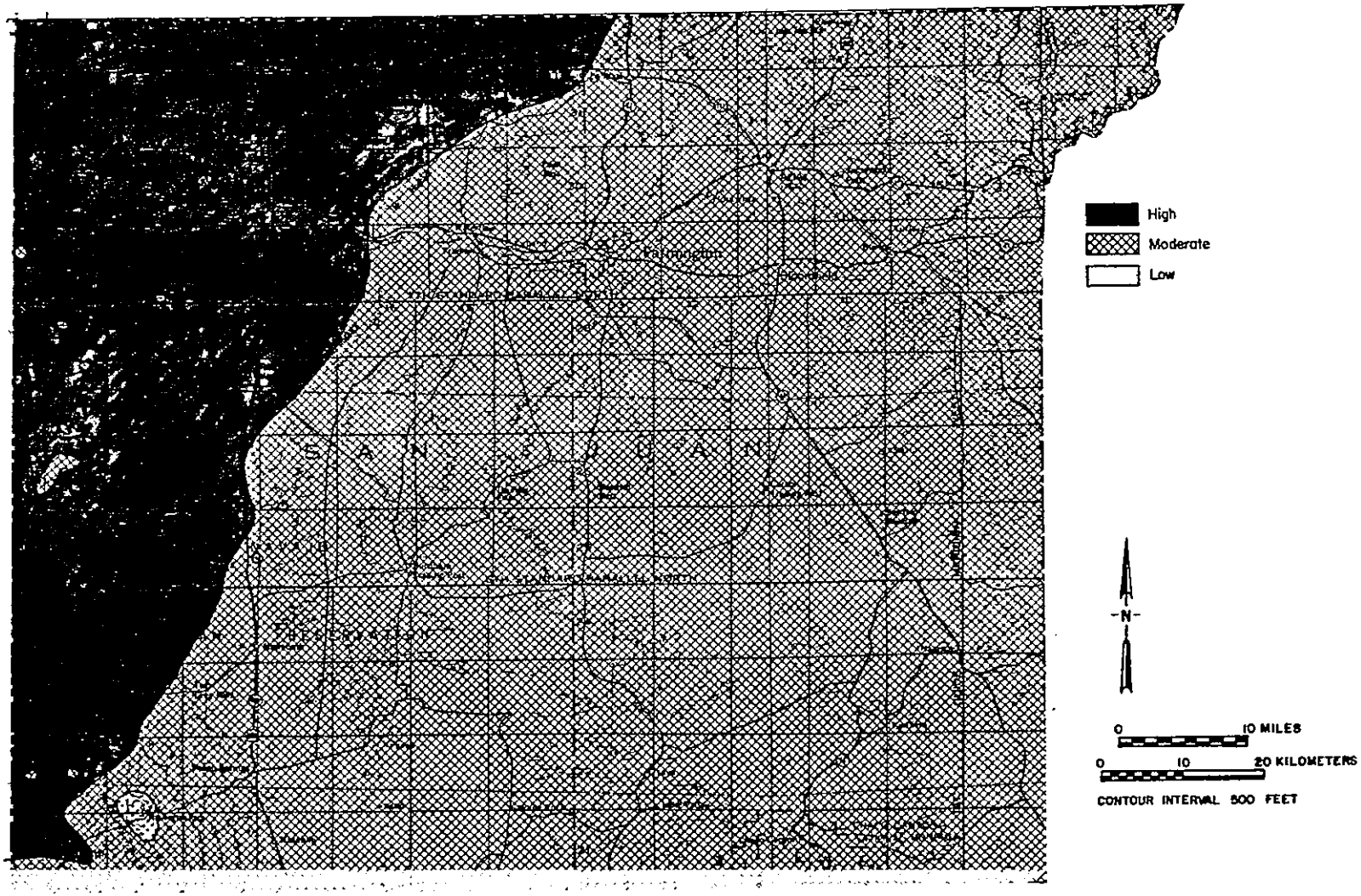

Figure 36. Potential for helium occurrence in San Juan County, New Mexico.

moderate potential.

The Four Corners platform has a high potential for four reasons. First, Paleozoic reservoirs on the platform have produced commercial helium; reservoirs in several wells and oil and gas pools contain helium-rich gas (Figs. 33-35; Tables 29-31). Second, the Four Corners platform is adjacent to the Defiance uplift, whose Precambrian core may be the source of helium produced in the Four Corners area (Picard, 1962). Third, reservoirs are present in several stratigraphic units on the Four Corners platform. Possible helium reservoirs are Upper Cretaceous sandstones, Jurassic sandstones, Triassic sandstones, Permian sandstones, Pennsylvanian carbonates and sandstones, Mississippian carbonates, and Devonian sandstones and carbonates. Fourth, stratigraphic and structural traps are present in the Mesozoic and Paleozoic sections; those traps have resulted in the formation of oil and gas pools (see section on petroleum resource potential).

Known accumulations of helium on the Four Corners platform occur only in Paleozoic reservoirs. There may be two explanations for this. First, traps in the Mesozoic section (particularly in the Cretaceous) are filled with hydrocarbon gas, which probably dilutes helium to insignificant concentrations. Second, deep fault systems may not connect the Precambrian core of the Defiance uplift with Cretaceous reservoirs. However, Jurassic and Cretaceous sandstones in the San Juan Basin host uranium deposits (see section on uranium potential); those uranium deposits could be helium sources. If that is true, then deep fault systems that act as migration paths between the

Precambrian helium source and the Cretaceous reservoirs are not required. Cenozoic intrusive bodies on the Four Corners platform are assigned a moderate potential for helium occurrence because the igneous rocks which form them are poor reservoirs. It is possible, but unlikely, that fractures and vesicles within the intrusive rock bodies could serve as reservoirs for helium.

The central part of the San Juan Basin is assigned a moderate, and not a high, helium potential for five reasons. First, Paleozoic and Mesozoic reservoirs in the central part of the basin are similar to Paleozoic and Mesozoic reservoirs on the Four Corners platform. Second, stratigraphic traps are known to exist in the Cretaceous section. Structural and stratigraphic traps probably exist in the Paleozoic section. However, traps in the Cretaceous section are probably filled with hydrocarbons, which would dilute helium in the reservoir to insignificant levels. Another reason the central part of the basin is rated moderate, and not high, is because helium-rich gas has not been discovered in it; however, the apparent absence of helium-rich gas may be due to the paucity of wells that penetrate Paleozoic reservoirs in the central part of the basin. A moderate potential is also warranted for the central part of the basin because it is separated by the Four Corners platform from the only apparent helium source, the Precambrian core of the Defiance uplift. It is unlikely that helium migrated from the Four Corners platform, down the Hogback monocline, and into the central basin. However, helium may have migrated into central and eastern San Juan County before the central basin was formed

as a discrete tectonic element. Cenozoic intrusive bodies in the central basin are assigned a low potential for helium occurrence because the igneous rocks that form them are poor reservoirs. It is possible, but unlikely, that fractures and vesicles within the intrusive rock bodies could serve as reservoirs for helium.

Defiance uplift--The helium potential of the Defiance uplift in San Juan County is rated moderate to high. Most of the northern part of the uplift is assigned a high potential for the same reasons the Four Corners platform is assigned a high potential. Cenozoic intrusive bodies on the uplift are assigned a moderate potential because the igneous rocks which form them are poor reservoirs. It is possible, but unlikely, that fractures and vesicles within the intrusive rock bodies could serve as reservoirs for helium.

The southernmost part of the Defiance uplift in San Juan County is assigned a moderate potential for helium occurrence. Reservoirs are limited to sandstones in the Triassic, San Andres, Glorieta, Yeso, and Abo (Permian), and Pennsylvanian. According to Armstrong and Mamet (1977), Mississippian marine carbonates, which produce helium on the uplift in Arizona and on the Four Corners platform in San Juan County, are only a few feet thick. According to Stevenson and Baars (1977), Devonian units are present on the southernmost part of the uplift in San Juan County, where they have a maximum thickness of approximately 140 ft. Most helium-rich gas in San Juan County is found in Pennsylvanian carbonates, Mississippian carbonates, and Devonian reservoirs. Therefore, a moderate potential is assigned for that

part of the Defiance uplift where those units are thin or absent.

Potential for development--Helium has many commercial uses. The main uses of helium are (Spencer, 1983): cryogenics, welding, pressurizing and purging, synthetic breathing mixtures, leak detection, lifting gas (in balloons and blimps), heat transfer, controlled atmospheres (needed to grow crystals used in transistors and semiconductors), and medical applications. Known helium reserves are adequate to meet demand well beyond the year 2000 (Hertweck and Miller, 1981; Spencer, 1983). However, the long-term demand for helium is uncertain (Spencer, 1983; Casey, 1983). Therefore, the potential for development of (yet) undiscovered helium accumulations in San Juan County is unknown.

Humate Resources (by G. Roybal)

Geologically the term humate refers to mudrocks that are rich in humic acids (Siemers et al., 1975). Weathered coals are also rich in humic acid, which is a product of the weathering process. The material mined, either humate or weathered coal, is determined by the end use. Humate is generally lower (17%) in humic acid than the weathered coal (66%) (Siemers and Wadell, 1977). Weathered coal or material with a high humic acid content can be used as a dispersant to control drilling mud viscosity. Humate which has a lower humic acid content is used as a soil additive.

Humate is often associated with coal or coal-bearing sequences, both of which represent facies in poorly-drained swamps in nearshore deltaic and fluvial sequences. These coal-bearing sequences have been designated as fields in the coal

section of this report. The coal-bearing formations in San Juan County are the Menefee and Fruitland Formations. These coal-bearing sequences were deposited during regressive cycles of the Cretaceous seaway.

Carbonaceous, humic-acid rich mudrocks are a common unit within both of the coal-bearing sequences mentioned, but no investigations of their potential have been completed. Siemers and Wadell (1977) estimate that humate deposits comprise 8 to 12% of the total thickness of the Menefee Formation compared to coal which comprises 4%. Using these percentages and resource estimates for the Menefee (0-250 ft) in San Juan County (Barker, Hogback, Toadlena, Newcomb, Chaco Canyon fields) a humate resource of 1 to 1.5 billion st is indicated. The amount of humate in the Fruitland Formation is much less than the Menefee Formation due to its thin and limited extent in the sequence.

Weathered coal occurs wherever there are coal outcrops and weathering may extend 30-50 ft back from the outcrop. In San Juan County the weathered coal resource is probably greater than in any other county with coal-bearing sequences due to the presence of the thicker and more extensive coals in the Fruitland Formation.

Weathered coal is being mined in San Juan County at the Black Diamond mine (sec. 28, T. 32 N., R. 13 W.), a permitted inactive coal mine. Production of weathered coal at this mine began in 1980 under contract to NL Baroid. The outcrop mined here is the lowest coal bed in the Fruitland Formation with an average thickness of 40 ft and a 32^{o} dip to the east-southeast.

Production for the Black Diamond in 1984 was 12,632 st (Monty Bayber, personal commun., 1985). The primary use of this material is as a drilling mud additive.

The resource potential for humate in San Juan County can be estimated to be low to moderate for the Menefee Formation using a percentage of the overall coal-bearing sequence, but no definite data is available. The resource potential for weathered coal can be estimated to be low to moderate, because there is data on the coal in the area and the Fruitland Formation contains some thick and somewhat continuous coal beds. The number of outcrops and the amount of weathering at the outcrop are unknown factors in determining the resource potential of weathered coal. The areas in which both of these commodities occur are the same as that shown on the maps for coal occurrences (Maps 73-76). The development potential for both humate and weathered coal is very low because the present market for such material is very small.

Lightweight Aggregate (by J. S. Hingtgen)

Lightweight aggregates are, in general, construction materials of lower density than rock aggregates like sand and gravel. Because of this, they find greatest use in roofing and wall components and less use in foundation materials or road bases. The normal complement of lightweight aggregates includes perlite, pumice, scoria and cinders, vermiculite and expansible shale. Although perlite, expansible shale, and vermiculite are mined as dense rock, special processing allows them to be made "lightweight". Each of these three mineral products contains bound water. By firing the ground particles within a narrow

temperature range the material expands. Pumice and scoria are already naturally expanded due to lava vesiculation; processing involves simply milling and sizing to specified grades. Specialty uses of the lightweight aggregates often grow out of their utility in building construction products. Perlite, for example, is used for cryogenic insulating in much the same way it is used as a residential building insulator.

Geologically, the lightweight aggregates are diverse, being derived from sedimentary, volcanic, and intrusive igneous rock types. Perlite, pumice, pumicite, scoria, and cinders are found in both lava flows and pyroclastic deposits. Expansible shale occurs as special regions within shale strata. Vermiculite is a secondary mineral produced when deep-forming plutonic rock becomes exposed and altered. No indication of occurrence of either vermiculite or perlite in San Juan County is found in the literature.

Specific descriptions of each lightweight aggregate follow with use, geology, and potential discussed under each mineral. Generalizations about development potential can be made over the whole county for all lightweight aggregates. These minerals are low unit-cost and for most applications have easily available substitutes. If development cost of one becomes much higher than the costs of the others, another will be used in place. Development potential is thus dependent on prices of the other aggregates. Transportation costs must be kept low, so development potential is highly dependent on nearness to end use centers. Prices in 1983 in New Mexico were as follows: perlite $34/short ton and scoria, $6/ton (NMEMD, 1984, p. 109, 111). The

same year pumice was $10/ton, and vermiculite sold for $96/ton on a national average (U.S. Bureau of Mines, 1985, p. 120, 172).

The dearth of natural lightweight aggregate in San Juan County has long been recognized (Foster, 1966, p. 21). The older, easily extracted sources of pumice and cinders are virtually absent. Efforts to find raw materials for manufacturing aggregates or to find byproduct aggregates have occupied at least two research projects in the last few decades (Allen, 1955; Foster, 1966). Alternate sources considered include bottom and fly ash from the coal-fired generating plants. Fly ash "is reported to have good pozzolanic properties" and potentially can serve as a cement extender or in concrete block aggregate (Foster, 1966, p. 23). Another possible material is the burnt coal, also known as "baked shale", which occurs locally when coal beds exposed at the surface catch fire. Coal ash is a byproduct that may be usable as a pozzolan.

A pozzolan is a siliceous or siliceous and aluminous mineral product "which in itself possesses little or no cementitious value but will, in finely divided form and in the presence of moisture....form compounds possessing cementitious properties" (Ames and Cutcliffe, 1983, p. 143). It must chemically react with the calcium hydroxide liberated as portland cement hydrates (Ames and Cutcliffe, 1983, p. 143).

Pumice and Pumicite--"Pumice is a light-colored, cellular, almost frothy rock made up of glass-walled bubble casts. It may occur as coherent, massive blocks composed of highly vesicular glassy lava in either a flow or vent filling, or it may be more

or less fragmented by violent eruption. Pumicite, the diminutive of pumice, has the same origin, chemical composition, and glassy structure, differing only in particle size. Particles less than 0.16-inch in diameter are designated pumicite" (Peterson and Mason, 1983, p. 1,079). An alternate definition of pumicite is that it consists "largely of angular and curved particles (shards) of the shattered vesicle walls of pumice" (Weber, 1965, p. 341). Uses of pumice and pumicite nationally in 1985 were 88% for concrete aggregate and for building blocks (U.S. Bureau of Mines, 1986). The balance was for pozzuolanic additives, plaster aggregate, loose fill insulation, and as an abrasive, soil conditioner, and insecticide carrier (NMEMD, 1984, p. 109).

Pumice and pumicite are types of volcanic ash produced in "explosive volcanism when expansion of magmatic gases in hot, plastic, fragmental ejecta causes rapid vesiculation... Deposits may be massive or stratified, depending upon the mechanics of eruption, the influence of deposition in subaerial and subaqueous environments, and modifications resulting from reworking by water and wind (Chesterman, 1956; Bates, 1960, pp. 39-50). The deposits include ash-fall and ash-flow tuff, tuff breccias, and reworked volcanic sediments. Because of its tendency to devitrify with time and the ease of alteration by several geologic processes, commercial-grade pumice is restricted to deposits of Tertiary and Quaternary age" (Weber, 1965, p. 342).

As in McKinley County, the cream-colored pumice so common in the Jemez is unlikely to be found in San Juan County. Allen (1955) reports pozzuolanic material at three places within the

Chuska Mountains, which he describes as volcanic ash and pumicite. The first location is about a mile and a half north of the town of Crystal on State Highway 134, NE corner of T. 21 N., R. 20 W. The second is northwest of Toadlena is sec. 10, T. 24 N., R. 20 W. about two miles west of Old Sawmill Spring. Allen (1955) suggests that these beds "may be thick enough to mine economically if a market should ever be developed (but) transportation difficulties and low prices will probably prevent such development." The third site is on the southwest side of a Pliocene igneous outcrop surrounding Washington Pass (T. 21 N., R. 19 W.). O'Sullivan and Beikman (1963) describe the unit on that side of the stock as "trachybasalt tuff and tuff-breccia, breccia, and subordinate trachybasalt agglomerate... Locally includes... large blocks and small fragments of sedimentary rocks." The modifier "trachy" refers to a rough texture, and an increased proportion of alkali minerals in the basalt (Gary et al., 1972, p. 748). Although basalt is not normally used as pozzuolan, future testing might show that these bodies in San Juan County are suitable.

Other features where the tuff breccia crops out in this vicinity include: a one-mile-long area capping the hill immediately north of the highway through Washington Pass and the entire east edge of the stock surrounding the pass; the south and north edges of a stock on the state line straddling the T. 23/24 N. boundary; the entire outcrop at sec. 4 and 5, T. 23 N., R. 20 W.; Ford Butte and Bennett Peak; Barker Peak; Shiprock, without its radial dikes; and the outcrops between Horse Mesa and Oak Spring Wash (O'Sullivan and Beikman, 1963).

Some discrepancy regarding the outcrop of tuff-breccia on the north and west sides of the Washington Pass stock are reported by O'Sullivan and Beikman (1963) and Zieglar (1955). To point out all possible resource sites, the sum of outcrops from both maps has been shown; although either source alone omits part of this outer band bounding the stock.

A few occurrences of the tuff breccia in Arizona lie roughly along the axis of the Chuska Mountains. Exploitation at any of these sites depends on the need for a local source of aggregate and on finding resources which meet particular specifications. Tuff and pozzuolan sources from outside the county are probably more economical for most users. Mineral resource potential is low for the sites noted and very low elsewhere (Maps 94-97). Development potential for the entire county is low.

Scoria and Cinders--Although scoria and cinders are also derived from explosive volcanism, several differences from pumice and pumicite result in somewhat different applications. Most important chemically is that the composition of scoria and cinders is mafic, or iron and magnesium rich and silica poor, rather than felsic, or alkali and silica rich. One result is that cinders and scoria tend to be black or red, whereas pumice and pumicite are typically white or off-white. Pumice and pumicite are also generally lower in density than cinder and scoria. Cinders and scoria are deposited as coarser particles and are more coarsely cellular. They are used as aggregate for road construction, in concrete blocks (Peterson and Mason, 1983), in landscaping, roofing, and erosion control, and for railroad

ballast. In New Mexico during 1980, 28% of scoria produced went into landscaping, and, along with block production, these two uses accounted for 70% of sales (Osburn, 1982, p. 58).

Scoria and cinders are often considered synonymous; the term "cinders" is more common in industrial usage. Technically, scoria is an in-place deposit, a "crust on the surface of andesitic or basaltic lava", whereas cinder is a mass of "pyroclastic fragment" (Gary et al., 1972, pp. 636, 126). In practice the physical properties of either rock are similar, so both cinder cones as well as basaltic flows have the potential for suitable deposits. In either case, formation occurs because of expanding gases during eruption. The surface of a lava flow vesiculates because atmospheric pressure is lower than the partial pressure of the dissolved gases. Cinders ejected from a volcanic neck vesiculate during their flight through the air. The "cinder cone" is thus the typical form ejected material assumes and depending on wind strength, lava vent shape, and lava viscosity, may be elongated in the down wind direction (Osburn, 1982, p. 57).

Many of the basaltic features referred to under pumice and pumicite contain another lithology which offers some scoria potential. Cinder cones, however, are not reported in San Juan County. O'Sullivan and Beikman (1963) report a trachybasalt, an "intrusive and extrusive basaltic rock...(with) locally some glass." The extrusive phase of this unit offers the potential for scoria resources. It crops out over most of Washington Pass and most of the state line T. 23/24 N. stock for a total area of

approximately eight square miles in New Mexico.

Resource potential is again low here and very low everywhere else in San Juan County (Fig. 37; Maps 94-97). Development potential is low.

Expanded Shale--Certain shales become usable as lightweight aggregate upon being expanded to reduce their density. The ability to expand depends not on the age or absence of silt in the rock, but rather on the presence and correct chemical binding of water in the clay minerals. The species of clay appears to be important, and smectite or mixed layer illite-smectite clays have been found "more favorable for expansion than kaolinite". Processing involves firing at 1,800° to 2,200°F to achieve bloating. Although some slates have been expanded elsewhere, none occur in San Juan County. Use of lightweight expanded shale in cement block in former years is being surpassed by use as a high strength-to-weight ratio aggregate in construction materials (Foster, 1966, p. 3).

There is no simple way to predict whether a particular shaly formation will expand well, because test samples taken only a few miles apart have proved to vary greatly in expansibility. The NMBMMR has investigated the resource potential at four sites in San Juan County: at the Navajo coal mine and at three sites around the town of Shiprock. After some preliminary testing Allen (1955) suggested that the Mancos Shale in the vicinity of Shiprock would produce a good bloating shale). More thorough testing revealed that the Mancos here is not expandable using conventional methods (Foster, 1966, p. 37). At this site

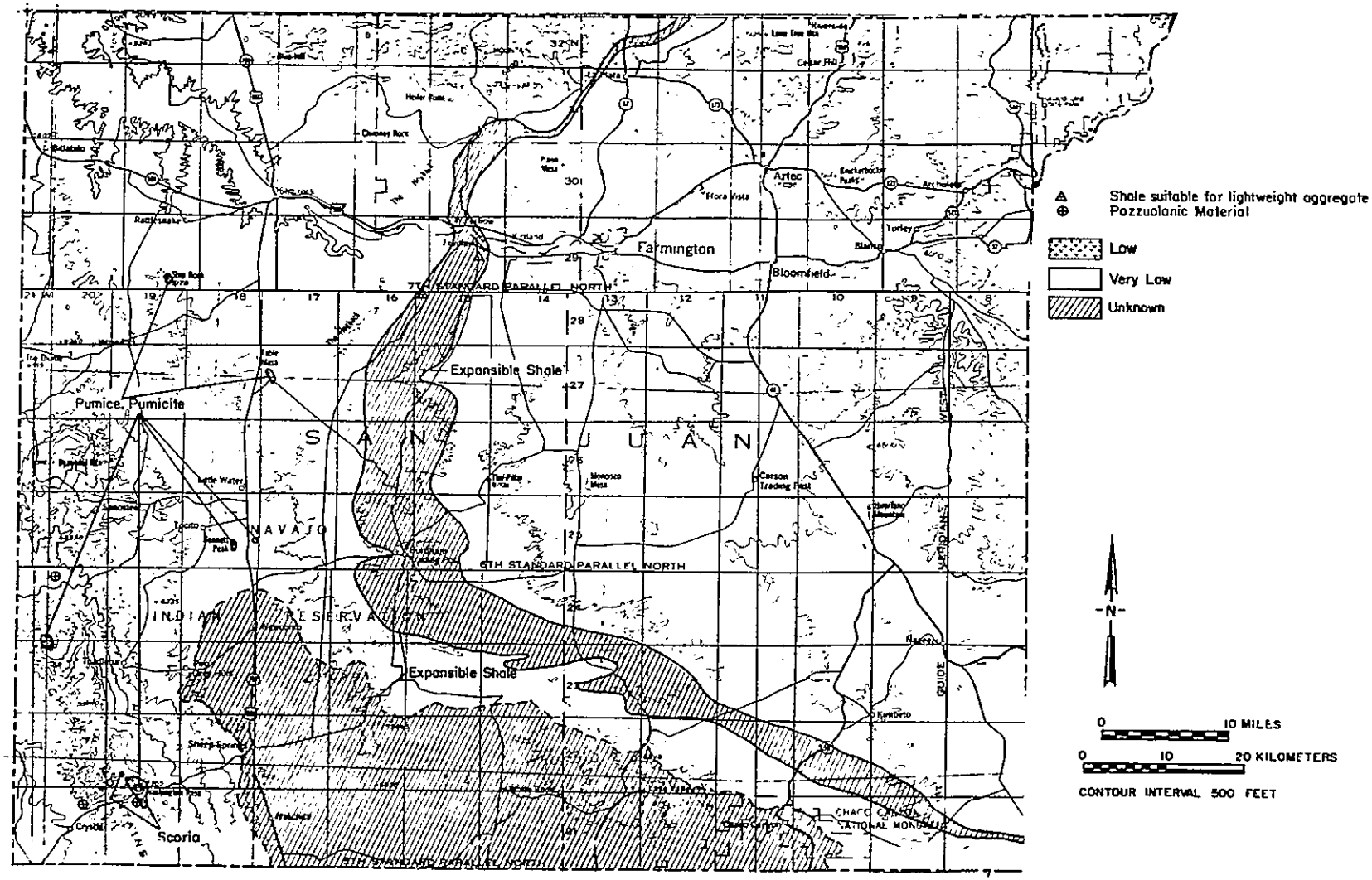

Figure 37. Lightweight aggregate resources in San Juan County, New Mexico.

"about 15 miles west of Shiprock on the south side of New Mexico 504", the shale was found unsuitable for expansion by rotary kiln, but "centering followed by crushing and sizing of the expanded shale may result in a usable aggregate of the haydite (a trade name) type" (Foster, 1966, p. 37). Figure 38 shows the expansion curve for this shale, labeled 1-3.

The Menefee Formation, which was suitable in McKinley County narrows northward until it becomes a neck one-mile wide near Stanolind. The northern limit of resource potential is drawn indefinitely near Newcomb in order not to include outcrops far removed from the nearest sampled locality in McKinley County (T. 19 N., R. 10 W.). Positive test results in San Juan County were obtained of samples taken at the Navajo coal mine, T. 29 N., R. 15 W. Sampled here was an interval of the Fruitland Formation. Three groups of samples from this site, designated 2-2 on the graph in Figure 38, were gray, slightly silty, carbonaceous shales, some calcareous and some not (Foster, 1966, p. 24). Although the section tested thins and thickens along strike, Foster (1966, p. 24) suggests that shale could easily be set aside, where found, in conjunction with the coal mining.

Resource potential is unknown over the area of Fruitland outcrop, as transcribed from Reeside (1924) and O'Sullivan and Beikman (1963), as well as over the majority of the Menefee Formation. Elsewhere it is low (Maps 94-97). As in McKinley County, development may be limited in southern San Juan County by the presence of archaeological sites around Chaco Canyon. Development potential is greater around Farmington and the primary highways (U.S. 666, 550, 64) leading to it due to the

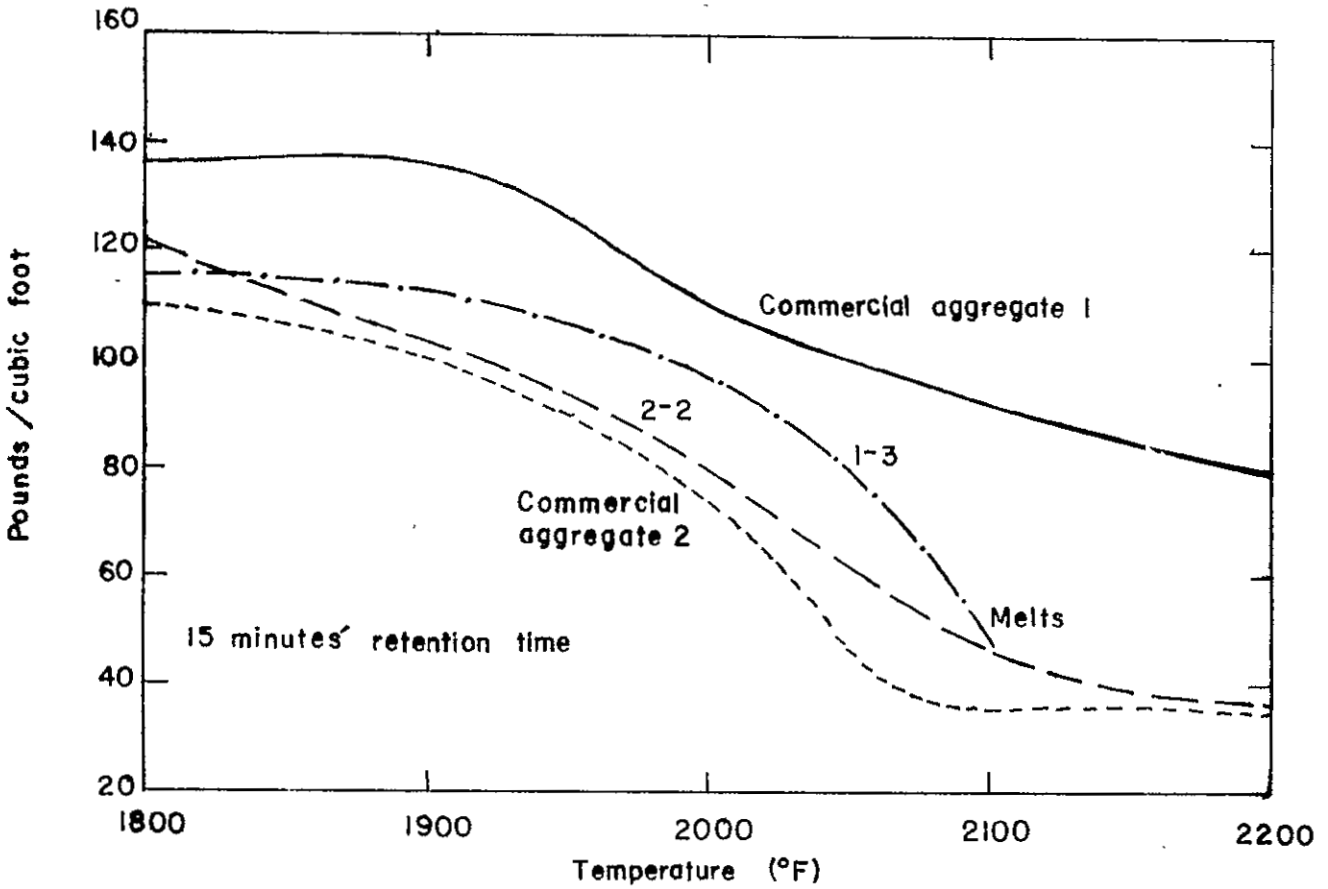

Figure 38. Expansion curves of Fruitland (2–2), Mancos (1–3), and commercial shales (Foster, 1966).

construction aggregate market, but is moderate overall. Allen (1955) noted that cinder block is shipped to Farmington and Shiprock from Santa Fe and the development of local expanded shale production might be able to replace this importation.

Limestone (by J. M. Barker)

General description--Limestone includes any rock composed of more than 50% calcium carbonate (Gary et al., 1974). Limestone is a term relatively free of genetic connotations so some classification problems occur. For example, travertine, which is typically a thermal spring deposit, is a limestone just as a deposit composed of marine shells is also a limestone. The following discussion deals primarily with bedded limestones of the Madera Group (Pennsylvanian), the Yeso and San Andres Formations (Permian), and the Todilto Formation (Jurassic), all called simply limestone hereafter.

Few, if any, industrial minerals have as many end uses as limestone. Limestone comprises over 75% of all stone quarried domestically and makes up about 15% of the sedimentary crust of the earth. Locating a limestone deposit typically is not difficult (Scott and Dunham, 1984) compared to locating a market for it. The literature on limestone is voluminous. Carr and Rooney (1983) listed nearly 400 limestone references while noting that this was but a fraction of the total. Limestone has end-use in 30 main groups out of literally hundreds of specific end uses (Carr and Rooney, 1983, p. 846, table 7). The basic division is between end uses based on chemical properties and ones based on physical properties. Chemical uses are predominantly as raw

material for lime (Boynton and Gutschick, 1983) and cement (Ames and Cutcliffe, 1983) manufacture, or stack-gas cleanup. Physical uses include building stone or aggregate.

Limestone use is generally heavily tied to the relationship of the stone's specifications to the end use contemplated (Power, 1983). The spectrum of limestone specifications is far too detailed to discuss herein. A complex set of standards is in place exemplified by numerous American Society for Testing and Materials (ASTM) and American Association of State Highway and Transportation Officials (AASHTO) standards. The calcium carbonate ($CaCO_3$) content of limestone intended for chemical use typically exceeds 95%. Physical uses allow a wider range in limestone composition with the low end at about 65-70% $CaCO_3$. Chemical end uses are typically more profitable and are of greater importance in distant trade (Scott and Dunham 1984) because their value can support higher transportation costs. Physical end uses have less stringent specifications, command a lower price, and hence are more important to regional use.

Limestone is normally quarried but can support underground mining depending on complex interactions between competing economic factors. These factors have limited underground limestone mining primarily to the eastern United States. The current producers of limestone in New Mexico utilize open pit operations supplying cement, stack-gas cleanup, dimension stone, or crushed stone end uses.

Geology and resource potential--Limestone resources are limited in San Juan County. They are primarily in the Todilto Formation (Jurassic) in the westernmost portion of the county

(Hackman and Olson, 1977; O'Sullivan and Beikman, 1963; O'Sullivan and Beaumont, 1957).

Minor, thin limestone occurs in the Morrison Formation (Jurassic) and the Mancos and Lewis Shales (Cretaceous). These limestones are discontinuous, sporadically distributed, and often concretionary. They are thus not a limestone resource, except perhaps on a limited, local basis. Some researchers do not mention limestone in these units at all while others do which emphasizes the above characteristics (see, for example, Fasset and Hinds, 1971; O'Sullivan, 1955; Beaumont and O'Sullivan, 1955; Beaumont, 1955, 1954; Reeside, 1924). Researchers who have studied San Juan County do not place any limestone resource outside the Todilto (Siemers, 1982; Kottlowski, 1962; Allen, 1955). The Greenhorn limestone of northwest San Juan County (Huffman, 1976) is too thin to be considered a resource. For these reasons, only the Todilto will be considered further.

The limestone facies of the Todilto is of very limited extent in San Juan County. It is present in outcrop only along the far western edge of San Juan County. The Todilto is on the northeast edge of the Defiance uplift and the southwest portion of the Red Rock bench (Kelley, 1957). It is present south of Oak Springs (about $36^{o}45'$N latitude) but is absent from north of there to the Colorado border. It is replaced by about 4.5 ft of grayish-red calcareous siltstone (Huffman and Lupe, 1977, p. 277).

The Todilto in San Juan County is from about 7 (north) to 14 (south) feet thick. It is thick and thin bedded and is a gray,

sandy, limestone with some sandy shale and siltstone interbeds. The Todilto crops out west of Sanostee and south of Beautiful Mountain. Here it underlies about two square miles (Allen, 1955). Three channel samples over the 7-foot thickness were taken 1/2 to 1 mile apart (Allen, 1955) as shown in Table 32. The reserves are at last 36 million tons under little overburden with an additional 10-20 million tons under 10-30 ft of sandstone (Allen, 1955). The lower portion is the most siliceous (sandy), so selective mining of the upper part could yield a high-calcium limestone (Allen, 1955). The lower part could be used for road metal, aggregate, or cement.

The presence of a high-calcium limestone is suggested by the operation of a lime kiln in San Juan County early in this century. It was located at Kirtland, west of Farmington (Burchard, 1913). The origin of the feedstock is not clear although it was most likely one of the Cretaceous unit (Kottlowski, 1965, p. 349). It was probably not the Todilto although this formation cannot be discounted.

The resource potential of the Todilto is moderate from Sanostee-Beautiful Mountain southward (Fig. 39; Maps 94-97). If selective mining can be done, resource potential may be high. It is low at Oak Springs wash where the unit is pinching out.

Potential for development is moderate, although high potential could exist. High potential for development would be appropriate based on a near lack of suitable limestone in other units and on the emerging economy of the local region.

Table 32 - Analysis of Todilto limestone channel samples from the Sanostee-Beautiful Mountain area of San Juan County (from Allen, 1955).

	(1)	(2)	(3)	Average
SiO_2	13.04	12.15	11.63	12.27
Al_2O_3	1.08	.59	.72	.79
CaO	45.84	47.06	47.00	46.63
MgO	.72	.68	.83	.74
K_2O	.58	.56	.32	.48
Na_2O	.12	.14	.15	.14
CO_2 (calculated)	36.03	36.97	36.90	36.63
Total	97.41	98.15	97.35	
$CaCO_3$ (calculated)	81.87	84.03	83.90	83.60
$CaCO_3$ (silica free)	97.03	97.71	97.87	97.53

Mica (by M. R. Bowie)

Mica has not been mined in San Juan County, but it is a minor, disseminated constituent of many sedimentary units in the county. It has a very low mineral-resource potential throughout the county, except for small, isolated areas in which Tertiary basaltic intrusives and extrusives are exposed in the southwest and west-central portions (Fig. 31, Maps 90-93). At Washington Pass, these rocks consist of trachybasalt tuff and tuff-breccia and subordinate trachybasalt agglomerate associated with minette. Trachybasalt composed of biotite-phlogopite, sanidine, diopside, and accessory minerals is also present (Northrop, 1959; O'Sullivan and Beikman, 1963). Minette of similar composition occurs at Beautiful Mountain. These mica occurrences have low resource and low development potential.

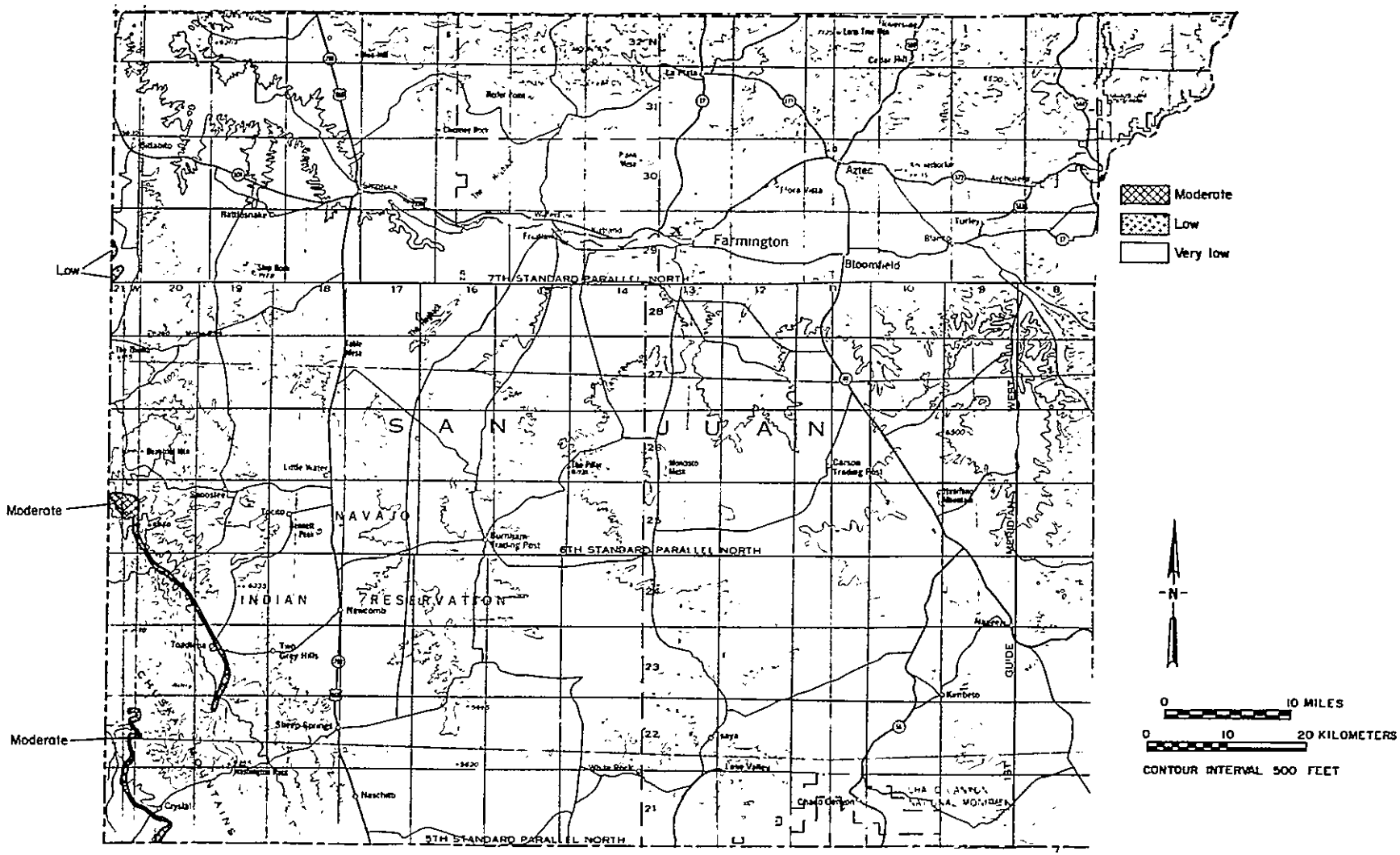

Figure 39. Limestone resources in San Juan County, New Mexico.

Saline Minerals (by K. B. Brown)

Saline minerals (including borax, halite, soda-niter and trona) occur only rarely in San Juan County. No reported occurrences are associated with spring discharge. Bedded deposits are reported in outcrop and in the subsurface.

Borax is reported in beds near Farmington (Otero, 1903, p. 172; reported by Northrop, 1959), but Northrop (1959, p. 149) expresses doubt in the validity of this occurrence. The Paradox Member of the Pennsylvanian Hermosa Formation is present in the subsurface in extreme northwestern New Mexico. Bedded halite was reported in well data from a location in sec. 17, T. 32 N., R. 18 W., at a depth of 6,777 ft (Alto et al., 1965). Depth of this occurrence probably precludes development. The resource potential for salines in San Juan County is probably low.

Sand and Gravel (by P. Copeland)

General Description--Sand and gravel is an inert fragmental material used extensively in the construction industry. Sand and gravel is used primarily in the manufacture of concrete and adobe and in highway and railroad construction. The use of sand and gravel is closely tied to the economic well being of an area. This is so because these materials are needed in large quantities during periods of urban expansion and because sand and gravel is very rarely transported long distances to market.

Various uses of sand and gravel may require specific engineering properties. These properties are measured by a series of geotechnical tests. Results of these tests are given for many of the materials pits listed in Appendix 1. These

tests, which are performed following procedures listed in American Association of State Highway and Transportation Officials (AASHTO, 1982) include the following:

1. Atterberg limits; in sediments is the water-content boundary between the semiliquid and plastic states (the liquid limit or L.L.), the water-content boundary between the plastic and semisolid state (the plastic limit or P.L.), and the water-content range at which a sediment behaves plastically (the plasticity index or P.I.). Samples with little or no clay or silt will have plasticity indices of zero and are termed "not plastic".
2. Los Angeles Wear; a measure of the resistance to abrasive action determined by tumbling measured portions in a steel cylinder with a number of steel balls. The result is given as the percent of material lost.
3. The Magnesium Soundness Test (Soundness Loss); a measure of the resistance of coarse surfacing aggregate to freeze-thaw damage. This test is performed by soaking samples in a magnesium sulfate solution and drying them repeatedly. The result is given as the percent lost.

Geology--Favorable sand and gravel deposits in San Juan County are found in alluvial, eolian, and landslide deposits of Quaternary age. Most production in the county has been from the alluvium and older terrace deposits of the San Juan River from Blanco to Fruitland. The geographic distribution of the three types of deposits with high resource potential is shown in Figure 40. Of the 184 known sand and gravel pits in San Juan County,

71% produced from Quaternary units, 11% from Tertiary rocks, and 18% from Cretaceous rocks. Over 50% of the pits are in Quaternary terrace and alluvial deposits. Individual pits are described in Appendix 1. Pits in San Juan County known to be active in 1985 or 1986 are listed in Table 33.

Past Production--The amount of sand and gravel produced in San Juan County from 1957 to 1975 varied greatly with the lowest output in 1959 of 246,000 tons and the highest output in 1961 of 5,388,000 tons. Production data are listed in Table 34. The average price per ton for sand and gravel is also listed in Table 34. The high place value of sand and gravel is seen when comparing the average price per ton in San Juan and McKinley Counties (Fig. 41). While in some years the price of sand and gravel was roughly equal, in other years there were extreme differences in this price.

Resource and Development Potential--Resource and development potential for San Juan County is high (Maps 86-89). The several known economically recoverable gravel deposits near Farmington, the population center of the county, can provide a substantial portion of the area's need for aggregate in the near term. The rate at which these resources will be exploited will be determined by economic factors. Due to the abundance of high quality deposits of sand and gravel near the more populated areas of the county, development potential for sand and gravel in southern San Juan County is only moderate. High quartz eolian sands may have development potential for industrial uses other than aggregate (see section on silica sand).

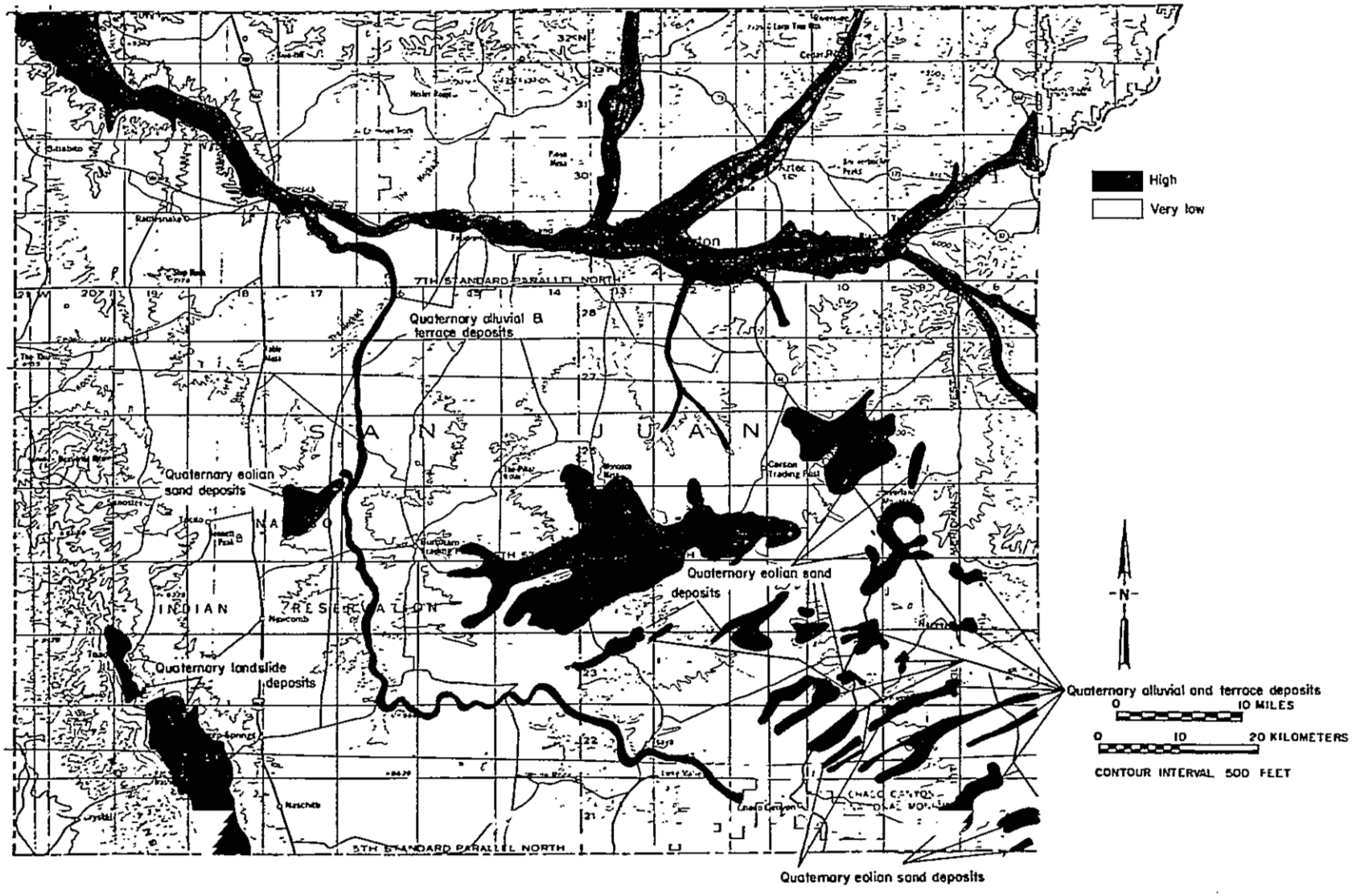

Figure 10. Resource potential for sand and gravel in San Juan County, New Mexico.

Table 33 - Sand and gravel pits known to be operating in San Juan County in 1985 or 1986.

Name	Location
Kirtland Sand & Gravel pit	29N.15W.3
La Plata pit	32N.13W.28
85-8-S	29N.14W.1.220
85-6-S	29N.11W.17.340
Loomis Const. pit (0865)	29N.9W.9.400
Foutz Mine (5761)	29N.13W.13.142

Table 34 - Sand and gravel production in San Juan County.

Year	Amount produced (thousand of tons)	Value (thousands of $)	Average price per ton ($)
1957	694	653	0.94
1958	549	807	1.47
1959	246	349	1.42
1960	402	420	1.04
1961	5388	1452	0.27
1962	499	682	1.37
1963	518	887	1.71
1964	352	400	1.14
1965	425	465	1.09
1966	1193	1069	0.90
1967	757	826	1.09
1968	433	511	1.18
1969	564	725	1.29
1970	572	734	1.28
1971	433	584	1.35
1972	362	473	0.75
1973	596	947	1.59
1974	531	966	1.82
1975	1030	2460	2.39

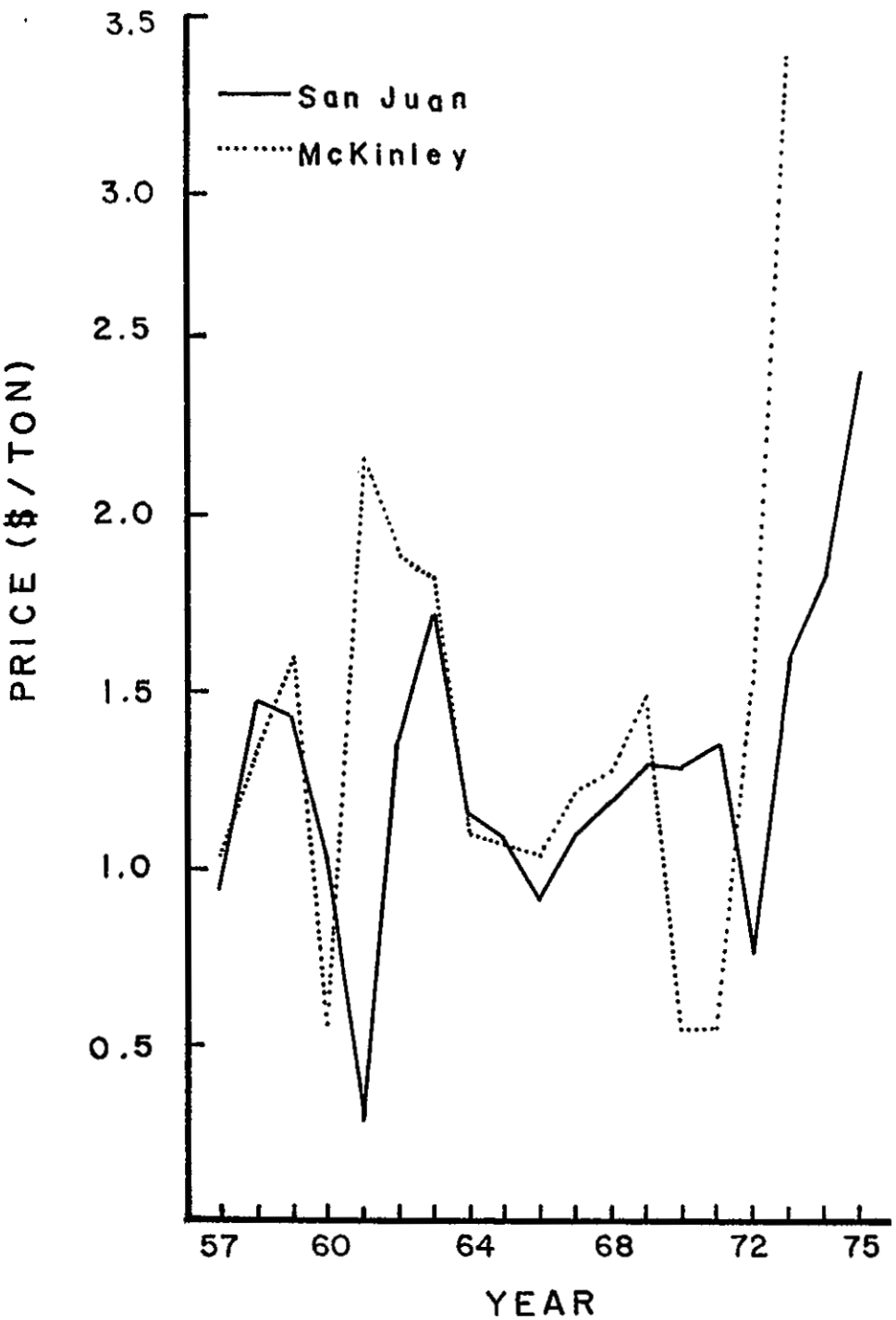

Figure 41. Comparison of average price of Sand and Gravel in San Juan and McKinley Counties, 1957–1975.

Silica Sand (by M. R. Bowie)

Several siliceous sedimentary units in San Juan County and adjacent areas of northwest New Mexico are potential sources of silica sand (Table 35). The extent of potential highly siliceous material has not been sufficiently delineated and very little analytical work has been done to assess the commercial potential of these materials. Only a few isolated reports contain data pertinent to commercial utilization of potential silica sand resources in San Juan County.

Phelps Dodge Company analyzed selected areas of the Wingate, Summerville, Bluff, and Morrison units in northwest New Mexico and found them to be unsuitable sources of high-grade silica flux ($\pm$90% SiO_2) for their flash furnace, due primarily to inaccessibility and excessive natural contamination (Tipton, 1979). The units contain variable amounts of calcareous and argillaceous cement, and are generally too arkosic and too low in quartz.

Table 35 - Potential sources of silica sand in San Juan County.

Age	Lithologic Unit
Quaternary	eolian, colluvial, and alluvial deposits
Tertiary	Chuska Sandstone, San Jose Formation, Nacimiento Formation, Ojo Alamo Sandstone
Cretaceous	Farmington Sandstone, Pictured Cliffs Sandstone, Cliff House Sandstone, Menefee Formation, Point Lookout Sandstone, Gallup Sandstone, Dakota Sandstone
Jurassic	Morrison Formation, Zuni Sandstone, Bluff Sandstone, Summerville Formation, Entrada Sandstone
Triassic	Wingate Sandstone

Table 36 - Chemical analyses of raw sand from the Navajo Indian Reservation, San Juan County (source: Allen, 1955). Sample 73-N-18 is from the Chuska Mountains area, sample 75-M-6 from the Chaco River drainage on the eastern edge of the Reservation, and sample 1-D-6 from the northeast side of the San Juan River drainage area, in the northwest corner of the Reservation.

Percent Oxide	Specified (AIME, 1948, p. 973)	73-N-18	75-M-6	1-D-6
SiO_2	greater than 95			
Al_2O_3	less than 4	0.8		
Fe_2O_3	less than 0.3	0.88	0.709	0.709
Fe_2O_3 (after beneficiation)	no specification	0.355	0.355	0.280
CaO and MgO	less than 0.5			

Sandstones and unconsolidated sands are widespread on the Navajo Indian Reservation. Some have been leached of their impurities and may meet industrial specifications for silica sand. Blow sand is abundant along the lee (northeast) side of the major drainages, such as the Chaco and San Juan Rivers, and on the lee side of major topographic highs. The Chuska Sandstone, a pale gray to pale yellow, crossbedded, massive sandstone about 1,000 ft thick, is a very attractive potential source of silica sand. Allen (1955) located two areas in this unit, one in the Chuska Mountains, the other in landslide blocks on the east side of the Chuskas near the San Juan-McKinley County line, which should be given top priority for further study. Allen and Balk (1954) and Allen (1955) presented analyses of sand from the Navajo Indian Reservation. These workers were investigating the possibility of using the sand in the production of green glass. They hoped this material would support a small

Indian glass industry which could compete with imported Mexican glass products.

Allen (1955) analyzed raw sand from the Chuska Mountain in the southwest corner of the Reservation, from the lee side of the Chaco River along the eastern edge of the Reservation, and from the lee side of the San Juan River in the northwest corner of the Reservation. He compared the analyses with specifications set forth by the AIME (1949, p. 973, table 6). The high iron content imparted a dark yellowish green cast to the raw material. Beneficiation using a small magnetic separator, however, reduced the iron content enough so that glass beads could be made which had a pleasant pale-green color, lighter than most of the imported Mexican glass.

Since the extent and quality of the potential resources of silica sand listed in Table 36 have not been adequately determined, the resource potential for silica sand is unknown in most areas of San Juan County (Fig. 31; Maps 90-93). The potential for development of these materials ranges from low to moderate, depending on the quality of the material, the cost of mining it, and its proximity to major transportation routes and markets.

Sulfur (by J. M. Barker)

General Description--Sulfur has great physical, biological, and economic importance. It is widely but sparingly distributed throughout the hydrosphere, lithosphere, and biosphere (Barker, 1983). The per capita consumption of sulfur often is used as a reliable index of the level of industrial development and

economic activity (Field, 1972). Sulfur resources are abundant but the extent to which they can be utilized is greatly circumscribed by prices and technology. Resources of sulfur occur in evaporites (gypsum/anhydrite), volcanic rocks, metal sulfides (pyrite, etc.), coal, organic-rich shale, oil sands, oil, and natural gas. Of these, only natural gas yields sulfur in San Juan County.

Sulfur is used very widely in industry and agriculture. It has a very well integrated international market. About 85% of sulfur is consumed in the form of sulfuric acid of which 2/3 is used by the fertilizer industry. The remainder of sulfur and acid is used in varied industries such as drugs, foods, detergents, plastics, paper, paint, explosives, metal mining and production, and petroleum refining (Morse, 1985, 1986; Barker, 1983; Broderick, 1965).

Sulfur can be classified as elemental or recovered. Elemental sulfur occurs naturally in the native form as a chemical element. Recovered sulfur is produced, in the elemental form, only after treatment of a material containing chemically bound sulfur. Sulfur produced in San Juan County is derived from H_2S gas produced, with natural gas, primarily from Barker dome. Early production at Barker dome contained 1% H_2S and 15% CO_2 from the Paradox Formation (Thompson, 1950). Barker dome is about 20 miles northwest of Farmington and 30 miles southwest of Durango, Colorado (Fig. 16). The dome has a northeast trend and straddles the state line (Thompson, 1950).

Past Production--El Paso Natural Gas operates the

desulfurization facility near Farmington to remove sulfur from gas produced by other companies as well as their own. They have not released production data. Sulfur recovery began in 1953 (Broderick, 1965, p. 311) when sour gas from the Paradox Formation of Barker dome was processed. The plant, rated at one ton per hour, was subsequently closed owing to the low H_2S content of the gas. A similar scale plant was reopened when environmental concerns dictated in the 1970's or late 1960's.

Typical annual production is between 5,000 and 10,000 tons. However, if blending and other factors permit, the desulfurization plant is periodically inactive. Such a situation has existed since January, 1986.

Geology--The main sour gas producer in the San Juan Basin is the Paradox Formation (Paradox Member of Hermosa). The Paradox is Pennsylvanian (Des Moines) in age and is restricted to the northwest part of the basin (Jentgen, 1977). The unit consists of thick evaporites (halite) interbedded with block shale in the area of Barker dome. It is more coarsely clastic and limy to the southeast. Production is from carbonate buildups bordering the halite facies (Jentgen, 1977).

Resource and Development Potential--The resource potential of recovered sulfur depends on the distribution of sour natural gas. Various concentrations occur depending on which pay zone is tapped. Because H_2S content is heavily dependent on operator decisions on the levels of H_2S desired and only the Barker dome has sour gas, resource potential is low. Development potential is also low owing to the desire of oil and gas producers to avoid

it as a generally unwanted byproduct.

Zeolites (by M. R. Bowie)

Zeolites have been reported from, but not mined from, igneous and sedimentary rocks in San Juan County. Analcime occurs at the Palisades, north of Crystal, in the southwest corner of the county (Northrop, 1959). Analcime is also present in a monchiquite intrusive southwest of Bennett Peak (O'Sullivan and Beikman, 1963). The "igneous" occurrences have a very low resource potential for zeolite (Fig. 31).

The Brushy Basin Member of the Jurassic Morrison Formation has the greatest potential of any rock unit in the county for economic concentrations of zeolite. Turner-Peterson (1985, p. 2004) delineates progressive facies transitions basinward from alluvial plain (sandstone) to mud flat (smectite) to playa margin (clinoptilolite) to central playa (analcime/potassium feldspar) in the Brushy Basin (Olson, 1983) generally from south to north in the San Juan Basin. The facies zonation is the result of deposition and alteration of silicic, vitric ash in a saline, alkaline-lake. Up to 30 individual air-fall tuff beds are present in the unit (Bell, 1981).

Exposures of the mud flat, playa margin, and central playa facies occur in western San Juan County. However, these facies lie in the subsurface in the majority of the county. The playa margin clinoptilolite-rich facies is exposed in T. 25 and 26, R. 20 and 21 W. The central playa analcime/potassium feldspar-rich facies crops out due north of this area. Analcime was found in tuffaceous mudstone near Red Wash (Olson, 1983). The facies

boundaries are not exact and scattered occurrences of a zeolite may be found in a facies area other than its own. In fact, ash beds in the mud flat (smectite) facies in the Chuska Mountains have been altered to clinoptilolite. No estimates are available on the quantity or quality of the zeolite resource in the Brushy Basin in the Chuskas or elsewhere in the county. Consequently, the resource potential for zeolites in the Brushy Basin of San Juan County is unknown (Fig. 31) and the potential for its development is low. Most of the other sedimentary units in the county have a very low resource potential for zeolites.

The Chuska Sandstone, a pale gray to pale yellow, crossbedded, massive sandstone about 1,000 ft thick in the Chuska Mountains is a potential source of zeolite. The base of the unit contains volcanic ash altered to clinoptilolite. Wright (1951) found microscopic laths of heulandite in opal and chalcedony cement in the sandstone. Little analytical or field work has been done to assess the commercial potential of the zeolite in the unit, and consequently, the Chuska Sandstone in San Juan County has an unknown potential for this commodity.

SUMMARY

As is true with all preliminary investigations, additional studies are necessary to assess adequately the mineral-resource potential in San Juan County. These assessments must be re-evaluated as economic conditions, geologic interpretations, and models change.

The mineral-resource potential for various commodities in San Juan County is summarized in Table 37 and Figures 24, 25, 27, 30, 31, 32, 36, 37, 39, and 40. The most important commodities are petroleum and coal. Aggregate resources, CO_2, helium. limestone, clays, crushed and dimension stone resources also have a high potential and are needed to support production of the energy resources. Additional work is necessary to calcualate reserves and resources of these commodities in areas of high potential.

Commodity	Geologic Formation	Geologic Area	Mineral Resource Potential
Petroleum	Tertiary, Cretaceous, Jurassic, Pennsylvanian, Mississippian units	San Juan Basin	high
	Devonian, Mississippian, Pennsylvanian, Permian, Triassic, and Jurassic units	Defiance uplift	low (southwest)
Coal	Fruitland Formation	Fruitland Field	high
		Navajo Field	high
		Bisti Field	high
		Star Lake Field	high to moderate
	Menefee Formation	Barker Field	low
		Hogback Field	moderate
		Toadlena Field	unknown
		Newcomb Field	low
		Chaco Canyon Field	very low to low
Uranium (Vanadium)	Jurassic rocks	Shiprock District	moderate
	Cretaceous rocks Westwater Canyon Member	Boyd Prospect	moderate
		Tocito Dome	unknown
	Upper Cretaceous rocks	Beach-placer deposits	moderate
Geothermal		(mostly) western San Juan County	very low
Metals (other than vanadium)	various formations	Entire County	low
Barite and Fluorite	Cretaceous rocks	Northern San Juan Basin	unknown
CO_2	various units	San Juan Basin	moderate to high
	various units	Defiance uplift	moderate to high
Clay	various units	entire county	low to high
Crushed and dimension stone	various units	entire county	high
Helium	various units	San Juan Basin	moderate to high
	various units	Defiance uplift	moderate to high
Humate	same as coal	same as coal	low to moderate
Pumice	Tertiary and Quaternary units	entire county	very low to low
Scoria and cinders		entire county	very low to low
Expansible shale			unknown or low
Limestone	Todilto limestone	Sanostee-Beautiful Mountain southward	moderate to high
Mica	many sedimentary units	entire county	low
Saline minerals	Pennsylvanian	Hermosa Formation	low
Sand and gravel	Quaternary, Tertiary, and Cretaceous units	entire county	high
Silica sand	various units	entire county	unknown
Sulfur	various units	Barker dome	low
Zeolite	Brushy Basin	Chuska Mountains	low
	Chuska Sandstone	Chuska Mountains	unknown

RECOMMENDATIONS

1) Any areas with active claims should be examined (Fig. 14).
2) Isopach facies and structure-contour maps of several formations in San Juan County should be completed to delineate favorable areas for oil, gas, CO_2, and helium accumulations.
3) Aggregate resources should be mapped and sampled in greater detail prior to extraction of such materials.
4) Chemical sampling of high-silica sandstones is required to determine the potential for high-silica sand resources.
5) Detailed studies of the mineralogy and chemistry of clay deposits are required to assess their potential.
6) More drilling and quality analyses are needed to better evaluate the coal resource potential for several fields, especially the Barker field.
7) Gather drill hole and outcrop data to estimate total coal resources and reserves in various coal fields.
8) Stratigraphic studies are needed at the Boyd prospect to determine correlation with lower Fruitland Formation to aid in uranium resource potential.
9) More drill hole data is needed to better delineate the uranium deposits in the Westwater Canyon Member on Tocito dome.
10) Investigate the significance of barium anomalies along the Kirtland-Fruitland contact and in the Nacimiento Formation in northern San Juan and southern Rio Arriba Counties.

11) More testing of crushed stone resources is required to determine their commercial capabilities.

12) More analytical and field work is needed to determine the resource potential for zeolites.

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APPENDIX 1

MINERAL AND OTHER COMMODITY OCCURRENCES, DEPOSITS, AND MINES IN SAN JUAN COUNTY

Introduction

The following compilation of mineral and other commodity occurrences (excluding oil, gas, and CO_2 tests) is the most comprehensive tabulation of mineral occurrences in the area. It is probable that additional occurrences will be discovered in the future. For the purposes of this report, any locality where mineralization or materials prospects are found is considered an occurrence, including sand and gravel (materials) pits.

Each description is a brief account of the location, commodities present, production, and geology of the occurrence that was compiled from the literature, unpublished sources, and field reconnaissance. Each occurrence is plotted on Maps 1-7, 15-20, and 26-30. Metal occurrences are arranged by township and range.

Explanation of descriptions

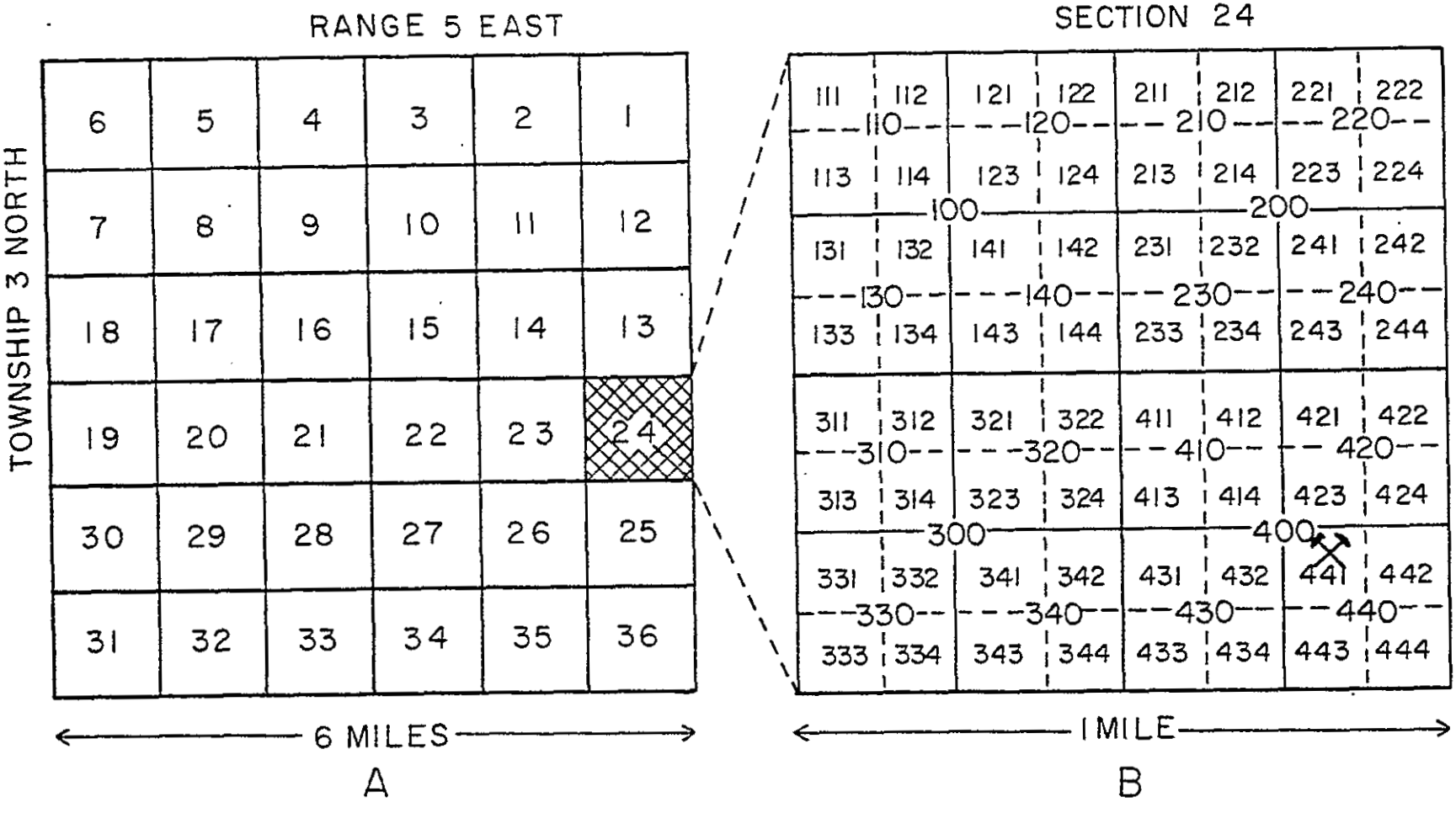
The descriptions of mineral occurrences in this section are brief summaries of published and unpublished information. However, not all of the available information could be included; information for some occurrences is considered confidential by a company or the information is very extensive. Very little information could be obtained for some occurrences. Each description consists of 12 entries or less (depending on available information), and the entires are listed by number as described below.

1: Occurrence number refers to the location or approximate location of each mineral occurrence, prospect, deposit, or mine. The numbering system used is based upon the township, range, and section land-grid system (Fig. 1-1) and is used by the New Mexico State Engineer for numbering water wells and springs. By this system, each occurrence has a unique location number consisting of our parts separated by periods (e.g., 3N.5E.15.441). The first part refers to the township, the second part to the range, and the third part to the section. The fourth part places the occurrence within the nearest quarter-quarter-quarter section block as indicated in Figure 1-1. An occurrence designated 3N.5E.15.441 is located in the NW1/4 SE1/4 SE1/4 of sec. 15, T3N, R5E. Some occurrences are located only to the nearest section, quarter-section, or quarter-quarter section because the occurrence can not be located more accurately or the occurrence extends over the entire given area. Some occurrences are listed by township and range and located in the center of the township. In unsurveyed areas, the locations are approximated by projecting section lines.

2. Name of the occurrence, prospect, deposit, or mine as found in the literature. Aliases are given in parentheses.
3. Location of the occurrence by the section, township, and range and by latitude and longitude.
4. Names of the 7 1/2-minute or 15-minute topographical quadrangle maps; the 30-minute by 60-minute topographical quadrangle map is in parentheses.

5. Mining district or geographical area.
6. Commodities present at the locality.
7. The extent of development or prospecting.
8. Production statistics for various commodites.
9. The formation name and geologic age of the host rock.
10. Brief description of the geology, host rock, and character of the deposit; including chemical analyses and other pertinent information.
11. Comments or additional information.
12. References or sources of information are listed in an abbreviated form and arranged in chronological order. Published reports are listed with last name or author(s) and year of publication in parentheses; the complete citation may be found in the reference section. Unpublished sources are abbreviated as follows: FN (field notes); NMBMMR files (New Mexico Bureau of Mines and Mineral Resources unpublished files); USAEC files (U.S. Atomic Energy Commission files); PRR (Preliminary Reconnaissance Reports of the Atomic Energy Commission); USBM files (U.S. Bureau of Mines files); CRIB (Computerized Resource Information Bank, U.S. Geological Survey); MILS (Mineral Industry Location Survey, U.S. Bureau of Mines); NMSHD (New Mexico State Highway Department files); PC (personal communication); and WC (written communication). Copies of most of these reports are available for inspection at the New Mexico Bureau of Mines and Mineral Resources.

FIGURE 1-1 – Numbering system used in this report.
A – Subdivision of a township into sections.
B – Subdivision of a section into quarter-quarter-quarter section blocks. Mine symbol indicates location of an occurrence numbered 3N.5E.24.441.



1. NP
2. Fisherdick Prospects
3. SE 1/4 SEC.6 T.31N R.13W LAT. LONG.
4. (SW1/4 sec.5) L ELEV.
5. Barker Creek
6. Coal
7. 6 prospect entries
8. 1905
9. 3 upper beds of Mesaverde
10. dip 15-20 deg S70E

11. See file for stratigraphy

12. Nickelson (p. 489)

1. NP
2. Eastern Associated Properties Corp. and Fannin Square Corp.
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Bisti
6. Coal
7.
8.
9. Fruitland
10. To deep to strip mine

11. One lease-10 permits

12. Nickelson (p. 414)

1. NP
2. La Rue Projects
3. 1/4 SEC. T. R. LAT. LONG.
4. Alamo Mesa W,Bi ELEV.
5. Bisti
6. Coal
7.
8.
9. Southern edge of Fruitland Fm.
10.

11. E.B. and Sharon La Rue made coal permit applications in 1969
    Permittees only interested in strippable coal
    See file for list of permits and records of drilling
12. Nickelson (p. 419)

1. NP
2. HN Cunningham Permits
3. 1/4 SEC. T.22N R.10W LAT. LONG.
4. Pueblo Bonito & ELEV.
5. Bisti
6. Coal
7. Drilled-proprietory information
8.
9. Fruitland
10.

11. NM 8592 (1/1/20) permit: NE1/4 sec.10&11, SW1/4 sec. 12&13
    NM12324 (1/1/20) lots 3&4, E1/2, E1/2SW1/4 sec.18

12. Nickelson (p. 424)

1.
2. Thermal Energy Prospect
3. 1/4 SEC.21,28 T.22N R.10W LAT. LONG.
4. ELEV.
5. Bisti
6. coal
7. 3 test holes
8.
9. Fruitland
10.

11. 3 mi. N of Chaco Canyon National Monument

12. Nickelson (p. 433)

1. NP
2. Thermal Energy Company Prospects
3. 1/4 SEC. T.22N R.9W LAT. LONG.
4. Bargent Ranch ELEV.
5. Bisti
6. Coal
7. 32 holes drilled
8.
9. Fruitland
10. Beds are thin and the coal is dirty

11. Leland A Hodges obtained lease 1969,following lands:lots 3,4,E1/2SW1/4
    sec. 19, W1/2SW1/4,SE1/4SW1/4 sec. 28, S1/2,NW1/4,W1/2,NE1/4
    Sec. 29 & secs. 30-34 T22N R9W; Sec.26, N1/2.NE1/4 Sec/35 T22nR10W
12. (4920.48 acres) Nickelson (p. 431)

1. NP
2. Ark Land Co Projects I&II
3. 1/4 SEC. T.23N R.12W LAT. LONG.
4. Tanner Lake,Pre ELEV.
5. Bisti
6. Coal
7.
8.
9. Fruitland
10.

11. I NM 3752(6/1/68) secs. 20-23 II NM 3755(6/1/68) secs.4,6,8,10,12
    NM 3753 secs. 9,10,13-15; NM 3918 secs. 5-9,14-15;
    NM3754 secs. 27-30,33,35;NM 8745 secs. 20-22
12. Nickelson (p. 409) see file for more information

1. NP
2. De-Na-Zin Mine
3. N 1/4 SEC.16 T.23N R.13W LAT. LONG.
4. Tanner Lake ELEV.
5. Bisti
6. Coal
7. dozer/scraper method
8. 1980- capacity of 250,000 tons/yr
9. Fruitland
10. basal Fruitland seam and a second seam 40' above; both are 5' thick

11. Sunbelt Mining Co. Inc.; trucked to San Juan Generating Station

12. Nickelson (p. 408)

1. NP
2. Western Coal Co.
3. 1/4 SEC. T.23N R.13W LAT. LONG.
4. Alamo Mesa W,Ta ELEV.
5. Bisti
6. Coal; and T24N
7. 32 holes drilled
8.
9. Fruitland frm.
10.

11. 1980-mine mouth generating plant planned
    See file for lease lands

12. Nickelson (p. 405)

1. NP
2. Kin-Ark Corporation Project
3. 1/4 SEC. T.24N R.13W LAT. LONG.
4. Alamo Mesa West ELEV.
5. Bisti
6. Coal
7. Permit NM 11916(12/1/70) 4 holes drilled
8.
9. Fruitland
10.

11.Secs. 25-27, 35 and E1/2 sec. 28(2880 acres) Hoover Wright

12.Nickelson (p. 407)

1. NP
2. Pueblo Bonita
3. 1/4 SEC.14 T.20N R.11W LAT. LONG.
4. Seven Lakes NW ELEV.
5. Chaco Canyon
6. Coal
7. 30' drift to rise of coal bed
8. 1905-?; unknown
9. coal bed below upper SS of Mesaverde Fm., good subbituminous coal
10.

11.Opened by the Welnerill 1905; coal used at Putnam Post Office and an Indian Trading Post; located in the South Wall of Chaco Canyon
12.Nickelson (p. 363)

1. NP
2. Blake Mine
3. 1/4 SEC.13 T.22N R.13W LAT. LONG.
4. Tanner Lake ELEV.
5. Chaco Canyon
6. Coal
7.
8.
9. Fruitland
10.SS roof, coal 1'7", shale 1'1", coal 1'5", SS floor; moisture 19%, V.M. 32.4%,Fxd.
11.

12.Nickelson (p. 362)

1. NP
2. Peabody Coal Co., La Plata Project
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Fruitland
6. Coal
7. Peabody:30 holes
8.
9. Fruitland frm.
10. 25-30' bed dipping 5-8 deg. southerly

11. Sentry Royal Co. got lease (exploration phase) on 7/1/63; part part already leased to Peabody Coal (Ute Reservation in Colo.); no more work done as of 7/78
12. Nickelson (p. 589)

1. NP
2. San Juan Mine
3. 1/4 SEC. T. R. LAT. LONG.
4. Waterflow ELEV.
5. Fruitland
6. Coal
7. close spaced mine
8. 1973 fueled mine-mouth powered generators
9. Fruitland
10. 16' thick

11. Present lessee: Western Coal Co.;Utah International Inc. chosen to mine coal;1973 permit to open strip mine; coal was stockpiled; 3 units; No. 2 explosion destroyed boiler unit;3rd in construction at that time
12. Nickelson (p. 558)(Permits(11/12/61):NM 045196, 045197, 045217)

1. NP
2. Brimhall Mine
3. 1/4 SEC.3 T.15N R.29W LAT. LONG.
4. (or sec.4)Water ELEV.
5. Fruitland
6. Coal
7. single entry 100' deep
8.
9. Fruitland
10.

11. Owner Clayborne Brimhall; next to Stevens Mine

12. Nickelson (p. 536)

1. 29N15W04441
2. Christiansen-Black Diamond No.1 & 2,Rocks of Fire, Tree Doctors Mine
3. NW 1/4 SEC.4 T.29N R.15W LAT.364554 LONG.1082515
4. Waterflow ELEV.
5. Fruitland
6. Coal for local domestic needs
7. drift, slope 900';aircourse driven as 2nd drift
8. 1914-44,1969-72; 25 tons/yr
9.
10. 15'bed; only lower 6' mined

11. Christiansen Mine 1914-17; JC McGee(1917) owner&operator;1918 Christiansen leased to HJ Head & MH Hunt(gauged&abandoned)"Black Diamond"; 1939-44 owner WL Kennedy '69 H Lee&Hunt "Rocks of Fire";'70 H Lee
12. ("Diamond No.2"; '72) Nickelson (p. 539)

1. 29N15W04432
2. Kirtland-Hendrichsons' Mines
3. NE 1/4 SEC.4 T.29N R.15W LAT.364553 LONG.1082459
4. Waterflow ELEV.
5. Fruitland
6. Coal
7. drift entry 300';2nd NW; 2 adits & 1 shaft
8. 1903-38; 1910-300 days/2000 tons;tota
9. 1 25000 tons Carbonero bed
10. 16' bed

11. 1903-5 owned by the Hendrichson family-1st entry abandoned; 2nd caught on fire;1929 leased to Smouse&Co. operated til '33;'33 leased to Hunt,37 caught on fire and sealed;now owned by Western Coal Co.
12. Nickelson (p. 537) Location: 2400'NL/2000'EL

1. 29N15W03231
2. Smouse Mines
3. NW 1/4 SEC.3 T.29N R.15W LAT.364602 LONG.1082425
4. Waterflow ELEV.
5. Fruitland
6. Coal
7. 1931 new entry
8. 1926-31,1931-47,1947-54 ceased operation, no production
9. Fruitland
10.

11. Owner Sam Smouse;WB Keener 1926-31;Mrs. Smouse 1931-47;Harry Smouse 1947-54; mine dumps near main rd. from Farmington to Shiprock; were on fire many years,Location: 2500'NL/4400'EL
12. Nickelson (p. 533)

1. 29N15W04442
2. Stevens(Stephens)-Young-Keener Mines
3. NE 1/4 SEC. T.29N R.15W LAT.364553 LONG.1082438
4. Waterflow ELEV.
5. Fruitland
6. Coal
7. No.1-main entry 350'1 2 adits;No.2-2 closely spaced slopes
8. 1898-1923;1898-99 310 tons; 20,000 tons total
9. Fruitland
10. drift driven on bed N30W; 100' 1906

11. No.1-opened by W Stevens(owner/operator) local use, 1901 ES Young owner, 1904 Mrs. Young & leased by T Evans, 1910 mine flooded by irrigation ditch No.2: 1917 w.b. Keener(lessee) opened;1918 bad condition;1921 No.3 opened; closed'23
12. Nickelson(p. 534)

1. 29N15W04311
2. Stalling-Strang Et Al Mine
3. SW1/4 NW1/4 1/4 SEC.4 T.29N R.15W LAT.364541 LONG.1082549
4. Waterflow ELEV.
5. Fruitland
6. Coal
7. single slope,1939 new slope 12N;65' vert. shaft provided ventilation
8. *1936-49; 1948-49 23 tons; total 8245 tons
9. lower bed of Fruitland frm.
10. 18' thick; lower 6' mined- 4 partings(6")

11. Mr Stalling 1936-40;LL Stalling 1940-41;1941 sold to EA Strang;1946 sold to Silva;1969 lease assigned to Mrs. Silva who sold it to Western coal who in the future plan to strip mine.
12. Nickelson (p. 541)(Permit SF 071448 (1/23/36)

1. 30N15W15214
2. Marcelius-Caudell Mine
3. SE 1/4 SEC.15 T.30N R.15W LAT.364912 LONG.1082353
4. Waterflow (NW1/ ELEV.
5. Fruitland
6. Coal
7. started in old workings of Marcelius Mine
8. 1916-45 10,319 tons; supplied domestic trade
9. Fruitland Fm.
10. 14 1/2' coal with 8" of refuse at several partings

11. Owner Ben Caudell; used slope of Marcelius Mine; 1935 son operated; conditions Mining Supervisor closed mine; dug up by Western Coal Co. San Juan strip mine; caught on fire(1943); lease cancelled 1945; USBM put out with soil (1951);
12. Nickelson (p. 548) Location: 2900'NL/1800'WL

1. 30N15W16331
2. Walker Mine
3. NE 1/4 SEC.16 T.30N R.15W LAT.364853 LONG.1082543
4. Waterflow ELEV.
5. Fruitland
6. Coal
7. 100' adit 5865E
8. 1906-?; unknown
9. Fruitland
10.

11. On state land and leased by Western Coal Co. who will strip mine
Location:2300'NL/4700'EL

12. Nickelson (p. 554)

1. NP
2. William J Spanzini Prospecting Permits
3. 1/4 SEC. T.30N R.15W LAT. LONG.
4. Waterflow ELEV.
5. Fruitland
6. Coal
7. 8 holes on permit 045217
8.
9. Fruitland
10.

N

11. NM 045216 (8/20/59); NM 045217 (8/25/59); NM 045216 relinquished or 9/27/60;
WM. T. Spanzini, stockholder of NM Public Service Co., applied for
coal prospecting permits that would be assigned to the company if commercial discove

r

12. Nickelson (p. 555)

1. np
2. Blanchard Mine (Property)
3. 1/4 SEC.28 T.30N R.15W LAT. LONG.
4. (secs.32,33,34, ELEV.
5. Fruitland
6. Coal
7. 1906-7
8.
9. Fruitland , upper bed
10.

11. small dumps in sec. 34 remain to mark development work of
Mr. Blanchard

12. Nickelson (p. 546)

1. NP
2. Public Service Co. of NM Prospecting Permits
3. 3 mi North of Fruitland 1/4 SEC. T.30N R.15W LAT. LONG.
4. Waterflow ELEV.
5. Fruitland
6. Coal
7. 8 holes(NM 045196),1(NM 045197),20(NM 074808) in 1959
8.
9. Fruitland frm.
10.

11. PSC filed for preference right leases(7/27/61)-NM 045196 and 045197 NM 074808 combined w/ above permits & eliminated);197? Western Coal made application for competitive lease(lg. underground mine plan)
12. Nickelson (p.566)

1. NP
2. Bruce Mine
3. 1/4 SEC.27 T.31N R.15W LAT. LONG.
4. Waterflow or He ELEV.
5. Fruitland
6. Coal
7. 1898-1902
8. few 100 tons/yr for local domestic use
9. Fruitland
10. 23' coal bed

11. RE Bruce manager and operator

12. Nickelson (p. 547)

1. NP
2. Public Service Coal Co., Ute Mountain Project
3. 1/4 SEC. T.31N R.15W LAT. LONG.
4. Young Lake and ELEV.
5. Fruitland
6. Coal
7. core holes
8. drilling permit 2/11/70
9.
10.

11. Drilling indicated that 10-14 million tons could be strip mined from the land PSCC received permit from Ute Mtn. Ute Indians to drill core holes to to determine quantity, quality and geology of the coal beds in that area
12. Nickelson (p. 562) (Location: secs. 25,26,34,35 and W1/2 36)

1. 32N12W18332
2. Unknown Mine
3. NE 1/4 SEC.18 T.32N R.12W LAT.365917 LONG.1081433
4. La Plata ELEV.
5. Fruitland
6. Coal
7. 1932-wagon mine
8.
9. Fruitland
10.

11.
Location:2200'NL/2100'EL

12.Nickelson (p. 580)

1. NP*
2. New Mexico Mine
3. NE1/4NE1/4 1/4 SEC.7 T.32N R.12W LAT. LONG.
4. La Plata ELEV.
5. Fruitland
6. Coal
7.
8.
9.
10.24' coal with 1'9" parting

11.Location: 1000'N of S1/2 corner(USGS 716); NE1/4NE1/4 sec.18 T32N R12W
on La Plata 71/2 min quad

12.Nickelson (p. 588)

1. 32N12W07424
2. Pruit-Kempton Mines
3. SE 1/4 SEC.7 T.32N R.12W LAT.365950 LONG.1080744
4. La Plata ELEV.
5. Fruitland
6. Coal
7. 1929 chute&tipple constructed; horse and car
8. 1929-44 during lease 11,327 tons;4304
9. Kempton lower bed in Fruitland frm.
10.25-30' bed with numerous rodk and carbonaceous shale partings dip 6-8 deg. SE;
Pruit Mine (Kem
11.Kempton and Neitzel awarded lease 1929; abandoned 1933-fault cut bed
and they couldn't find continuing bed & water couldn't be pumped
out; Kempton then mined at Pruit Mine; lease cancelled 1950
12.Nickelson (p. 581)

1. 32N13W22211
2. Thomas Mine
3. 1/4 SEC.12,22 T.32N R.13W LAT. LONG.
4. La Plata ELEV.
5. Fruitland
6. Coal and fire clay
7. entry 275';extended to 350'
8. 1895-1932; NO 3 400-700 tons/125 days/yr
9. Carbonero bed
10. NO 1 dips 20S 53E;mined 4'10"coal,6" fire clay and 4'6" of coal above ss flor (
11. Coal was for domestic fuel;NO 1 closed 1916;NO 2 1918 leased, caved 1919; NO 3 leased to BF Steel(1908),GC Dawson(1919),Durango Colo. capitalists (1921) and Mr. Rasmusson (1930's)
12. Nickelson Location:NO 1 500'NL/3400'EL sec.12 NP

1. 32N13W21134
2. Enterprise-Jone-Neff Mine
3. SE 1/4 SEC.21 T.32N R.13W LAT.365803 LONG.1081222
4. La Plata ELEV.
5. Fruitland
6. Coal
7. slope 250';2nd opening inclined shaft,'09 main, slope reached 300'
8. 1903-30;600 tons/60 days/yr sold in local area
9. lower coal bed "Carbonero"
10. 30'thick dips 29 SE
11. wet mine;owned by G Jones;1913 leased to J Schaaf;1916 leased to F. Parson 1917 Schaaf resumed(owned by Jones Bros.);closed 1917 by State Mine Mine Inspector. 1918 A.J. Neff obtained and leased to CO Walker;NOW Cimarron Mining
12. Nickelson (Location:4300'NL/2000'EL)

1. 32N13W15334
2. Firebaugh-Grer-Morgan and Thomas Mine
3. SE 1/4 SEC.15 T.32N R.13W LAT.365851 LONG.1081119
4. La Plata ELEV.
5. Fruitland
6. Coal
7. main entry 175' N45W; 2nd entry 230'
8. 7,521 tons sold
9. lower portion of Fruitland Fm.
10. 28' coal bed dipping 12S 30E
11. 1900-5 Greer Mine operated; 1928 lease granted to WH Thomas and GC Morgan; mine split:Thomas Mine and Morgan Mine; lease cancelled 7/25/49 Location 4800'NL/2200'EL
12. Nickelson (p. 569)

1. 32N13W15443
2. Morgan Mine
3. SW 1/4 SEC.15 T.32N R.13W LAT.365850 LONG.1081127
4. La Plata ELEV.
5. Fruitland
6. Coal
7. shallow shaft
8. 1898-99 250 tons
9. Peacock bed (upper bed)
10. 3'10" bed

11. Operated by George Morgan; Location 5000'NL/2800'EL

12. Nickelson (p. 577) see Morgan and Thomas Mine

1. 32N13W22122
2. O'Brien-La Plata Mine
3. NE 1/4 SEC.22 T.32N R.13W LAT.365843 LONG.1081106
4. La Plata ELEV.
5. Fruitland
6. Coal
7. 2 slopes 300' & 800' dip 10 deg.
8. from development work 2500 tons (1904-05)
9.
10.

11. Phelps Dodge Mining and Smelting Co. officials sent O'Brien to determine if the coal bed was suitable to fuel their copper smelters and mines in Arizona
12. Nickelson (p. 578)

1. 32N13W15144
2. Phelps Dodge Prospect
3. SE 1/4 SEC.15 T.32N R.13W LAT.365859 LONG.1081107
4. La Plata ELEV.
5. Fruitland
6. Coal
7. single opening; drift N70E
8. 1904-5
9. Fruitland
10.

11. Mined by Phelps Dodge Mining and Smelting, Location: 430'NL/1200'EL

12. Nickelson (p. 579)

1.
2. Charlie Begay Prospect
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7. single slope 26 deg. 70'; two short rooms
8. 1964-67
9. Hogback Bed, Menefee
10.

11. Permit issued to Charlie Begay; not enough coal between the water and the outcrop

12. Nickelson (p. 515)

1. NP
2. Hogback No. 1 Mine
3. 1/4 SEC. T. R. LAT. LONG.
4. Fruitland & Pil ELEV.
5. Hogback
6. Coal
7. single slope 130', rooms driven N hit fault
8. 1940's
9. Menefee
10. Coal dipped 21 deg. E

11. Opened by Tommy Lee

12. Nickelson (p. 497)

1.
2. Hogback No. 2 Mine
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7.
8. 1967-1976
9. Menefee
10. Coal dipping 22 deg.

11. Opened by Clifford George

12. Nickelson (p. 498)

1.
2. Hogback Nos. 3 and 4 Mines
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7.
8. 1951-1962
9. Menefee
10.

11.Opened by H. B. Lewis; water; closed due to unsafe roof conditions

12.Nickelson (p. 503)

1.
2. Hogback No. 5 Mine
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7.
8. Prior to 1951-1962
9. Menefee
10.

11.Opened by Joe Betah; caving closed the mine

12.Nickelson (p. 505)

1.
2. Hogback No. 6 Mine
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7.
8. 1951-1959(?)
9. Menefee
10.

11.Permit issued to Shorty Duncan; in 1959 mining rusty coal near outcrop

12.Nickelson (p. 513)

1.
2. Hogback No. 6 or 14 Mine
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7. slope, chute
8. 1951-1962
9. Menefee
10.

11.Operated by Leroy Pettigrew; by 1962 lower levels caved

12.Nickelson (p. 506)

1.
2. Hogback No. 7 Mine
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7.
8. 1951-1962
9. Menefee
10.

11.Opened by Tom Foster

12.Nickelson (p. 508)

1.
2. Hogback No. 8 Mine
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7.
8. No Records
9. Menefee
10.

11.

12.Nickelson (p. 509)

1.
2. Hogback No. 9 Mine
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7.
8. 1936-1956
9. Menefee
10.

11.Permit issued to Mark Dan; roof without adequate support

12.Nickelson (p. 510)

1.
2. Hogback No. 10 Mine
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7. slope 175'; rooms to left and right
8. 1953-1962
9. Menefee
10.

11.Issued to Ben Begay

12.Nickelson (p. 511)

1.
2. Hogback No. 11 Mine
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7. slope 420'
8. 1951-1961
9. Menefee
10.

11.Permit issued to Frank Peshlakai; new entry hit water, lower workings caved; coal mined near outcrop was badly stained

12.Nickelson (p. 512)

1.
2. Hogback Nos. 12 and 12A Mines
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7.
8. 1951-1960
9. Menefee
10.

11. Permit issued to George Simpson; coal chute and tipple burned in 1960

12. Nickelson (p. 514)

1.
2. Hogback No. 15 Mine
3. 1/4 SEC. T. R. LAT. LONG.
4. ELEV.
5. Hogback
6. coal
7.
8. 1951-1960
9. Menefee
10.

11. Opened by Julius Begay; mined from water level up dip to rusty coal south into Tom Marshall's Mine

12. Nickelson (p. 502)

1. NP
2. San Juan-Shiprock Agency-Government-Hogback No. 11 Mine
3. 1/4 SEC.21 T.30N R.16W LAT. LONG.
4. Chimney Rock 15 ELEV.
5. Hogback
6. Coal
7. slope 200'
8. 1907-61; 350-800 tons/yr
9. Menefee
10. 6'3" bed of clean coal; 18" left to support roof

11. Fueled Shiprock Indian Agency schools

12. Nickelson (p. 493)

1. NP
2. Hogback No. 13 Mine
3. NW 1/4 SEC.22 T.30N R.16W LAT. LONG.
4. Chimney Rock 15 ELEV.
5. Hogback
6. Coal
7. slope 20'
8. est. 70,700 tons
9. Menefee
10. 6'2" at face; 1'10" coal above 1/4" shale parting; dipping 8-10 deg. SE strike N40E
11. Warren(1944-45);Davidson(1945-57);Warren(1958-59);Alva M Tate(1958-72); Warren(1973-75);Floyd Ingraham(1977-)

12. Nickelson (p. 523)

1. NP
2. David Cly Prospect
3. 1/4 SEC. T. R. LAT. LONG.
4. Fruitland(?) ELEV.
5. Navajo
6. Coal
7. one entry
8. Navajo Coal Permit No.20 5/17/51
9. lower bed in Fruitland frm.
10. 11' bed

11. Provided local Navajos with winter fuel; destroyed by open pit operation at the Navajo Mine, Location: 1 1/2 mi. west of Fruitland Irrigation Project Hdqtrs.
12. Nickelson (p. 486)

1. NP
2. El Paso-Consol-Burnham Projects
3. 1/4 SEC. T.23-25 R.14-16 W. LAT. LONG.
4. The Pillar NW ELEV.
5. Navajo
6. Coal
7.
8.
9. Fruitland
10.

11. El Paso Natural Gas Co. obtained Navajo prospecting permit 3/18/59; 1000 sq. land grid, drilled at corners-ended 1960(500,000,000 tons of strippable coal Consolidation Coal Co.-project failed, lease cancelled
12. Nickelson (p. 439) (1977 NM Surface Mining Comm. granted El Paso ard Consol a permit

1. NP
2. Navajo Mine
3. 1/4 SEC. T.25-29 R.15-16 W. LAT. LONG.
4. ELEV.
5. Navajo
6. Coal
7. see file-strip mine
8. 1954-present
9. Fruitland frm.
10.

11. Utah Construction and Mining Co. (1954-71); Utah International Inc.(1971-)
Location T. 25-29 N., R. 15-16 W. 31,000+ acres.
Permit 1/25/54; Lease 10/30/57
12. Nickelson (p. 446)

1. NP
2. Ben Begay Mine
3. 1/4 SEC.16 T.29N R.15W LAT. LONG.
4. Fruitland ELEV.
5. Navajo
6. Coal(Navajo Coal Permit No.19 4/26/51)
7. single entry 250'
8. 1933-present; unknown
9. lower bed in Fruitland frm.
10. 11' bed

11. Opened by Navajos; local domestic market; 1955 Bekis Begay worked the mine and eventually it became part of Utah International Inc., Navajo lease and has now been stripped by Utah's strip mining operation
12. Nickelson (p. 485) (Location: 2 mi S of Fruitland on S side of the San Juan River(10

1: 21N.9W.31.412
2: Chaco Canyon-Drill Hole CC-8
3: NE1/4 NW1/4 SE1/4 31 T21N R9W 36°00'30"N 107°49'45"W
4: Sargent Ranch 7-1/2 Elevation 6,265 ft (Chaco Canyon)
5: Chaco Canyon area
6: U
7: drill hole - 4,707 ft
8: no production
9: Jurassic Morrison Formation-Westwater Canyon Member
10: sandstone; 2 mineralized zones at 4,534-4,536 ft and 4,586-4,587 ft; 564 ppm U at 4,527 ft depth
12: McLemore (1983a) Hicks and others (1980); Lease (1979); Brookins (1980)

1: 21N.10W.32.344
2: Chaco Canyon-Drill Hole CC-12
3: SE1/4 SE1/4 SW1/4 32 T21N R10W 36°00'12"N 107°55'30"W
4: Pueblo Bonito 7-1/2 Elevation 6,195 ft (Chaco Canyon)
5: Chaco Canyon area
6: U
7: drill hole - 4,422 ft deep
8: no production
9: Jurassic Morrison Formation-Westwater Canyon Member
10: mineralized siltstone at 4,151-4,153 ft
12: McLemore (1983a); Hicks and others (1980); Lease (1979); Brookins (1980)

1: 23N.10W.26.322
2: Unknown prospect near Kimbeto T.P.
3: C 26 T23N R10W 36°11'55"N 107°51'45"W
4: Kimbeto 7-1/2 Elevation 6,600 ft (Chaco Canyon)
5: San Juan Basin
6: U reported but not found
7: no workings
8: no production
9: Tertiary Ojo Alamo Sandstone
10: radioactive zone 1-3 ft thick reported at base of yellow-gray conglomerate in gray to bluish-gray siltstone
11: not found on 7/7/82; W.L. Chenoweth and Stehle (1957) believes this property was contaminated by foreign ore
12: FN 7/7/82; McLemore (1983a); Green and others (1980a, #68); Chenoweth and Stehle (1957, p. 17); PRR ED-R-502 (1955); MILS (1981)

1: 23N.19W.5.100
2: Dodge Brothers (Airborne Anomaly #1)
3: NE1/4 5 T23N R19W (unsurveyed) 36°15'28"N 108°53'27"W
4: Old Pine Spring 7-1/2 (Toadlena)
5: Shiprock district-Toadlena area
6: U, V
7: open cut
8: no production
9: Cretaceous Gallup Sandstone
10: 5-ft zone of siltstone
12: McLemore (1983a); Green and others (1980d, #91); Hilpert (1969, p. 50); PRR ED-R-483 (1955); MILS (1981)

1: 23N.19W.8,17
2: Dodge and Begay (A. Senutovitch, Adee Bitnay Dodge and B. Tommy Toosee Begay)
3: 8, 17 T23N R19W (unsurveyed)
4: Toadlena 7-1/2 (Toadlena)
5: Shiprock district-Toadlena area
6: U, V
7: no workings
8: no production
9: Cretaceous Dakota Sandstone
10: mineralized sandstone 1-2 ft thick bed; 2,500-ft long
12: McLemore (1983a) Green and others (1980d, #333); Hilpert (1969, p. 50); PRR GJEB-R-185 (1952)

1: 23N.19W.14
2: Toadlena
3: 14 T23N R19W (unsurveyed)
4: Two Grey Hills 7-1/2 (Toadlena)
5: Shiprock district-Toadlena area
6: U, Th, REE, Ti
7: no workings
8: no production
9: Cretaceous Gallup Sandstone
10: olive-gray beach-placer "black-sandstone deposit" 1, 750-ft long; 6-ft thick; 0.01% U_3O_8, 32% TiO_2
11: map by Archer (1957)
12: McLemore (1983a) Chenoweth (1957a); Archer (1957); USBM files (1958); CRIB (1972, 1983)

1: 23N.19W.16.300
2: Dodge-Begay
3: SW1/4 16 T23N R19W (unsurveyed) 36°13'35"N 108°52'10"W
4: Two Gray Hills 7-1/2 (Toadlena)
5: Shiprock district-Toadlena area
6: U, V
7: no workings
8: no production
9: Cretaceous Dakota Sandstone
10: mineralized sandstone 1-2 ft thick bed; 2,500-ft long
12: McLemore (1983a) Green and others (1980d, #92); Hilpert (1969, p. 50); PRR GJEB-R-185 (1952); MILS (1981)

1: 23N.20W.1
2: Dodge and Begay (Adee Bitnay Dodge and B. Tommy Toosee Begay)
3: 1 T23N R20W (unsurveyed)
4: Old Pine Spring 7-1/2 (Toadlena)
5: Shiprock district-Toadlena area
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Brushy Basin Member
10: mineralized pocket in shale
12: McLemore (1983a); PRr GJEB-R-185 (1952)

1: 24N.19W.7.110
2: Dodge Brothers (Airborne Anomaly #2)
3: NW1/4 7 T24N R19W (unsurveyed) 36°20'10"N 108°54'55"W
4: Old Pine Spring 7-1/2
5: Shiprock district-Toadlena area (Toadlena)
6: U, V
7:
8: no production
9: Cretaceous Gallup Sandstone
10: mineralized zone along carbonaceous shale-sandstone contact
12: McLemore (1983a) Green and others (1980d, #90); Hilpert (1969, p. 50); PRR ED-R-484 (1955)

1: 25N.18W
2: Unknown-Exxon
3: T25, 26N R18W
4: Sanostee 15 (Toadlena)
5: Shiprock district-Tocito dome
6: U, V
7: no workings-drill holes
8: no production
9: Jurassic Morrison Formation-Westwater Canyon Member
10: small- to medium-sized orebody in sandstone
11: 4 or 5 holes drilled (18.26N.18W) in 1968 by International Geo-Marine Corp., Exxon Corp. drilled in late 1970's.
12: McLemore (1983a) Uranium Newsletter (9/78)

1: 25N.20W.4.331
2: Unknown (Enos Johnson claim?)
3: SW1/4 4 T25N R20W (unsurveyed) 36°25'30"N 108°59'15"W
4: Sanostee West 7-1/2 Elevation 7,200 ft (Toadlena)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Recapture Member
10: several small orebodies in sandstone
12: McLemore (1983a) Green and others (1980d, #75); O'Sullivan and Beckman (1963); Blagbrough and others (1959)

1: 25N.20W.5.214
2: Deneh Nez #1 and 2 (Dennett Nezz, Dennet Nez, Denez Nez)
3: NE1/4 5 T25N R20W (unsurveyed) 36°26'00"N 108°59'25"W
4: Sanostee West 7-1/2 Elevation 6,760 ft (Toadlena)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: 25-ft adit, rim cuts
8: 312 tons ore yielding 1,036 lbs U_3O_8 (0.17%); 2,299 lbs V_2O_5
9: Jurassic Morrison Formation-Recapture Member
10: sandstone
11: mined 1952-1955 by Rogers and Lons
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #170, 74); Hilpert (1969, p. 50, #24, 25); Blagbough and others (1959)PRR ED-R-365 (1954); ED-R-393 (1954); D-550 (1953); MILS (1981); USAEC files (1960)

1: 25N.20W.5.411
2: Deneh Nez #3 (Dennet Nezz #3, Denez Nez)
3: 5 T25N R20W (unsurveyed) 36°25'50"N 108°59'50"W
4: Sanostee West 7-1/2 Elevation 6,800 ft (Toadlena)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: no workings--possibly a rim cut now used as a road
8: production reported with Deneh Nez #1 and 2
9: Jurassic Morrison Formation-Recapture Member
10: sandstone
12: McLemore (1983a) Anderson, O.J. (1980); Green and others (1980d, #71); Hilpert (1969, p. 50, #26); PRR ED-R-365

1: 25N.20W.5.420
2: Unknown (Enos Johnson or Deneh Nez claim)
3: SE1/4 5 T25N R20W (unsurveyed) 36°25'40"N 108°59'25"W
4: Sanostee West 7-1/2 Elevation 7,000 ft (Toadlena)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Recapture Member
10: large orebody in sandstone exposed at surface
12: McLemore (1983a) Green and others (1980d, #72, 73); Hilpert (1969); Blagbrough and others (1959)

1: 25N.20W.6.113
2: Alfred Talk
3: NW1/4 6 T25N R20W (unsurveyed) 36°26'10"N 109°1'16"W
4: Sonsala Butte 1 NE 7-1/2, Lukachukai 15 Elevation 7,200 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: pit(?)
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone; 1-ft channel sample 0.22% U_3O_8; small deposit
12: McLemore (1983a) Green and others (1980d, #88); Hilpert (1969, p. 50); Blagbrough and others (1959); PRR ED-R 405 (1954); MILS (1981)

1: 25N.20W.6.131
2: Tyler
3: NW1/4 6 T25N R20W (unsurveyed)
4: Sonsala Butte 1 NE 7-1/2 Elevation 7,080 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: no workings
8: no production
9: Jurassic Todilto Limestone
10: tyuyamunite associated with intraformation folds in coarsely crystalline limestone
11: probably on the Alfred Talk claim
12: McLemore (1983a) Green and others (1980d, #66); Hilpert (1969, p. 50); Blagbrough and others (1959); PRR ED-R-395 (1954)

1: 25N.20W.6.134
2: Unknown
3: NW1/4 6 T25N R20W (unsurveyed) 36°26'00"N 109°1'12"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 7,200 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Green and others (1980d, #67); Blagbrough and others (1959)

1: 25N.20W.6.141
2: Joe Ben #1
3: NW1/4 6 T25N R20W (unsurveyed) 36°25'30"N 109°00'50"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 7,400 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V (U:V ratio 2:1)
7: rim cuts, 3 short adits reported but not found by Anderson, O.J. (1980)
8: 6 tons ore yielding 41 lbs U_3O_8 (0.34%); 41 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: several small deposits in sandstone
11: mined 1952
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #68);Hilpert (1969, p. 50, #44); O'Sullivan and Beckman (1963) Blagbrough and others (1959); PRR ED-R-299 (1954); MILS (1981); USAEC files (1960)

1: 25N.20W.6.231
2: Joe Ben #2 (Unknown)
3: NE1/4 6 T25N R20W (unsurveyed) 36°25'55"N 109°00'25"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 7,000 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: rim cuts
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: several small deposits in sandstone
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #69); Hilpert (1969); Blagbrough and others (1959); MILS (1981); USAEC files (1960)

1: 25N.20W.7,8
2: Enos Johnson (South Peak Mine, Sanostee Mine)
3: 7, 8 T25N R20W (unsurveyed) 36°24'45"N 109°00'1"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 7,120 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: 2,700-3,000-ft decline (8-man operation in 1982)
8: 36,498 tons ore yielding 138,732 lbs U_3O_8 (0.19%); 94,288 lbs V_2O_5 until 1970
9: Jurassic Morrison Formation-Salt Wash Member, Recapture Member
10: majority of orebodies in sandstone of Recapture Member; two types of ore present: a black coffinite ore and red hematitic ore, grades presently average 0.06 to 0.08% U_3O_8
11: mined 1952-1956, 1958-1959, 1961-1972, 1976-1982
12: FN 8/17/83; McLemore (1983a); Green and others (1980d, #77-80); Hilpert (1969, p. 50, #30, 33); O'Sullivan and Beckman (1963); Blagbrough and others (1959); U.S. Atomic Energy Commission (1959, p. 26); Drouillard and Jones (1951); PRR ED-R-402 (1954); CEB-R-42 (1951); MILS (1978); USAEC files (1970); New Mexico State Inspector of Mines files (1982); CRIB (1983)

1: 25N.20W.8.110
2: John Joe #1
3: NW1/4 8 T25N R20W (unsurveyed) 36°25'15"N 109°00'10"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 6,880 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V (U:V ratio 1:2)
7: rim cuts
8: 94 tons ore yielding 243 lbs U_3O_8 (0.13%); 739 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1955 by Rogers and Sons; USAEC files indicate all or most of production is from John Joe #1 although some production may be from John Joe #2; Anderson, O.J. (1980) described some of the workings with Joe Ben #3
12: McLemore (1983a); Anderson, O.J. (1980); Blagbrough and others (1959); MILS (1981); USAEC files (1960)

1: 25N.20W.8.131
2: Joe Ben #3
3: NW1/4 8 T25N R20W (unsurveyed) 36°25'5"N 109°00'15"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 6,960 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V (U:V ratio 1:2.5)
7: open cut, adits reported
8: 225 tons ore yielding 927 lbs U_3O_8 (0.21%); 3,264 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1953, 1955 by Rogers and Sons; may be called Jce Ben #3
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #76); Hilpert (1969, p. 50, #45); PRR ED-R-364 (1954); MILS (1981); USAEC files (1960)

1: 25N.20W.8.213
2: Section 8 adit (Enos Johnson claim)
3: 8 T25N R20W (unsurveyed) 36°25'5"N 108°59'55"W
4: Sanostee West 7-1/2 Elevation 7,100 ft (Toadlena)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: 50-ft adit
8: production, if any, included with Enos Johnson #1-4
9: Jurassic Morrison Formation-Recapture Member
10: Sandstone
11: probably on the Enos Johnson claim
12: McLemore (1983a); Anderson, O.J. (1980); Hilpert (1969, p. 51); USAEC files (1960)

1: 25N.20W.8.311
2: Enos Johnson #3 (South Peak Mine)
3: W1/2 8 T25N R20W (unsurveyed) 36°24'45"N 109°0'15"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 7,200 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: adits
8: production included with Enos Johnson #1-4
9: Jurassic Morrison Formation-Recapture Member
10: sandstone; up to 60,000 ppm U
11: examined by Green and others (1980d)
12: McLemore (1983a) Green and others (1980d, #80); Hilpert (1969, p. 50, #33); Blagbrough and others (1959); USAEC files (1960)

1: 25N.20W.8.331
2: Unknown (Joe Ben #5 claim)
3: NW1/4 6 T25N R20W (unsurveyed) 36°24'40"N 109°00'15"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 7,200 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Green and others (1980d, #81); Hilpert (1969); Blagbrough and others (1959)

1: 25N.20W.8.334
2: Unknown
3: 8, 17 T25N R20W (unsurveyed) 36°24'30"N 109°00'00"W
4: Sonsala Butte 1 NE 7-1/2, Sanostee West 7-1/2 Elevation 7,000 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Recapture Member
10: sandstone
12: McLemore (1983a) Green and others (1980d, #83); Hilpert (1969); O'Sullivan and Beckman (1963); Blagbrough and others (1959)

1: 25N.20W.8.442
2: Horace Ben #1
3: SE1/2 8 T25N R20W (unsurveyed) 36°24'35"N 108°59'25"W
4: Sanostee West 7-1/2 Elevaiton 7,200 ft (Toadlena)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: 120-ft of adits, 300-ft rim stripping
8: 4 tons ore yielding 13 lbs U_3O_8 (0.17%); 18 lbs V_2O_5
9: Jurassic Morrison Formation-Recapture Member
10: sandstone
11: mined 1952 by J.C. Cox and Grover Biggons
12: McLemore (1983a); Green and others (1980d, #82); Hilpert (1969, p. 50, #41); O'Sullivan and Beckman (1963); Blaugbrough and others (1955); PRR ED-R-367 (1953); MILS (1978); USAEC files (1960)

1: 25N.20W.17.114
2: Carl Yazzie #1
3: NW1/4 17 T25N R20W (unsurveyed) 36°24'20"N 109°00'5"W
4: Sonsala Butte 1 NE 7-1/2, Lukachukai 15 Elevation 6,980 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V (U:V ratio 1:3)
7: 20-ft adit, rim cut, 22-ft adit
8: 23 tons ore yielding 66 lbs U_3O_8 (0.15%), 347 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone; several small deposits
11: mined 1954 by Bee Sho Shee Mining Co.
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #84); Hilpert (1969, p. 50, #15); Blagbrough and others (1959); PRR ED-R-400 (1954); ED-R-401 (1954); USAEC files (1960); MILS (1981)

1: 25N.20W.17.231
2: Unknown (Carl Yazzie claim)
3: NE1/4 7 T25N R20W (unsurveyed) 36°23'48"N 108°59'36"W
4: Sanostee West 7-1/2 Elevation 7,200 ft (Toadlena)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Recapture Member
10: sandstone
12: McLemore (1983a); Green and others (1980d, #85); Hilpert (1969); Blagbrough and others (1959)

1: 25N.20W.18.441
2: H.B. Roy (H.B. Roy #2)
3: SE1/4 18 T25N R20W (unsurveyed) 36°23'48"N 109°0'40"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 7,120 ft (Canyon de Chelly)
5: Shiprock district-Carrizo Mountains
6: U, V
7: open bench cuts
8: 6 tons ore yielding 11 lbs U_3O_8 (0.10%); 31 lbs V_2O_5
9: Jurassic Morrison Formation-Recapture Member
10: sandstone
11: mined 1954 by Bigler Johnson
12: McLemore (1983a) Anderson, O.J. (1980); Green and others (1980d, #89); Blagbrough and others (1959); PRR ED-R-366 (1954); USAEC files (1960); MILS (1981)

1: 25N.20W.18.444
2: Unknown (H.B. Roy)
3: SE1/4 18 T25N R20W (unsurveyed) 36°23'48"N 109°00'20"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 7,280 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Recapture Member
10: sandstone
12: McLemore (1983a) Green and others (1980d, #86); Blagbrough and others (1959)

1: 25N.20W.19.344
2: Reed Henderson
3: 19 T25N R20W (unsurveyed) 36°22'45"N 109°00'58"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 8,000 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: 3 open pits reported by USAEC files; no workings found by Anderson, O.J. (1980)
8: 24 tons ore yielding 14 lbs U_3O_8 (0.03%); 52 lbs V_2O_5
9: Jurassic Todilto Limestone
10: tyuyamunite, metatyuyomunite, and cuprosklodowskite in limestone; associated with intraformational anticlinal folds
11: mined 1954 by Hancock and Hutchison
12: McLemore (1983a) Anderson, O.J. (1980); Green and others (1980d, #87); Hilpert (1969, p. 51); Blagbrough and others (1959); Hilpert and Corey (1955, #120); Gruner and Smith (1955); PRR ED-R-259 (1954); USAEC files (1960)

1: 26N.19W.31
2: Sanostee
3: 31 T26N R19W (unsurveyed) 36°27'30"N 108°54'30"W
4: Sanostee West 7-1/2 Elevation 6,590 ft (Toadlena)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, Th, Nb, REE, Ti, Fe, Zr
7: minor bulldozer scrappings reported
8: no production
9: Cretaceous Gallup Sandstone
10: brownish-gray beach-placer "black-sandstone deposit", 1-1/2-mi x 450-ft x 12-ft; 15.6% TiO_2, 2.6% ZrO_2, 0.12% ThO_2 (USBM files)
12: McLemore (1983a); Bingler (1963); Chenoweth (1957a); PRR ED-R-621 (1956); USBM files (1958); USAEC files (1960); CRIB (1972; 1983)

1: 26N.20W.9.333
2: Unknown
3: SW1/4, SW1/4, SW1/4, Sec 9, T26N, R20W
4: Samostee West 71/2 (Toadlena)
6: U

1: 26N.20W.30.100
2: H.B. Roy #1 (Bear Creek Canyon area)
3: NW1/4 30 T26N R20W (unsurveyed) 36°27'45"N 109°2'30"W
4: Sonsala Butte 1 NE 7-1/2 (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: open pit?
8: no production
9: Jurassic Morrison Formation-Recapture Member
10: sandstone
12: McLemore (1983a); Hilpert (1969, p. 51, #40); Blagbrough and others (1959)

1: 26N.20W.31.313
2: Kee and Tohe (Kee and Tohne, Bee Sho Shee Mine)
3: W1/2 31 T26N R20W (unsurveyed) 36°26'30"N 109°1'20"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 7,520 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: 300-ft rim stripping, 50 ft of adits
8: 47 tons ore yielding 90 lbs U_3O_8 (0.10%); 261 lbs V_2O_5
9: Jurassic Morrison Formation-Recapture Member
10: scattered small orebodies in sandstone
11: mined 1954 by Bee Sho Shee Mining Co.
12: McLemore (1983a) Anderson, O.J. (1980); Green and others (1980d, #61); Hilpert (1969, p. 50); PRR ED-R-397 (1954); ED-R-398 (1954); USAEC files (1960); MILS (1981)

1: 26N.20W.31.334
2: John Joe #2
3: 31 T26N R21W (unsurveyed) 36°26'15"N 109°1'12"W
4: Sonsala Butte 1 NE 7-1/2 Elevation 7,200 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V (U:V ratio 1:2)
7: rim cuts
8: production, if any, included with John Joe #1
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: USAEC files indicate all or most of production from John Joe #1; Anderson, O.J. (1980) could not locate any workings; may be called John Joe #1
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #62); Hilpert (1969, p. 50, #46); Blagbrough and others (1959 PRR ED-R-396 (1954); MILS (1981); USAEC files (1960)

1: 26N.21W.36.200
2: Unknown
3: NE1/4 36 T26N R21W 36°25'48"N 109°1'50"W
4: Sonsala Butte 1 NE 7-1/2 (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7:
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Green and others (1980d, #65); O'Sullivan and Beckman (1963)

1: 26N.21W.36.314
2: David Kee
3: SE1/4 36 T26N R21W (unsurveyed) 36°26'30"N 109°1'45"W
4: Sonsala Butte 1 NE 7-1/2, Lukachukai 15 Elevation 7,400 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Recapture Member
10: radioactive calcified fossil logs and adjacent sandstone
12: McLemore (1983a); Green and others (1980d, #64); Hilpert (1969, p. 50); O'Sullivan and Beckman (1963); Blagbrcugh and others (1959) PRR ED-R-403 (1954); MILS (1981)

1: 26N.21W.36.444
2: Castle Tsosie
3: SE1/4 36 T26N R21W (unsurveyed) 36°26'25"N 109°1'40"W
4: Sonsala Butte 1 NE 7-1/2, Lukachukai 15 Elevation 7,200 ft (Canyon de Chelly)
5: Shiprock district-Chuska Mountains-Sanostee
6: U, V (U:V ratio 1:3)
7: 100-ft rim cut
8: 12 tons ore yielding 60 lbs U_3O_8 (0.25%), 19 lbs V_2O_5
9: Jurassic Morrison Formation-Recapture Member
10: sandstone/shale; small deposit, 5-15 ft thick
11: USAEC reports the orebody is mined out
12: McLemore (1983a); Green and others (1980d, #63); Hilpert (1969, p. 50, #17); Blagbrough and others (1959); PRR ED-R-399 (1954); USAEC files (1960)

1: 27N.21W.35
2: Rocky Spring (J. Chee)
3: 35 T27N R21W (unsurveyed) 36°40'15"N 109°00'29"W
4: Redrock Valley SE 7-1/2, Redrock Valley 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: prospect pit
9: Jurassic Morrison Formation-Salt Wash Member
10: two mineralized zones in sandstone less than one-foot thick extending for 1,500-ft along outcrop
12: McLemore (1983a) Green and others (1980d, #335); Chenoweth and Learned (1980); Hilpert (1969, p. 51); PRR ED-R-229 (1953)

1: 28N.16W.21.114
2: Airborne Anomaly #3
3: NW1/4 21 T28N R16W (unsurveyed) 36°43'1"N 108°2'10"W
4: The Hogback North 7-1/2 (Farmington)
5: San Juan Basin
6: U
7: no workings
8: no production
9: Cretaceous Cliff House Sandstone
10: associated with a red "clinker" coal bed
12: McLemore (1983a); PRR ED-R-485 (1955)

1: 28N.17W.13
2: Airborne Anomaly #46
3: 13 T28N R17W (unsurveyed)
4: The Hogback North 7-1/2 (Farmington)
5: San Juan Basin
6: U
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
12: McLemore (1983a) PRR ED-R-491 (1955)

1: 29N.12W.17
2: Weillack and Hamilton
3: 17 T29N R12W
4: Horn Canyon 7-1/2 (Farmington)
5: San Juan Basin
6: U
7: no workings
8: no production
9: Tertiary Ojo Alamo Sandstone
10: Sandstone
12: McLemore (1983a); PRR unnumbered (1954)

1: 29N.19W.34
2: Shiprock diatreme
3: 34 T29N R19W (unsurveyed) 36°41'15"N 108°50'00"W
4: Shiprock 7-1/2, Shiprock 15 (Farmington)
5: Shiprock district
6: U, V
7: no workings--state monument
8: no production
9: Tertiary diatreme
10: minette agglomerate; 0.002% U
12: McLemore (1983a); Shoemaker (1956a)

1: 29N.21W.2
2: Lower Canyon (MP-56, Canyon #2, Cato Sells)
3: 2 T29N R21W 36°45'30"N 109°2'30"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: no workings on Lower Canyon permit, drill holes
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: Upper Canyon claim has produced U and V
12: McLemore (1983a); Green and others (1980d, #23, 24); Chenoweth andd Learned (1980); Chenoweth and Malan (1973) Hilpert(1969, p. 51); PRR CEB-R-56 (1951); USAEC files (1960)

1: 29N.21W.3
2: E. Leuppe, MP-430
3: 2, 3 T29N R21W (unsurveyed) 36°45'30"N 109°2'35"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: no workings, drill holes
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Green and others (1980d, #25); Chenoweth and Malan (1973); O'Sullivan and Beckman (1963)

1: 29N.21W.11.124
2: Unknown
3: NW1/4 11 T29N R21W (unsurveyed) 36°44'38"N 109°1'58"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: carnotite in sandstone
12: McLemore (1983a); Green and others (1980d, #29); Hilpert (1969, p. 51); Coleman (1944); MILS (1981)

1: 29N.21W.11.333
2: Franks Point (Plot 6, Unnamed)
3: S1/2 11, N2 14 T29N R21W 36°44'00"N 109°2'25"W
4: Redrock Valley NE 1/2, Redrock Valley 15 Elevation 5,800 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: 100-ft long trench
8: produced in 1949 by VCA-part of East Reservation Lease
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #31); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Hilpert (1969, p. 51); O'Sullivan and Beckman (1963); U.S. Atomic Energy Commission (1959a); USAEC files (1960)

1: 29N.21W.11.334
2: Salt Rock (Upper and Lower Salt Rock, MP-69)
3: 14 T29N R21W (unsurveyed) 36°44'00"N 109°2'15"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,600 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: small open cuts, 25-ft adit, 20-ft shaft
8: 107 tons ore yielding 350 lbs U_3O_8 (0.17%); 4,122 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1950-1951, 1961-1962 from both Upper and Lower Salt Rock leases
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #102); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Chenoweth (1973)

1: 29N.21W.12,13
2: King Tutt #2 (MP-6)
3: 12,13 T29N R21W 36°44'18"N 109°00'30"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: no workings, drill holes
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: leased to Sylvania Min. and Mill. Co.
12: McLemore (1983a); Anderson, O.J. (1980); Chenoweth and Learned (1980); Green and others (1980d, #39); Chenoweth and Malan (1973); Chenoweth (1973); O'Sullivan and Beckman (1963)

1: 29N.21W.13,14
2: Salt Canyon (George Tutt, MP-4, Unknown)
3: 13,14 T29N R21W (unsurveyed) 36°43'30"N 109°1'30"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,760 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:9)
7: numerous shallow adits and rim cuts
8: 93 tons ore yielding 331 lbs U_3O_8 (0.18%); 4,473 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash member
10: sandstone
11: mined 1950, 1953-1955
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #30, 32); Chenoweth and Learned (1980); Chencweth and Malan (1973); Hilpert (1969, p. 51, #73); O'Sullivan and Beckman (1963)

1: 29N.21W.14
2: East Reservation Lease-Plot 3 (Sunnyside)
3: 14 T29N R21W 36°43'10"N 109°2'15"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: numerous pits, adits
8: 6,578 tons ore yielding 29,786 lbs U_3O_8 (0.22%); 311,503 lbs V_2O_5 from 1948-1950; 10,216 tons ore of 2.43% V_2O_5 from 1942-1944 (including additional properties)
9: Jurassic Morrison Formation-Salt Wash Member
10: Sandstone
12: FN 8/16/83; McLemore (1983a) Anderson O.J. (1980); Chenoweth and Learned (1980); Chenoweth and Malan (1973); USAEC files (1960)

1: 29N.21W.14.122
2: Lower Oak Creek (Oak Springs, Plot 7, Canyon View Mine, Lower Oak Springs, Unknown)
3: 11,14 T29N R21W (unsurveyed) 36°42'58"N 109°2'00"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,620 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:5)
7: 200-ft adit, open stopes, numerous adits and pits
8: 3,870 tons ore yielding 21,014 lbs U_3O_8 (0.27%); 149,295 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: 1-2 ft thick sandstone ore zones in two stratigraphic levels
11: mined 1943-1944, 1948-1961
12: FN 8/16/83; McLemore (1983a); Green and others (1980d, #26 27, 34, 36); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Hilpert (1969, p. 52, #55); O'Sullivan and Beckman (1963); U.S. Atomic Energy Commission (1959, p. 153); PRR CEB-R54 (19**); USAEC files (1964)

1: 29N.21W.14.122
2: Lower Salt Rock (MP-69)
3: 14 T29N R21W (unsurveyed) 36°43'50"N 109°2'5"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,600 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: small open cuts
8: see Salt Rock (29N.21W.14.121) for production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Anderson, O.J. (1980); Chenoweth and Learned (1980) Chenoweth and Malan (1973)

1: 29N.21W.14.320
2: Williams Point (Plot 4)
3: SW1/4 14 T29N R21W (unsurveyed) 36°43'32"N 109°1'50"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,800 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: small open pits, short adits
8: mined 1949 by VCA - production included with East Reservation Lease
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: examined by Green and others (1980d)
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d); O'Sullivan and Beckman (1963)

1: 29N.21W.14.322
2: Fissure-Plot 5
3: 14 T29N R21W
4: Redrock Valley NE 7-1/2 (Rock Point)
5: Shiprock district
6: U, V
7: no workings-outcrop
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: mineralized sandstone slump block of Salt Wash
12: McLemore (1983a) USAEC files (1960); Coleman (1944)

1: 29N.21W.14.342
2: East Side diatreme (King Tutt diatreme)
3: SW1/4 14 T29N R21W (unsurveyed) 36°43'20"N 109°2'1"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 (Rock Point)
5: Carrizo Mountains-Shiprock district
6: U, V
7: no workings
8: no production
9: Tertiary diatreme
10: uranium minerals impregnated sandstone dikes associated with diatreme
11: near Lookout Point-Sunnyside mine
12: McLemore (1983a) Blagbrough and Brown (1955); Shoemaker (1956a)

1: 29N.21W.14.344
2: Lookout Point-Sunnyside (Plot 3, Unknown)
3: SW1/4 14, NW1/4 23 T29N R21W 36°43'14"N 109°2'11"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,640 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: 100-ft adit
8: 2,556 tons ore yielding 16,327 lbs U_3O_8 (0.32%); 144,377 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mine plan by Duncan and Stokes (1942); mined 1942, 1948-1950, 1954, 1956, 1959
12: FN 8/16/83; McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #37); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Chenoweth (1973); Hilpert (1969, p. 51); O'Sullivan and Beckman (1963);; King (1951); Duncan and Stokes (1942)

1: 29N.21W.23
2: Shadyside #1-Plot 3
3: 23 T29N R21W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: 600-ft adit
8: production included with Shadyside Incline
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1942, 1948-1953, 1956, 1964-1965
12: McLemore (1983a); Anderson, O.J. (1980); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Hilpert (1969, p. 51); King (1951); USAEC files (1961)

1: 29N.21W.23.122
2: Lookout Point West Side (Plot 3-Corey Mine, Lookout Point Incline)
3: NW1/4 23 T29N R21W (unsurveyed) 36°43'5"N 109°2'11"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,680 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: 100-ft decline, now caved
8: 506 tons ore yielding 2,713 lbs U_3O_8 (0.27%); 28,485 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: several small deposits in sandstone
11: mined 1960-1961
12: FN 8/16/83; McLemore (1983a); Anderson, O.J. (1980); Chenoweth and Learned (1980); Green and others (1980d, #44); Hilpert (1969, p. 51, #55); O'Sullivan and Beckman (1963)

1: 29N.21W.23.124
2: Shadyside Incline-Plot 3
3: 23 T29N R21W (unsurveyed) 36°42'55"N 109°2'00"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,600 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:8)
7: 280-ft decline, open pits
8: 1,728 tons ore yielding 8,841 lbs U_3O_8 (0.26%); 108589 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1942, 1948-1953, 1956, 1964-1965
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #42); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Chenoweth (1973); Hilpert (1969, p. 51, #93); O'Sullivan and Beckman (1963); King (1951); MILS (1981); USAEC files (1961)

1: 29N.21W.23.142
2: Tent (MP-573)
3: 23 T29N R21W (unsurveyed) 36°43'17"N 109°2'00"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,680 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:7)
7: open cuts up to 120-ft long, 70-ft adit
8: 1,198 tons ore yielding 5,303 lbs U_3O_8 (0.22%); 54,156 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: several small deposits in sandstone
11: mined 1955-1957, 1963
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #101); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Chenoweth (1973); Hilpert (1969, p. 51, #99); USAEC files (1963); MILS (1981)

1: 29N.21W.23.212
2: Shadyside #2-Plot 3
3: 23 T29N R21W (unsurveyed) 36°43'2"N 109°1'45"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:8)
7: 350-ft adit, open pits
8: 809 tons ore yielding 6,183 lbs U_3O_8 (0.35%); 66,842 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1942, 1948-1951, 1953-1955, 1966
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #38); Chenoweth and Learned (1980); Chenoweth (1973); Hilpert (1969, p. 51, #94); O'Sullivan and Beckman (1963); King (1951); USAEC files (1966)

1: 29N.21W.23.224
2: Begay #2 (MP-24, Lookout Point, Upper Red Wash)
3: NE1/4 23 T29N R21W (unsurveyed) 36°43'10"N 109°1'30"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,670 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:5)
7: 1 decline, pits
8: 4,515 tons ore yielding 18,450 lbs U_3O_8 (0.20%); 190,638 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: Sandstone
11: mined 1962-1967
12: FN 8/16/83; McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #35); Chenoweth (1980; 1973); Chenoweth and Malan (1973) Hilpert (1969, p. 52)

1: 29N.21W.23.224
2: Begay Incline (MP-24, Begay #1, Barton #1)
3: E1/2 23 T29N R21W (unsurveyed) 36°43'00"N 109°1'27"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,640 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: 1 decline
8: 655 tons ore yielding 3,475 lbs U_3O_8 (0.27%); 38,215 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone; mineralized log 2,140 ppm (Green and others, 1980d)
11: mined 1955-1956; examined by Green and others (1980)
12: FN 8/16/83; McLemore (1983); Anderson, O.J. (1980); Green and others (1980d, #46); Chenoweth (1980; 1973); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Hilpert (1969)

1: 29N.21W.23.410
2: Nelson Point (Plot 3)
3: 23 T29N R21W (unsurveyed) 36°42'50"N 109°2'5"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,700 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:11)
7: 800-ft adit, open cuts
8: 2,684 tons ore yielding 13,364 lbs U_3O_8 (0.25%); 211,347 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: 1-2 ft thick ore zone, several small and medium deposits; tyuyamunite; 6,750 ppm U (Green and others, 1980d)
11: mined 1942-1943, 1948-1958, 1961, 1965-1967; mine map by Corey (1958) and Hershey (1958); examined by Green and others (1980d)
12: FN 8/16/83; McLemore (1983a); Anderson, O.J. (1980); Chenoweth and Learned (1980); Green and others (1980d, #41); Chenoweth (1973); Chenoweth and Malan (1973); Hilpert (1969, p. 51, #62); O'Sullivan and Beckman (1963); U.S. Atomic Energy Commission (1959, p. 51); Hershey (1958); Corey (1958); MILS (1978)

1: 29N.21W.23.420
2: King Tutt Point (Plot 2)
3: 24 T29N R21W (unsurveyed) 36°42'30"N 109°1'33"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,520 ft
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:5)
7: 5 interconnecting adits (40-ft, 55-ft, 12-ft, 25-ft, 40-ft long)
8: 294 tons ore yielding 1,900 lbs U_3O_8 (0.32% U_3O_8); 15,222 lbs V_2O_5 (23.59%)
9: Jurassic Morrison Formation-Salt Wash Member
10: ore related to an erosional surface in Salt Wash sandstone
11: mined 1942, 1948-1956
12: McLemore (1983a); Anderson, O.J. (1980); Chenoweth and Learned (1980); Green and others (1980d, #45); Chenoweth and Malan (1973); Hilpert (1969, p. 52, #53); Chenoweth (1963); O'Sullivan and Beckman (1963); King (1951); Coleman (1944)

1: 29N.21W.23.424
2: Carrizo #1 (MP-24)
3: E1/2 23 T29N R21W 36°42'40"N 109°1'30"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,550 ft
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:4)
7: 1, 12° decline which connects to Begay #1
8: 828 tons ore yielding 3,426 lbs U_3O_8 (0.21%); 21,917 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1956-1958 by Spafford and Sones
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #40); Chenoweth (1980; 1973); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Hilpert (1969, p. 52, #16); O'Sullivan and Beckman (1963); MILS (1981)

1: 29N.21W.24.220
2: Benall and Shorty (Kunde-Yette, MP-362)
3: 24 T29N R21W (unsurveyed) 36°43'20"N 108°0'30"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: no workings, drill holes
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); USAEC files (1960)

1: 29N.21W.24.243
2: Junction (MP-24)
3: NE1/4 24 T29N R21W 36°42'58"N 109°00'30"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,450 ft (Rock POint)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:3)
7: bench cut, 25-ft adit
8: 18 tons ore yielding 38 lbs U_3O_8 (0.11%); 153 lbs V_2C_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined by Walter Duncan in 1953
12: McLemore (1983a); Anderson, O.J. (1980); Chenoweth and Learned (1980); Green and others (1980d, #47); Chenoweth and Malan (1973); Chenoweth (1973); Hilpert (1969, p. 52, #47)

1: 29N.21W.24.323
2: King Tutt #1 (MP-6)
3: W1/2 24 T29N R21W 36°42'42"N 109°1'00"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,440 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:5)
7: 75-ft adit, 150-ft decline, open cut
8: 290 tons ore yielding 1,060 lbs U_3O_8 (0.18%); 8,257 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: radioactive fossil logs in channel scour, elongated eastward
11: mined 1951, 1953, 1956, 1958; mine map by Anderson, O.J. (1980)
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #43, 99); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Chenoweth (1973); King (1951); USAEC files (1960); MILS (1981)

1: 29N.21W.24.323
2: Red Wash Point-Plot 1 (Sam Point)
3: 24 T29N R21W (unsurveyed) 36°42'40"N 109°1'00"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,440 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:5)
7: 2 adits, open cuts
8: 305 tons ore yielding 2,244 lbs U_3O_8 (0.37%); 18,230 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1942, 1948-1952
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #50); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Chenoweth (1973); Hilpert (1969, p. 52, #69, 74); O'Sullivan and Beckman (1963); MILS (1981)

1: 29N.21W.24.333
2: Begay #1 (MP-24, Unknown)
3: SW1/4 24 T29N R21W (unsurveyed) 36°42'31"N 109°1'20"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,550 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: adit
8: 3,921 tons ore yielding 16,491 lbs U_3O_8 (0.21%); 127,499 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1953-1954, 1966-1967
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #49, 100); Chenoweth (1980; 1973); Chenoweth and Learned (1980); Chenoweth and Malon (1973); Hilpert (1969, p. 52, #7)

1: 29N.21W.24.440
2: Unknown
3: E1/2 SE1/4 24 T29N R21W (unsurveyed) 36°42'25"N 109°1'10"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Green and others (1980d, #48); Hilpert (1969)

1: 29N.21W.24.441
2: Alongo (MP-336)
3: SE1/4 24 T29N R21W (unsurveyed) 36°42'25"N 109°0'30"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,580 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:1)
7: 2 adits (220-ft apart), 110- and 72-ft long
8: 27 tons ore yielding 76 lbs U_3O_8 (0.14%), 76 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1956 by E.J. Alonzo
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #51); Chenoweth (1980; 1973); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Hilpert (1969, p. 52, #1); O'Sullivan and Beckman (1963); USAEC files (1960); MILS (1981)

1: 29N.21W.24.443
2: Canyon View (Red Wash)
3: SE1/4 24 T29N R21W (unsurveyed) 36°42'20"N 109°00'33"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,580 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:6)
7: 1 adit 2,220-ft south of Alongo (on Alongo plot)
8: 61 tons ore yielding 127 lbs U_3O_8 (0.37%); 636 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1952 by H.S. Begay; mine plan by Anderson, O.J. (1980)
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #52); Chenoweth (1980; 1973); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Hilpert (1969, p. 53, #14); O'Sullivan and Beckman (1963)

1: 29N.21W.25.332
2: Unknown
3: SW1/4 25 T29N R21W (unsurveyed) 30°41'45"N 109°1'00"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Green and others (1980d, #53); O'Sullivan and Beckman (1963); Coleman (1944)

1: 29N.21W.26.134
2: Horse Mesa North (Red Rock)
3: CW1/2 26 T29N R21W (unsurveyed) 36°41'55"N 109°2'20"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: pits, rim cuts
8: King reports some production which is not verified by AEC production records
9: Jurassic Morrison Formation-Salt Wash Member
10: several small deposits in sandstone along Horse Mesa, high V, 2-5 ft thick
12: FN 8/17/83; McLemore (1983a); Green and others (1980d, #54); Hilpert (1969, p. 52); O'Sullivan and Beckman (1963); King (1952); MILS (1981)

1: 29N.21W.26.323
2: Horse Mesa South (Red Rock)
3: C W1/2 26 T29N R21W (unsurveyed) 36°41'45"N 109°2'16"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 Elevation 5,640 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: pit, 4 ft adit
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: 150 ft long ore zone, 1-2 ft thick; in sandstone
12: FN 8/17/83; McLemore (1983a); Green and others (1980d, #56); Hilpert (1969, p. 52); King (1952); MILS (1981)

1: 29N.21W.27.222
2: Unknown (Horse Mesa)
3: E1/2 27 T29N R21W 36°41'50"N 109°2'25"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Green and others (1980d, #55); O'Sullivan and Beckman (1963)

1: 29N.21W.35
2: East Carrizo Area (AEC and Navajo Tribe)
3: 35 T29N R21W (unsurveyed) 36°41'00"N 109°2'40"W
4: Redrock Valley NE 7-1/2, Redrock Valley 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Green and others (1980d, #340); Strobell (1952)

1: 30N.15W.3
2: Meadows Mine
3: SW1/4, Sec 3, T30N, R15W
4: Waterflow 91/2 (Farmington)
6: U

1: 30N.15W.3.140
2: Boyd (Jack Boyd, Claim #7)
3: N1/2 3 T30N R15W 36°50'45"N 108°24'15"W
4: Waterflow 7-1/2 Elevation 5,600 ft (Farmington)
5: San Juan Basin
6: U, V, coal
7: rim cuts, pits
8: 74 tons ore yielding 74 lbs U_3O_8 (0.05%), 74 lbs V_2O_5
9: Cretaceous Fruitland Formation
10: radioactive zone at base of medium-grained arkosic sandstone and up to 2-ft thick, hematitic alteration; 0.182% U_3O_8 (NMBMMR chem lab, 3/3/83, #3164)
11: mined 1954-1955 by Victory Exploration Mining Co., claims now owed by San Juan Coal Company; one 10 ton shipment assayed 0.10% U_3O_8
12: FN 7/8/82; McLemore (1983a); Green and others (1980d, #1); Fassett and Hinds (1971); Hilpert (1969, p. 52); Chenoweth (1958); PRR ED-R-274 (1954); ED-R-457 (1955); ED-R-246 (1954); USAEC files (1960); CRIB (1976, 1983)

1: 30N.15W.6
2: Deposit X-Y
3: 6 T30N R15W
4: Waterflow 7-1/2 (Farmington)
5: San Juan Basin
6: U, Ti, Th
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
12: McLemore (1983a); USBM files (1958)

1: 30N.16W.10.340
2: Airborne Anomaly #6
3: SW1/4 10 T30N R16W
4: Chimney Rock SE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone; 0.004-0.006% U_3O_8
11: incorrect location given in PRR ED-R-450 (1955)
12: McLemore (1983a); U.S. Atomic Energy Commission (1966, p. 63); Chenoweth (1957b); PRR ED-R-445 (1955); ED-R-450 (1955); USBM file (1958)

1: 30N.16W.15.323
2: Hogback Claim (Willie Davidson)
3: SW1/4 15 T30N R16W 36°48'35"N 108°31'00"W
4: Chimney Rock SE 7-1/2, Chimney Rock 15 Elevation 5,380 ft (Farmington)
5: San Juan Basin
6: U, Th, Ti
7: small pits (5-ft x 5-ft x 3-ft)
8: 8 tons ore yielding 31 lbs U_3O_8 (0.02%), 23 lbs V_2O_5
9: Cretaceous Point Lookout Sandstone tongue in lower Menefee Formation
10: spotty radioactive zones in black beach-placer sandstone; 0.01% U_3O_8 channel sample
11: mine June, 1954, by Willie Davidson; examined by Green and others (1980d)
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #3); Hilpert (1969, p. 52); Chenoweth (1957b); PRR ED-R-456 (1955); ED-R-273 (1954); MILS (1981); USAEC files (1960)

1: 30N.16W.32
2: Airborne Anomaly #5
3: 32 T30N R16W (unsurveyed)
4: Chimney Rock SE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: resistive purple-brown beach-placer sandstone, 2-4 in thick bands, 50-ft diameter; 0.01% U_3O_8
11: incorrect location given on PRR ED-R-449 (1955), Navajo Indian Reservation
12: FN 8/17/83; McLemore (1983a); Chenoweth (1957b); PRR ED-R-449 (1955); ED-R-432 (1955); USBM files (1958)

1: 30N.18W.24.300
2: A.L. Cook
3: SE1/4 24 T30N R18W
4: Chimney Rock SW 7-1/2, Chimney Rock 15
5: San Juan Basin
6: U(?)
7: no workings
8: no production
9: Recent Gravel Sands
11: later determined that ore material spilled from an ore truck--no deposit occurrence (W.L. Chenoweth, PC, 11/1982)
12: McLemore (1983a); PRR ED-R-482 (1955); MILS (1981)

1: 30N.21W.11.333
2: Unknown-Troy Rose?
3: SW1/4 11 T30N R21W 36°49'10"N 109°2'10"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Green and others (1980d, #4); Coleman (1944)

1: 30N.21W.14.300
2: Unknown
3: E1/2 SW1/4 14 T30N R21W 36°49'5"N 109°1'55"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7:
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Green and others (1980d, #5); Hilpert (1969); O'Sullivan and Beckman (1963)

1: 30N.21W.14.433
2: King #6 (Jimmy King #6, Troy Rose, MP-292)
3: 14 T30N R21W (unsurveyed) 36°48'25"N 109°1'58"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 Elevation 5,920 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:5)
7: 12-ft adit, 30-ft adit
8: 54 tons or yielding 114 lbs U_3O_8 (0.11%); 773 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1955 and 1957 by Troy Rose Mining Co.
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #6); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Chenoweth (1973); Hilpert (1969, p. 52, #50); MILS (1978)

1: 30N.21W.22.420
2: John John #1 (MP-334)
3: 22 T30N R21W (unsurveyed) 36°47'50"N 109°2'40"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 Elevation 6,200 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:12)
7: 21-ft adit, 60-ft adit, 6-ft adit, rim cut
8: 94 tons ore yielding 243 lbs U_3O_8 (0.13%); 739 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #16); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Chenoweth (1973); O'Sullivan and Beckman (1963); USAEC files (1960)

1: 30N.21W.23.110
2: Beclabito Lease (BB, BBB, Barton and Begay; Barton, Begay, and Beyale; MP-35, Lewis Barton, B'Cla'B'to)
3: 23 T30N R21W (unsurveyed) 36°48'15"N 109°1'15"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: 50-ft rim cut, 12-ft adit, pits, rim cuts
8: 254 tons ore yielding 740 lbs U_3O_8 (0.15%); 11,311 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1950-1951, 1953
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #7, 8, 9); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Hilpert (1969, p. 52, #4, 5); U.S. Atomic Energy Commission (1951, p. 20); PRR ED-R-260 (1954); MILS (1981); USAEC file (1960)

1: 30N.21W.24.120
2: Rocky Flats #1 (Barton and Lee, MP-30)
3: 24 T30N R21W (unsurveyed) 36°48'5"N 109°1'5"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 Elevation 5,760 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:10)
7: 8-ft adit
8: 698 tons ore yielding 2,214 lbs U_3O_8 (0.16%); 34,154 lbs V_2O_5; includes ore from Rocky Flats #2
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1950-1953, 1955; majority of ore is from Rocky Flats #1
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #10); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Chenoweth (1973); Hilpert (1969, p. 52, #70); PRR unnumbered (1955); MILS (1981); USAEC files (1960)

1: 30N.21W.24.420
2: Canyon #1 (MP-44)
3: 24 T30N R21W (unsurveyed) 36°47'45"N 109°00'10"W
4: Pastora Peak SE 7-1/2 Elevation 5,520 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: 85-ft adit, 12-ft adit, open cut
8: 111 tons ore yielding 237 lbs U_3O_8 (0.11%); 4,039 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1950, 1951 and 1953 by Pete Atcitty
12: FN 8/15/83; McLemore (1983a); Anderson, O.J. (1980); Chenoweth and Learned (1980); Green and others (1980d, #11, 12); Chenoweth and Malan (1978); Chenoweth (1973); O'Sullivan and Beckman (1963); Clinton and Carithers (1956); USAEC files (1960)

1: 30N.21W.26.120
2: King #2 (Jimmy King #2)
3: 26 T30N R21W (unsurveyed) 36°47'25"N 109°2'12"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 Elevation 5,880 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:12)
7: 150-ft open cut
8: 557 tons ore yielding 1,761 lbs U_3O_8 (0.16%); 31,424 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1950-1954 by Jimmy King
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #15); Chenoweth and Learned (1980); Hilpert (1969, p. 53, #47); MILS (1981); USAEC files (1960)

1: 30N.21W.26.122
2: Rocky Flats #2 (MP-30, Rocky Mine #2, Unknown)
3: 26 T30N R21W (unsurveyed) 36°47'30"N 109°2'3"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 Elevaiton 5,800 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:11)
7: 12-ft adit
8: production included with Rocky Flats #1
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #13, 14); Chenoweth and Learned (1980); Chencweth and Malan (1973); Chenoweth (1973); Hilpert (1969, p. 52, #71); O'Sullivan and Beckman (1963)

1: 30N.21W.26.300
2: Barton and Lee (MP-30)
3: 26 T30N R21W (unsurveyed) 36°46'50"N 109°2'10"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: no workings
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); USAEC files (1960)

1: 30N.21W.27
2: C. Bekis No. 1 (MP-41, Troy Rose)
3: 27 T30N R21W (unsurveyed) 36°47'30"N 109°2'40"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V
7: rim stripping
8: no production
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
12: McLemore (1983a); Scarborough (1981); USAEC files (1960)

1: 30N.21W.35.130
2: Cottonwood Butte (Plot 8 - #5705)
3: 35 T30N R21W (unsurveyed) 36°46'16"N 109°1'20"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 Elevation 5,800 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:8)
7: open cuts, 40-ft adit
8: 250 tons ore yielding 1,245 lbs U_3O_8 (0.25%); 15,013 lbs V_2O_5
9: Jurassic Morrison Formation-Salt Wash Member
10: sandstone
11: mined 1949-1950, 1954
12: McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #22); Chenoweth and Learned (1980); Chenoweth and Malan (1973); Hilpert (1969, p. 52, #23); MILS (1981); USAEC files (1960)

1: 30N.21W.35.310
2: Lone Star (VCA Plot 9)
3: SW1/4 35 T30N R21W (unsurveyed) 36°46'8"N 109°2'35"W
4: Pastora Peak SE 7-1/2, Pastora Peak 15 Elevation 6,120 ft (Rock Point)
5: Shiprock district-Carrizo Mountains
6: U, V (U:V ratio 1:6)
7: 20-ft adit
8: 276 tons ore yielding 1,814 lbs U_3O_8 (0.33%); 16,852 lbs V_2O_5 (3.05%)
9: Jurassic Morrison Formation-Salt Wash Member
10: one-ft thick sandstone ore zone
11: mined 1950-1952, 1962; mine plan by Swanson and Hatfield (1952); production prior to 1948 included with East Reservation Lease; Anderson (1980) described Lonestar working which are actually in Arizona
12: FN 8/16/83; McLemore (1983a); Anderson, O.J. (1980); Green and others (1980d, #17); Chenoweth and Learned (1980); Hilpert (1969, p. 53, #54); Swanson and Hatfield (1952); MILS (1981)

1: 31N.14W.13
2: Airborne Anomaly #4 (Barker Dome)
3: 13 T31N R14W (unsurveyed)
4: Purgatory Canyon 7-1/2 (Farmington)
5: San Juan Basin
6: U
7: no workings
8: no production
9: Cretaceous Pictured Cliffs Sandstone
10: beach-placer sandstone
12: McLemore (1983a); Chenoweth (1957b); PRR ED-R-413 (1955)

1: 31N.15W.19.400
2: Airborne Anomaly #13, 14, and 15
3: SE1/4 19 T31N R15W (unsurveyed) 36°53'19"N 108°27'32"W
4: Heifer Point 7-1/2 Elevation 5,580 ft
5: San Juan Basin
6: U, Th, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
11: Ute Mountain Indian Reservation; examined by Green and others (1980d)
12: McLemore (1983a); Green and others (1980d, #2); Hilpert (1969, p. 53); Chenoweth (1955); PRR ED-R-451 (1955); ED-R-452 (1955); ED-R-453 (1955); USBM files (1958)

1: 31N.15W.30
2: Airborne Anomalies #8 and 9
3: 30 T31N R15W
4: Waterflow 7-1/2 (Farmington)
5: San Juan Basin
6: U, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
11: Ute Mountain Indian Reservation
12: McLemore (1983a); Chenoweth (1957b); PRR ED-R-433 (1955); USBM files (1958)

1: 31N.15W.30
2: Airborne Anomalies #10 and 11
3: 30 T31N R15W
4: Waterflow 7-1/2 (Farmington)
5: San Juan Basin
6: U, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone; 0.01% U_3O_8
11: Ute Mountain Indian Reservation
12: McLemore (1983a); Chenoweth (1957b); PRR ED-R-434 (1955); USBM files (1958)

1: 31N.15W.30
2: Airborne Anomaly #12
3: S1/2 30 T31N R15W
4: Waterflow 7-1/2 (Farmington)
5: San Juan Basin
6: U, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone, Menefee Formation
10: beach-placer sandstone
11: Ute Mountain Indian Reservation
12: McLemore (1983a); Chenoweth (1955); PRR ED-R-436 (1955); USBM files (1958)

1: 31N.16W.3.100
2: Airborne Anomaly #21
3: 3 T31N R16W (unsurveyed)
4: Chimney Rock NE 7-1/2, Chimney Rock 15
5: San Juan Basin
6: U, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone; 21.5% TiO_2, 0.01% U_3O_8; 1.80% ZrO_2
11: Ute Mountain Indian Reservation
12: McLemore (1983a); Chenoweth (1957b); PRR ED-R-439 (1955); USBM files (1958)

1: 31N.16W.3.200
2: Anomalous area near Airborne Anomaly #21
3: NE1/4 3 T31N R16W (unsurveyed)
4: Chimney Rock NE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U, Ti, Zr
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone; uraniferous zircon
12: McLemore (1983a); Chenoweth (1957b); PRR ED-R-473 (1955), ED-R-437 (1955)

1: 31N.16W.10
2: Airborne Anomaly #37
3: 10 T31N R16W
4: Chimney Rock NE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
12: McLemore (1983a); Chenoweth (1957b); PRR ED-R-441 (1955)

1: 31N.16W.14
2: Airborne Anomaly #16, 17 and 18
3: S1/2 14 T31N R16W
4: Heifer Point 7-1/2 (Farmington)
5: San Juan Basin
6: U, Ti, Zr
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
11: Ute Mountain Indian Reservation
12: McLemore (1983a); PRR ED-R-437 (1955); USBM files (1958)

1: 31N.16W.15
2: Airborne Anomaly #19 and 20
3: 15 T31N R16W (unsurveyed)
4: Chimney Rock NE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
11: Ute Mountain Indian Reservation
12: McLemore (183a); Chenoweth (1957b); PRR ED-R-438 (1955); USBM files (1958)

1: 31N.16W.15,16
2: Airborne Anomaly #36
3: 15, 16 T31N R16W
4: Chimney Rock NE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
12: McLemore (1983a); PRR ED-R-440 (1955)

1: 31N.16W.24
2: Airborne Anomaly #7
3: 24 T31N R16W (unsurveyed) (Farmington)
4: Heifer Point 7-1/2
5: San Juan Basin
6: U
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone; 0.01% U_3O_8
12: McLemore (1983a); Chenoweth (1957b); PRR ED-R-435 (1955)

1: 32N.9W.32.300
2: Lone Star
3: SW1/4 32 T32N R9W 36°56'20"N 107°48'5"W
4: Aztec 15 (Navajo Reservoir)
5: San Juan Basin-Aztec area
6: U
7: no workings
8: no production
9: Tertiary San Jose Formation
10: mineralized channel sandstone; 0.01% U_3O_8 reported in PRR
11: could not locate described prospect on 7/7/82
12: FN 7/7/82; McLemore (1983a); Holen (1982); Green and others (1980a, #70); Chenoweth and Stehle (1957, p. 17); PRR ED-R-501 (1955)

1: 32N.9W.32.300
2: Lone Star
3:
4:
6: U

1: 32N.10W.29.100
2: E.L. Chilton and Sons (Dalton prospect, Chilton prospect)
3: NW1/4 29 T32N R10W 36°57'40"N 107°53'50"W
4: Aztec 15 (Navajo Reservoir)
5: San Juan Basin-Aztec area
6: U
7: pits reported
8: no production
9: Tertiary San Jose Formation(?)
10: sandstone; 0.01-0.02% U_3O_8 reported in PRR
11: could not locate any workings on 7/7/82
12: FN 7/7/82; McLemore (1983a); Green and others (1980a, #69); Chenoweth and Stehle (1957, p. 17); PRR ED-R-271 (1954)

1: 32N.10W.29.100
2: E.L. Chilton and Sons
3:
4:
6: U

1: 32N.13W.15.444
2: Coal Mine
3: 15, 22 T32N R13W (E corner) 36°58'45"N 108°11'3"W
4: La Plata 7-1/2 Elevation 6,100 ft (Farmington)
5: La Plata district-San Juan Basin
6: coal, U
7: rim cuts, 2 adits nearby
8: no uranium production, coal produced
9: Cretaceous Fruitland Formation
10: coaly shale; 0.003% U reported
12: FN 7/6/82; McLemore (1983a); Baltz (1955, p. 11)

1: 32N.16W.19
2: Deposit #2
3: 19 T32N R16W (unsurveyed)
4: Chimney Rock NE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U, Ti, Th
7: no workings
8 no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
11: Navajo Indian Reservation
12: McLemore (1983a); USBM files (1958)

1: 32N.16W.28
2: Airborne Anomaly #22 and #23 (Salt Creek Wash)
3: 28 T32N R16W (unsurveyed) 36°57'14"N 108°31'49"W
4: Chimney Rock NE 7-1/2, Chimney Rock 15 Elevation 5,600 ft (Farmington)
5: San Juan Basin
6: U, Th, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach placer sandstone
11: examined by Green and others (1980d); Ute Mountain Indian Reservation
12: McLemore (1983a); Green and others (1980d, #332); Houston and Murphy (1977); Dow and Batty (1961); Chenoweth (1957b); PRR ED-R-454 (1955); ED-R-455 (1955); USBM files (1958)

1: 32N.16W.28
2: Outcrop SE of Airborne Anomaly No. 23
3: 28 T32N R16W (unsurveyed)
4: Chimney Rock NE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach placer sandstone
12: McLemore (1983a); PRR ED-R-472 (1955)

1: 32N.16W.29
2: Airborne Anomaly #24
3: 29 T32N R16W (unsurveyed)
4: Chimney Rock NE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U, Th, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
11: Navajo Indian Reservation
12: McLemore (1983a); Chenoweth (1957b); PRR ED-R-486 (1955); USBM files (1958)

1: 32N.17W.15
2: Airborne Anomaly #33
3: 15 T32N R17W (unsurveyed)
4: Chimney Rock NE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone; 4.9% TiO_2; 1.1% ZrO_2
11: Navajo Indian Reservation
12: McLemore (1983a); Chenoweth (1957b); PRR ED-R-488 (1955); USBM files (1958)

1: 32N.17W.22,27
2: Airborne Anomaly #35
3: 22, 27 T32N R17W
4: Chimney Rock NE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
11: Navajo Indian Reservation
12: Mclemore (1983a); Chenoweth (1957b); PRR ED-R-490 (1955); USBM files (1958)

1: 32N.17W.27
2: Airborne Anomaly #32
3: 27 T32N R17W (unsurveyed)
4: Chimney Rock NE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
11: Navajo Indian Reservation
12: McLemore (1983a); PRR ED-R-487 (1955); USBM files (1958)

1: 32N.17W.27
2: Airborne Anomaly #34
3: 27 T32N R17W (unsurveyed)
4: Chimney Rock NE 7-1/2, Chimney Rock 15 (Farmington)
5: San Juan Basin
6: U, Ti
7: no workings
8: no production
9: Cretaceous Point Lookout Sandstone
10: beach-placer sandstone
11: Navajo Indian Reservation
12: McLemore (1983a); Chenoweth (1957b); PRR ED-R-489 (1955); USBM files (1958)

1: A
2: Claim #14 (Meadows Mine #4?)
3: location unknown-east of Farmington
4: unknown
5: San Juan Basin area
6: U
7: open cut?
8: 22 tons ore yielding 48 lbs U_3O_8 (0.11%), 25 lbs V_2O_5 (0.06%)
9: Tertiary Ojo Alamo Sandstone(?)
10: sandstone
11: mystery shipment from Farmington-Aztec area, mined June, 1954 by Meadow Mining Co.
12: McLemore (1983a); USAEC files (1954)

1: 21N.13W.11.100
3: NW1/4 11 T21N R13W 36°04'17"N 108°11'55"W
4: La Vida Mission 7 1/2 (Toadlena)
6: sand and gravel
9: Cretaceous Menefee Formation
12: MILS (1981); NMSHD files

1: 21N.13W.11.100
3: NW1/4, sec.11, T21N, R3W, 36°04'17"N,108°11'55"W
4: La Vida Mission 7 1/2 (Toadlena)
6: sand and gravel
9: Cretaceous Menefee Formation
12: MILS (1981), NMSHD files

1: 21N.13W.22.100
2: Materials Pit
3: NW1/4 22 T21N R13W 36°02'31"N 108°12'54"W
4: La Vida Mission 7 1/2 (Toadlena)
6: sand and gravel
9: Cretaceous Menefee Formation
12: MILS (1981); NMSHD files

1: 21N.13W.27.300
2: Materials Pit
3: SW1/4 27 T21N R13W 35°07'08"N 108° 14'45"W
4: La Vida Mission 7 1/2 (Toadlena)
6: sand and gravel
9: Cretaceous Menefee Formation
12: MILS (1981); NMSHD files

1: 21N.15W.24
2: Pit 0796
3: Sec 24, T21N, R15W (projected)
4: The Pillar 3 SW (Toadlena)
6: limy sandstone
7: prospect pit
9: Cretaceous Menefee Formation
10: very good quality, 1-3 ft thick, 75,000+ cu yds, LA wear 28.2, soundness loss 21.6, P.I. S.N.P.
12: NMSHD (1974)

1: 21N.16W.22
2: Pit 0840
3: Sec 22, T21N, R16W (projected)
4: Grey Hill Spring 7 1/2 (Toadlena)
6: sand
7: prospect pit
9: Quaternary eolian deposits
10: fair quality, 6+ ft thick, 100,000 cu yds, soundness loss 9.0, P.I. not plastic
12: NMSHD (1974)

1: 21N.17W.28
2: Pit 6912
3: Sec. 28, T21N, R17W (projected)
4: Naschitti 7 1/2 (Toadlena)
6: gravel
7: developed pit
9: Quaternary pediment deposits
10: poor quality, 9 ft thick, 6,000 cu yds, LA wear 49.6, soundness loss 21.6 P.I. not plastic
12: NMSHD (1974)

1: 21N.19W.5
2: Pit 0837
3: Sec 5, T21N, R19W (projected)
4: Washington Pass 7 1/2 (Toadlena)
6: basalt
7: prospect pit
9: Tertiary basalt
10: fair quality, 50+ ft thick, 500,000 cu yds, LA wear 48.3, soundness loss 53.1, P.I. not plastic
12: NMSHD (1974)

1: 22N.10W.20.121
2: Pit #0816
3: NE1/4 20 T22N R10W
4: Pueblo Bonito NW 7 1/2 (Chaco Canyon)
6: baked shale
9: Cretaceous Kirtland-Fruitland Formations
10: red dog (baked shale), 10+ft thick, good quality, 10?,000+ cu yds, LA wear 47.9, soundness loss 9.2, P.I. S.N.P
12: NMSHD (1974, P 15-1)

1: 22N.11W.18.200
2: Pit 79-05-S
3: NE1/4 18 T22N R11W 36°08'43"N 108°02'37"W
4: Pretty Rock 7 1/2 (Toadlena)
6: sand and gravel
9: Quaternary esliun sand
12: MILS (1981); NMSHD files

1: 22N.12W.6.340
2: Materials Pit
3: SW1/4 SE1/4 6 T22N R12W 36°10'0"N 108°9'14"W
4: Tanner Lake 7 1/2 (Toadlena)
6: sand and gravel
9: Cretaceous Lewis Shale
12: MILS (1981); NMSHD files

1: 22N.12W.18.100
2: Pit #0791
3: NW1/4 18 T22N R12W
4: Tanner Lake 7 1/2 (Toadlena)
6: sandstone
7: prospect pit
9: Cretaceous Cliff House Sandstone
10: fair quality, 25+ ft thick, unlimited volume
12: NMSHD (1974, P14-1)

1: 22N.12W.31.234
2: Pit #0792
3: E1/2 31 T22N R12W
4: La Vida Mission 7 1/2 (Toadlena)
6: baked shale
7: prospect pit
9: Cretaceous Menefee Formation
10: good quality, 6+ ft thick, 25,000+ cu yds, LA wear 23.7, soundness loss 11.5
12: NMSHD (1974, P14-1)

1: 22N.13W.12.310
3: NE1/4 SE1/4 12 T22N R13W 36°08'57"N 108°10'37"W
4: Tanner Lake 7 1/2 (Toadlena)
6: sand and gravel
9: Cretaceous Lewis Shale
12: MILS (1981); NMSHD files

1: 22N.13W.12.430
2: Materials Pit
3: SW1/4 SE1/4 12 T22N R13W 36°08'57"N 108°10'37"W
4: Tanner Lake 7 1/2 (Toadlena)
6: sand and gravel
9: Cretaceous Cliff House Sandstone
12: MILS (1981); NMSHD files

1: 22N.13W.24.323
3: NW1/4 NW1/4 24 T22N R13W 36°07'54"N 108°11'19"W
4: La Vida Mission 7 1/2 (Toadlena)
6: sand and gravel
9: Quaternary alluvium
12: NMSHD (1974, P14-1)

1: 22N.13W.26.120
2: Pit 6111 (Chaco Wash)
3: NW1/4 26 T22N R13W 36°11'41"N 108° 11'51"W
4: Tanner Lake 7 1/2 (Toadlena)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits
10: good quality, 10+ ft thick, 60,000 cu yds, LA wear 34, soundness loss 10.9, P.I. not plastic
12: MILS (1981); New Mine Registrations 1977; NMSHD (1974, P14-1)

1: 22N.13W.31
2: Pit 6110
3: Sec. 31, T22N, R13W (projected0
4: The Pillar 3 SE 7 1/2 (Toadlena)
6: baked sandstone and shale
7: developed pit
9: Cretaceous Menefee Formation
10: fair quality, 8+ ft thick, 150,000 cu yds, LA war 40, soundness loss 6, P.I. not plastic
12: NMSHD (1974)

1: 22N.13W.35.200
2: Materials Pit
3: NE1/4 35 T22N R13W 36°06'04"N 108°11'55"W
4: La Vida Mission 7 1/2 (Toadlena)
6: sand and gravel
9: Cretaceous Menefee Formation
12: MILS (1981); NMSHD file

1: 22N.18W.13.444
2: Sheep Springs Pit
3: SE1/4,SE1/4,SE1/4, Sec.13 T22N R18W 36°08'01"N108°42'16"W
4: Sheep Springs 7 1/2 (Toadlena)
6: sand and gravel
7: prospect pit
9: Quaternary pediment deposits
12: MILS (1981); New Mine Registrations 1977,

1: 22N.19W.26
2: Pit 0838
3: Sec 26, T22N, R19W (projected)
4: Washington Pass 7 1/2 (Toadlena)
6: sandstone
7: prospect pit
9: Tertiary Chuska Sandstone (landslide)
10: poor quality, 50+ ft thick, 500,000 cu yds, LA wear 93.1, P.I. not plastic
12: NMSHD (1974)

1: 23N.8W.1.233
2: Pit 0817
3: E1/2 1 T23N R8W
4: (Chaco Canyon)
6: sand and gravel
7: developed pit
9: Quaternary alluvium
10: 2 - 5 ft thick, good quality 50,000 cu yds, LA wear 31.2, soundness loss 51.1
12: NMSHD (1977, P15-1)

1: 23N.8W.8.410
3: N1/2 SE1/4 8 T23N R8W 36° 14'23"N 107°41'54"W
4: Lybrook NW 7 1/2 (Chaco Canyon)
6: snd and gravel
9: Tertiary Nacimiento Formation
12: MILS (1981); NMSHD files

1: 23N.19W.7.200
2: Pit 0832
3: NE1/4, Sec.7, T23N, R19W (projected)
4: Toadlena 7 1/2 (Toadlena)
6: sandstone
7: prospect pit
9: Cretaceous Dakota Sandstone
10: poor quality, 10 ft thick, 15,000 cu yds, LA wear 57.2, P.I. not plastic
12: NMSHD (1974)

1: 23N.19W.7.300
2: Pit 0834
3: SW1/4, Sec 7, T23N, R19W (projected)
4: Toadlena 7 1/2 (Toadlena)
6: sandstone
7: prospect pit
9: Triassic Chinle Formation
10: fair quality, 30+ ft thick, 35,000+ cu yds, LA wear 58.7, soundness loss 36.6, P.I. not plastic
12: NMSHD (1974)

1: 23N.19W.13
2: Pit 0835
3: Sec 13, T23N, R19W (projected)
4: Two Grey Hills 7 1/2 (Navajo Reservoir)
6: sand and gravel
7: prospect pit
9: Quaternary alluvium
10: poor quality, 8 ft thick, 100,000 cu yds LA wear 49.4, soundness loss 43.4, P.I. not plastic
12: NMSHD (1974)

1: 24N.8W.21.222
2: Pit 0815
3: E 1/2 21 T24N R8W
4: (Chaco Canyon)
6: sand and gravel
7: prospect pit
9: Quaternary Terrace deposits
10: 15 ft thick, good quality 200,000+ cu yds

1: 24N.8W.21.233
3: C 21 T24N R8W 36° 17'53"N 107°42'02"W
4: (Chaco Canyon)
6: sand and gravel
9: Tertiary Nacimiento Formation
12: MILS (1981); New mine registrations

1: 24N.8W.36
2: Blanco Wash Pit, Sundt Const.
3: Sec. 36,T24N,R8W
4: Crow Mesa West 7 1/2 (Chaco Canyon)
6: sand
9: Quaternary alluvium
12: mine and mill registrations (1985)

1: 24N.9W.4.442
2: Pit 0820
3: SE 1/4 4 T24N R9W
4: Blanco Trading Post 7 1/2 (Chaco Canyon)
6: sand
7: prospect pit
9: Tertiary - Nacimiento Formation
10: 10+ ft thick, good quality, unlimited volume
12: NMSHD (1977, P15-1)

1: 24N.9W.12.321
2: Pit 0821
3: SE 1/4 12 T24N R9W
4: Blanco Trading Post 7 1/2 (Chaco Canyon)
6: sand and gravel
7: prospect pit
9: Quaternary older pediment deposits
10: 15+ ft thick, fair quality, unlimited volume
12: NMSHD (1974)

1: 24N.9W.36.440
3: SE 1/4 SE 1/4 36 T24N R9W 36° 15'34"N 107°44'17"W
4: (Chaco Canyon)
6: sand and gravel
9: Tertiary Nacimiento Formation
12: MILS (1981); NMSHD files

1: 24N.13W.9.121
2: Pit 0789
3: NW1/4 T24N R13W
4: Alamo Mesa West 7 1/2 (Toadlena)
6: sand and gravel
7: prospect pit
9: Quaternary eoian sand
10: good, 5+ ft thick, 50,000+ cu yds
12: NMSHD (1974, P14-1)

1: 24N.13W.29.300
2: Pit 0793
3: SW1/4 29 T24N R13W
4: Bisti Trading Post 7 1/2 (Toadlena)
6: limy sandstone
7: prospect pit
8: production unknown
9: Quaternary eolian sand
10: very good quality, 6 ft thick, 1,000+ cu yds, LA wear 24.4, soundness loss 7.5
12: NMSHD (1977, P14-2)

1: 24N.18W.12
2: Pit 0830
3: Sec. 12, T24N, R18W (projected)
4: Newcomb 7 1/2 (Toadlena)
6: sandstone
7: developed pit
9: Cretaceous Menefee Formation
10: good quality, 3 ft thick, 25,000 cu yds, LA wear 26, soundness loss 27.6, P.I. not plastic
12: NMSHD (1974)

1: 24N.18W.15
2: Pit 5847
3: Sec 15, T24,R18W (projected)
4: Newcomb 7 1/2 (Toadlena)
6: gravel
7: developed pit
9: Quaternary pediment deposits
10: fair quality, 8 ft thick, 100,000 cu yds, LA wear 48.7, soundness loss 12.1 P.I. not plastic
12: NMSHD (1974)

1: 24N.19W.32
2: Pit 0833
3: Sec. 32, T24N R19W (projected)
4: Tsin-Nas-Kid 7 1/2 (Toadlena)
6: sand and gravel
7: prospect pit
9: Quaternary pediment deposits
10: Poor quality, 10 ft thick, 150,000 cu yds, LA wear 50.8, soundness loss 53.6, P.I. not plastic
12: NMSHD (1974)

1: 25N.9W.32.212
2: Pit 0814
3: NE1/4 32 T25N R9W
4: Blanco Trading Post 7 1/2 (Chaco Canyon)
7: prospect pit
9: Quaternary eolian sand
10: sand and gravel, fair, quality, 20+ ft thick 100,000 cu yds
12: NMSHD (1974, P15-1)

1: 25N.17W.34
2: Pit 0831
3: Sec 34, T25N, R17W (projected)
4: Newcomb 7 1/2 (Toadlena)
6: sandstone
7: prospect pit
9: Cretaceous pictured cliffs sandstone
10: poor quality, 15 ft thick, 100,000 cu yds, LA wear 94.1, P.I. not plastic
12: NMSHD (1974)

1: 25N.18W.27
2: Pit 0829
3: Sec 27, T25N, R18W (projected)
4: Newcomb 7 1/2 (Toadlena)
6: Minette and tuff breccia
7: prospect pit
9: Tertiary intrusive
10: good quality, 200+ ft thick, 500,000+ cu yds, LA wear 39, soundness loss 14.8, P.I. not Plastic
12: NMSHD (1974)

1: 26N.10W.7.432
2: Pit 0818
3: SE 1/4 7 T26N R10W
4: Huefano Trading Post NW 7 1/2 (Chaco Canyon)
6: sand and gravel
7: prospect pit
9: Quaternary eolian sand
10: 10+ ft thick, fair quality, 200,000 cu yds.
12: NMSHD (1974, P15-1)

1: 26N.10W.21.322
2: Pit 0819
3: S1/2 21 T26N R10W
4: Huefano Trading Post 7 1/2 (Chaco Canyon)
6: sand and gravel
7: prospect pit
9: Quaternary eolian sand
10: good quality, 15+ ft thick, 200,000+ cu yds
12: NMSHD (1974, P15-1)

1: 26N.12W.17.100
2: Pit 0787
3: NW1/4 17 T26N R12W
4: Moncisco Wash 7 1/2 (Toadlena)
6: sandstone
7: prospect pit
9: Tertiary Naciemiento Formation
10: fair quality, 15+ ft thick, 50,000+ cu yds
12: NMSHD (1977, P14-1)

1: 26N.12W.17.132
2: Pit 0790
3: NW1/4 17 T26N R12W
4: Moncisco Wash 71/2 (Toadlena)
6: sand and gravel
7: prospect pit
9: Quaternary alluvium
10: Sand, 6+ ft thick, 100,000+ cu yds
12: NMSHD (1974)

1: 26N.12W.32.411
2: Pit 0788
3: SE1/4 32 T26N R12W
4: Moncisco Wash 7 1/2 (Toadlena)
6: sand and gravel
7: prospect pit
9: Quaternary - alluvium
10: good quality, 4+ ft thick, 25,000+ cu yds
12: NMSHD (1974, P14-1)

1: 26N.17N.13
2: Pit 0827
3: Sec 13, T26N, R17W (projected)
4: Newcomb NE 7 1/2 (Toadlena)
6: baked shale
7: prospect pit
9: Cretaceous Fruitland Formation
10: good quality, 12 ft thick, 150,000 cu yds, LA wear 24.8, soundness loss 1.8, P.I. not plastic
12: NMSHD (1974)

1: 26N.17W.13
2: Pit 0827
3: Sec. 13, T26N, R17W (projected)
4: Newcomb NE 7 1/2 (Toadlena)
6: baked shale
7: prospect pit
9: Cretaceous Fruitland Formation
10: good quality, 12 ft thick, 150,000 cu yds, LA wear 24.8, soundness loss 1.8, P.I. not plastic
12: NMSHD (1974)

1: 26N.17W.19
2: Pit 0826
3: Sec 19, T26N, R17W (projected)
4: Little water 7 1/2 (Toadlena)
6: sandstone
7: prospect pit
9: Cretaceous Menefee Formation
10: good quality, four 3 ft beds, 50,000+ cu yds, LA wear 15.8, soundness loss 1.0, P.I. not plastic
12: NMSHD (1974)

1: 26N.17W.20
2: Pit 0841
3: sec 20, T26N, R17W (projected)
4: Little water 7 1/2 (Toadlena)
6: sandstone
7: prospect pit
9: Cretaceous Cliff House Sandstone
10: poor quality, 50+ ft thick, 400,000+ cu yds LA wear 94.0, P.I., not plastic
12: NMSHD (1974)

1: 26N.17W.26
2: Pit 0828
3: Sec 26, T26N, R17W (projected)
4: Newcomb NE 7 1/2 (Toadlena)
6: sand and gravel
7: prospect pit
9: Quaternary terrace deposits (post-glacial)
10: good quality, 5+ ft thick, 125,000+ cu yds, LA wear 39, soundness loss 14.8, P.I. not plastic
12: NMSHD (1974)

1: 26N.18W.11
2: Pit 0825
3: Sec 11, T26N, R18W (projected)
4: Little Water 7 1/2 (Toadlena)
6: sandstone
7: prospect pit
9: Cretaceous Point Lookout Sandstone
10: Poor quality, 8 ft thick, 10,000 cu yds, LA Wear 88.1, P.I. not plastic
12: NMSHD (1972)

1: 26N.19W.21
2: Pit 0823
3: Sec 21, T26N, R19W (projected)
4: Sanostee East 7 1/2 (Toadlena)
6: sandstone
7: prospect pit
9: Cretaceous Gallup Sandstone
10: Poor quality, 30 ft thick, 100,000+ cu yds, LA wear 99.6, P.I. not plastic
12: NMSHD (1974)

1: 26N.19W.26
2: Pit 0824
3: Sec. 26, T26N, R19W (projected)
4: Sanostee East 7 1/2 (Toadlena)
6: sandstone
7: prospect pit
9: Cretaceous Gallup Sandstone
10: poor quality, 30 ft thick, 100,000+ cu yds, LA wear 99.6, P.I. not plastic
12: NMSHD (1974)

1: 26N.20W.28
2: Pit 0822
3: Sec 28, T26N, 20W (projected)
4: Sanostee West 7 1/2 (Toadlena)
6: basalt
7: prospect pit
9: Quaternary landslide
10: good quality, 4+ ft thick, unlimited volume, LA wear 15.8, soundness loss 1.7, P.I. not plastic
12: NMSHD (1974)

1: 27N.9W.12.141
2: Pit #0866
3: NW 1/4 12 T27N R9W
4: Huerfano Peak 71/2 (Navajo Resevoir)
6: sand and gravel
7: prospect pit
9: Quaternary terrace deposits
10: good quality, 10 ft thick, 100,000 cu yds, LA wear 35.3 soundness loss 25.5, P.I. not plastic
12: NMSHD (1974, P3-4)

1: 27N.11W.21.310
2: Pit 0857
3: SE 1/4 21 T27N R11W
4: Gallegos Trading Post 71/2 (Farmington)
6: sand and gravel
7: prospect pit
9: Quaternary pediment, older deposits
10: good quality, 10+ ft thick, 100,000 cu yds., P.I. not plastic
12: NMSHD (1974)

1: 27N.11W.26.340
3: NE 1/4 SE 1/4 26 T27N R11W 36° 32'42"N 107°58'17"W
4: E Fork Huerfano Canyon 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary eolian sand
12: MILS (1981)

1: 27N.12W.29.200
2: Pit 0856
3: NE 1/4 29 T27N R12W
4: Hugh Lake 7 1/2 (Farmington)
6: Conglomerate
7: prospect pit
9: Cretaceous Ojo Alamo Sandstone
10: good quality, 3 ft thick, 5,000 cu yds, LA wear 18.3, soundness loss 3.3, P.I. not plastic
12: NMSHD (1974, P2-3)

1: 27N.13W.4.110
3: NW1/4 4 T27N R13W 36°36'04"N 108° 13'43"W
4: Hugh Lake 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary pediment deposits
12: MILS (1981); NM State Hwy Dept Files

1: 27N.13W.9.133
3: NW1/4 9 T27N R13W 36°35'32" N 108°13'48"W
4: Hugh Lake 7 1/2 (Farmington)
6: sand and gravel
9: Tertiary Nacimiento Formation
12: MILS (1981); NMSHD files

1: 27N.13W.32.400
3: SE1/4 32 T27N R13W 36° 31'39"N 108° 14' 33"W
4: Hugh Lake 7 1/2 (Farmington)
6: sand and gravel
9: Tertiary Nacimiento Formation
12: MILS (1981); NSHD files

1: 27N.17W.3
2: Pit 0804
3: Sec. 3, T27N, R17W (projected)
4: The Hogback South 7 1/2 (Farmington)
6: sandstone
7: prospect pit
9: Cretaceous Menefee Formation
10: good quality, 4 ft thick, 25,000+ cu yds, LA wear 27.8, soundness loss 7.3, P.I., not plastic
12: NMSHD (1974)

1: 27N.20W.10
2: Pit 0803
3: Sec 10, 27N, 20W (projected)
4: Mitten Rock 7 1/2 (Farmington)
6: sand and gravel
7: prospect pit
9: quaternary alluvium
10: good quality, 5 ft thick, 75,000 cu yds, LA wear 27, soundness loss 10.8 P.I. not plastic
12: NMSHD (1974)

1: 28N.11W.35
2: Pit 0865
3: Sec. 35, T28N, R11W (projected)
4: Bloomfiled 7 1/2 (Navajo Reservoir)
6: sand
7: prospect pit
9: Quaternary pediment deposits
10: good quality, 6+ ft thick, 100,000 cu yds, P.I. not plastic
12: NMSHD (1974)

1: 28N.13W.34.100
2: Pit 0855
3: NW1/4 34 T28N R13W
4: Hugh Lake 7 1/2 (Farmington)
6: Sand
7: prospect pit
9: Quaternary eolian sand
10: Blow sand, fair quality, 4+ ft thick, 100,000 cu yds, P.I. not plastic
12: NMSHD (1974, P2-3)

1: 29N.9W.8.414
2: Pit 0863
3: SE1/4 8 T29N R4W
4: Blanco 7 1/2 (Navajo Reservoir)
6: sand
7: prospect pit
9: Quaternary alluvium
10: good quality, 8 ft thick, 20,000 cu yds
12: NMSHD (1974, P3-3)

1: 29N.9W.9.400
2: Pit 0865
3: SW1/4 9 T29N R9W
4: Blanco 7 1/2 (Navajo Reservoir)
7: prospect pit
9: Quaternary pediment deposits
10: good quality, 6+ ft thick, 100,000 ft thick, P.I. not plastic
12: NMSHD (1974, P3-4)

1: 29N.9W.17.111
2: Gravel Pit
3: NW1/4 NW1/4 NW1/4 17 T29N R9W
4: Blanco 7 1/2 (Navajo Reservoir)
6: sand and gravel

1: 29N.9W.17.130
2: Materials Pit 57149
3: S 1/2 NW 1/4 17 T29N R9W 36°43'43"N 107°48'26"W
4: Huerfanto Peak 7 1/2 (Navajo Reservoir)
6: snd and gravel
7: developed pit
8: production unknown
9: Quaternary terrace deposits (Late Bull Lake)
10: excellent quality, 10 ft thick, 35,000+ cu yds, LA wear 19.6, soundness loss 5.4, P.I. not plastic
12: MILS (1981); NMBMMR files; NMSHD (1974, P3-1)

1: 29N.9W.17.220
2: Gravel Pit
3: NE1/4 NE1/4 17 T29N R9W
4: Blanco 7-1/2 (Navajo Reservoir)
6: sand and gravel

1: 29N.9W.17.300
2: Gravel Pit
3: SW1/4 17 T29N R9W
4: Blanco 7-1/2 (Navajo Reservoir)
6: sand and gravel

1: 29N.9W.17.420
2: Gravel Pit
3: NE1/4 SE1/4 17 T29N R9W
4: Blanco 7-1/2 (Navajo Reservoir)
6: sand and gravel

1: 29N.9W.19.233
3: C 19 T29N R9W 36° 42'39" N 107° 49'8"W
4: Huerfanto Peak 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981), NMBMMR files

1: 29N.10W.19.400
3: N 1/2 SE 1/4 19 T29N R10W 36°42'31"N 107°55'2"W
4: Bloomfield 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981); NMBMMR files

1: 29N.10W.20.310
3: NW 1/4 SW 1/4 20 T29N R10W 36° 42'21"N 107° 54'46"W
4: Bloomfield 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981); NMBMMR files

1: 29N.10W.22.111
2: Pit 0862
3: NW 1/4 22 T29N R10W
4: Blanco 7 1/2 (Navajo Reservoir)
6: sand and gravel
7: prospect pit
9: Quaternary terrace deposits (Pine dale)
10: excellent quality, 10 ft thick, 300,000 cu yds, LA wear 22, soundness loss 7, P.I. not plastic
12: NMSHD (1974, P3-3)

1: 29N.10W.23.440
3: SE 1/4 SE 1/4 23 T29N R10W 36° 42'24"N 107° 50'48"W
4: Blanco 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981); NMBMMR files

1: 29N.10W.24.144
3: C24 T29N R10W 36°42'44"N 107° 49'57"W
4: Blanco 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary terrace deposits (post-glacial)
12: MILS (1981); New Mine Registrations 1971

1: 29N.10W.26.110
3: NW 1/4 NW 1/4 26 T29N R10W 36° 41'54"N 107° 51' 15" W
4: Blanco 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981); NMBMMR files

1: 29N.10W.27.200
3: NE 1/4 27 T29N R10W 36° 41' 46" N 107° 51' 55"
4: Bloomfield 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981); NMBMMR files

1: 29N.10W.35.230
3: W1/2 SW1/4 NE1/4 35 T29N R10W 36° 41' 12" N 107° 50'58"W
4: Blanco 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981); NMBMMR files

1: 29N.11W.17.340
2: Pit 85-6-S
3: SE1/4, SW1/4, Sec. 17, T29N, R11W
4: Horn Canyon 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary alluvium
12: NMSHD files (1985)

1: 29N.11W.23.420
2: Sullivan Pit
3: NE1/4 SE1/4 23 T29N R11W 36° 42'50"N 107°57'08"W
4: Bloomfield 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981); New Mine listings, 1961; NMBMMR files

1: 29N.11W.26.110
3: NW1/4 NW1/4 26 T29N R11W 36°41'44"N 107°57'58"W
4: Bloomfield 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981); NMBMMR files

1: 29N.11W.26.324
3: CS1/2 26 T29N R11W 36° 41'44"N, 107°57'44"W
4: Bloomfield 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981)

1: 29N.11W.26.330
3: SW1/4 26 T29N R11W 36° 41'38"N 107° 57'30"W
4: Bloomfield 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Tertiary Nacimiento Formation
12: MILS (1981)

1: 29N.11W.27.310
2: Pit 5970 (Magnum Pit)
3: NW1/4 SW1/4 27 T29N R11W 36° 41'40"N 107° 58'46"W
4: Bloomfield 7 1/2 (Navajo Reservoir)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits (pinedale)
10: excellent quality, 12+ ft. thick, 20,000 cu yds.,LA wear 18, soundness loss 0.6, P.I, not plastic
12: MILS (1981); New Mine Registrations 1973; NMSHD (1974)

1: 29N.11W.28.430
2: McCoy Pit
3: SE1/4 28 T29N R11W 36°42'14"N 107°59'32"
4: Bloomfield 7 1/2 (Navajo Reservoir)
6: sand and gravel
9: Quaternary terrace deposits
12: MILS (1981); NMSHD files; Mine and Mill Registrations (1986)

1: 29N.11W.30.144
3: C30 T29N R11W 36° 42'00" N 108° 01' 49"W
4: Horn Canyon 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981); NMBMMR files

1: 29N.11W.33.422
2: Pit 77-15-S
3: NW1/4 SW1/4 33 T29N R11W 36° 40'49"N 107° 59'57"W
4: Bloomfield (Navajo Reservoir)
6: sand and gravel
9: Tertiary Nacimiento Formation
12: MILS (1981); NMSHD files

1: 29N.12W.5.30
3: SW1/4 SW1/4 5 T29N R12W 36° 45'01"N 108° 07'02"W
4: Farmington N 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace depostis (early Bull Lake)
12: MILS (1981)

1: 29N.12W.19.113
2: Bolack No. 1
3: W 1/2 NW 1/4 19 T29N R12W 36° 42'59"N 108° 08'46"
4: Farmington S 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposits (early Bull Lake)
12: MILS (1981); New Mine Registrations 1976

1: 29N.12W.19.41
2: Pit 6145
3: C, NW1/4 19 T29N R12W 36° 42'59"N 108° 08'50"W
4: Farmington South 7 1/2 (Farmington)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits
10: excellent quality, 6+ ft thick, 100,000+ cu yds, LA wear 26.8, soundness loss 5.0 P.I. not plastic
12: MILS (1981); New Mine Registrations, 1976; NMSHD (1974, P2-1)

1: 29N.12W.20.400
2: Pit 6146
3: 20 T29N R12W
4: Farmington South 7 1/2 (Farmington)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits (Late Bull Lake)
10: good quality, 7 ft thick, 100,000 cu yds, LA wear 18.4, soundness loss 6.2, P.I. not plastic
12: NMSHD (1974, P2-1)

1: 29N.12W.23.400
2: Pit 6147
3: SE1/4 23 T29N R12W
4: Horn Canyon 7 1/2 (Farmington)
6: sand and gravel
7: developed pit
8: production unknown
9: Quaternary terrace deposits (PineDale)
10: excellent quality, 11+ ft. thick, 175,000 cu yds, LA wear 20.4, soundness loss 3.1, P.I. not plastic
12: NMSHD (1974, P2-1)

1: 29N.12W.29.420
3: NE1/4 SE1/4 29 T29N R12W 36°41'20"N 108° 7'25" W
4: Horn Canyon 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981); NMBMMR files

1: 29N.13W.1.100
2: Pit 5638
3: NW 1/4 1 T29N R13W
4: Farmington North 7 1/2 (Farmington)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits (Early Bull Lake)
10: good quality, 8+ ft thick, 200,000+ cu yds, LA wear 19.6, soundness loss 3.6, P.I. not plastic
12: NMSHD (1974, P2-1)

 1: 29N.13W.3.100
 3: NW 1/4 3 T29N R13W 36° 45′ 23" N 108° 11′ 49" W
 4: Farmington North 7 1/2 (Farmington)
 9: Quaternary terrace deposits
 6: sand and gravel
 9: Quaternary terrace deposits (pre-Wisconsin)
12: MILS (1981)

 1: 29N.13W.4.333
 3: SW1/4 SW1/4 SW1/4 4 T29N R13W 36° 44′56" W 108° 13′05"W
 4: Farmington South 7 1/2 (Farmington)
 6: sand and gravel
 9: Quaternary terrace deposits (post glacial)
12: MILS (1981)

 1: 29N.13W.5.430
 3: SW1/4 SE1/4 5 T29N R13W 36° 45′5"N 108°13′33"W
 4: Farmington N 7 1/2 (Farmington)
 6: sand and gravel
 9: Quaternary terrace deposits
12: MILS (1981)

 1: 29N.13W.7.212
 3: NE 1/4 7 T29N R13W 36°44′ 44" N 108° 14′ 35"W
 4: Farmington South 7 1/2 (Farmington)
 6: sand and gravel
 9: Quaternary alluvium
12: MILS (1981)

 1: 29N.13W.7.221
 3: NE1/4 7 T29N R13W 36°44′44"N 108° 14′25"W
 4: Farmington South 7 1/2 (Farmington)
 6: sand and gravel
 9: Quaternary alluvium
12: MILS (1981)

 1: 29N.13W.9.124
 2: Pit 0850
 3: NW 1/4 9 T29N R13W
 4: Farmington South 7 1/2 (Farmington)
 6: sand and gravel
 7: prospect pit
 9: Quaternary terrace deposits
10: excellent quality, 6+ ft thick, 100,000 cu yds, LA wear
    17.6, soundness loss 5.3, P.I. not plastic
12: NMSHD (1974 P2-2)

 1: 29N.13W.9.132
 2: Pit 0851
 3: NW 1/4 9 T29N R13W
 4: Farmington South 7 1/2 (Farmington)
 6: gravel
 7: prospect pit
 9: Quaternary terrace deposits
10: very good, 10 ft. thick, 100,000+ cu yds, LA wear 34.6, soundness loss 22.5, P.I. not plastic
12: NMSHD (1974)

 1: 29N.13W.13.142
 2: Pit 5761
 3: N 1/2 13 T29N R13W 36° 43'53"N 108° 09'30"W
 4: Farmington South 7 1/2 (Farmington)
 6: sand and gravel
 7: developed pit
 9: Quaternary terrace deposits
10: good quality, 9+ ft thick, 50,000 cu yds, LA wear 26.0, soundness loss 12.2, P.I. not plastic
12: MILS (1981); NMSHD (1974, P 2-1)

 1: 29N.13W.16.330
 2: Allstate Pit
 3: 16 T29N R13W 36° 49'23"N 108° 12'02"
 4: Farmington South 7 1/2 (Farmington)
 6: sand and gravel
 9: Quaternary alluvium
12: MILS (1978)

 1: 29N.13W.20
 2: Arco Pit
 3: C 20 T29N R13W 36° 42'43"N 108° 13' 53"W
 4: Farmington South 7 1/2 (Farmington)
 6: sand and gravel
 9: Quaternary alluvium
12: MILS (1981); New Mine Registrations 1978

 1: 29N.13W.21.200
 3: NW1/4 21 T29N R13W 36° 39'09"N 108° 13'41"W
 4: Farmington South 7 1/2 (Farmington)
 6: sand and gravel
 9: Quaternary terrace deposits (Pinedale)
12: MILS (1981); NMSHD files

1: 29N.13W.21.322
2: Acora Pit
3: C 21 T29N R13W 36° 42'48"N 108° 12'44"W
4: Farmington South 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposits (Pinedale)
12: MILS (1981); New Mines Registration 1976

1: 29N.14W.1.220
2: Pit 85-8-S
3: NE 1/4, NE 1/4, Sec. 1, T29N, R14W
4: Kirtland 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposits (Early Bull Lake)
12: NMSHD files (1985)

1: 29N.14W.2
2: Pit No 72-10-N
3: C 2 T29N R14W 36° 45'20"N 108° 16'41"W
4: Youngs Lake 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposits (early Bull Lake)
12: MILS (1981); New Mines Registrations 1974

1: 29N.14W.14.300
2: Pit 0849
3: SW 1/4 14 T29N R14W
4: Kirkland 7 1/2 (Farmington)
6: sand and gravel
7: prospect pit
9: Quaternary alluvium
10: good quality, 10 ft thick, 100,000+ cu yds, LA wear 18.5, soundness loss 5.4, P.I. not plastic
12: NMSHD (1974, P 2-2)

1: 29N.14W.24
2: Pit 77-11-S
3: N 1/2 24 T29N R14W N 36° 42'04"N 108° 16'07"W
4: Kirtland 7 1/2 (Farmington)
6: sand and gravel
9: Cretaceous Kirtland Formation
12: MILS (1981); NMSHD files

1: 29N.15W.3
2: Kirtland sand and gravel Pit
3: 3, T29N, R15W
4: Fruitland 7 1/2 (Farmington)
6: sand and gravel
7: developed pit
9: Quaternary alluvium
12: Mine and mill registrations (1986)

1: 29N.15W.6.111
2: Waterflow Pit
3: NW 1/4 NW 1/4 NW 1/4 6 T29N R15W 36° 45'45"N 108° 27'53"
4: Waterflow 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposit
12: MILS (1981), New mine registration 1974

1: 29N.15W.7
2: Fruitland Pit
3: 7 T29N R15W (projected)
4: Fruitland 7 1/2 (Farmington)
6: gravel
12: Mine and mill registrations (1985)

1: 29N.15W.12
2: Harper Hill Pit
3: C12 T29N R15W 36° 44'29"N 108° 22'05"W
4: Kirkland 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposit
12: MILS (1981), New mines registrations 1978

1: 29N.15W.15.233
2: Richey Pit
3: C15 T29N R15W 36°43'43"N 108° 24'24"W
4: Fruitland 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposits
12: MILS (1981); New mine registrations 1978

1: 29N.15W.15.322
3: C15 T29N R15W 36
4: Fruitland 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposits
12: MILS (1981); New mine registration 1978

1: 29N.15W.30
2: Lookout
3: T29N R15W 36° 42'00"N 108° 27'00"W
4: Fruitland 7 1/2 (Farmington)
6: stone-limestone
9: Cretaceous Fruitland Formation
12: MILS (1978); NMBMMR files (1965)

1: 29N.16W.4
2: Pit 77-17-S
3: N1/2 4 T29N R16W 36° 45'07"N 108° 32'08"W
4: (Farmington)
6: sand and gravel
9: Quaternary terrace deposit
12: MILS (1981); NMSHD files; New mine registrations, 1979

1: 29N.16W.9.332
2: Wheeler Pit
3: NE 1/4 SW 1/4 SW 1/4 9 T29N R16W 36° 44'12"N 108° 32'06"W
4: The Hogback North 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981); USGS 7 1/2 Topo 1966; New mine registrations 1979

1: 29N.16W.16.113
3: SW 1/4 NW 1/4 NW 1/4 16 T29N R16W 36° 43'33"N 108° 31'31"W
4: The Hogback North 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposits
12: MILS (1981)

1: 29N.16W.16.133
3: SW 1/4 NW 1/4 16 T29N R16W 36° 43'46"N 108° 32'08"W
4: The Hogback North 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposits
12: MILS (1981)

1: 29N.16W.16.400
2: materials pit
3: SE 1/4 16 T29N R16W 36° 43'29" N 108° 31'31"W
4: The Hogback North 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981)

1: 29N.16W.27.300
3: SW 1/4 27 T29N R16W 36° 41'32"N 108° 30'55"W
4: The Hogback North 7 1/2 (Farmington)
6: Sand
9: Cretaceous Lewis Shale
12: MILS (1981)

1: 29N.17W.25
2: Pit 78-28-S
3: C 25 T29N R17W 36° 45'7"N 108° 32'8"W
4: Chimney Rock 15 (Farmington)
6: sand
9: Cretaceous Mancos Shale
12: MILS (1981); NM State Hwy Dept. Files

1: 29N.19W.27
2: Pit 0802
3: Sec 27, T29N, R19W (projected)
4: Shiprock 7 1/2 (Farmigton)
6: monchiquite
7: prospect pit
9: Tertiary intrusive
10: good quality, 150+ ft thick, 500,000 cu yds, LA wear 40.7, soundness loss 10.1 P.I. not plastic
12: NMSHD (1974)

1: 30N.7W.6.100
2: Pit 6449
3: NW 1/4 6 T30N R7W
4: Pine River 7 1/2 (Navajo Reservoir)
6: sand and gravel
7: developed pit
9: Tertiary San Jose Formation
10: excellent quality, 16+ ft thick, 50,000 cu yds
12: NMSHD files

1: 30N.8W.5.112
2: Pit 6453
3: NE 1/4 15 T30N R8W
4: Archeleta 7 1/2 (Navajo Reservoir)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits (Bull Lake)
10: excellent quality, 7+ ft thick, 80,000 cu yds, LA wear 18.4, soundness loss 2.9, P.I. not plastic
12: NMSHD (1974, P3-2)

1: 30N.8W.15.134
2: Pit 6453
3: SE 1/4, SW 1/4, NW 1/4, Sec 15, T30N, R8W (projected)
4: Archuleta 7 1/2 (Navajo Reservoir)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits (pre-Wisconsin)
10: excellent quality, 7+ ft thick, 80,000 cu yds, LA wear 18.4, soundness loss 2.9, P.I. not plastic
12: NMSHD (1974)

1: 30N.8W.15.420
2: Pit 0861
3: SE 1/4 15 T30N R8W
4: Archeleta 7 1/2 (Navajo Reservoir)
6: sand and gravel(?)
7: prospect pit
9: Quaternary terrace deposits (pre-wisconsin)
10: excellent quality, 8+ ft thick, 100,000 cu yds, LA wear 20, soundness loss 3.6, P.I. not plastic
12: NMSHD (1974, P 3-3)

1: 30W.8W.16.300
2: Pit 6544
3: SW 1/4 16 T30N R8W
4: Archeleta 7 1/2 (Navajo Reservoir)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits (Pinedale)
10: good quality, 8 ft tick, 40,000 cu yds, LA wear 22, soundness loss 1.6, P.I. not plastic
12: NMSHD (1974 P 3-2)

1: 30N.8W.19.232
2: Pit 6410
3: NE 1/4 19 T30N R8W
4: Archeleta 7 1/2 (Naajo Reservoir)
7: developed pit
9: Quaternary alluvium
10: excellent quality, 7 ft thick, 30,000 cu yds, LA wear 19.6, soundness loss 2.7, P.I. not plastic
12: NMSHD (1974)

1: 30N.8W.23.222
2: Pit 5870
3: NW 1/4 23 T30N R8W
4: Archeleta 7 1/2 (Navajo Reservoir)
7: developed pit
8: production unknown
9: Quaternary - terrace deposits (pre-Wisconsin)
10: excellent quality, 9 ft thick, 90,000 cu yds, LA wear 19.8, soundness loss 6.9, P.I. not plastic
12: NMSHD (1974, P 3-1)

1: 30N.9W.18.312
2: Pit 0860
3: S 1/2 18 T30N R9W
4: Turley 7 1/2 (Navajo Reservoir)
6: materials pit
7: prospect pit
9: Tertiary Naciemiento Formation
10: fair quality, 3 x 10+ ft thick, 15,000 cu yds, LA wear 14.8, soundness loss loss 14.1, P.I. not plastic
12: NMSHD (1974, P 3-3)

1: 30N.9W.22.341
2: Pit 6209
3: NW 1/4, SE 1/4, SW 1/4, Sec 22, T30N, R9W
4: Turley 7 1/2 (Navajo Reservoir)
6: sand
7: developed pit
9: Quaternary alluvium
10: good quality, 9+ ft thick, 75,000 cu yds, P.I. not plastic
12: NMSHD (1974)

1: 30N.10W.22.311
2: Pit 6208
3: SW 1/4 22 T30N R10W
4: Aztec 7 1/2 (Navajo Reservoir)
6: sand
7: developed pit
9: Tertiary Naciemiento Formation
10: good quality, 9+ ft thick, 60,000 cu yds, P.I. not plastic
12: NMSHD (1974, P 3-1)

1: 30N.11W.1
3: C 1 T30N R11W 36° 50'25"N 107° 56'49"W
4: Aztec 7 1/2 15 (Navajo Reservoir)
6: sand and gravel
9: Tertiary Nacimiento Formation
12: MILS (1981); NMBMMR files

1: 30N.11W.3.444
2: Pit 5940
3: SE 1/4 3 T30N R11W
4: Aztec 7 1/2 (Navajo Reservoir)
6: sand and gravel
7: developed pit
8: Production Unknown
9: Quaternary terrace deposits (pre-Wisconsin)
10: excellent quality, 10 ft thick, 40,000 cu yds, LA wear 19.6, soundness loss 2.9, P.I. not plastic
12: MNSHD (1974, P 3-1)

1: 30N.11W.10.422
2: Pit 59109
3: SE 1/4 T30N R11W
4: Aztec 7 1/2 (Navajo Reservoir)
6: sand
7: developed pit
9: Tertiary Naciemiento Formation
10: excellent quality, 6+ ft thick, 45,000+ cu yds
12: NMSHD (1975, P 3-1)

1: 30N.11W.11.310
2: Pit #6207
3: SW 1/4 11 T30N R10W
4: Aztec 7 1/2 (Navajo Reservoir)
6: sand
7: developed pit
9: Tertiary Naciemiento Formation
10: excellent quality, 9+ ft thick, 55,000 cu yds, P.I. not plastic
12: NMSHD (1975, P 3-2)

1: 30N.12W.11.420
2: Spencerville Pit
3: C NE 1/4 SE 1/4 11 T30N R12W 36° 49'39"N 108° 03' 42"W
4: Flora Vista 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposits
12: MILS (1981); New Mine Registrations

1: 30N.12W.12.232
3: NE 1/4 SW 1/4 NE 1/4 12 T30N R12W 36° 49' 48" N 108° 02' 56"
4: Flora Vista 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposits
12: MILS (1981)

1: 30N.12W.16.221
3: NW 1/4 NE 1/4 NE 1/4 16 T30N R12W 36° 49' 10" N 108° 6'1"W
4: Flora Vista 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981)

1: 30N.12W.24.420
3: SW 1/4 SE 1/4 24 T30N R12W 36° 47'36"N 108° 02' 53"W
4: Flora Vista 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981) NMBMMR files

1: 30N.12W.29.224
2: Pit 5615
3: NE 1/4 29 T30N R12W
4: Flora Vista 7 1/2 (Farmington)
6: sand and gravel
7: developed (?) Pit
9: Quaternary terrace deposits (Late Bull Lake)
10: good quality, 10+ ft thick, 200,000 cu yds, LA wear 22, soundness loss 5.5, P.I. not plastic
12: NMSHD files

1: 30N.13W.28.300
2: Pit #0852
3: SW 1/4 28 T30N R13W
4: Farmington North 7 1/2 (Farmington)
6: sand and gravel
7: prospect pit
9: Quaternary terrace deposits (Pre-Wisconsin)
10: good quality, 4 ft. thick, 20,000 cu yds, LA wear 25.9, soundness loss 12.2, P.I. not plastic
12: NMSHD (1975, P 2-3)

1: 30N.15W.28.340
2: Marcellius Mine (Delbert Caudell, Caudell Mine)
3: SE 1/4 SW 1/4 28 T30N R15W 36° 46' 55" N 108° 25' 32"W
4: Farmington North 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981), USBM Technical Paper 569P97, NMBMMR files

1: 30N.15W.33.100
3: C E 1/2 NW 1/4 33 T30N R15W 36° 46'28" 108° 25'24"W
4: Waterflow 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary alluvium
12: MILS (1981)

1: 30N.17W.18
2: Pit 6733
3: Sec. 18, T30N, R17W (projected)
4: Shiprock 7 1/2 (Farmington)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits (pre-Wisconsin)
10: excellent quality, 8 ft thick, 200,000 cu yds, LA wear 19.6, soundness loss 2.7, P.I. S.N.P.
12: NMSHD (1974)

1: 30N.17W.19
2: Shiprock Gravel Pit
3: C 19 T30N R17W 36° 47'30"N 108° 40'00"W
4: (Farmington)
6: sand and gravel
9: Quaternary terrace deposits
12: MILS (1981); New mines registrations 1976

1: 30N.17W.25
2: Shiprock Pit
3: 25 T30N R17W 36° 47' 05" N 108° 40'57"W
4: Shiprock 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary terrace deposits
12: MILS (1978)

1: 30N.17W.26.333
2: Pit 7121
3: SW 1/4, SW 1/4, SW 1/4, Sec. 26, T30N, R17W
4: Chimney Rock 7 1/2 (Farmington)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits
10: excellent quality, 6+ ft thick, 75,000 cu yds, LA wear 23.3, soundness loss 2.5, P.I. not plastic
12: NMSHD (1974)

1: 30N.18W.8
2: Airport Pit
3: 8 T30N, R18W 36° 49'39"N 108° 00'59"W
4: Flora Vista 7 1/2 (Farmington)
6: sand
9: Cretaceous Mancos Shale
12: MILS (1981); New mine registration 1977

1: 30N.18W.13.114
2: Pit 5613
3: C 13, T30N R18W 36° 48'30" N 108° 41'00"W
4: (Farmington)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits (Early Bull Lake)
10: good quality, 9+ ft thick, 120,000 cu yds, LA wear 17.2, soundness loss 11.8, P.I. not plastic
12: MILS (1981); New mines registrations 1974; NMSHD (1975, P 1-1)

1: 30N.18W.26.320
2: Pit # 5684
3: SW 1/4 26, T30N, R18W
4: Shiprock 7 1/2 (Farmington)
6: materials pit
7: developed pit
9: Quaternary Alluvial apron deposits
10: quality, 10+ ft thick 100,000 cu yds, LA wear 23.6, soundness loss 3.4, P.I. not plastic
12: NMSHD (1974)

1: 30N.18W.30
3: C 30, T30N, R18W 36° 48'0"N 108° 46'0"W
4: Rattlesnake 15 (Farmington)
6: sand and gravel
9:
12: MILS (1981); New mine registrations 1971

1: 30N.18W.36.144
2: Pit 5846 (Neca)
3: C 36, T30N, R18W 36° 46'00"N 108° 41' 0"W
4: (Farmington)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits (Late Bull Lake)
10: excellent quality, 8 ft thick, 100,000 cu yds, LA wear 18, soundness loss 1.4, P.I. not plastic
12: MILS (1981); New mine registrations 1979; NMSHD (1975, P 1-1)

1: 30N.20W.9
2: Pit 5685
3: sec. 9, T30N, R20W (projected)
4: Rocky Point 7 1/2 (Farmington)
6: gravel
7: developed pit
9: Quaternary pediment deposits
10: fair quality, 150,000+ cu yds, LA wear 25.1, soundness loss 7.8 P.I. not plastic
12: NMSHD (1974)

1: 31N.7W.32.110
2: Pit 0867
3: NE 1/4, NE 1/4, Sec 32, T31N, R7W (projected)
4: Pine River 7 1/2 (Navajo Reservoir)
6: gravel
7: developed pit
9: Quaternary terrace deposits (Late Bull Lake)
10: good quality, 10 ft thick, 50,000 cu yds, LA wear 20, soundness loss 1.9, P.I. not plastic
12: NMSHD (1974)

1: 31N.9W.30.210
2: Pit 0867
3: NE 1/4, 30, T31N, R7W
4: Turley 7 1/2 (Navajo Reservoir)
6: gravel
7: prospect pit
9: Quaternary terrace deposits
10: good quality, 10 ft thick, 50,000+ cu yds, LA wear 20, soundness loss 1.9, P.I. not plastic
12: NMHSD (1975, P 3-4)

1: 31N.10W.4.300
2: Pit 5943
3: SE 1/4 5, T31N, R10W
4: Cedar Hill 7 1/2 (Navajo Reservoir)
6: gravel
7: developed pit
8: production unknown
9: Quaternary terrace deposits (Late Bull Lake)
10: excellent quality, 10 ft thick, 300,000 cu yds, LA wear 20.0, soundness loss 3.3, P.I. not plastic
12: NMSHD (1974)

1: 31N.10W.5.320
2: Pit 5942
3: SW 1/4, 4, T31N, R10W
4: Cedar Hill 7 1/2 (Navajor Reservoir)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits
10: gravel, good quality, 8 ft thick, 80,000 cu yds, LA wear 20.7, soundness loss 1.6, P.I. not plastic
12: NMSHD (1974)

1: 31N.10@.29.100
2: Gravel Pit
3: NW1/4 29 T31N R10W
4: Aztec 7-1/2 (Navajo Reservoir)
6: sand and gravel

1: 31N.10W.29.200
2: Gravel Pit
3: NE1/4 29 T31N R9W
4: Aztec 7-1/2 (Navajo Reservoir)
6: sand and gravel

1: 31N.10W.30
2: San Juan Co. Crusher
3: Sec. 30, T31N, R10W
4: Aztec 7 1/2 (Navajo Reservoir)
6: crushed stone
12: Mine and mill registrations (1986)

1: 31N.10W.30.340
2: Gravel Pit
3: SE1/4 SW1/4 30 T31N R10W
4: Aztect 7-1/2 (Navajo Reservoir)
6: sand and gravel

1: 31N.11W.23.130
2: Pit 0859
3: SW1/4, NW1/4, Sec 23, T31N, R11W
4: Cedar Hill 7 1/2 (Navajo Reservoir)
6: gravel
7: prospect pit
9: Quaternary terrace deposits (Early Bull Lake)
10: good quality, 10 ft thick, 75,000 cu yds, LA wear 23.6, soundness loss 2.9, P.I. not plastic
12: NMSHD (1974)

1: 31N.11W.30
2: Pit 6732
3: Sec 30, T31N, R18W (projected)
4: Canal Creek 7 1/2 (Farmington)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits (Late Bull Lake)
10: excellent quality, 10+ ft thick, 250,000 cu yds, LA wear 19.6, soundness loss 1.8, P.I., S.N.D.
12: NMSHD (1974)

1: 31N.11W.30.420
2: Aztec Gypsum Prospect
3: E 1/2, NE 1/4, SE 1/4, 30, T31N, R11W 36° 52'03"N 103° 01'26"W
4: Flora Vista 7 1/2 (Farmington)
9: Tertiary Nacimiento Formation
12: MILS (1981) NMBMMR files

1: 31N.11W.35.222
2: Pit 59110
3: NE 1/4, 35, T31N, R11W
4: Aztec 7 1/2 (Navajo Reservoir)
6: sand
7: developed pit
9: Quternary - terrace deposits
10: good quality, 9+ ft thick, 60,000 cu yds
12: NMSHD (1975, P 3-2)

1: 31N.13W.4.414
3: SE 1/4, NW 1/4, SE 1/4, 4, T31N, R13W 36° 55'31"N 103° 12'25"W
4: La Plata 7.5 (Farmington)
9: Quaternary terrace deposits
10: sand and gravel
12: MILS (1981)

1: 31N.13W.4.413
3: SW 1/4, NW 1/4, SE 1/4, 4 T31N, R13W 36° 55'34"N 108° 12'31"W
4: La Plata 7 1/2 (Farmington)
9: Quaternary terrace deposits
12: MILS (1981)

1: 31N.13W.19.100
2: Pit 0848
3: NE 1/4, 9, T31N, R13W
4: Farmington North 7 1/2 (Farmington)
6: sand and gravel
7: prospect pit
9: Quaternary - pediment deposits
10: good quality, 9+ ft thick, 50,000 cu yds
12: NMSHD (1975, P 2-2)

1: 31N.14W.13
2: Pit 0846
3: Sec. 13, T31N, R14W
4: Purgatory Canyon 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary pediment deposits
10: fair quality, 1-6 ft thick, 100,000 cu yds, LA wear 39.0, soundness loss 10.8, P.I. not plastic
11: not shown in NMSHD map
12: NMSHD (1974)

1: 31N.14W.24
2: Pit 0854
3: Sec. 24, T31N, R14W
4: Purgatory Canyon 7 1/2 (Farmington)
6: sand and gravel
9: Quaternary pediment deposits
10: good quality, 15,000 cu yds, LA wear 17.8, soundness loss 2.9, P.I. not plastic
11: location not shown on NMSHD map
12: NMSHD (1974)

1: 31N.14W.25
2: Pit 0853
3: Sec. 25, T31N, R14W
4: Purgatory Canyon 7 1/2 (Farmington)
6: limy sandstone
9: Cretaceous Kirtland-Fruitland Formations
10: fair quality, 3 ft thick, 25,000 cu yds, LA wear 22.6, soundness loss 39.4, P.I. not plastic
11: location not shown on NMSHD map
12: NMSHD (1974)

1: 31N.14W.26
2: Pit 0847
3: Sec. 26, T31N, R14W
4: Purgatory Canyon 7 1/2 (Farmington)
6: sandstone
9: Cretaceous Kirtland-Fruitland Formations
10: excellent quality, 6 ft thick, 150,000 cu yds, LA wear 16.4, P.I., not plastic
11: location not shown on NMSHD map
12: NMSHD (1974)

1: 31N.15W
2: Pit 0842
6: sandstone
9: Cretaceous Menefee Formation
10: fair quality, 4 ft thick, 100,000 cu yds, LA wear 22.0, soundness loss 8.8, P.I. not plastic
11: location not shown on NMSHD map
12: NMSHD (1974)

1: 31N.19W.17
2: Pit 0800
3: Sec. 32, T31N, R19W (projected)
4: Rattlesnake 7 1/2 (Farmington)
6: sand and gravel
7: prospect pit
9: Quaternary alluvium
10: excellent quality, 5 ft thick, 25,000 cu yds, LA wear 15.4, soundness loss 1.5, P.I. not plastic
12: NMSHD (1974)

1: 31N.20W.5
2: Pit 0797
3: sec. 5, T13N, R20W (projected)
4: Sallies Spring 7 1/2 (Farmington)
6: gravel
7: prospect pit
9: Quaternary terrace deposits (Pinedale)
10: good quality, 8,000 cu yds, LA wear 25.5 soundness loss 2.6 P.I. not plastic
12: NMSHD (1974)

1: 31N.20W.16
2: Pit 0799
3: Sec 16, T31N, R22W (projected)
4: Sallies Spring 7 1/2 (Farmington)
6: limestone
7: prospect pit
9: Cretaceous Mancos Shale
10: good quality, 5,000+ cu yds, LA wear 26.3, soundness loss 45.3, P.I. not plastic
12: NMSHD (1974)

1: 31N.20W.33
2: Pit 0801
3: Sec 33, T31N, R20W (projected)
4: Rocky Point 7 1/2 (Farmington)
6: sand and gravel
7: prospect pit
9: Quaternary pediment deposits
10: excellent quality, 50,000+ cu yds, LA wear 28.1, soundness loss 10.4, P.I. not plastic
12: NMSHD (1974)

1: 32N.8W.13.300
2: Pit 0858
3: SW1/4 13 T32N R8W
4: Navajo Dam 15 (Navajo Reservoir)
6: gravel
7: prospect pit
9: Quaternary - older pediment deposits
10: good quality, 25+ ft thick, 200,000 cu yds, LA wear 29.0, soundness loss 6.1, P.I. 13.
12: NMSHD (1975 P 3-3)

1: 32N.8W.13.300
2: Pit 0858
3: SW1/4, Sec 13, T32N, R8W (projected)
4: Navajo Dam 15 (Navajo Reservoir)
6: gravel
7: prospect pit
9: Quaternary pediment deposits
10: Good quality, 25+ ft thick, 200,000 cu yds, LA wear 29.0, soundness loss 6.1, P.I. 13.
12: NMSHD (1974)

1: 32N.9W.10
2: Pit 0868
3: NW1/4 10 T32N R7W
4: Mount Lebo 7 1/2 (Navajo Reservoir)
6: gravel
7: prospect pit
9: Quaternary - older pediment deposits
10: excellent quality, 1-4 ft thick, 1,000 cu yds, LA wear 28.7, soundness loss 8.6, P.I. 10
12: NMSHD (1975, P 3-4)

1: 32N.9W.10.300
2: Pit 0868
3: SW1/4, Sec 10, T32N, R9W
4: Mount Nebo 7 1/2 (Navajo Reservoir)
6: gravel
7: prospect pit
9: Quaternary pediment deposits
10: excellent quality, 1-4 ft thick, 1,000+ cu yds, LA wear 28.7, soundness loss 8.6, P.I. 10
12: NMSHD (1974)

1: 32N.11W.21
2: Pit 0845
3: Sec. 21, T32N, R11W (projected)
4: Cedar Hill 7 1/2 (Navajo Reservoir)
6: sand and gravel
7: prospect pit
9: Quaternary pediment deposits
10: good quality, 1-4 ft thick; 2,000+ cu yds, LA wear 27.2, soundness loss 11.6, P.I. 9
12: NMSHD (1974)

1: 32N.11W.21.100
2: Pit 0845
3: NW1/4 21 T32N R11W
4: Cedar Hill 7 1/2 (Navajo Reservoir)
6: sand and gravel
7: prospect pit
9: Quaternary - pediment deposits
10: good quality, 1-4 ft thick, 2,000+ cu yds, LA wear 27.2, soundness loss 11.6, P.I. 9
12: NMSHD (1975, P 2-2)

1: 32N.13W.15.200
2: Pit 0843
3: NE1/4 15 T32N R13W
4: La Plata 7 1/2 (Farmington)
6: materials pit
7: prospect pit
9: Quaternary - terrace deposits
10: good quality, 6 ft thick, 55,000 cu yds, LA wear 18.6, soundness loss 3.8, P.I. 8
12: NMSHD (1975, P 2-1)

1: 32N.13W.27.300
2: Pit 0844
3: SW1/4 27 T32N R13W
4: La Plata 7 1/2 (Farmington)
6: materials pit
7: prospect pit
9: Quaternary terrace deposits (Late Bull Lake)
10: good quality, 5 ft thick, 100,000 cu yds, LA wear 16.4, soundness loss 1.8, P.I. not plastic
12: NMSHD (1975, P 2-2)

1: 32N.13W.28
2: La Plata Pit
3: sec. 28, T32N, R13W
4: La Plata 7 1/2 (Farmington)
6: sand and gravel
7: developed pit
9: Quaternary terrace deposits
12: Mine and mill registrations (1986)

APPENDIX 2

OIL AND GAS POOLS AND PETROLEUM EXPLORATION WELLS IN SAN JUAN COUNTY AND 1:100,000 SCALE PETROLEUM POTENTIAL MAPS OF SAN JUAN COUNTY

by Ronald F. Broadhead and Lorie A. Baker

Appendix 2 contains a list of oil and gas exploration wells in San Juan County. Wells drilled within the boundaries of oil and gas pools are not listed unless those wells evaluated strata below or above the productive stratigraphic unit in the pool. Wells that produce from undesignated oil and gas pools are plotted on the accompanying maps and are listed in Table 5 of the main text in the section on petroleum resource potential. The geology of individual oil and gas pools is discussed in the main text in the section on petroleum resource potential. Well data are summarized from information archived at the New Mexico Library of Subsurface Data, New Mexico Bureau of Mines and Mineral Resources. Several abbreviations are used in Table 1. They are explained below.

The petroleum potential maps were prepared according to geologic criteria specified in the main text in the section on petroleum resource potential. Geologic data used in map preparation were obtained from geologic maps of the largest available scale in San Juan county; parts of San Juan County are covered by geologic maps at a scale of 1:24,000 while coverage of other parts of the county is at a scale of 1:500,000.

Linda Frank and David Spradlin helped prepare the maps in this Appendix. Cherie Pelletier and Gustavo Porras Leiva drafted the maps.

Abbreviations used in Table 1.

D&A, dry and abandoned
Oil, completed as oil well
Gas, completed as gas well
abd, abandoned
BO, bbls oil
MCFGD, thousand ft^3 gas per day
BW, bbls water
BWPD, bbls water per day
wtr, water
DST, drill-stem test
rec, recovered
crd, cored
sh, shale
ls, limestone
poro, porosity
sd wtr frac, sand-water fractured
swbd, swabbed
prod, produced (from)
F, flowed
MCW, mud-cut water
XW or SW, salt water
SMCW, slight mud-cut water
WCM, water-cut mud
GCM, gas-cut mud
SGCM, slight gas-cut mud
SGCW, slight gas-cut water
HGCW, heavy gas-cut water
GCSW, gas-cut salt water
HGCSW, heavy gas-cut salt water
SGCXW, slight gas-cut salt water
MCXW or MCSW, mud-cut salt water
HGCMW, heavy gas-cut muddy water
G&OCM, gas & oil-cut mud
MCO, mud-cut oil
FNL, feet from north boundary line of section
FSL, feet from south boundary line of section
FEL, feet from east boundary line of section
FWL, feet from west boundary line of section
GTS, gas to surface

TABLE 1

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Tesoro Petroleum No. 1 Andele	1825 FSL, 850 FWL 12-21N-8W San Juan	9/71	D&A	5,124	Cretaceous	Morrison (Jurassic)	DST 4637-77 ft (Gallup), rec 75 mud; DST 4583-4800 ft (Dakota) rec 60 MCW; DST 4964-97 ft (Dakota) rec 360 MCW;
Eastern Petroleum No. 1 Andele	668 FSL, 1980 FEL 13-21N-8W San Juan	10/72	D&A	5,080	Cretaceous	Morrison (Jurassic)	
Texas Calgary Co. No. 1 Indian Alloted	1980 FSL, 660 FWL 15-21N-8W San Juan	9/56	D&A	3,860	Cretaceous	Gallup (Cretaceous)	
Pet. Products Ref. and Prod. No. 2 Cayedito	1980 FNL, 2310 FWL 21-21N-8W San Juan	12/48	D&A	4,680	Cretaceous		
Pet. Products Ref. and Prod. No. 1 Santa Fe	2310 FNL, 330 FEL 21-21N-8W San Juan	5/47	D&A	4,707	Cretaceous		
Ray McGlothlin No. 1 Federal	1980 FNL, 1980 FWL 22-21N-8W San Juan	6/60	D&A	3,800	Cretaceous	Gallup (Cretaceous)	
Davis Oil No. 1 Chace-Federal	600 FNL, 660 FWL 27-21N-8W San Juan	10/71	D&A	4,296	Cretaceous	Morrison (Jurassic)	
Southern Union Prod. No. 1 Santa Fe-Pacific	1650 FNL, 990 FEL 1-21N-9W San Juan	8/48	D&A	4,800	Cretaceous	Dakota (Cretaceous)	
Davis Oil No. 1 Black Jack	1980 FSL, 660 FWL 1-21N-9W San Juan	11/71	D&A	4,831	Cretaceous	Morrison (Jurassic)	
Sinclair Oil and Gas No. 1 SF 54 Cottonwood	1980 FSL, 1980 FEL 11-21N-9W San Juan	1/57	D&A	4,125	Cretaceous	Sanastee (Cretaceous)	
Eastern Petroleum No. 1 Blackjack	668 FSL, 660 FEL 12-21N-9W San Juan	10/72	D&A	4,850	Cretaceous	Morrison (Jurassic)	
Sinclair Oil and Gas No. 1 SF 55 Alamo	1980 FSL, 1980 FEL 20-21N-9W San Juan	1/57	D&A	3,531	Cretaceous	Gallup (Cretaceous)	
Dome Petroleum No. 1 Gallo Wash	330 FNL, 800 FEL 24-21N-9W San Juan	12/77	D&A	5,759	Cretaceous	Carmel (Jurassic)	DST 4541-50 ft (Dakota) rec 300 oil-cut mud, 940 gas-cut water; DST 5622-37 ft (Todilto-Entrada) rec 150 water-cut mud
Furr-Furr and Foster No. 1 Santa Fe	1870 FNL, 660 FWL 28-21N-9W San Juan	10/65	D&A	3,520	Mesaverde (Cretaceous)	Gallup (Cretaceous)	
Young Drilling No. 1 Nan-Tim	725 FSL, 555 FEL 33-21N-9W San Juan	6/72	D&A	4,558	Cretaceous	Morrison (Jurassic)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Davis Oil No. 1 Box Cars	660 FSL, 660 FWL 31-21N-10W San Juan	5/71	D&A	3,960	Cretaceous	Morrison (Jurassic)	
Tesoro Pet. No. 1 Boundary	790 FSL, 790 FEL 22-21N-11W San Juan	3/72	D&A	4,015	Cretaceous	Dakota (Cretaceous)	Crd 3970-3900 ft (Dakota) rec 25 sand; DST 2678-2802 ft (Mancos-Gallup) rec 30 mud
Sinclair Oil and Gas No. 2 NM-Ariz Land and Cat.	660 FNL, 660 FEL 19-21N-12W San Juan	5/57	D&A	2,873	Cretaceous	Gallup (Cretaceous)	
Palmer Oil & Gas No. 1-A Federal-1	1525 FSL, 1820 FWL 1-21N-13W San Juan	/77	D&A	260	Cretaceous		
Tidewater Oil Co. No. 1 Santa Fe "D"	1236 FWL, 660 FNL 7-21N-13W San Juan	5/66	D&A	3,620	Cretaceous	Dakota (Cretaceous)	
R. R. Burke & Chas Isbl No. 1 Deneen	454 FNL, 2200 W 18-21N-13W San Juan	11/28	D&A	1,006	Cretaceous		Show oil at 360 ft, 390 ft
Burke RR No. 2 Gov. Permit	500 FNL, 1950 FWL 18-21N-13W San Juan	6/33	D&A	546	Cretaceous		
Burke RR No. 3 Gov. Lease	525 FNL, 2240 FWL 18-21N-13W San Juan	11/36	D&A	395	Cretaceous		
Sinclair Oil & Gas No. 1 Navajo	1980 FSL, 660 FEL 18-21N-12W San Juan	9/58	D&A	3,852	Cretaceous	Morrison (Jurassic)	
Reserve Oil No. 2 Shaffer	200 FNL of S1/4 line, 200 FEL 1-21N-14W San Juan	11/29	D&A	707	Cretaceous		
Southern Union No. 2 Navajo	2105 FNL, 890 FEL 1-21N-14W San Juan	6/53	D&A	3,670	Cretaceous	Dakota (Cretaceous)	
Reserve Oil No. 1	SE/4 NE/4 1-21N-14W San Juan	/29	D&A	780	Cretaceous		Oil sand at 718 ft
Mobil Co. No. 1 Navajo-J	663 FNL, 1093 FEL 1-21N-15W San Juan	5/75	D&A	3,820	Cretaceous	Dakota (Cretaceous)	
Mobil Oil Co. No. 1 Navajo "D"	1980 FSL, 1980 FEL 13-21N-15W San Juan	6/75	D&A	3,720	Cretaceous	Dakota (Cretaceous)	
Mobil Oil No. 1 Navajo	1980 FSL, 1980 FEL 13-21N-15W San Juan	6/75	D&A	3,720	Cretaceous	Dakota (Cretaceous)	
Davis Oil No. 5 South Chaco	660 FNL, 660 FEL 2-22N-8W San Juan	5/58	D&A	6,005	Tertiary	Graneros (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Davis Oil Beard-Federal No. 1	1000 FSL, 1640 FWL 5-22N-8W San Juan	4/79	D&A	1,741	Tertiary	Mesaverde (Cretaceous)	
C. C. Kennedy No. 1 Beard	990 FNL, 1650 FEL 5-22N-8W San Juan	12/76	D&A	1,702	Tertiary	Chacra (Cretaceous)	
Great Western Drilling No. 1 S. Chaco	660 FNL, 1980 FWL 6-22N-8W San Juan	11/56	D&A	5,517	Tertiary	Graneros (Cretaceous)	
Bechtel & Schultz No. 1 Bechschul	1850 FNL, 2310 FWL 10-22N-8W San Juan	12/65	D&A	5,740	Tertiary	Morrison (Jurassic)	
Humble Oil & Rfg. No. 4 So. Chaco Unit	1130 FNL, 1130 FWL 10-22N-8W San Juan	6/57	D&A	5,855	Tertiary	Graneros (Cretaceous)	
George E. Coleman No. 1 Midway	790 FSL, 1850 FWL 22-22N-8W San Juan	1/77	D&A	1,468	Cretaceous	Chacra (Cretaceous)	
San Juan Venture No. 2 Midway	717 FSL, 2214 FWL 22-22N-8W San Juan	3/78	D&A	900	Cretaceous		
San Juan Venture No. 3 Midway	990 FSL, 1850 FWL 22-22N-8W San Juan	12/81	D&A	1,453	Cretaceous		
New Mexico-N No. 2-Y Midway	417 FSL, 2214 FWL 22-22N-8W San Juan	4/78	D&A	1,160	Cretaceous		
Dugan Production No. 1 Dilly	1850 FSL, 790 FEL 34-22N-8W San Juan	2/82	D&A	1,465	Cretaceous	Chacra (Cretaceous)	
Dugan Production No. 1 Billie	1650 FSL, 1770 FEL 35-22N-8W San Juan	2/82	D&A	1,460	Cretaceous	Chacra (Cretaceous)	
Great Western Drilling No. 1 So. Chaco Unit	660 FSL, 760 FWL 9-22N-9W San Juan	11/56	D&A	5,109	Cretaceous	Morrison (Jurassic)	
Bird Oil No. 10-1 Bird-Pah	2310 FNL, 1320 FEL 10-22N-9W San Juan	1/82	D&A	6,325	Cretaceous	Carmel (Jurassic)	DST 6100-6260 ft (Entrada), rec 190 mud, 4440 water
Sun Oil No. 1 Navajo Lands	2035 FNL, 2260 FWL 25-22N-9W San Juan	3/71	D&A	10,897	Cretaceous	Precambrian	DST 7964-8012 ft (Permian) rec 180 mud, 3371salt water DST 9945-10086 ft (Madera), rec 5100 mud; DST 9938-10,079 ft (Madera), rec 1176 mud
Humble Oil & Rfng. No. 3 So. Chaco Unit	1980 FSL, 990 FEL 23-22N-9W San Juan	5/57	D&A	5,230	Cretaceous	Morrison (Jurassic)	
E. B. LaRue, Jr. No. 4 Kinebeto	1900 FNL, 1650 FEL 9-22N-10W San Juan	9/58	D&A	4,968	Cretaceous	Dakota (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Champlin Pet. No. 1 Pueblo Bonita Federal Unit 23-14	1855 FSL, 1727 FWL 14-22N-10W San Juan	10/83	D&A	6,321	Cretaceous	Chinle (Triassic)	DST 5680-5722 ft (Morrison, Todilto, Entrada) rec 300 mud, 4705 water
Davis Oil No. 1 Roulette	660 FSL, 660 FNL 26-22N-10W San Juan	10/71	D&A	4,635	Cretaceous	Morrison (Triassic)	DST 4240-63 ft (Dakota) rec 2250 v. slightly gas cut water; DST 4438-70 ft (Dakota) rec gas and water
Northwest Prod. No. 1 Kinebeto	330 FNL, 1980 FWL 26-22N-10W San Juan	5/58	D&A	4,785	Cretaceous	Graneros (Cretaceous)	
Southland Royalty No. 2 Tsaya	155 FNL, 1115 FWL 4-22N-12W San Juan	10/80	D&A	4,720	Cretaceous	Dakota (Cretaceous)	DST 3985-4171 ft (Gallup) rec 93 mud
H. L. Hall et al. No. 1 Santa Fe RR	200 FNL, 200 FWL 31-22N-13W San Juan	11/28	D&A	507			
Southern Union Gas No. 2 Santa Fe Pacific RR	330 FSL, 330 FWL 31-22N-13W San Juan	10/51	D&A	3,828	Cretaceous	Dakota (Cretaceous)	
Fairway Oil & Gas No. 1 State	790 FSL, 676 FWL 32-22N-13W San Juan	2/66	D&A	3,923	Cretaceous	Greenhorn (Cretaceous)	
H. A. Chapman No. 1 Navajo	1950 FSL, 860 FWL 10-22N-14W San Juan	10/72	D&A	9,405	Cretaceous	Devonian	DST 9280-9320 ft (Miss.) rec 3000 water 180 mud
Roy Cook No. 1 Navajo-Tribal	430 FSL, 1700 FEL 10-22N-14W San Juan	11/69	D&A	1,100	Menefee (Cretaceous)		
Roy Cook No. 2 Navajo Tribal	560 FSL, 1680 FWL 10-22N-14W San Juan	12/69	D&A	1,120	Menefee (Cretaceous)		
Dan Davis No. 1 Davis	990 FSL, 1750 FWL 11-22N-14W San Juan	6/66	D&A	440	Cretaceous		
Dan Davis No. 2 Davis	330 FSL, 990 FWL 11-22N-14W San Juan	6/66	D&A	610	Cretaceous		
Dan Davis No. 3 Davis	2190 FSL, 1530 FWL 11-22N-14W San Juan	6/66	D&A	395	Cretaceous		
Dan Davis No. 5 Davis	1650 FSL, 330 FWL 11-22N-14W San Juan	6/66	D&A	910	Cretaceous		
Josephine Greathouse No. 1	1100 FSL, 200 FWL 11-22N-14W San Juan	10/29	D&A	980	Cretaceous		
Hughes & Hughes No. 1 Navajo Tract 19	1650 FNL, 330 FEL 22-22N-14W San Juan	6/66	D&A	3,073	Cretaceous	Gallup (Cretaceous)	DST 1543-58 ft, rec 650 MCW DST 2967-79 ft (Gallup) rec 420 MCW

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Anderson Oil No. 1 Navajo Duncan	430 FNL, 2000 FEL 36-22N-14W San Juan	8/71	D&A	4,131	Cretaceous	Morrison (Jurassic)	Crd 3912-72 ft (Dakota) rec 17 sd,10 sd fair poro, 15 sd fair p&p; DST 3949-59 ft (Dakota) rec 168 mud
Midwest Ref. No. 1 Navajo Res.	990 FSL, 1650 FWL 36-22N-14W San Juan	11/28	D&A	3,063	Cretaceous		Oil & water sand 775-91 ft; Oil show 840-70 ft
Reserve Oil No. 3 Shaffer	840 FSL, 990 FEL 36-22N-14W San Juan	9/31	D&A	819	Cretaceous		Oil shows 771-784 ft Oil shows 814-816 ft
Reserve Oil No. 5 Shaffer	270 FSL, 1120 FEL 36-22N-14W San Juan	10/34	D&A	888	Cretaceous		
L. C. Stearns et al. No. 1 Navajo	1299 FSL, 990 FWL 36-22N-14W San Juan	10/53	Oil abd 1960	889	Cretaceous		Production from Mesaverde
Mobil Oil No. 1 Navajo-H	2190 FNL, 1102 FEL 25-22N-15W San Juan	7/75	D&A	4,104	Cretaceous	Morrison (Jurassic)	
Mobil Oil No. 1 Navajo-I	1980 FSL, 1980 FWL 25-22N-16W San Juan	8/75	D&A	4,120	Cretaceous	Morrison (Jurassic)	
Pure Oil No. 1 Navajo	423 FSL, 2202 FWL 36-22N-17W San Juan	9/56	D&A	3,645	Cretaceous	Morrison (Jurassic)	
Ambassador Oil No. 1 Great West Fed	421 FNL, 1878 FWL 1-23N-8W San Juan	12/57	D&A	5,550	Tertiary	Gallup (Cretaceous)	Oil in Gallup
Great Western No. 4 Chaco Unit	1980 FNL, 1980 FWL 16-23N-8W San Juan	6/57	D&A	5,300	Tertiary	Gallup (Cretaceous)	
Benson Mineral Gr. No. 1 Federal	970 FSL, 1460 FWL 21-23N-8W San Juan	7/78	D&A	1,980	Tertiary	Chacra (Cretaceous)	
Davis Oil Co. No. 7 Chaco	720 FSL, 1920 FWL 30-23N-8W San Juan	6/58	D&A	5,719	Tertiary	Greenhorn (Cretaceous)	
George Riley Inc. No. 1 Riley-Charlie	1990 FNL, 1875 FEL 8-23N-9W San Juan	9/56	D&A	4,756	Tertiary	Gallup (Cretaceous)	
Davis Oil No. 6 Chaco Unit	1980 FSL, 660 FWL 12-23N-9W San Juan	3/58	D&A	5,952	Tertiary	Granaros (Cretaceous)	
Sun Oil No. 1 Ah Des Pi Ah-Navajo	660 FSL, 660 FEL 12-23N-19W San Juan	10/72	D&A	11,746	Tertiary	Ignacio (Cambrian)	Crd 10,570-611 ft (Ismay) rec 41 sh. & ls. Crd 10611-10645 ft (Ismay) rec 34 sh & ls. Crd 10645-10705 ft (Desert Creek) rec 40 sh & ls. Crd 10756-10783 ft (Desert Cr) rec 27 ls & sh

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Dugan Pet. No. 1 Christmas Season	790 FSL, 1610 FEL 18-23N-9W San Juan	11/82	D&A	1,690	Tertiary	Chacra (Cretaceous)	
Filon Exploration No. 1 Federal 26-E	1650 FSL, 330 FWL 26-23N-9W San Juan	11/75	D&A	6,680	Tertiary	Entrada (Jurassic)	DST 6453-63 ft (Entrada) rec 480 mud, 5409 MCW
E. B. LaRue, Jr. No. 3 Kinebeto	500 FNL, 660 FEL 27-23N-10W San Juan	9/58	D&A	5,433	Tertiary	Morrison (Jurassic)	
D. B. LaRue, Jr. No. 2 Kinebeto	1980 FNL, 660 FEL 17-23N-10W San Juan	8/58	D&A	5,477	Tertiary	Dakota (Cretaceous)	
Great Western Drlg No. 1 English	1980 FNL, 660 FEL 25-23N-10W San Juan	5/56	D&A	4,406	Tertiary	Gallup (Cretaceous)	
Paul Stock No. 1 Mills	990 FSL, 990 FEL 10-23N-11W San Juan	9/51	D&A	1,650	Cretaceous		
F. W. Meyer No. 1 MSB	990 FNL, 1650 FEL 13-23N-11W San Juan	3/54	D&A	5,272	Cretaceous	Greenhorn (Cretaceous)	
Shell Oil Co. No. 1 Meyer	990 FNL, 990 FWL 14-23N-11W San Juan	7/56	D&A	5,220	Cretaceous	Morrison (Jurassic)	Show oil 3615-25 ft (Mancos)
Shell Oil Co. No. 3 Meyer Govt.	657 FSL, 2301 FWL 20-23N-11W San Juan	8/57	D&A	4,079	Cretaceous	Mancos (Cretaceous)	
Shell Oil No. 2 Meyer Govt	651 FNL, 2015 FWL 26-23N-11W San Juan	7/57	D&A	4,170	Cretaceous	Gallup (Cretaceous)	
Humble O & R No. 3 Tanner Unit	660 FNL, 660 FEL 5-23N-12W San Juan	9/57	D&A	4,942	Cretaceous		
D&N Oil & Mining Co. No. 1 Hall	1650 FNL, 1650 FWL 8-23N-12W San Juan	11/53	D&A	220	Cretaceous		
Humble Oil & Refg. No. 2 Tanner Unit	1980 FSL, 660 FWL 23-23N-12W San Juan	9/57	D&A	4,845	Cretaceous	Graneros (Cretaceous)	
Apache Corp. No. 1 Ashcroft	1980 FSL, 660 FWL 26-23N-12W San Juan	12/71	D&A	4,730	Cretaceous	Morrison (Jurassic)	DST 4448-96 ft (lower Mancos), rec 90 SGCM, 540 HGCSW; DST 4545-4600 ft (Dakota) rec 186 oil, 3069 XW; DST 4620-78 ft (Dakota) rec 3900 XW; DST 4483-4606 ft (Gran-Dak) rec 540 GCSW
Tesoro Pet. No. 1 Coal Creek Fed.	660 FSL, 660 FEL 28-23N-12W San Juan	1/74	D&A	4,762	Lewis (Cretaceous)	Morrison (Jurassic)	DST 4540-78 ft (Dakota) rec 440 GCM, 1080 mud & MCO; Perf 4562-68 (Dakota) swb 2 BO, 8 BW

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Coal Creek Oil Assoc. No. 1 Coal Creek	990 FNL, 990 FWL 28-23N-12W San Juan	1/76	D&A	4,581	Lewis (Cretaceous)	Dakota (Cretaceous)	
Southland Royalty No. 1 Tsaya	1740 FSL, 790 FWL 34-23N-12W San Juan	3/79	D&A	4,803	Cretaceous	Dakota (Cretaceous)	DST 4683-4713 ft (Dakota) rec 60 mud, 120 muddy water, 848 water
Davis Oil No. 1 Trading Post Fed.	660 FNL, 660 FEL 35-23N-12W San Juan	6/72	D&A	4,807	Lewis (Cretaceous)	Mancos (Cretaceous)	
Apache Corp. No. 1 Federal-35	1980 FNL, 1980 FWL 35-23N-12W San Juan	1/72	D&A	4,793	Cretaceous	Dakota (Cretaceous)	DST 4599-4619 ft (Dakota) rec 70 mud; DST 4620-60 ft (Dakota) rec 180 mud, 1360 xw
Apache Corp. No. 1 Foshay	1980 FNL, 660 FWL 9-23N-13W San Juan	1/72	D&A	9,803	Cretaceous	Mississippian	DST 4220-4670 ft (Gallup) rec 2894 HGCW, 1209 MCW
Madden & Clapp et al. No. 2 Swinburne	500 FNL, 500 FWL 23-23N-13W San Juan	9/24	D&A	507	Cretaceous		
Macpet No. 1 MacKnight-Federal	790 FSL, 790 FWL 24-23N-13W San Juan	4/75	D&A	4,692	Lewis (Cretaceous)	Morrison (Jurassic)	DST 4530-56 ft (Dakota) rec 550 SGCW; DST 3500-26 ft (Gallup) rec 3260 water
Kerr-McGee Oil Corp. No. 1 Navajo-M	1840 FNL, 1870 FEL 9-23N-20W San Juan	7/69	D&A	4,753		Precambrian	DST 2678-2788 ft (Coconino) rec 540 mud; DST 4482-4530 ft (McCracken) rec 510 SMCW Gas show reported from well
Kerr-McGee Oil Corp. No. 1 Navajo-A	2310 FNL, 330 FEL 12-23N-20W San Juan	1/67	D&A	2,920	Cretaceous	Cambrian	
Royal Development Co. No. 3 Royal-Ake	850 FNL, 1980 FWL 10-24N-8W San Juan	12/59	oil	6,937	Tertiary	Graneros (Cretaceous)	Production from Dakota 5684-5804 ft
Royal Development Co. No. 1 Paquenche	465 FSL, 1745 FEL 10-24N-8W San Juan	5/57	D&A	6,926	Tertiary	Graneros (Cretaceous)	
Exeter Drilling No. 1 Escrito	660 FNL, 660 FWL 20-24N-8W San Juan	9/61	D&A	5,400	Tertiary	Gallup (Cretaceous)	
El Paso Natural Gas No. 1 Snapp B	330 FSL, 1650 FEL 21-24N-8W San Juan	5/57	D&A	4,180	Tertiary	Pt. Lookout (Cretaceous)	
British American No. 1 Govt. Lease	660 FNL, 660 FWL 25-24N-8W San Juan	2/65	D&A	5,700	Tertiary	Gallup (Cretaceous)	
Humble Oil & Refining No. 1 Ka-Ne-Pah	1980 FNL, 660 FWL 27-24N-8W San Juan	6/57	oil, abd	4,395	Tertiary	Gallup (Cretaceous)	Prod. from Gallup
Kirby Exploration No. 1 Federal-30	790 FSL, 1710 FEL 30-24N-8W San Juan	3/78	D&A	1,900	Tertiary	Pictured Cliffs (Cretaceous)	Perf. 1666-72 (Pic Cliffs), F 10 MCFGPD

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
R&G Drilling No. 23 R&G	990 FNL, 990 FEL 1-24N-9W San Juan	6/56	D&A	1,915	Tertiary	Pictured Cliffs (Cretaceous)	
Magnolia Pet. No. 1 Wood	760 FSL, 660 FWL 1-24N-9W San Juan	10/52	D&A	6,590	Tertiary	Morrison (Jurassic)	
Dugan Prod. Co. No. 2 Gee-1	1160 FSL, 950 FEL 3-24N-9W San Juan	6/79	D&A	1,790	Tertiary	Pictured Cliffs (Cretaceous)	
Dugan Production No. 2 John Adams	1150 FNL, 1520 FWL 10-24N-9W San Juan	2/77	D&A	2,775	Tertiary	Chacra (Cretaceous)	
MacRae Oil & Gas No. 1 Federal	660 FSL, 660 FWL 12-24N-9W San Juan	6/57	D&A	5,442	Tertiary	Gallup (Cretaceous)	
Dugan Production No. 1 Harvey	810 FNL, 1800 FEL 20-24N-9W San Juan	2/82	D&A	2,240	Nacimiento (Tertiary)	Chacra (Cretaceous)	
Dome Pet. No. 1 Dome Federal	2280 FSL, 2150 FEL 35-24N-9W San Juan	10/80	D&A	5,370	Tertiary	Gallup (Cretaceous)	
H. L. Fannin, Jr. No. 1 Woodward	660 FNL, 660 FEL 18-24N-10W San Juan	9/56	D&A	5,047	Tertiary	Hospah (Cretaceous)	
Benson Mineral Group No. 1 Federal	1840 FSL, 800 FWL 19-24N-10W San Juan	7/78	D&A	1,850	Tertiary	Chacra (Cretaceous)	
Paul Case No. 1 Case	1980 FSL, 660 FWL 20-24N-10W San Juan	12/57	D&A	4,900	Tertiary	Gallup (Cretaceous)	
Benson-Montin-Greer No. 1 Tom Corr	1700 FNL, 1715 FEL 23-24N-10W San Juan	1/56	D&A	5,322	Tertiary	Tocito (Cretaceous)	
Texaco Petroleum No. 1 El Dorpo	800 FNL, 800 FEL 23-24N-10W San Juan	11/74	D&A	6,302	Tertiary	Morrison (Jurassic)	DST 5170-5320 ft (Gallup) rec 120 mud; DST 6150-6226 ft (Dakota) rec 180 mud
Deep Rock Oil Co. No. 1 Edgar	660 FNL, 660 FWL 25-24N-10W San Juan	11/52	D&A	5,924	Tertiary	Dakota (Cretaceous)	
Dugan Production No. 1 June Joy	790 FNL, 1850 FWL 25-24N-10W San Juan	6/78	D&A	1,535	Tertiary	Pictured Cliffs (Cretaceous)	
Kirby Exploration No. 1 Smith-Fed	1020 FSL, 1450 FEL 26-24N-10W San Juan	9/76	D&A	1,450	Tertiary	Pictured Cliffs (Cretaceous)	
CM&W Drilling No. 1-B Elliott	2010 FSL, 660 FEL 1-24N-11W San Juan	8/56	D&A	5,193	Tertiary	Gallup (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Tenneco Oil No. 1 Monument	1850 FSL, 1440 FEL 2-24N-11W San Juan	3/74	D&A	6,150	Tertiary	Dakota (Cretaceous)	
Davis Oil Co. No. 1 Govt Fannin	530 FNL, 660 FWL 3-24N-11W San Juan	8/57	D&A	5,079	Tertiary	Gallup (Cretaceous)	
Skelly Oil Corp. No. 1 Hazel Bolack	660 FSL, 660 FEL 5-24N-11W San Juan	8/56	D&A	5,776	Cretaceous	Carlisle (Cretaceous)	
Tenneco Oil No. 3 Monument	2310 FNL, 1850 FWL 5-24N-11W San Juan	3/74	D&A	5,803	Cretaceous	Dakota (Cretaceous)	
Dugan Production No. 2 Grover	1790 FSL, 850 FEL 14-24N-11W San Juan	9/83	D&A	1,280	Tertiary	Pictured Cliffs (Cretaceous)	
Dugan Prod. No. 1 Mean Betty Jean	1850 FNL, 790 FEL 14-24N-11W San Juan	5/83	D&A	1,780	Tertiary	Chacra (Cretaceous)	
Dugan Prod. No. 1 Oscar the Grouch	790 FNL, 790 FWL 14-24N-11W San Juan	2/83	D&A	1,815	Tertiary	Chacra (Cretaceous)	
Phillips Petroleum No. 1 Gallegos	1980 FSL, 660 FEL 14-24N-11W San Juan	8/56	D&A	4,837	Tertiary	Gallup (Cretaceous)	
Magnolia Petroleum No. 1 Beamen	660 FSL, 660 FEL 29-24N-11W San Juan	7/56	D&A	5,350	Cretaceous	Dakota (Cretaceous)	
Kenneth Murchison No. 1 Mims-Carson	660 FNL, 702 FWL 4-24N-12W San Juan	12/56	oil D&A 1973	4,586	Cretaceous	Gallup (Cretaceous)	Prod from Gallup 4338-4436 ft
Stephen H. Kinney No. 1 Coal Creek	790 FSL, 790 FWL 13-24N-12W San Juan	7/66	D&A	816	Cretaceous	Fruitland (Cretaceous)	
Fannin No. 1 Fannin-White	660 FSL, 660 FWL 13-24N-12W San Juan	6/57	D&A	4,535	Cretaceous	Gallup (Cretaceous)	Recovered oil
Bumble O & R No. 1 Tanner Unit	1010 FSL, 970 FWL 21-24N-12W San Juan	8/57	D&A	5,272	Cretaceous	Morrison (Jurassic)	Recovered oil
Dugan Production No. 1 Snuffle Upagus	790 FNL, 1520 FEL 23-24N-12W San Juan	2/82	D&A	1,550	Kirtland (Cretaceous)	Chacra (Cretaceous)	
Tesoro Petroleum No. 1 Nariz-Federal	865 FNL, 900 FWL 30-24N-12W San Juan	12/75	D&A	5,159	Cretaceous	Dakota (Cretaceous)	DST 3850-3920 ft (Gallup) rec 5 mud; DST 4995-5026 ft (Dakota) rec 18 MCXW, 660 SGCXW
Davis Oil Co. No. 1 Riddle	1980 FNL, 530 FWL 10-24N-13W San Juan	2/58	D&A	5,451	Cretaceous	Graneros (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
R. E. Lauritsen No. 1 Southern Union Fed.	2110 FSL, 330 FEL 12-24N-13W San Juan	9/82	D&A	1,386	Cretaceous	Chacra (Cretaceous)	
Monsanto Chem. Co. No. 1 Chaco	660 FNL, 1980 FWL 20-24N-13W San Juan	7/56	D&A	5,089	Cretaceous	Morrison (Jurassic)	
Coal Creek Dev. No. 1	1720 FNL, 1500 FWL 22-24N-13W San Juan	7/24	D&A	504	Cretaceous		
Davis Oil Co. No. 1 Mag Navajo	660 FNL, 820 FEL 6-24N-14W San Juan	9/57	D&A	5,311	Cretaceous	Graneros (Cretaceous)	
Sinclair Oil & Gas No. 1 Navajo "A"	1980 FSL, 660 FEL 32-24N-15W San Juan	2/57	D&A	4,620	Cretaceous	Morrison (Jurassic)	
Thomas J. Hynes No. 1 Ann	1980 FSL, 660 FEL 26-24N-16W San Juan	6/72	D&A	1,100	Cretaceous	Menefee (Cretaceous)	
Continental Oil Co. No. 1 South Chaco	660 FSL, 1980 FWL 1-24N-17W San Juan	5/62	D&A	4,335	Cretaceous	Morrison (Jurassic)	
James H. Lawrence No. 1 Lawrence-Navajo	990 FNL, 990 FEL 5-24N-17W San Juan	12/58	D&A	3,815	Cretaceous	Gallup (Cretaceous)	
Amoco Production No. 1 Navajo Tribal AA	520 FNL, 300 FEL 14-24N-17W San Juan	1/76	D&A	9,750	Cretaceous	Devonian	DST 9266-9335 ft (Barker Creek) rec 4400 mud
Tesoro Petroleum No. 1 Newcomb-Navajo	790 FNL, 900 FEL 14-24N-17W San Juan	10/74	D&A	4,410	Menefee (Cretaceous)	Dakota (Cretaceous)	
R. L. Bayless No. 1 Navajo	600 FSL, 860 FWL 21-24N-17W San Juan	10/59	D&A	4,281	Cretaceous	Graneros (Cretaceous)	
Jerry Alex McCutchin No. 1 Navajo 57	790 FSL, 380 FEL 15-24N-19W San Juan	10/73	D&A	1,028	Gallup (Cretaceous)	Morrison (Jurassic)	
Jerry Alex McCutchin No. 1 Navajo 59	2310 FNL, 400 FWL 23-24N-19W San Juan	11/73	D&A	970	Cretaceous	Dakota (Cretaceous)	
Ted. M. White No. 1 Navajo	790 FNL, 1850 FWL 9-25N-8W San Juan	9/58	gas, abd 1959	2,214	Tertiary	Pictured Cliffs (Cretaceous)	Prod from Pictured Cliffs 2084-2166 ft
Dome Petroleum No. 1 Dome Federal	1670 FNL, 1685 FEL 31-25N-8W San Juan	7/80	D&A	6,700	Tertiary	Dakota (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Benson-Montin-Greer No. 1 Edith Payne	1960 FNL, 1950 FWL 35-25N-8W San Juan	1/55	D&A	2,670	Tertiary		
Benson-Montin-Greer No. 1 Pilgrim	790 FSL, 890 FWL 35-25N-8W San Juan	3/59	oil	7,268	Tertiary	Graneros (Cretaceous)	Prod from Gallup & Dakota 6083-6180 ft (Gallup); 7024-7125 ft (Dakota)
Stanolind Oil & Gas No. 20 Huerfano Unit	890 FNL, 890 FEL 6-25N-9W San Juan	12/52	D&A	2,196	Tertiary		
El Paso Natural Gas No. 86 Huerfano Unit	990 FNL, 990 FEL 9-25N-9W San Juan	8/56	D&A	2,140	Tertiary	Pictured Cliffs (Cretaceous)	
M. J. Brannon No. 20-1 Federal	990 FSL, 990 FEL 20-25N-9W San Juan	4/60	D&A	6,505	Tertiary	Dakota (Cretaceous)	
Davis Oil No. 1 Govt-Mead	660 FNL, 660 FEL 24-25N-9W San Juan	10/57	D&A	6,567	Tertiary	Morrison (Jurassic)	
Alex Campbell No. 1 Rudman	1850 FNL, 790 FWL 27-25N-9W San Juan	9/59	oil abd	6,527	Tertiary	Morrison (Jurassic)	Production from Gallup, 5282-5502 ft
Lucerne & Nilco No. 1 Gardner	1980 FSL, 1980 FWL 28-25N-9W San Juan	5/52	D&A	1,825	Tertiary	Pictured Cliffs (Cretaceous)	
Dugan Prod. No. 1 Abigail Adams	1850 FNL, 1190 FEL 31-25N-9W San Juan	5/79	D&A	2,013	Tertiary	Pictured Cliffs (Cretaceous)	
Standard Oil & Gas No. 1 Hairston	990 FNL, 990 FEL 31-25N-9W San Juan	8/55	D&A	6,650	Tertiary	Dakota (Cretaceous)	
El Paso Natural Gas 3-A-Pipkin	1650 FSL, 990 FWL 1-25N-10W San Juan	1/55	D&A	2,325	Tertiary	Pictured Cliffs (Cretaceous)	
Lucille Pipkin No. 1 Pipkin-Huerfano	790 FNL, 1650 FWL 1-25N-10W San Juan	10/53	D&A	2,195	Tertiary	Pictured Cliffs (Cretaceous)	
Anderson & Prichard No. 1 Jen-Na-pia	790 FNL, 1850 FWL 2-25N-10W San Juan	2/65	gas	6,764	Tertiary	Dakota (Cretaceous)	Prod from Gallup
El Paso Products No. 1-A Linden	660 FNL, 660 FEL 4-25N-10W San Juan	1/58	D&A	5,895	Tertiary	Gallup (Cretaceous)	
El Paso Gas No. 1 Lundean	660 FNL, 660 FEL 9-25N-10W San Juan	9/57	D&A	5,745	Tertiary	Gallup (Cretaceous)	
El Paso Natural Gas No. 1 Hanson A	820 FNL, 660 FEL 5-25N-10W San Juan	12/57	D&A	5,755	Tertiary	Gallup (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Sun Oil Co. No. 1 Heirs of Ith-Hal-E-Wood	660 FSL, 660 FWL 9-25N-10W San Juan	12/57	oil	5,205	Tertiary	Gallup (Cretaceous)	Prod from Gallup Perf 5140-56 ft
S. D. Johnson No. 1-A Federal	1980 FSL, 660 FWL 14-25N-10W San Juan	9/56	D&A	6,624	Tertiary	Graneros (Cretaceous)	
El Paso Natural Gas No. 1 McKee	800 FNL, 990 FWL 1-25N-11W San Juan	6/57	D&A	5,645	Tertiary	Sanastee (Cretaceous)	Recovered oil from Gallup, 4296-5418 ft
Benton-Montin-Greer No. 1 Harvey	760 FSL, 1880 FEL 14-25N-11W San Juan	1/57	D&A	5,200	Tertiary	Gallup (Cretaceous)	
Anderson-Prichard No. 1 Es-Ka-Yazzie	1980 FSL, 660 FWL 28-25N-11W San Juan	10/56	D&A	5,034	Tertiary	Gallup (Cretaceous)	
Hixon Dev. No. 1 Hixon-Federal	790 FNL, 790 FEL 19-25N-12W San Juan	4/80	D&A	1,440	Tertiary	Pictured Cliffs (Cretaceous)	
Hixon Development No. 4 Federal-19	790 FNL, 790 FWL 19-25N-12W San Juan	9/82	D&A	1,475	Tertiary	Fruitland (Cretaceous)	
Shell Oil No. W-1 Bisti	454 FNL, 2074 FEL 24-25N-12W San Juan	1/61	D&A	3,825	Tertiary	Mesaverde (Cretaceous)	
Hixon Development No. 4 Hixon Federal-29	790 FNL, 790 FWL 29-25N-12W San Juan	7/80	D&A	1,325	Tertiary	Pictured Cliffs (Cretaceous)	
Southern Union No. 1-B Newsom	1825 FSL, 1700 FEL 9-26N-8W San Juan	1/55	D&A	2,393	Tertiary	Pictured Cliffs (Cretaceous)	
J. R. Sharp No. 5 Luthy	990 FNL, 990 FEL 13-26N-8W San Juan	10/52	D&A	4,600	Tertiary	Pt. Lookout (Cretaceous)	
Stanolind Oil & Gas No. 26 Huerfano Unit	990 FSL, 990 FEL 5-26N-9W San Juan	1/55	D&A	2,220	Tertiary	Pictured Cliffs (Cretaceous)	
Stanolind Oil & Gas No. 32 Huerfano Unit	990 FNL, 990 FWL 5-26N-9W San Juan	1/55	D&A	95	Tertiary		
Stanolind Oil & Gas No. 31 Huerfano Unit	1650 FSL, 990 FEL 8-26N-9W San Juan	11/54	D&A	2,320	Tertiary		
Stanolind Oil & Gas No. 8 Huerfano	1650 FSL, 1650 FEL 28-26N-9W San Juan	11/51	D&A	2,121	Tertiary		
Stanolind Oil & Gas No. 1-3 Slick	1980 FNL, 1980 FEL 1-26N-10W San Juan	9/50	D&A	2,425	Tertiary		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
El Paso Natural Gas No. 45 Huerfano Unit	1650 FSL, 990 FWL 10-26N-10W San Juan	2/56	D&A	2,365	Tertiary	Pictured Cliffs (Cretaceous)	
Florance Drilling No. 1 Hudson	1320 FNL, 330 FWL 10-26N-10W San Juan	9/47	D&A				
Florance Drilling No. 1 Hudson-X	990 FNL, 330 FWL 10-26N-10W San Juan	2/48	D&A	2,655	Tertiary		
El Paso Natural Gas No. 85 Huerfano	990 FNL, 990 FEL 11-26N-10W San Juan	8/56	D&A	2,420	Tertiary	Pictured Cliffs (Cretaceous)	
El Paso Natural Gas No. 87 Huerfano Unit	1650 FSL, 990 FEL 13-26N-10W San Juan	8/56	D&A	2,287	Tertiary	Pictured Cliffs (Cretaceous)	
Stanolind Oil & Gas No. 7 Huerfano	1650 FSL, 1650 FEL 14-26N-10W San Juan	11/51	D&A	2,295	Tertiary		
Stanolind Oil & Gas No. 1 Huerfano Unit	1980 FNL, 1980 FEL 21-26N-10W San Juan	8/50	D&A	2,150	Tertiary	Pictured Cliffs (Cretaceous)	
El Paso Natural Gas No. 88 Huerfano Unit	1650 FSL, 990 FEL 22-26N-10W San Juan	8/56	D&A	2,220	Tertiary	Pictured Cliffs (Cretaceous)	
Stanolind Oil & Gas No. 1-2 Slick	1980 FSL, 1980 FEL 25-26N-10W San Juan	10/50	D&A	2,105	Tertiary		
Wininget No. 2 State	990 FNL, 1650 FWL 2-26N-11W San Juan	3/52	D&A	90	Tertiary		
E. W. Germany No. 2 Mead "B"	762 FNL, 889 FEL 3-26N-1W San Juan	11/59	D&A	775	Tertiary		
Griffith Moore No. 1-A Mead	990 FNL, 1050 FWL 12-26N-11W San Juan	9/52	D&A	2,030	Tertiary		
El Paso Products No. 1-A Delhi-Taylor	2310 FSL, 660 FEL 28-26N-11W San Juan	10/57	D&A	5,260	Tertiary	Gallup (Cretaceous)	
Delhi Oil Corp. No. 1 Navajo	1650 FNL, 1650 FEL 29-26N-11W San Juan	5/52	D&A	1,362	Tertiary	Pictured Cliffs (Cretaceous)	
El Paso Natural Gas No. 2 Nelson	990 FSL, 1650 FWL 8-26N-12W San Juan	11/55	D&A	5,435	Tertiary	Mancos (Cretaceous)	
El Paso Natural Gas No. 1-C Sullivan	890 FSL, 1090 FWL 17-26N-12W San Juan	9/56	D&A	4,975	Tertiary	Gallup (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Jack Sullivan No. 1 Hill	660 FNL, 660 FEL 20-26N-12W San Juan	9/52	D&A	5,985	Tertiary	Dakota (Cretaceous)	
Reynolds Mining No. 1 Federal	1245 FNL, 1245 FEL 22-26N-12W San Juan	12/55	D&A	5,151	Tertiary	Gallup (Cretaceous)	
El Paso Natural Gas No. 2 Sullivan B	1650 FNL, 790 FWL 29-26N-12W San Juan	11/57	D&A	5,859	Tertiary	Graneros (Cretaceous)	
El Paso Natural Gas No. 1-B Sullivan	990 FSL, 990 FWL 30-26N-12W San Juan	9/56	D&A	5,032	Tertiary	Mesaverde (Cretaceous)	
Marrion & Bayless No. 2 Chaco	840 FSL, 790 FEL 1-26N-13W San Juan	3/78	D&A	650	Tertiary	Farmington (Cretaceous)	
Coal Creek Oil No. 1 Mansinger	NE,SE 4-26N-13W San Juan	9/24	D&A	500	Tertiary		
British American Oil No. 1 T. W. Cabben	1040 FSL, 1040 FWL 5-26N-13W San Juan	7/51	D&A	1,683	Tertiary	Pictured Cliffs (Cretaceous)	
British American Oil No. 1-C Govt-Scott	560 FSL, 760 FWL 7-26N-13W San Juan	11/56	D&A	6,075	Tertiary	Dakota (Cretaceous)	
Frank Anderson No. 14-13 Indian	660 FSL, 660 FWL 13-26N-13W San Juan	8/56	D&A	5,205	Tertiary	Lower Mancos (Cretaceous)	
Benson-Montin-Greer No. 4 Foster	1980 FSL, 1980 FWL 15-26N-13W San Juan	4/57	D&A	5,170	Tertiary	Gallup (Cretaceous)	
Coal Creek Oil No. 1 Arthur Tubbo	NE/4,SW/4 19-26N-13W San Juan	5/29	D&A	505	Tertiary		
Skelly Oil No. 1 Duff	660 FSL, 1980 FEL 19-26N-13W San Juan	12/56	D&A	5,500	Tertiary	Gallup (Cretaceous)	
British-American Oil No. 1 Douthit-B	1850 FNL, 790 FWL 29-26N-13W San Juan	11/55	D&A	1,740	Tertiary	Pictured Cliffs (Cretaceous)	
Blackrock Oil No. 1 Hughes	NE/4, NE/4 31-26N-13W San Juan	8/24	D&A	653	Tertiary		
Dugan Production No. 1 Mansion	1850 FSL, 790 FEL 32-26N-13W San Juan	4/79	D&A	1,600	Tertiary	Pictured Cliffs (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Dugan Production No. 1 Sunshine	800 FNL, 790 FEL 32-26N-13W San Juan	8/79	D&A	1,506	Tertiary	Pictured Cliffs (Cretaceous)	
Sunray Mid-Continent No. 1 N.M. Federal G	660 FNL, 660 FEL 32-26N-13W San Juan	1/60	D&A	6,050	Tertiary	Morrison (Jurassic)	
Kerr-McGee No. 1 Navajo-5	1980 FNL, 660 FWL 5-26N-14W San Juan	3/80	D&A	5,000	Cretaceous	Bisti (Cretaceous)	
Harrell Budd No. 1 West Bisti	600 FNL, 620 FEL 7-26N-14W San Juan	3/63	D&A	4,903	Cretaceous	Gallup (Cretaceous)	
Rupe Oil No. 1 Tobin	1850 FSL, 1850 FWL 11-26N-14W San Juan	10/72	D&A	1,272	Cretaceous	Pictured Cliffs (Cretaceous)	
Texaco Inc. No. 1 Navajo Tribe BJ	660 FNL, 1980 FEL 11-26N-14W San Juan	6/68	D&A	5,250	Cretaceous	Gallup (Cretaceous)	
British American No. 1 Navajo	560 FNL, 660 FWL 15-26N-14W San Juan	11/56	D&A	5,928	Cretaceous	Greenhorn (Cretaceous)	
Patrick Petroleum No. 1 Pinabete Arroyo	1990 FSL, 2120 FEL 17-26N-14W San Juan	12/79	D&A	4,898	Cretaceous	Lower Mancos (Cretaceous)	
Tesoro Petroleum No. 1 Pinabete	790 FSL, 1150 FWL 17-26N-14W San Juan	10/74	D&A	5,665	Cretaceous	Dakota (Cretaceous)	DST 4715-4812 ft (Gallup) rec 30 mud; DST 5565-88 ft (Dakota) rec 210 SGCM; DST 5585-5621 ft (Dakota) rec 120 mud
Kay Kimball No. 1-18 Navajo	400 FNL, 830 FWL 18-26N-14W San Juan	11/57	D&A	4,581	Cretaceous	Gallup (Cretaceous)	
Skelly Oil Co. No. 1 Navajo "O"	990 FSL, 1650 FWL 34-26N-14W San Juan	10/62	D&A	11,282	Cretaceous	Mississippian	
Standard of Texas No. 2 Navajo	660 FNL, 1980 FEL 1-26N-15W San Juan	11/61	D&A	4,900	Cretaceous	Gallup (Cretaceous)	
Chaplin Pet. No. 1 Pinabete Navajo	1980 FNL, 1980 FEL 2-26N-15W San Juan	12/77	D&A	4,750	Cretaceous	Gallup (Cretaceous)	DST 3453-3531 ft (Pt. Lookout) rec 210 mud; DST 4630-4750 ft (Gallup) rec 40 mud
Standard of Texas No. 1 Navajo 2	926 FNL, 811 FWL 2-26N-15W San Juan	12/58	D&A	4,830	Cretaceous	Gallup (Cretaceous)	
Shell Oil Co. No. 1 Burnham	560 FNL, 600 FEL 14-26N-15W San Juan	11/56	D&A	5,388	Cretaceous	Mancos (Cretaceous)	
Shell Oil Co. No. 14-24 Burnham	560 FSL, 4620 FEL 24-26N-15W San Juan	12/58	D&A	5,437	Cretaceous	Morrison (Jurassic)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Pure Oil Co. No. 1 Navajo Tract 27	1980 FNL, 660 FEL 32-26N-15W San Juan	9/61	D&A	10,420	Cretaceous	Precambrian	
Pure Oil Co. No. 1-3 Navajo	990 FNL, 990 FWL 36-26N-16W San Juan	7/63	D&A	4,820	Cretaceous	Morrison (Jurassic)	
Odessa Natural No. 1 Duncan Navajo-2	2310 FSL, 2310 FWL 2-26N-17W San Juan	11/79	D&A	4,858	Cretaceous	Dakota (Cretaceous)	
Davis Oil Co. No. 1 Conoco-Navajo	660 FSL, 660 FWL 11-26N-17W San Juan	12/57	D&A	4,830	Cretaceous	Morrison (Jurassic)	
Compass Exploration No. 1-31 Blanca	1980 FSL, 1980 FEL 31-26N-17W San Juan	1/64	D&A	3,275	Cretaceous	Sanostee (Cretaceous)	
Continental Oil No. 1 Tocito	2678 FSL, 1325 FWL 8-26N-18W San Juan	6/26	D&A	1,430	Cretaceous		Show oil at 877 ft
Pan American Pet. No. 1 Navajo P	790 FSL, 790 FWL 8-26N-18W San Juan	7/63	D&A	7,148	Cretaceous	Cambrian	
EPROC Assoc. No. 1 TOCHO Dome	2266 FNL, 330 FWL 9-26N-18W San Juan	11/61	D&A	808	Cretaceous	Dakota (Cretaceous)	
Curtis Little No. 3 Navajo-Tocito	900 FNL, 900 FWL 10-26N-18W San Juan	10/68	D&A	6,777	Cretaceous	Mississippian	
Pan American No. 1 Navajo	790 FSL, 790 FWL 17-26N-18W San Juan	3/63	gas	6,694	Cretaceous	Mississippian	Prod from Mississippian, 6634-71 ft
Sinclair Oil & Gas No. 1 Navajo 149 SJ	900 FNL, 890 FEL 23-26N-18W San Juan	10/64	D&A	9,308	Cretaceous	Aneth (Devonian)	
Curtis Little No. 1 Navajo 35	1650 FSL, 900 FWL 35-26N-18W San Juan	10/71	D&A	1,000	Gallup	Dakota (Cretaceous)	
Amerada Pet. No. 1 Navajo Tract 381	660 FSL, 660 FEL 5-26N-19W San Juan	4/65	D&A	6,310	Cretaceous	Precambrian	
Apache Corp. No. 1 Navajo Tribal	330 FSL, 500 FEL 21-26N-19W San Juan	10/70	D&A	6,850	Gallup	Elbert (Devonian)	DST 6167-6415 ft (Hermosa) rec 2281 mud; DST 6680-6850 ft (Miss.) gas in 45 min @ 2300 MCFGD, 487 mud
Humble Oil & Rfng No. 1 Navajo D	790 FNL, 790 FEL 30-26N-19W San Juan	1/57	D&A	7,136	Cretaceous	Coconino (Devonian)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Gulf Oil No. 1 Navajo BB	780 FNL, 1840 FEL 25-26N-20W San Juan	6/69	D&A	7,030	Cretaceous	Precambrian	DST 2160-2244 ft (Todilto) rec 270 WCM, 1280 muddy water; DST 6215-61 ft (Hermosa) rec 30 mud; DST 6338-90 ft (Hermosa) rec 100 mud; DST 6599-6625 ft (Miss.) gas in 10 min @ 64 MCFGPD, rec 30 GCM
Kingwood Oil No. 1 U.S. Argo	790 FNL, 1850 FWL 18-27N-10W San Juan	7/59	gas	6,350	Tertiary	Greenhorn (Cretaceous)	Prod from Dakota 6128-6270 ft
Big Mac Oil & Gas No. 1 Galt	790 FSL, 960 FWL 30-27N-10W San Juan	7/57	D&A	6,020	Tertiary		
Pan American Oil No. 8 Pipkin	1070 FSL, 1650 FWL 1-27N-11W San Juan	1/61	D&A	2,992	Tertiary	Pictured Cliffs (Cretaceous)	
Western Nat. Gas No. 1 Bolack	990 FSL, 990 FWL 2-27N-11W San Juan	2/52	D&A	2,050	Tertiary	Pictured Cliffs (Cretaceous)	
R&G Drilling No. 10 Schlosser	990 FNL, 990 FEL 3-27N-11W San Juan	8/55	D&A	2,014	Tertiary	Pictured Cliffs (Cretaceous)	
Frontier Refining No. 9 Bolack	990 FNL, 1450 FWL 4-27N-11W San Juan	12/51	D&A	2,035	Tertiary		
British American No. 2-X Scott	1004 FNL, 1004 FWL 22-27N-11W San Juan	2/52	D&A	2,104	Tertiary	Pictured Cliffs (Cretaceous)	
Western Development No. 1 Rummel	1880 FNL, 660 FWL 27-27N-12W San Juan	1/58	D&A	6,125	Tertiary	Greenhorn (Cretaceous)	
Royal Development No. 6-D	990 FNL, 1050 FWL 6-27N-13W San Juan	11/61	D&A	101	Tertiary		
Royal Development No. 2 Ojo Amarillo	990 FSL, 660 FWL 6-27N-13W San Juan	11/1	D&A	5,505	Tertiary	Sanostee (Cretaceous)	
Tidewater Oil No. 1 Ojo Amarillo	660 FSL, 660 FEL 7-27N-13W San Juan	4/62	D&A	5,512	Tertiary	Sanostee (Cretaceous)	
Delhi Oil Corp. No. 1 Douthit Fed.	990 FNL, 990 FEL 8-27N-13W San Juan	8/50	D&A	6,115	Tertiary	Dakota (Cretaceous)	
Davis Oil No. 1 McConnell-Navajo	720 FSL, 620 FWL 12-27N-13W San Juan	11/57	D&A	6,168	Tertiary	Morrison (Jurassic)	
Stanolind Oil & Gas No. 1 P.A. Schultz	1300 FSL, 1300 FWL 15-27N-13W San Juan	2/56	D&A	6,395	Tertiary	Morrison (Jurassic)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Rex Uranium No. 2 Royal Rex	990 FNL, 990 FWL 18-27N-13W San Juan	1/58	D&A	6,145	Tertiary	Graneros (Cretaceous)	
Sunray Mid-Continent No. 1 Hoska-Ne-Noe-Wot	660 FSL, 1980 FWL 22-27N-13W San Juan	8/56	D&A	5,570	Tertiary	Sanostee (Cretaceous)	
Dugan Prod. No. 2 Bengal C	790 FSL, 790 FEL 25-27N-13W San Juan	9/73	D&A	1,020	Tertiary	Pictured Cliffs (Cretaceous)	
Pan American No. 2 Newman	1650 FSL, 860 FWL 28-27N-13W San Juan	3/57	D&A	6,150	Tertiary	Morrison (Jurassic)	
Stanolind Oil & Gas No. 1 Newman	660 FSL, 660 FEL 31-27N-13W San Juan	5/56	D&A	6,113	Tertiary	Morrison (Jurassic)	Show of gas Pt. Lookout
Tiger Oil No. 2 Navajo	660 FSL, 660 FEL 3-27N-14W San Juan	12/63	D&A	5,346	Cretaceous	Morrison (Jurassic)	
Gulf Oil No. 1 Gulf-Raven Ojo Navajo	1980 FSL, 660 FWL 4-27N-14W San Juan	9/61	D&A	5,870	Cretaceous	Morrison (Jurassic)	
Curtis J. Little & E. R. Richardson No. 1 Libby-Oates	330 FNL, 2310 FWL 5-27N-14W San Juan	12/67	D&A	4,950	Cretaceous	Gallup (Cretaceous)	
Davis Oil No. 1 Navajo-Raven	660 FNL, 660 FWL 6-27N-14W San Juan	12/57	D&A	5,723	Cretaceous	Dakota (Cretaceous)	
Texaco Inc. No. 1 Navajo Tribal BK	1980 FSL, 660 FWL 29-27N-14W San Juan	1/69	D&A	5,050	Cretaceous	Gallup (Cretaceous)	DST 4838-95 ft (Mancos) rec 150 mud; DST 4920-75 ft (Dakota) rec 810 mud
Standard Oil of Texas No. 1 Navajo	790 FSL, 330 FEL 31-27N-14W San Juan	5/58	D&A	4,737	Cretaceous	Gallup (Cretaceous)	DST 3515-55 ft (Pic. Cliffs) rec 300 MCSW; DST 3586-3634 ft (Pt. Lookout) rec 35 OCM
Standard Oil of Texas No. 9-1 Navajo	330 FNL, 330 FWL 9-27N-15W San Juan	2/61	D&A	4,720	Cretaceous	Sanostee (Cretaceous)	
Shell Oil Co. No. 44-12 Fruitland	630 FSL, 590 FEL 12-27N-15W San Juan	5/62	D&A	5,020	Cretaceous	Gallup (Cretaceous)	
William O. Calloway No. 1 Navajo	445 FNL, 650 FWL 14-27N-15W San Juan	12/62	D&A	500	Cretaceous	Gallup (Cretaceous)	
Davis Oil Co. No. 1 Budd Navajo	660 FSL, 660 FWL 17-27N-15W San Juan	12/63	D&A	4,729	Cretaceous	Gallup (Cretaceous)	
Continental Oil Co. No. 1 Cottonwood- Navajo	510 FNL, 660 FEL 29-27N-15W San Juan	6/62	D&A	1,846	Cretaceous		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Continental Oil Co. No. 1-X Cottonwood Navajo	796 FNL, 646 FEL 29-27N-15W San Juan	6/62	D&A	4,650	Cretaceous	Sanostee (Cretaceous)	
Miami Oil Prod. No. 1 Navajo 2084-A	570 FSL, 735 FWL 33-27N-15W San Juan	8/64	D&A	4,550	Cretaceous	Sanostee (Cretaceous)	
Davis Oil Co. No. 1 Budd Navajo B	660 FNL, 660 FEL 35-27N-15W San Juan	1/64	D&A	4,828	Cretaceous	Sanostee (Cretaceous)	
Kerr-McGee No. 1 Navajo 35	1650 FSL, 660 FWL 35-27N-15W San Juan	3/80	D&A	4,700	Cretaceous	Gallup (Cretaceous)	
Humble Oil & Refng No. 1 Navajo Tract 16	660 FNL, 1880 FEL 9-27N-16W San Juan	12/61	D&A	4,737	Cretaceous	Dakota (Cretaceous)	
Continental Oil No. 1 Chaco Wash	660 FNL, 572 FEL 19-27N-16W San Juan	4/64	D&A	10,642	Cretaceous	Devonian	
Continental Oil No. 22 Table Mesa	1550 FNL, 330 FWL 2-27N-17W San Juan	5/55	D&A	1,445	Cretaceous	Dakota (Cretaceous)	
Continental Oil No. 19 Table Mesa	1040 FSL, 600 FWL 3-27N-17W San Juan	3/55	D&A	1,650	Cretaceous	Morrison (Jurassic)	
Continental Oil No. 20 Table Mesa	2640 FNL, 2000 FEL 3-27N-17W San Juan	3/55	D&A	1,562	Cretaceous		
Continental Oil No. 21 Table Mesa	330 FNL, 1980 FEL 3-27N-17W San Juan	5/55	D&A	1,551	Cretaceous	Dakota (Cretaceous)	
Continental Oil No. VA-322	2200 FSL, 1320 FWL 3-27N-17W San Juan	3/55	D&A	1,511	Cretaceous	Morrison (Jurassic)	
Continental Oil Co. No. 23 Table Mesa	990 FNL, 990 FEL 9-27N-17W San Juan	7/55	D&A	1,540	Cretaceous	Dakota (Cretaceous)	
Continental Oil No. 6 Table Mesa	106 FSL, 2330 FEL 10-27N-17W San Juan	4/26	D&A	1,332	Cretaceous		Show oil 1322-32 ft
Continental Oil No. 7 Table Mesa	160 FSL, 1130 FEL 10-27N-17W San Juan	5/26	D&A	1,364	Cretaceous		
Compass Exploration No. 1-11 SE Table Mesa	1980 FNL, 1880 FWL 11-27N-17W San Juan	12/63	D&A	1,800	Cretaceous	Sanostee (Cretaceous)	
Texas Company No. 1 Navajo "B"	2310 FNL, 990 FEL 17-27N-17W San Juan	4/55	D&A	1,474	Cretaceous	Dakota (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Lonnie Kramer No. 1 Navajo Tract 4	660 FNL, 660 FEL 19-27N-17W San Juan	5/64	D&A	1,692	Cretaceous	Dakota (Cretaceous)	
Alan J. Antweil No. 1 Deadmans Wash	1650 FSL, 1650 FEL 10-27N-18W San Juan	7/72	D&A	1,650	Cretaceous	Dakota (Cretaceous)	
Claude C. Kennedy No. 1 Floyd Wayne	330 FSL, 330 FWL 34-27N-18W San Juan	12/65	D&A	1,004	Cretaceous	Dakota (Cretaceous)	
Northwest Pipeline No. 3 Barbara Kay	990 FNL, 2225 FEL 19-27N-19W San Juan	11/75	D&A	6,299	Cretaceous		
Northwest Pipeline No. 2 Barbara Kay	990 FNL, 2710 FEL 21-27N-19W San Juan	4/75	D&A	7,587	Cretaceous	Precambrian	
EPNG No. 1 Beautiful Mt.	660 FNL, 660 FEL 29-27N-19W San Juan	4/63	D&A	1,305	Cretaceous	Entrada (Jurassic)	
Texaco Inc. No. 1 Navajo Tribe AW	2050 FSL, 855 FEL 7-27N-20W San Juan	3/66	D&A	6,101	Cretaceous	Precambrian	
Ohio Oil No. 1 Govt	1650 FNL, 1500 FEL 22-28N-11W San Juan	7/57	D&A	1,630	Tertiary	Pictured Cliffs (Cretaceous)	
New Mexico Eagle Oil No. 2 Gov	285 FNL, 356 FEL 22-28N-11W San Juan	1936?	D&A	6,021	Tertiary		Show gas 593-603 ft
Southern Union Prod. No. 1 Kutz Canyon 11-B	1980 FSL, 220 FEL 25-28N-11W San Juan	6/40	D&A	2,060	Tertiary		
Milwaukee-New Mexico Syn No. 1 Walke	1540 FNL, 1460 FEL 30-28N-11W San Juan	6/29	D&A	2,004	Tertiary	Pictured Cliffs (Cretaceous)	
Benson & Montin No. 1 Rhodes	1650 FNL, 990 FWL 31-28N-11W San Juan	10/52	D&A	1,896	Tertiary	Pictured Cliffs (Cretaceous)	
E. J. Miley No. 1 H. H. Miller	300 FSL, 300 FEL 25-28N-12W San Juan	3/26	D&A	10	Tertiary		
British-American Oil No. 1 Scott	990 FNL, 990 FWL 20-28N-13W San Juan	7/51	D&A	1,490	Tertiary	Pictured Cliffs (Cretaceous)	
British-American Oil No. 1-D Scott	660 FNL, 660 FEL 20-28N-13W San Juan	8/57	D&A	6,426	Tertiary	Dakota (Cretaceous)	
Stanolind Oil & Gas No. 70 Gallegos Canyon	1670 FSL, 1780 FWL 24-28N-13W San Juan	10/55	D&A	1,490	Tertiary	Pictured Cliffs (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Pan American Pet. No. 1 Davies	990 FSL, 990 FWL 27-28N-13W San Juan	4/51	D&A	1,557	Tertiary		
McLeod Co. No. 31 McLeod Royal "H"	2310 FNL, 330 FEL 31-28N-13W San Juan	11/63	D&A				
Royal Development No. 1 Royal TF	1650 FNL, 2310 FWL 34-28N-13W San Juan	5/62	D&A	230	Tertiary	Ojo Alamo (Tertiary)	
Miami Oil Producers No. 1 Navajo 2171-A	660 FSL, 660 FWL 11-28N-14W San Juan	11/64	D&A	5,266	Tertiary	Sanostee (Cretaceous)	
Sunray-Mid Continent No. 1 Gulf Navajo	660 FNL, 660 FWL 21-28N-14W San Juan	1/62	D&A	5,168	Cretaceous		
Stone Drilling Inc. No. 1-22 SJU 28-14	1830 FSL, 610 FEL 22-28N-14W San Juan	12/63	D&A	5,240	Cretaceous	Sanostee (Cretaceous)	
Exploration Drilling No. 1 Navajo	660 FNL, 660 FEL 3-28N-14W San Juan	12/61	D&A	6,005	Cretaceous	Morrison (Jurassic)	
Socony Mobil No. 1 Ojo Navajo	660 FSL, 660 FEL 27-28N-14W San Juan	5/61	D&A	5,886	Cretaceous	Dakota (Cretaceous)	
Brinkerhoff Drilling No. 1 Brinkerhoff-Navajo	660 FSL, 1980 FWL 30-28N-14W San Juan	6/66	D&A	5,100	Cretaceous	Sanostee (Cretaceous)	
Gulf No. 1 Amarilla-Navajo	660 FNL, 660 FWL 30-28N-14W San Juan	4/58	D&A	5,740	Cretaceous	Greenhorn (Cretaceous)	
Walter Duncan No. 1 Gulf-Navajo	660 FNL, 660 FWL 31-28N-14W San Juan	9/64	D&A	5,120	Cretaceous	Sanostee (Cretaceous)	
Tenneco Oil Co. No. 1 Navajo 'A'	1660 FNL, 660 FEL 34-28N-14W San Juan	8/66	D&A	5,280	Cretaceous	Gallup (Cretaceous)	
Champlin O&G No. 1 Navajo T.O.C.	2300 FSL, 660 FWL 35-28N-14W San Juan	8/63	D&A	5,275	Cretaceous	Sanostee (Cretaceous)	
Curtis J. Little and E. R. Richardson No. 1 Bobbie	1700 FSL, 990 FWL 35-28N-14W San Juan	12/67	D&A	5,216	Cretaceous	Gallup (Cretaceous)	
Miami Oil Prod. No. 1 Navajo 2013 A	532 FNL, 660 FWL 11-28N-15W San Juan	8/64	D&A	4,705	Cretaceous	Gallup (Cretaceous)	
Pure Oil Co. No. 1 Navajo Tr. 9	660 FNL, 660 FEL 13-28N-16W San Juan	3/64	D&A	4,360	Cretaceous	Sanostee (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Texaco Inc. No. 1 Navajo Tribe BE	1980 FNL, 1980 FEL 13-28N-15W San Juan	2/68	D&A	4,960	Cretaceous	Mancos (Cretaceous)	
Scott Bros. Drilling No. 4 Magnolia-Navajo	2310 FNL, 330 FEL 17-28N-16W San Juan	7/59	D&A	1,610	Cretaceous	Sanostee (Cretaceous)	
Palmer Oil No. 1 Navajo	2180 FSL, 2180 FEL 20-28N-16W San Juan	1/76	D&A	2,520	Cretaceous	Dakota (Cretaceous)	DST 2415-2520 ft (Greenhorn) rec 60 WCM
Scott Bros. Drilling No. 1 Magnolia-Navajo	330 FNL, 330 FWL 20-28N-16W San Juan	7/59	D&A	2,377	Cretaceous	Sanostee (Cretaceous)	
British-American No. 1 Navajo F	760 FSL, 760 FEL 22-28N-16W San Juan	8/64	D&A	4,000	Cretaceous	Sanostee (Cretaceous)	
Skelly Oil Co. No. 1 Navajo 'N'	660 FSL, 1980 FWL 23-28N-16W San Juan	4/62	gas abd 1966	4,716	Cretaceous	Gallup (Cretaceous)	Prod from Gallup, 4550-4564 ft
Exploration Drilling No. 2 Navajo	660 FSL, 660 FWL 25-28N-16W San Juan	11/62	D&A	4,900	Cretaceous	Gallup (Cretaceous)	
Scott Bros. No. 3 Magnolia-Navajo	2310 FNL, 2310 FWL 30-28N-16W San Juan	7/59	D&A	2,085	Cretaceous	Sanostee (Cretaceous)	
Dugan Prod. No. 2 Pet. Inc.	790 FNL, 790 FEL 36-28N-15W San Juan	4/71	D&A	848	Kirtland (Cretaceous)	Pictured Cliffs (Cretaceous)	
Saguro Oil No. 2 Duncan-Navajo	1980 FNL, 660 FWL 14-28N-17W San Juan	4/74	D&A	1,547	Cretaceous	Dakota (Cretaceous)	
Schultz & Brannan No. 1 Navajo	330 FNL, 2310 FWL 18-28N-17W San Juan	3/57	D&A	1,580	Cretaceous	Dakota (Cretaceous)	
Eastern Petroleum No. 1 Amerada-Sulphur Springs	660 FNL, 669 FWL 19-28N-17W San Juan	1/69	D&A	548	Cretaceous	Gallup (Cretaceous)	
Howard L. Kennedy No. 1 Navajo	660 FSL, 660 FEL 23-28N-17W San Juan	11/67	D&A	1,687	Cretaceous	Dakota (Cretaceous)	
Mitchell & Kennedy No. 1 Navajo	660 FNL, 1980 FWL 23-28N-17W San Juan	3/64	D&A	715	Cretaceous	Gallup (Cretaceous)	
Sunray Mid-Continent No. 1 N.M. Navajo	1980 FSL, 1980 FWL 27-28N-17W San Juan	12/58	D&A	1,657	Cretaceous	Morrison (Jurassic)	
Sunray Mid-Continent No. 2 N.M. Navajo	990 FNL, 990 FEL 27-28N-17W San Juan	12/58	D&A	1,690	Cretaceous	Morrison (Jurassic)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Sunray Mid-Continent No. 3 N.M. Navajo	330 FSL, 2310 FEL 27-28N-17W San Juan	12/58	D&A	1,655	Cretaceous	Morrison (Jurassic)	
Continental Oil No. 2 North Table Mesa	1980 FSL, 760 FEL 33-28N-17W San Juan	4/55	D&A	1,642	Cretaceous	Morrison (Jurassic)	
Continental Oil No. 1 North Table Mesa	1019 FNL, 1659 FEL 34-28N-17W San Juan	4/55	D&A	1,692	Cretaceous	Morrison (Jurassic)	
Continental Oil No. 3 North Table Mesa	857 FNL, 2407 FEL 34-28N-17W San Juan	5/55	D&A	1,500	Cretaceous	Dakota (Cretaceous)	
Continental Oil No. 4 North Table Mesa	1200 FNL, 2150 FWL 34-28N-17W San Juan	5/55	D&A	1,480	Cretaceous	Dakota (Cretaceous)	
Alan J. Antwell No. 1 Shiprock	660 FSL, 1980 FWL 7-28N-18W San Juan	7/72	D&A	1,645	Cretaceous	Dakota (Cretaceous)	
Champlin Petr. Co. No. 1 Navajo "12"	1980 FNL, 660 FEL 13-28N-18W San Juan	7/68	D&A	7,327	Cretaceous	Table Mesa (Pennsylvanian)	
Eastern Pet. No. 3 Amerada Sulphur Springs	2017 FNL, 469 FEL 13-28N-18W San Juan	3/69	D&A	550	Mancos (Cretaceous)	Gallup (Cretaceous)	
Eastern Petroleum No. 2 Amerada Sulphur Springs	660 FSL, 695 FWL 14-28N-18W San Juan	1/69	D&A	1,560	Cretaceous	Dakota (Cretaceous)	
J. W. McMillan No. 1 McMillan	1682 FNL, 660 FEL 28-28N-18W San Juan	1/54	D&A	1,524	Cretaceous	Tocito (Cretaceous)	
J. W. McMillan No. 2 Navajo	660 FNL, 660 FEL 32-28N-18W San Juan	7/57	D&A	1,464	Cretaceous	Greenhorn (Cretaceous)	
Amerada Pet. No. 1 Navajo Tract 32	660 FSL, 660 FWL 27-28N-19W San Juan	7/63	D&A	7,715	Cretaceous	Devonian	
Delhi-Taylor No. 1 11 Vanderwart	1474 FSL, 1728 FWL 11-29N-8W San Juan	3/63	D&A	165	Tertiary		
Colorado Oil No. 1 Hepp	SW/4 SW/4 SW/4 31-29N-8W San Juan		D&A	500	Tertiary		
Angel Peak Syn. No. 1 Pool	C NE/4 6-29N-9W San Juan	2/26	D&A	580	Tertiary		
Union Oil & Mining No. 1 Lanier Carl	1123 FNL, 244 FEL 6-29N-9W San Juan	2/26	D&A	505	Tertiary		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Union Oil & Mining No. 2 Pine	SE SW 8-29N-9W San Juan	3/28	D&A	4,289	Tertiary		Show of oil 1410; 2865-2950 ft, gas 1208-25 ft, 1980-85 ft, 2100-2105 ft, 3156-75 ft
Michigan Oil Corp. No. 1 Pine	2420 FNL, 1540 FWL 17-29N-9W San Juan	8/25	D&A	505	Tertiary		
Tenneco Oil No. 1 State N	1110 FSL, 790 FWL 32-29N-9W San Juan	9/80	D&A	6,758	Tertiary	Dakota (Cretaceous)	
Blanco Gas Co. No. 1 Bradley	1650 FNL, 990 FEL 35-29N-9W San Juan	9/49	D&A	1,127	Tertiary		
Delhi Oil Corp. No. 1 Bouck-Federal	1090 FSL, 990 FEL 1-29N-10W San Juan	9/50	D&A	4,830	Tertiary	Mancos (Cretaceous)	
Union Oil & Mining No. 1 Pool	434 FNL, 1008 FEL 13-29N-10W San Juan	1/26	D&A	505	Tertiary		
Francis L. Harvey No. 2 Pinkstaff Estate	990 FNL, 990 FEL 20-29N-10W San Juan	12/52	D&A	966	Tertiary		
George E. Willet No. 4 SDD Willet	1983 FNL, 1971 FEL 29-29N-10W San Juan	1/62	D&A	1,240	Tertiary		
Ada Williams No. 1 Santa Fe	C NW NE 3-29N-11W San Juan	11/44	D&A	1,000	Tertiary		
Federal Drilling No. 1	1104 FNL, 2980 FWL 8-29N-11W San Juan	11/26	D&A	518	Tertiary		
Beagle-Blackrock No. 1 Lanier	330 FWL, 660 FNL 9-29N-11W San Juan	9/33	D&A	580	Tertiary		
Lanier No. 1 Lanier	NE NW SW 9-29N-11W San Juan	12/34	D&A	927	Tertiary		
F. E. Lanier No. 2 Lanier	2420 FNL, 1540 FWL 9-29N-11W San Juan	3/34	D&A	2,100	Tertiary		Gas shows 1900, 1945 ft Oil show 1400 ft
Rio Grand Dev. No. 1	2310 FSL, 900 FWL 9-29N-11W San Juan	7/27	D&A	926	Tertiary		
Aztec Oil No. 1 Viles	1170 FSL, 1170 FEL 11-29N-11W San Juan	11/26	D&A	2,665	Tertiary		Show of oil & gas 1165-95 ft; show of gas 1820-25 ft; show gas & water 1955-60 ft
Bloomfield Royalties No. 1 Ross	NW SW SE 11-29N-11W San Juan	/26	D&A	610	Tertiary		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Dolores Oil No. 1 Viles	1520 FSL, 3670 FEL 11-29N-11W San Juan	9/25	D&A	1,145	Tertiary		Show of gas 815-75 ft Show oil 1090-1110 ft Oil sand 1115-24 ft
Montezuma Oil No. 1 Hubbel	SW SW NW 12-29N-11W San Juan	/25	D&A	1,035	Tertiary		Show of oil & gas 159-168 ft; shows of oil 346-96, 634-48 ft, 743-47 ft
Basin Nat. Gas Co. No. 1 Bruington	1650 FNL, 990 FWL 14-29N-11W San Juan	12/55	D&A	1,846	Tertiary	Pictured Cliffs (Cretaceous)	
Harvey S. Mizel No. 1 Mizel-Hare	SE SE 14-29N-11W San Juan	12/25	D&A		Tertiary		
Otto Reynolds No. 1 WG Wood	330 FSL, 1629 FWL 14-29N-11W San Juan	2/61	D&A	840	Tertiary		
George Willet No. 7 Hare	660 FSL, 1360 FEL 14-29N-11W San Juan	5/64	D&A	910	Tertiary	Farmington (Cretaceous)	
Basin Nat. Gas No. 1 A. C. Hare	990 FSL, 1650 FEL 15-29N-11W San Juan	12/55	D&A	1,549	Tertiary	Kirtland (Cretaceous)	
Continental Oil No. 2 Navajo	NW NW SE 36-29N-19W San Juan	10/45	D&A	1,482	Cretaceous	Dakota (Cretaceous	
Smith and Wiley No. 1 Schutz	200 FSL, 600 FEL 15-29N-11W San Juan	7/27	D&A	785	Tertiary		
Frank Valley et al. No. 1 Matto	475 FSL, 2475 FEL 15-29N-11W San Juan	6/33	D&A	105	Tertiary		
San Juan Oil & Gas Co. No. 1 Henry Kaune	1870 FSL, 1120 FEL 18-29N-11W San Juan	10/39	D&A	1,287	Tertiary		
Liedecker No. 1 Liedecker	SE SW SW 19-29N-11W San Juan		D&A	821	Tertiary		Show gas 515, 572 ft Show oil 588-93 ft Oil sand 613-37 ft
San Juan Oil & Gas No. 1 Cassidy	NW SE SE 19-29N-11W San Juan	11/38	D&A	9,331	Tertiary		
Elvis L. Roberts No. 1 Wade	850 FNL, 1750 FEL 21-29N-11W San Juan	/59	D&A	1,476	Tertiary	Fruitland (Cretaceous)	
26 Oil Co. No. 1 Jackson	300 FNL, 200 FEL 21-29N-11W San Juan	4/27	D&A	740	Tertiary		Show of oil
Noland and Bullock No. 1 Bunce	C SW SE 24-29N-11W San Juan	10/38	D&A	965	Tertiary		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Pictured Oil No. 1 Martin	NW NW NE 24-29N-11W San Juan	9/28	D&A	310	Tertiary		
Huerfano Oil No. 1 Wiltbank	SE NW 25-29N-11W San Juan	10/27	D&A	740	Tertiary		
Oil Lease Development No. 1 Sullivan	SE SE NW 24-29N-11W San Juan	9/28	D&A	750	Tertiary		
Black Diamond Oil No. 1	920 FNL, 1520 FWL 27-29N-11W San Juan	3/31	D&A	800	Tertiary		
Aztec No. 1 Hartman	2310 FNL, 900 FWL 28-29N-11W San Juan	4/47	gas	1,645	Tertiary		
Minta-Kenaston No. 3 Madson Selby	SW/4 28-29N-11W San Juan	12/52	oil	630	Tertiary	Farmington (Cretaceous)	Prod from Farmington
Haynes & V. T. Drilling No. 1 Hartman	990 FNL, 1650 FWL 31-29N-11W San Juan	9/53	D&A	1,520	Tertiary	Pictured Cliffs (Cretaceous)	
George Krause No. 1 Krause Beck	1980 FSL, 1980 FEL 10-29N-12W San Juan	9/46	gas	1,871	Tertiary		
Nick Notterman No. 1 D. H. Crawford	1650 FNL, 2310 FWL 25-29N-12W San Juan	1/43	D&A	990	Tertiary		
McCoy No. 1 S	147 FSL, 200 FWL 26-29N-12W San Juan	4/33	D&A	40	Tertiary		
McCoy & Phillips No. 1 Sammons	910 FSL, 250 FEL 27-29N-12W San Juan	5/33	D&A	600	Tertiary		
A. J. Green No. 2 Stark	2310 FSL, 330 FEL 28-29N-12W San Juan	4/44	D&A	720	Tertiary		
Siemens No. 1 Medina	NE NE NE 33-29N-12W San Juan	3/41	D&A	850	Tertiary		
San Juan Pet. Corp. No. 1 Umbenbour	SE SE 9-29N-13W San Juan	9/28	D&A	3,005	Cretaceous		
Blackrock Oil No. 1 Sinburne	200 FSL, 600 FEL 11-29N-13W San Juan	8/32	D&A	1,550	Cretaceous		
Shiprock Oil No. 1 B. A. Bradner	2310 FSL, 990 FWL 12-29N-13W San Juan	5/24	D&A	1,495	Cretaceous		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Grass, Gould, Marloch No. 2 Sutton	304 FNL, 244 FWL 12-29N-13W San Juan	1/26	D&A	512	Cretaceous		Show oil 440-42, 475-80 ft
Jack Amenda No. 2 Sutton	660 FNL, 660 FEL 14-29N-13W San Juan	7/38	D&A	625	Cretaceous		
J. F. Cross et al. No. 1 Blackrock	C SW SW 13-29N-13W San Juan	9/28	D&A	740	Cretaceous		
Miller J. Warren No. 1 Culpepper	694 FSL, 996 FWL 16-29N-13W San Juan	11/27	D&A	1,280	Cretaceous	Pictured Cliffs (Cretaceous)	
Farmington Oil & Gas No. 1 Blake	SW SE 16-29N-13W San Juan	4/07	D&A	2,730	Cretaceous		Show oil 797 ft; 2050-2205 ft; gas 215-40, 1185-1230 ft; gas & oil 38-94, 730, 790 ft
San Juan Pet. No. 1 Palmer Ranch	300 FNL, 300 FEL 17-29N-13W San Juan	2/28	D&A	1,291	Cretaceous		
Paul Palmer and Assoc. No. 1 Hutton	1188 FSL, 1996 FEL 17-29N-13W San Juan	9/50	D&A	1,086	Cretaceous		
Lloyd D. Locke No. 1 John Graham Pooled Unit	1650 FSL, 1650 FEL 22-29N-13W San Juan	7/52	D&A	1,170	Tertiary		
Bay Petroleum No. 7 Callow	2110 FNL, 530 FEL 28-29N-13W San Juan	4/55	D&A	1,529	Tertiary		
Aztec Oil & Gas No. 18-C Hagood	1860 FSL, 2310 FWL 29-29N-13W San Juan	5/62	D&A	5,360	Tertiary	Gallup (Cretaceous)	
Dysart No. 1 Fullerton	NW 33-29N-13W San Juan		D&A	300	Tertiary		
Pubco Development No. 1 Russell	330 FSL, 250 FEL 4-29N-14W San Juan	12/55	D&A	5,760	Cretaceous	Morrison (Jurassic)	Perf 3063-3096 ft (Menefee), oil show
Pubco Development No. 4 Russell	990 FNL, 990 FEL 4-29N-14W San Juan	4/55	D&A	1,159	Cretaceous	Pictured Cliffs (Cretaceous)	
Sunray Mid-Continent No. 1 N.M. Federal 'I'	1850 FNL, 790 FWL 11-29N-14W San Juan	10/57	gas	5,921	Cretaceous	Dakota (Cretaceous)	Prod from Mesaverde 3493-3505 ft
Canada Production No. 1 Duncan	747 FNL, 1511 FWL 15-29N-14W San Juan	7/54	D&A	3,467	Cretaceous	Point Lookout (Cretaceous)	
British-American No. 1 Navajo	660 FNL, 660 FWL 30-29N-14W San Juan	2/61	D&A	4,930	Cretaceous	Sanostee (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
West and Steele No. 1 S. W. Brimhal	330 FSL, 2030 FEL 3-29N-15W San Juan	11/43	D&A	1,092	Cretaceous	Mesaverde (Cretaceous)	
Jaco Drilling No. 1 Waterflow	1650 FNL, 990 FWL 8-29N-15W San Juan	5/48	D&A	4,797	Cretaceous	Morrison (Jurassic)	DST 1930-45 ft (Men.) rec 1500 HGCMW w/tr of oil DST 2320-2430 ft (Pt. Lookout) rec 1600 HGCMW; DST 3947-94 ft (Mancos) rec 35 G&OCM; DST 4581-4606 ft (Dakota) rec 155 sli GCMW w/faint oil cut; crd 4550-81 ft (Dakota) rec 31 sh & sd w/sli oil & gas shows Crd 4581-4606 ft (Dakota) rec 25 sd & sh w/fluorescenses
Kirtland Drilling No. 1 Hunt	SE SE NW 10-29N-15W San Juan	5/28	D&A	611	Cretaceous		
Kirtland Drilling No. 2 Hunt	SE SE NW 10-29N-15W San Juan	8/28	D&A	205	Cretaceous		
Great Western Drlg No. 1 Kennedy	1765 FSL, 1760 FEL 11-29N-15W San Juan	4/56	D&A	368	Cretaceous	Pictured Cliffs (Cretaceous)	
Earl Rodman No. 1 Brimhall	1980 FNL, 660 FWL 11-29N-15W San Juan	12/61	D&A	4,400	Cretaceous	Gallup (Cretaceous)	
Great Western Drlg No. 1 Foutz	1670 FSL, 1850 FWL 12-29N-15W San Juan	3/56	D&A	421	Cretaceous	Pictured Cliffs (Cretaceous)	
Greenbriar No. 1 Foutz	1650 FNL, 1650 FEL 12-29N-15W San Juan	7/52	D&A	3,260	Cretaceous	Morrison (Jurassic)	DST 2045-2130 ft (Cliff House) rec 180 MCW, 1950 water; DST 3010-95 ft (Pt. Lookout) rec 200 drilling mud, 820 sli SW
Continental Oil No. 1 Fruitland Navajo	613 FSL, 546 FWL 23-29N-15W San Juan	1/62	D&A	4,640	Cretaceous	Sanostee (Cretaceous)	
James R. Pickett No. 1 Fruitland- Amarillo	560 FSL, 595 FWL 26-29N-15W San Juan	2/63	D&A	4,678	Cretaceous	Gallup (Cretaceous)	
Texaco Inc. No. 1 Navajo Tribe "BG"	1980 FNL, 1920 FEL 34-29N-15W San Juan	3/68	D&A	4,655	Cretaceous	Mancos (Cretaceous)	
Bashow No. 1 Stallings	1100 FNL, 200 FWL 1-29N-16W San Juan	6/34	D&A	760	Cretaceous		
Dan Lockie No. 1 Oliver Stock	870 FSL, 1650 FEL 1-29N-16W San Juan	8/61	D&A	3,918	Cretaceous	Gallup (Cretaceous)	
Bashow No. 2	NE NE SE 2-29N-16W San Juan	1935	D&A	1,018	Cretaceous		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Lewis & Dobbs No. 1 D. J. Watson	SE SE NE 2-29N-16W San Juan	7/39	D&A	1,070	Cretaceous		
Dan Lockie No. 1 Miller	990 FNL, 400 FWL 2-29N-16W San Juan	1/63	D&A	3,553	Cretaceous	Gallup (Cretaceous)	
Stephen Kinney No. 1 Mabel L	1980 FNL, 1057 FWL 4-29N-16W San Juan	4/64	D&A	3,751	Cretaceous	Sanostee (Cretaceous)	
Weldon Julander No. 1 Hogback	330 FSL, 2310 FEL 6-29N-16W San Juan	3/67	D&A	735	Cretaceous	Dakota (Cretaceous)	
Zoller & Danneberg No. 1 Navajo 2025	1900 FSL, 660 FEL 10-29N-16W San Juan	11/64	D&A	3,750	Cretaceous	Sanostee (Cretaceous)	
Pure Oil Co. No. 1-120 E Hogback-Nav.	530 FNL, 560 FWL 11-29N-16W San Juan	12/62	D&A	3,740	Cretaceous	Gallup (Cretaceous)	
Sherman Wagnseller No. 1 Pan Am Navajo	660 FSL, 660 FEL 15-29N-16W San Juan	8/66	D&A	4,015	Cretaceous	Sanostee (Cretaceous)	
Pan American No. 21 USG Section 18	1850 FNL, 600 FWL 18-29N-16W San Juan	11/65	D&A	866	Cretaceous	Dakota (Cretaceous)	
Miami Oil Producers No. 1 Navajo 2023	660 FNL, 660 FWL 24-29N-16W San Juan	2/65	D&A	4,183	Cretaceous	Gallup (Cretaceous)	
Williams No. 1	NW/4 NW/4 28-29N-16W San Juan	10/34	D&A	2,000	Mesaverde		
Compton No. 1 Compton	2560 FSL, 1385 FEL 30-29N-16W San Juan	4/24	D&A	925	Cretaceous		
Jerry Alex McCutchin No. 1 Navajo 11	2110 FSL, 1660 FWL 31-29N-16W San Juan	9/73	D&A	1,472	Cretaceous	Dakota (Cretaceous)	
Western Drilling No. 1 Magnolia-Navajo	330 FSL, 330 FWL 32-29N-16W San Juan	10/57	D&A	1,730	Cretaceous	Dakota (Cretaceous)	
Walter Duncan No. 1-15 Pure Navajo	1980 FSL, 660 FEL 35-29N-16W San Juan	9/64	D&A	4,839	Cretaceous	Morrison (Jurassic)	
Walter Duncan No. 3 North Hogback	352 FNL, 716 FEL 1-29N-17W San Juan	12/66	D&A	840	Cretaceous	Dakota (Cretaceous)	
Walter Duncan No. 6 North Hogback	1909 FSL, 1006 FEL 1-29N-17W San Juan	3/67	D&A	700	Cretaceous	Dakota (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Walter Duncan No. 7 North Hogback	2455 FNL, 1695 FEL 1-29N-17W San Juan	3/67	D&A	700	Cretaceous	Dakota (Cretaceous)	
Pan American Pet. No. 1 Navajo C	790 FNL, 990 FWL 1-29N-17W San Juan	3/59	gas	7,026	Cretaceous	Mississippian	
Henderson-Stephens No. 1 Pan Am Navajo	1980 FNL, 1980 FWL 2-29N-17W San Juan	2/61	D&A	440	Cretaceous	Sanostee (Cretaceous)	
Texaco Inc. No. 1 Navajo Tribe AZ	2970 FSL, 560 FWL 2-29N-17W San Juan	1/67	D&A	1,075	Cretaceous	Dakota (Cretaceous)	
John F. Mitchell No. 1 Navajo	660 FSL, 660 FEL 5-29N-17W San Juan	4/64	D&A	360	Cretaceous		
Rainbow Resources Inc. No. 1 Nizhonie	1980 FSL, 1980 FEL 10-29N-17W San Juan	7/72	D&A	890	Cretaceous	Dakota (Cretaceous)	
Claude Kennedy No. 1 Cindy Lou	330 FNL, 1750 FEL 11-29N-17W San Juan	4/67	D&A	945	Cretaceous	Dakota (Cretaceous)	
Claude Kennedy No. 3 Cindy Lou	380 FNL, 245 FEL 11-29N-17W San Juan	2/68	D&A	257	Cretaceous	Gallup (Cretaceous)	
San Juan Drilling No. 1 Navajo	660 FSL, 1980 FWL 11-29N-17W San Juan	3/59	D&A	7,101	Cretaceous	Molas (Pennsylvanian)	
Walter Duncan No. 3 N. Hogback	990 FNL, 1980 FEL 12-29N-17W San Juan	7/68	D&A	2,668	Cretaceous	Dakota (Cretaceous)	
Stanolind Oil & Gas No. 1 Navajo Tribal D	790 FNL, 1090 FWL 12-29N-17W San Juan	8/54	D&A	7,215	Cretaceous	Hermosa (Pennsylvanian)	
Midwest Refining No. 2 Compton	97 FEL, 1937 FSL 13-29N-17W San Juan	5/24	D&A	997	Cretaceous	Dakota (Cretaceous)	Show gas in Dakota
Santa Fe Mutual Oil No. 1 Navajo	1830 FNL, 1470 FEL 13-29N-17W San Juan	5/25	D&A	1,965	Cretaceous		
T. G. Wigham No. 1 Indian Chaco Bend	1650 FSL, 990 FEL 14-29N-17W San Juan	3/70	D&A	881	Cretaceous	Dakota (Cretaceous)	
T. G. Wigham No. 2 Indian Chaco Bend	2310 FNL, 2310 FWL 14-29N-17W San Juan	3/70	D&A	877	Cretaceous	Dakota (Cretaceous)	
T. G. Wigham No. 3 Chaco Bend	990 FSL, 990 FWL 14-29N-17W San Juan	12/70	D&A	849	Cretaceous	Dakota (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Luke Grace Drilling No. 1 Tidewater Navajo	790 FSL, 790 FEL 20-29N-17W San Juan	1/63	D&A	1,213	Cretaceous	Dakota (Cretaceous)	
Zoller & Dannaberg No. 1 Pajarito-Navajo	760 FSL, 660 FWL 20-29N-17W San Juan	6/65	D&A	7,501	Cretaceous	Pennsylvanian	
J. K. Wadley No. 1 Gulf Navajo	990 FNL, 330 FWL 22-29N-17W San Juan	1/61	D&A	1,124	Cretaceous	Dakota (Cretaceous)	
Alamosa Drilling No. 1 Chaco	1650 FSL, 1650 FEL 23-29N-17W San Juan	3/74	D&A	1,360	Cretaceous	Dakota (Cretaceous)	
Alamosa Drilling No. 2 Chaco	1850 FNL, 910 FEL 23-29N-17W San Juan	4/74	D&A	320	Cretaceous	Gallup (Cretaceous)	
Alamosa Drilling No. 3 Chaco	825 FNL, 980 FEL 23-29N-17W San Juan	4/74	D&A	970	Cretaceous	Dakota (Cretaceous)	
Alamosa Drilling No. 4 Chaco	2310 FSL, 990 FEL 23-29N-17W San Juan	6/74	D&A	445	Cretaceous	Gallup (Cretaceous)	
Garret No. 1 Navajo	660 FNL, 1980 FWL 25-29N-17W San Juan	7/56	D&A	7,515	Cretaceous	Devonian	
C. M. Sartain No. 1 Sartain	990 FSL, 2310 FWL 25-29N-17W San Juan	10/66	D&A	290	Cretaceous	Gallup (Cretaceous)	
Claude Kennedy No. 1 Spook	2310 FNL, 2310 FWL 28-29N-17W San Juan	1/69	D&A	1,238	Cretaceous	Dakota (Cretaceous)	
Claude Kennedy No. 2 Spook	1815 FNL, 2310 FWL 28-29N-17W San Juan	2/69	D&A	425	Cretaceous	Gallup (Cretaceous)	
Amerada Petr. No. 2 Amerada-Navajo 20	1980 FSL, 660 FWL 30-29N-17W San Juan	10/63	D&A	7,195	Cretaceous	Paradox (Pennsylvanian)	
Merrion O&G Corp. No. 5 Navajo-G	990 FSL, 330 FEL 30-29N-17W San Juan	5/82	D&A	607	Mancos (Cretaceous)	Gallup (Cretaceous)	
Amerada Pet. No. 1 Navajo Tract 20	660 FNL, 660 FWL 31-29N-17W San Juan	5/63	D&A	8,101	Cretaceous	Precambrian	
Merrion O&G Corp. No. 1 Navajo-G	330 FNL, 1650 FEL 31-29N-17W San Juan	5/82	D&A	626	Mancos (Cretaceous)	Gallup (Cretaceous)	
Saguaro Oil No. 3 Duncan-Navajo	1650 FSL, 2310 FEL 35-29N-17W San Juan	5/77	D&A	1,410	Cretaceous	Dakota (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
C. M. Sartain No. 1 Aztec-Navajo	2310 FNL, 990 FEL 35-29N-17W San Juan	8/66	D&A	855	Cretaceous	Gallup (Cretaceous)	
C. M. Sartain No. 3 Sartain	990 FNL, 330 FWL 36-29N-17W San Juan	11/66	D&A	415	Cretaceous	Gallup (Cretaceous)	
Rocket Services Inc. No. 1 Aztec Navajo	1980 FNL, 1980 FWL 36-29N-17W San Juan	10/64	D&A	1,249	Cretaceous	Dakota (Cretaceous)	
Continental Oil No. VA-371	2640 FNL, 990 FWL 6-29N-18W San Juan	10/55	D&A	1,040	Cretaceous	Morrison (Jurassic)	
Eastern Petroleum No. 1 El Paso	1980 FSL, 1980 FEL 6-29N-18W San Juan	1/70	D&A	1,055	Cretaceous	Morrison (Jurassic)	
Universal Oil No. B-7 Navajo	660 FNL, 1980 FEL 7-29N-18W San Juan	4/61	D&A	120	Cretaceous	Gallup (Cretaceous)	
Humble Oil & Refining No. 18 Core Hole	660 FNL, 1960 FWL 16-29N-18W San Juan	10/61	D&A	502	Cretaceous	Sanostee (Cretaceous)	
Universal Oil Corp. No. 3 Navajo	841 FNL, 764 FEL 17-29N-18W San Juan	3/59	D&A	160	Cretaceous	Mancos (Cretaceous)	
Universal Oil Corp. No. 1 Navajo	2310 FNL, 660 FEL 17-29N-18W San Juan	3/59	D&A	1,073	Cretaceous	Morrison (Jurassic)	
W. T. Blackburn No. 2 Navajo 19	2310 FSL, 660 FWL 19-29N-18W San Juan	11/70	D&A	437	Cretaceous	Sanostee (Cretaceous)	
Kern County Land Co. No. 1 Navajo	790 FNL, 790 FWL 21-29N-18W San Juan	12/60	D&A	7,505	Cretaceous	Ouray (Devonian)	
C. M. Sartain No. 1 Shiprock-Plethora	1350 FSL, 190 FWL 21-29N-18W San Juan	10/67	D&A	820	Cretaceous	Sanostee (Cretaceous)	
Benjamin Elenbogen No. 1 Navajo	900 FNL, 1005 FEL 23-29N-18W San Juan	9/68	D&A	1,398	Cretaceous	Sanostee (Cretaceous)	
Eastern Pet. No. 1 Amerada-Redwash	1980 FSL, 660 FEL 25-29N-18W San Juan	1/69	D&A	593	Cretaceous	Gallup (Cretaceous)	
Eastern Pet. No. 2 Amerada Redwash	1980 FNL, 660 FEL 25-29N-18W San Juan	3/69	D&A	546	Cretaceous	Gallup (Cretaceous)	
Alan J. Antweil No. 1 Cactus Peak	1650 FSL, 2310 FWL 33-29N-18W San Juan	7/72	D&A	1,735	Cretaceous	Morrison (Jurassic)	DST 2705-35 ft (Dakota) rec 200 WCM, 100 mud, 725 wtr

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Red Cactus Oil No. 1 Navajo	SE SE SE 35-29N-18W San Juan	6/41	D&A	1,680	Cretaceous	Dakota (Cretaceous)	
Humble Oil & Refining No. 16 Core Hole	647 FSL, 1970 FWL 4-29N-18W San Juan	12/61	D&A	510	Cretaceous	Sanostee (Cretaceous)	
Schultz & Brannan No. 2 Navajo	330 FNL, 330 FEL 35-29N-18W San Juan	3/57	D&A	1,620	Cretaceous	Dakota (Cretaceous)	
Continental Oil No. 135 Rattlesnake	660 FNL, 660 FEL 1-29N-19W San Juan	12/58	D&A	7,165	Cretaceous	Molas (Pennsylvanian)	
Vernon Williams No. 1 Sidewinder	660 FSL, 1155 FWL 2-29N-19W San Juan	12/63	D&A	342	Gallup (Cretaceous)	Gallup (Cretaceous)	
Continental Oil No. VA-370	990 FNL, 2400 FEL 1-29N-19W San Juan	10/55	D&A	1,049	Cretaceous	Morrison (Jurassic)	
Harrell Bud No. 3 Rattlesnake	330 FNL, 330 FEL 3-29N-19W San Juan	12/62	D&A	350	Gallup (Cretaceous)	Gallup (Cretaceous)	
Harrell Bud No. 4 Rattlesnake	2260 FSL, 380 FEL 3-29N-19W San Juan	2/63	D&A	408	Gallup (Cretaceous)	Gallup (Cretaceous)	
Humble Oil & Refining No. 31 Core Hole	2051 FNL, 1980 FEL 3-29N-19W San Juan	10/61	D&A	360	Cretaceous	Sanostee (Cretaceous)	
Continental Oil No. 147 Rattlesnake	660 FNL, 1980 FEL 13-29N-19W San Juan	6/63	D&A	at least 6,660	Cretaceous	Rattlesnake (Pennsylvanian)	
Continental Oil No. 121 Tribal	330 FSL, 330 FEL 13-19N-19W San Juan	2/48	D&A	944	Cretaceous		
Continental Oil No. 122 Tribal	1050 FSL, 1400 FEL 13-29N-19W San Juan	2/48	D&A	908	Cretaceous		
Blanco Gas Co. No. 2-A Moore	1650 FSL, 1650 FWL 8-30N-8W San Juan	3/51	D&A	3,357	Tertiary	Pictured Cliffs (Cretaceous)	Show of gas in Pictured Cliffs
Huntington Park Oil No. 1 Terwilleger	300 FSL, 1200 FEL 8-30N-9W San Juan	6/26	D&A	503	Tertiary		
Florance Drilling No. 2 Shaw	1550 FSL, 150 FEL 13-30N-9W San Juan	7/51	D&A	2,545	Tertiary		
Florance Drilling No. 1 Shaw	660 FSL, 3282 FWL 13-30N-9W San Juan	12/47	D&A	4,848	Tertiary	Mancos (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Mansfield No. 1 Emery	600 FSL, 600 FWL 24-30N-9W San Juan	3/27	D&A	504	Tertiary		
Dorothy Oil No. 2 Terwilliger	1862 FSL, 1527 FEL 29-30N-9W San Juan	6/30	D&A	1,750	Tertiary		
E. J. Miley No. 1 Stein	2360 FSL, 500 FEL 12-30N-10W San Juan	4/26	D&A	298	Tertiary		
B.G.R. Partnership No.1C. M. Rohring	250 FSL, 250 FWL 14-30N-10W San Juan	8/25	D&A	265	Tertiary		
W. R. Webb No. 1 State	E NW NW 6-30N-11W San Juan	3/35	D&A	1,485	Tertiary		Show oil 1010 ft; 1257 ft Show gas at 1010 ft
W. R. Webb No. 1 Webb	W NW NW 6-30N-11W San Juan	/38	D&A	1,410	Tertiary	Farmington (Cretaceous)	
Al Greer et al. No. 2 Fee	SW SE SW 10-30N-11W San Juan	7/40	D&A	1,170	Tertiary		
Greer et al. No. 1 Thompson	150 FSL, 152 FWL 10-30N-11W San Juan	7/40	D&A	1,170	Tertiary		
Greet et al. No. 2 Thompson	SW SE SW 10-30N-11W San Juan	9/41	D&A	2,362	Tertiary		
Color-Mex Oil No. 1 Robbins	1140 FSL, 1100 FWL 12-30N-11W San Juan	2/26	D&A	150	Tertiary		
Aztec Oil No. 4 State	1171 FSL, 225 FWL 16-30N-11W San Juan	8/27	D&A	1,017	Tertiary		
Ted Whetstine No. 1 McGee	NE NW NW 20-30N-11W San Juan	9/38	D&A	434	Tertiary		
Blanco Bloomfield No. 1 Blanco Bloomfield	NW NW 21-30N-11W San Juan	12/25	D&A	885	Tertiary		Show gas 775-95 ft Oil sand 795-870 ft
Home Gas No. 1 Gibson	1070 FSL, 1570 FWL 21-30N-11W San Juan	2/25	D&A	1,368	Tertiary		
Nelson & Edward Morris No. 1 A. M. Lloyd	1650 FSL, 990 FWL 26-30N-11W San Juan	11/51	D&A	4,835	Tertiary	Point Lookout (Cretaceous)	
Aztec Oil No. 1	210 FSL, 500 FEL 28-30N-11W San Juan	4/35	D&A	1,576	Tertiary		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
San Juan Drilling No. 1 Jackson F	1980 FSL, 2030 FWL 30-30N-11W San Juan	10/58	D&A	749	Tertiary	Fruitland (Cretaceous)	
John H. Trigg No. 1-31 Federal	790 FNL, 1820 FWL 31-30N-11W San Juan	5/60	D&A	2,150	Tertiary	Pictured Cliffs (Cretaceous)	
San Juan Oil No. 1 Lemley	1540 FNL, 510 FEL 32-30N-11W San Juan	8/38	D&A	1,314	Tertiary		
R. Wooley No. 1 Federal	NW SW NW 34-30N-11W San Juan	6/44	D&A	2,440	Tertiary		
El-My-Ri Oil No. 3 Martin	2190 FSL, 2190 FEL 34-30N-11W San Juan	10/58	D&A	1,354	Tertiary		
R. H. Long No. 1 Wood	660 FNL, 330 FEL 35-30N-11W San Juan	10/58	D&A	2,134	Tertiary	Pictured Cliffs (Cretaceous)	
E. T. Williams No. 1 Willow Creek	SE SW 2-30N-12W San Juan	7/20	D&A	3,880	Tertiary		
Mountain Oil No. 1 Israel	2310 FNL, 990 FEL 14-30N-12W San Juan	5/48	D&A	1,850	Tertiary	Pictured Cliffs (Cretaceous)	
Northwest Production No. 7-15 Blanco 30-12	990 FNL, 990 FEL 15-30N-12W San Juan	6/57	D&A	2,057	Tertiary	Pictured Cliffs (Cretaceous)	
Northwest Production No. 14-15 Blanco 30-12	1850 FSL, 1190 FWL 15-30N-12W San Juan	6/57	D&A	1,930	Tertiary	Pictured Cliffs (Cretaceous)	
Mesa Verde Oil No. 1 State	250 FSL, 200 FEL 16-30N-12W San Juan	/18	D&A	840	Tertiary		
Mesa Verde Oil No. 1-A State	460 FSL, 600 FEL 16-30N-12W San Juan	7/20	D&A	2,025	Tertiary		Show oil and gas 175, 360, 807-845, 1148-1152 ft
J. F. Crass No. 2 Gov.	485 FSL, 2170 FEL 17-30N-12W San Juan	6/33	D&A	411	Tertiary		
Mesa Verde Oil No. 2 Lanier	650 FSL, 300 FEL 18-30N-12W San Juan	/20	D&A	1,157	Tertiary		
Gross, Morelock, Gould No. 1 Lanier	594 FSL, 564 FEL 19-30N-12W San Juan	2/26	D&A	60	Tertiary		
Southern Union Prod. No. 1 Rice	990 FSL, 990 FEL 20-30N-12W San Juan	10/45	D&A	2,015	Tertiary	Lewis (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
J. Amenda No. 1 Hart A	2310 FSL, 1650 FWL 25-30N-12W San Juan	5/38	D&A	2,050	Tertiary		Show gas 648 ft
J. Amenda No. 3	1700 FSL, 600 FWL 25-30N-12W San Juan	10/35	D&A	1,300	Tertiary		Show oil 870-871 ft
Amerada Pet. No. 2 Thomas & Wilson	1500 FSL, 600 FWL 25-30N-12W San Juan	7/35	D&A	1,027	Tertiary		Show oil
Pool, Hall, Lickens et al. No. 1 Rabbit	S/2 NE/4 25-30N-12W San Juan	/25	D&A	985	Tertiary		
H. C. Stratton No. 1 Gravel	2100 FSL, 200 FEL 25-30N-12W San Juan	6/35	D&A	1,680	Tertiary		
Southwest Prod. No. 1 Paul Palmer	2360 FSL, 830 FWL 26-30N-12W San Juan	9/61	D&A	3,509	Tertiary	Cliff House (Cretaceous)	
New Drilling No. 1 McCord	1190 FNL, 985 FEL 3-30N-13W San Juan	9/56	D&A	4,623	Tertiary	Mancos (Cretaceous)	
Floyd West et al. No. 1 Patterson	2490 FNL, 1220 FEL 5-30N-13W San Juan	4/49	D&A	1,590	Tertiary	Pictured Cliffs (Cretaceous)	
H. L. Williams No. 6 Mishon	NE SW 5-30N-13W San Juan	/24	D&A	478	Tertiary		
H. L. Williams No. 5 Engler	SW NW 8-30N-13W San Juan	6/24	D&A	505	Tertiary		
Partage Oil No. 1 Hall	650 FSL, 650 FWL 12-30N-13W San Juan		D&A	508	Tertiary		
Glade Oil & Gas No. 1 Smith	660 FSL, 660 FWL 12-30N-13W San Juan	12/22	D&A	505	Tertiary		
English-Byrd-Frost No. 1 Maddox-Federal	990 FNL, 990 FWL 24-30N-13W San Juan	12/48	D&A	2,090	Tertiary	Pictured Cliffs (Cretaceous)	
Glade Oil & Gas No. 1 Davis	450 FNL, 2150 FEL 24-30N-13W San Juan	7/22	D&A	1,245	Tertiary		Show oil 784-802 ft Show gas 699-759 ft
Portage Oil & Gas No. 1 Glade	SW 24-30N-13W San Juan	7/26	D&A	1,925	Tertiary		Show gas 685-88 ft, 70 MCFGPD; 847-50 ft, 200 MCFGPD; 1920-25 ft; Show oil 1817-30 ft
Benson, Montin, Greer No. 1 McCord	990 FNL, 1570 FEL 34-30N-13W San Juan	10/56	D&A	1,771	Tertiary		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Dugan Production No. 2 Big Field	790 FNL, 1850 FWL 3-30N-14W San Juan	2/83	D&A	1,310	Kirtland	Pictured Cliffs (Cretaceous)	
Dugan Production No. 3 Big Field	1450 FNL, 1850 FEL 3-30N-14W San Juan	12/81	D&A	1,320	Cretaceous	Pictured Cliffs (Cretaceous)	
Dugan Production No. 4 Big Field	1850 FSL, 1760 FWL 3-30N-14W San Juan	12/81	D&A	1,420	Cretaceous	Pictured Cliffs (Cretaceous)	
Albert Bruce No. 1 Richardson	370 FNL, 1830 FWL 4-30N-14W San Juan	10/59	D&A	5,120	Cretaceous	Gallup (Cretaceous)	Oil show
Albert Bruce No. 1 Fed-Pipkin	790 FNL, 790 FEL 5-30N-14W San Juan	12/59	D&A	5,900	Cretaceous	Dakota (Cretaceous)	
Thomas Dugan No. 1 Norton	790 FNL, 1850 FWL 5-30N-14W San Juan	8/70	D&A	846	Kirtland (Cretaceous)	Lewis (Cretaceous)	
Thomas Dugan No. 1 Blazer	1800 FNL, 1850 FWL 11-30N-14W San Juan	8/70	D&A	1,916	Ojo Alamo (Tertiary)	Lewis (Cretaceous)	
Dugan Production No. 1 Queen	1980 FSL, 1980 FEL 11-30N-14W San Juan	2/76	D&A	13,016	Cretaceous	Mississippian	
Humble Oil & Refining No. 1 N Kirtland	1230 FNL, 998 FEL 19-30N-14W San Juan	5/58	D&A	5,873	Cretaceous	Graneros (Cretaceous)	
British American No. 1 Govt. Reiley	660 FSL, 660 FWL 20-30N-14W San Juan	2/62	D&A	5,232	Cretaceous	Gallup (Cretaceous)	
Henry Birdseye No. 24-1 USA Carpenter	1160 FSL, 1180 FWL 24-30N-14W San Juan	2/59	D&A	1,422	Cretaceous	Pictured Cliffs (Cretaceous)	
Henry Birdseye No. 25-1 Federal	790 FSL, 910 FEL 25-30N-14W San Juan	2/59	D&A	1,155	Cretaceous	Pictured Cliffs (Cretaceous)	
Claude Carroll No. 1 Pipkin	790 FSL, 990 FEL 31-30N-14W San Juan	5/54	D&A	3,615	Cretaceous	Menefee (Cretaceous)	
Jay Harris No. 1 Pipkin	680 FSL, 980 FEL 31-30N-14W San Juan	7/55	D&A	3,026	Cretaceous	Menefee (Cretaceous)	
H. L. Williams No. 3 Reese et al.	506 FSL, 1050 FWL 34-30N-14W San Juan	8/24	D&A	1,735	Cretaceous		Show of gas in Pictured Cliffs
Compass Exploration No. 135 Federal	890 FNL, 890 FWL 35-30N-14W San Juan	4/60	D&A	Cretaceous	Morrison (Jurassic)		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Henry Birdseye No. 36-1 Pubco-State	790 FSL, 1850 FWL 36-30N-14W San Juan	1/59	D&A	1,260	Cretaceous	Pictured Cliffs (Cretaceous)	
Humble Oil & Refining No. 2 Waterflow Unit	1980 FSL, 990 FWL 10-30N-15W San Juan	6/58	D&A	4,476	Cretaceous	Gallup (Cretaceous)	
Texaco Inc. No. 1 C. A. Houck	1980 FSL, 660 FWL 11-30N-15W San Juan	2/68	D&A	4,940	Cretaceous	Mancos (Cretaceous)	
Dugan Production No. 1 Greens Fee	870 FSL, 1070 FEL 13-30N-15W San Juan	1/82	D&A	798	Cretaceous	Pictured Cliffs (Cretaceous)	
Texaco Inc. No. 2 C. A. Houck	1980 FSL, 1980 FEL 14-30N-15W San Juan	3/68	D&A	4,958	Cretaceous	Gallup (Cretaceous)	
San Juan Basin O&G No. 1 Gooch	NW SW 16-30N-15W San Juan	/16	D&A	2,080	Cretaceous		Show oil 524-25 ft, 1625-40 ft
Little Standard Oil No. 2 Mattox	C 21-30N-15W San Juan	2/13	D&A	1,719	Cretaceous		
Lucille Pipkin No. 1 Core Hole	2004 FSL, 1699 FEL 23-30N-15W San Juan		D&A		Cretaceous		
Dean Dick No. 1 Hall	1850 FNL, 865 FEL 25-30N-15W San Juan	3/56	D&A	1,012	Cretaceous	Pictured Cliffs (Cretaceous)	
G. H. Talcott No. 1 Talcott	SE NE SW 25-30N-15W San Juan	11/43	D&A	450	Cretaceous		
Monsanto Chemical No. 1 Hall	1980 FSL, 660 FWL 27-30N-15W San Juan	7/59	D&A	4,496	Cretaceous	Sanostee (Cretaceous)	
Humble Oil & Refining No. 1 North Waterflow	1980 FSL, 1980 FWL 28-30N-15W San Juan	3/58	D&A	4,967	Cretaceous	Morrison (Jurassic)	
San Juan Lease Holds No. 1 Bowman	330 FNL, 300 FWL 30-30N-15W San Juan	10/26	D&A	1,740	Cretaceous		Show of oil and gas 1555-1605 ft
San Juan Lease Holds No. 2 Bowman	NE NE NE 30-30N-15W San Juan	10/27	D&A	1,555	Cretaceous		
San Juan Lease Holds No. 3 Bowman	200 N, 1900 E 30-30N-15W San Juan	2/36	D&A	2,685	Cretaceous		Show of oil 2684 ft
San Juan Lease Holds No. 1 Williams	320 FNL, 300 FWL 30-30N-15W San Juan	9/27	D&A	1,555	Cretaceous		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
H. L. Williams No. 1	C NE 30-30N-15W San Juan	10/26	D&A	1,560	Cretaceous		
Standard Oil of Texas No. 1 Navajo 82-1	1997 FSL, 1820 FWL 1-30N-16W San Juan	2/60	D&A	1,835	Cretaceous	Gallup (Cretaceous)	
Mitchell & Kennedy No. 1 Navajo	2010 FNL, 1920 FWL 7-30N-16W San Juan	11/64	D&A	1,062	Cretaceous	Sanostee (Cretaceous)	
Tom Bolack No. 1-B Hazel Bolack	1650 FSL, 990 FWL 9-30N-16W San Juan	7/53	D&A	1,788	Cretaceous	Dakota (Cretaceous)	
Gulf Oil Corp. No. 1-B NM State	660 FNL, 2020 FEL 16-30N-16W San Juan	1/57	D&A	1,343	Cretaceous	Gallup (Cretaceous)	
Tom Dugan No. 2 Eagle Nest	1550 FNL, 1700 FWL 17-30N-16W San Juan	10/66	D&A	955	Cretaceous		
King Oil Co. No. 1 Navajo K	660 FNL, 660 FEL 17-30N-16W San Juan	2/58	D&A	1,619	Cretaceous	Dakota (Cretaceous)	
Northwest Prod. No. 1 Navajo	660 FNL, 660 FWL 17-30N-16W San Juan	1/57	D&A	1,605	Cretaceous	Sanostee (Cretaceous)	
Arizona Exploration No. 1 Navajo	1960 FNL, 660 FEL 18-30N-16W San Juan	7/57	D&A	1,646	Cretaceous	Morrison (Jurassic)	
D. F. Sudduth No. 1 Navajo	660 FSL, 660 FWL 19-30N-16W San Juan	12/58	D&A	1,492	Cretaceous	Morrison (Jurassic)	
King Oil No. 2 Navajo	1980 FSL, 1980 FEL 20-30N-16W San Juan	1/58	D&A	1,491	Cretaceous	Dakota (Cretaceous)	
King Oil Co. No. 2 Navajo K	660 FNL, 660 FEL 20-30N-16W San Juan	7/58	D&A	2,104	Cretaceous	Dakota (Cretaceous)	
King Oil Co. No. 1 Navajo M	2620 FSL, 2620 FEL 20-30N-16W San Juan	1/58	D&A	1,493	Cretaceous	Dakota (Cretaceous)	
Pan American Pet. No. 3 N.E. Hogback	790 FNL, 950 FWL 22-30N-16W San Juan	4/60	D&A	2,486	Cretaceous	Morrison (Jurassic)	
British American No. 1 Cronian	NE NE SW 23-30N-16W San Juan	/47	D&A	5,953	Lewis (Cretaceous)	Chinle (Triassic)	
Pan American No. 1 Hoover	1780 FNL, 913 FWL 23-30N-16W San Juan	8/57	D&A	10,808	Cretaceous	Devonian	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Zoller & Dannegerg No. 1 Fed-Brady	660 FSL, 660 FEL 25-30N-16W San Juan	9/64	D&A	3,981	Cretaceous	Sanostee (Cretaceous)	
Blake Touchstone No. 1 Navajo	1980 FSL, 1980 FEL 30-30N-16W San Juan	5/62	D&A	750	Cretaceous	Tocito (Cretaceous)	
Drilling & Coring No. 1 Navajo	700 FSL, 300 FWL 31-30N-16W San Juan	3/61	D&A	279	Cretaceous		
Humble Oil & Refining No. 1 Navajo-K	1980 FSL, 660 FWL 31-30N-16W San Juan	6/60	D&A	1,073	Cretaceous		
Rijan Oil Co. No. 3 Rijan	1485 FSL, 1155 FWL 31-30N-16W San Juan	10/67	D&A	888	Cretaceous	Dakota (Cretaceous)	
Blacke Touchstone No. 1 Navajo	660 FNL, 1980 FEL 32-30N-16W San Juan	5/62	D&A	1,900	Cretaceous	Tocito (Cretaceous)	
Pan American Pet. No. 1 N.E. Hogback	790 FNL, 790 FWL 36-30N-16W San Juan	1/60	D&A	4,525	Cretaceous	Dakota (Cretaceous)	
Ken Blackford No. 1 Navajo	1980 FSL, 1980 FWL 1-30N-17W San Juan	11/57	D&A	1,716	Cretaceous	Morrison (Jurassic)	
Mitchell-Kennedy-Schalk No. 1 Chimney Rock	1980 FSL, 1980 FEL 3-30N-17W San Juan	4/65	D&A	1,200	Cretaceous	Dakota (Cretaceous)	
Mitchell-Kennedy-Shalk No. 2 Chimney Rock	660 FSL, 660 FWL 3-30N-17W San Juan	5/65	D&A	550	Cretaceous	Gallup (Cretaceous)	
Mitchell-Kennedy-Shalk No. 3 Chimney Rock	660 FSL, 560 FWL 3-30N-17W San Juan	9/65	D&A	580	Cretaceous	Gallup (Cretaceous)	
King Oil No. 1 Navajo "C"	1530 FNL, 560 FWL 4-30N-17W San Juan	7/58	D&A	1,044	Cretaceous	Dakota (Cretaceous)	
Late Oil Co. No. 1 Navajo	2310 FSL, 1650 FWL 4-30N-17W San Juan	4/56	D&A	1,004	Cretaceous	Dakota (Cretaceous)	
King Oil Corp. No. 1 Navajo "D"	330 FNL, 1650 FEL 5-30N-17W San Juan	10/58	D&A	1,255	Cretaceous	Graneros (Cretaceous)	
King Oil Corp. No. 1 Navajo	1530 FNL, 330 FEL 5-30N-17W San Juan	7/58	D&A	1,042	Cretaceous	Dakota (Cretaceous)	
Phillips Petroleum No. 1 Navajo	700 FSL, 600 FEL 5-30N-17W San Juan	2/53	D&A	8,175	Cretaceous	Ignacio (Cambrian)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
R. L. Bayless No. 1 Church	990 FSL, 990 FEL 6-30N-17W San Juan	6/61	D&A	508	Cretaceous		
R. L. Bayless No. 1 Cynthia	1650 FSL, 1650 FEL 5-30N-17W San Juan	11/60	D&A	675	Cretaceous		
King Oil No. 2 Joella	990 FNL, 990 FEL 5-30N-17W San Juan	12/63	D&A	733	Cretaceous	Gallup (Cretaceous)	
King Oil No. 1-X Joella	1650 FNL, 990 FEL 5-30N-17W San Juan	12/63	D&A	487	Cretaceous		
Phillips Petroleum No. 1-70 Navajo	660 FSL, 660 FEL 5-30N-17W San Juan	8/52	D&A	1,367	Cretaceous	Morrison (Jurassic)	DST 1264-1367 (Morrison) rec sulphur water
R. L. Bayless No. 1 Margaret	1486 FNL, 2247 FWL 6-30N-17W San Juan	1/61	D&A	720	Cretaceous	Gallup (Cretaceous)	
R. L. Bayless No. 1 Neva	330 FSL, 430 FEL 7-30N-17W San Juan	1/61	D&A	626	Cretaceous	Gallup (Cretaceous)	
R. L. Bayless No. 1 Brenda	330 FSL, 1650 FEL 8-30N-17W San Juan	1/61	D&A	634	Mancos	Mancos (Jurassic)	
Thomas Dugan No. 1 Hercules	165 FNL, 2475 FWL 9-30N-17W San Juan	5/68	D&A	1,070	Cretaceous	Dakota (Cretaceous)	
Empire States No. 1 Navajo 29	2310 FNL, 2310 FEL 9-30N-17W San Juan	6/60	D&A	700	Cretaceous	Sanostee (Cretaceous)	
Phillips Petroleum No. 2-70 Navajo	660 FNL, 660 FWL 9-30N-17W San Juan	9/52	D&A	1,158	Cretaceous		
John E. Mitchell No. 1 Navajo	362 FNL, 362 FEL 10-30N-17W San Juan	3/65	D&A	750	Cretaceous	Gallup (Cretaceous)	
Pan American Pet. No. 1 S. Chimney Rock	1980 FNL, 1880 FWL 10-30N-17W San Juan	9/59	D&A	770	Cretaceous	Gallup (Cretaceous)	
Northwest Production No. 1 Navajo	500 FSL, 1980 FEL 12-30N-17W San Juan	1/72	D&A	1,508	Cretaceous	Greenhorn (Cretaceous)	
Bush Drilling No. 1 Bush	1320 FNL, 660 FWL 14-30N-17W San Juan	3/62	D&A	1,070	Cretaceous	Sanostee (Cretaceous)	
Bush Drilling No. 2 Bush	1650 FNL, 1980 FEL 14-30N-17W San Juan	3/62	D&A	940	Cretaceous	Sanostee (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Bush Drilling No. 3 Bush	990 FSL, 660 FEL 14-30N-17W San Juan	3/62	D&A	955	Cretaceous	Sanostee (Cretaceous)	
King Oil Co. No. 3 Navajo	2310 FSL, 330 FWL 4-30N-17W San Juan	9/58	D&A	1,220	Cretaceous	Graneros (Cretaceous)	
Bush Drilling No. 4 Bush	1650 FSL, 1980 FWL 14-30N-17W San Juan	3/62	D&A	940	Cretaceous	Sanostee (Cretaceous)	
Bush Drilling No. 5 Bush	330 FNL, 330 FWL 15-30N-17W San Juan	5/62	D&A	925	Cretaceous	Sanostee (Cretaceous)	
Empire State Drlg No. 1 Navajo	990 FNL, 2310 FEL 15-30N-17W San Juan	6/60	D&A	846	Cretaceous	Sanostee (Cretaceous)	
Standard Of Texas No. 1 Navajo Tr.	660 FSL, 660 FEL 15-30N-17W San Juan	5/64	D&A	7,927	Cretaceous	Mississippian	
Drilling and Coring No. 1 Navajo	330 FNL, 2310 FEL 16-30N-17W San Juan	5/61	D&A	800	Cretaceous	Sanostee (Cretaceous)	
Empire State No. 28-2 Navajo	1650 FNL, 2310 FWL 16-30N-17W San Juan	8/60	D&A	786	Cretaceous	Sanostee (Cretaceous)	
E. R. Richardson No. 2 Pearl	660 FSL, 660 FWL 17-30N-17W San Juan	11/64	D&A	650	Cretaceous		
Thomas A. Dugan No. 1 Shamrock	2310 FSL, 2310 FEL 18-30N-17W San Juan	8/68	D&A	580	Cretaceous	Gallup (Cretaceous)	
Thomas Dugan No. 3 Shamrock	350 FNL, 1500 FEL 18-30N-17W San Juan	5/70	D&A	1,153	Cretaeous	Gallup (Cretaceous)	
John Mitchell No. 1 Navajo	1980 FSL, 1980 FWL 18-30N-17W San Juan	1/64	D&A	1,178	Cretaceous	Dakota (Cretaceous)	
Thomas Dugan No. 1 Bruce Wayne	1190 FSL, 1190 FWL 19-30N-17W San Juan	8/68	D&A	609	Cretaceous	Gallup (Cretaceous)	
E. R. Richardson No. 1 Pearl	660 FSL, 660 FWL 21-30N-17W San Juan	9/64	D&A	800	Cretaceous	Sanostee (Cretaceous)	
Blake Touchstone No. 1	990 FNL, 990 FWL 25-30N-17W San Juan	5/62	D&A	840	Cretaceous		
King Oil No. 1 Navajo	2310 FNL, 990 FWL 29-30N-17W San Juan	4/59	D&A	1,132	Cretaceous	Dakota (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Arizona Exploration No. 1 Navajo	1980 FSL, 660 FEL 30-20N-17W San Juan	5/61	D&A	661	Cretaceous	Sanostee (Cretaceous)	
B. B. Jones No. 1 Magnolia Navajo	330 FNL, 330 FEL 31-30N-17W San Juan	12/58	D&A	1,135	Cretaceous	Dakota (Cretaceous)	
Claude Kennedy No. 1 Deb	380 FSL, 2280 FWL 36-30N-17W San Juan	12/66	D&A	776	Cretaceous	Dakota (Cretaceous)	
Claude Kennedy No. 2 Deb	330 FSL, 660 FEL 36-30N-17W San Juan	12/66	D&A	203	Cretaceous	Gallup (Cretaceous)	
Claude Kennedy No. 4 Deb	1650 FSL, 1650 FEL 36-30N-17W San Juan	3/67	D&A	325	Cretaceous	Gallup (Cretaceous)	
Humble Oil & Refining No. 9 Core Hole	611 FSL, 1873 FWL 4-30N-18W San Juan	10/61	D&A	525	Cretaceous	Sanostee (Cretaceous)	
Texaco Inc. No. 1 Navajo	660 FSL, 660 FEL 8-30N-18W San Juan	1/35	D&A	5,761	Cretaceous	Honaker Trail (Pennsylvanian)	
Texaco Inc. No. 1 Navajo "AP"	660 FSL, 760 FEL 8-30N-18W San Juan	4/65	gas	7,250	Cretaceous	Molas (Pennsylvanian)	Prod from Akah (Pennsylvanian), 6680-87 ft
Humble Oil & Refining No. 10 Core Hole	2125 FSL, 2125 FWL 9-30N-18W San Juan	12/61	D&A	440	Cretaceous	Sanostee (Cretaceous)	
Leora O. Shaw No. 2 Hartley Navajo	360 FSL, 2125 FEL 10-30N-18W San Juan	1/73	D&A	987	Cretaceous	Dakota (Cretaceous)	
Thomas Dugan No. 1 Isodor Molk	330 FSL, 2310 FEL 11-30N-18W San Juan	2/68	D&A	924	Cretaceous	Greenhorn (Cretaceous)	
Standard Oil of Texas No. 1 Navajo	1980 FSL, 1980 FWL 11-30N-18W San Juan	11/65	D&A	7,110	Cretaceous		Perf 6576-6603 ft, swbd 10 BO in 7 days
W. T. Blackburn No. 1 Navajo 12	2175 FSL, 465 FEL 12-30N-18W San Juan	11/70	D&A	1,103	Cretaceous	Dakota (Cretaceous)	
Thomas Dugan No. 2 Shiprock	330 FNL, 420 FEL 14-30N-18W San Juan	4/67	D&A	1,020	Cretaceous	Dakota (Cretaceous)	
Humble Oil & Refining No. 11 Core Hole	1837 FNL, 1799 FWL 16-30N-18W San Juan	10/61	D&A	500	Cretaceous	Sanostee (Cretaceous)	
Lloyd Taylor No. 1 Navajo	650 FNL, 600 FWL 18-30N-18W San Juan	3/66	D&A	492	Mancos	Mancos (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Thomas A. Dugan No. 6 Shiprock	1650 FNL, 330 FEL 14-30N-18W San Juan	4/67	D&A	430	Cretaceous	Tocito (Cretaceous)	
Amalgamated Petr. No. 5 Navajo	500 FNL, 500 FWL 21-30N-18W San Juan	9/62	D&A	1,185	Cretaceous	Morrison (Jurassic)	
Humble Oil & Refining No. 13 Core Hole	506 FSL, 1873 FWL 21-30N-18W San Juan	10/61	D&A	400	Cretaceous	Sanostee (Cretaceous)	
Crane Drilling No. 1 Jackie Jane	270 FSL, 330 FWL 23-30N-18W San Juan	10/69	D&A	906	Cretaceous	Dakota (Cretaceous)	
Humble Oil & Refining No. 14 Core Hole	611 FSL, 1858 FWL 28-30N-18W San Juan	10/61	D&A	500	Cretaceous	Sanostee (Cretaceous)	
Continental Oil VA-372	1980 FNL, 1980 FWL 29-30N-18W San Juan	10/55	D&A	1,100	Cretaceous	Morrison (Jurassic)	
Continental Oil Co. No. 138 Rattlesnake	1980 FSL, 660 FEL 30-30N-18W San Juan	3/61	D&A	125	Cretaceous	Gallup (Cretaceous)	
Continental Oil Co. VA-373	660 FSL, 1980 FWL 30-30N-13W San Juan	10/55	D&A	1,107	Cretaceous	Morrison (Jurassic)	
Continental Oil Co. VA-374	610 FSL, 1980 FWL 30-30N-18W San Juan	11/55	D&A	888	Cretaceous	Dakota (Cretaceous)	
Alan J. Antweil No. 1 Dos Mesa	1927 FNL, 1865 FWL 4-30N-19W San Juan	8/72	D&A	1,232	Cretaceous	Morrison (Jurassic)	
Benson-Montin-Greer No. 1 Navajo	2220 FSL, 830 FEL 12-30N-19W San Juan	3/66	D&A	492	Cretaceous	Gallup (Cretaceous)	
Humble Oil & Refining No. 26 Core Hole	2202 FNL, 1882 FWL 13-30N-19W San Juan	11/61	D&A	710	Cretaceous	Sanostee (Cretaceous)	
Humble Oil & Refining No. 28 Core Hole	660 FSL, 660 FWL 23-30N-19W San Juan	10/61	D&A	448	Cretaceous	Sanostee (Cretaceous)	
Harrell & Budd No. 1 Navajo	330 FNL, 2310 FEL 27-30N-19W San Juan	12/61	D&A	150	Gallup (Cretaceous)	Gallup (Cretaceous)	
Harrell & Budd No. 3 Navajo	2310 FSL, 2310 FEL 27-30N-19W San Juan	12/60	D&A	150	Cretaceous		
Harrell & Budd No. 4 Navajo	990 FNL, 990 FEL 27-30N-19W San Juan	9/61	D&A	150	Gallup (Cretaceous)	Gallup (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Humble Oil & Refining No. 30 Core Hole	719 FNL, 656 FEL 34-30N-19W San Juan	10/61	D&A	400	Cretaceous	Sanostee (Cretaceous)	
Continental Oil Co. VA-369	990 FSL, 990 FEL 36-30N-19W San Juan	9/55	D&A	974	Cretaceous	Morrison (Jurassic)	
John Hill No. 1 Atlantic Navajo	660 FSL, 660 FEL 5-30N-20W San Juan	12/65	D&A	6,257	Cretaceous	Pinkerton Trail (Pennsylvanian)	
Pure Oil Co. No. 1 Navajo	1980 FSL, 660 FWL 23-30N-20W San Juan	5/59	D&A	6,634	Cretaceous	Leadville (Mississippian)	
Amerada Pet. No. 1 Navajo	660 FSL, 660 FEL 24-30N-20W San Juan	1/60	D&A	6,960	Cretaceous	Molas (Pennsylvanian)	
Continental No. 1 Bichlah-Bi-To	1650 FNL, 1650 FEL 13-30N-21W San Juan	8/43	D&A	4,840	Cretaceous		
Primo Oil Co. No. 1 Ruple Unit	660 FSL, 1980 FWL 24-31N-11W San Juan	11/50	D&A	492	Tertiary		
Southwestern Develop. No. 1 Atterbury	210 FNL, 300 FEL 24-31N-11W San Juan	10/27	D&A	1,850	Tertiary		
Nick Spatter No. 1 Sherman Coon	2300 FSL, 390 FWL 32-31N-11W San Juan	4/39	D&A	1,780	Tertiary		
Maddox et al. No. 1 Haryiss	1650 FNL, 1650 FWL 33-31N-12W San Juan		D&A		Tertiary		
R. L. Bayless & Standard Oil of Texas No. 1 Federal 13-6	660 FSL, 330 FEL 6-31N-12W San Juan	6/61	D&A	5,540	Tertiary		
United Oil Corp. No. 1 McCarty Ref. 3	330 FSL, 660 FEL 10-31N-13W San Juan	3/48	D&A	1,502	Tertiary		
D. W. Stiles No. 1 Gaberhart	2310 FSL, 1650 FWL 15-31N-13W San Juan	10/42	D&A	620	Tertiary		
D. W. Stiles No. 1 Stiles	1650 FNL, 1650 FWL 15-31N-13W San Juan	9/41	D&A	500	Tertiary		
H. L. Williams No. 2 Updegrove	SW SW 17-31N-13W San Juan	8/28	D&A	688	Tertiary		
Glade Oil & Gas No. 3 Hubbel	330 FSL, 1000 FWL 26-31N-13W San Juan	12/22	D&A	502	Tertiary		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Portage Oil No. 2 Hubbel	356 FSL, 1000 FWL 25-31N-13W San Juan	12/77	D&A	1,365	Tertiary		
Bruce Anderson No. 6 Federal	990 FSL, 880 FWL 30-31N-13W San Juan	11/81	D&A	1,730	Tertiary	Pictured Cliffs (Cretaceous)	
Delta Oil Co. of Utah No. 1 Delta	1984 FSL, 768 FWL 30-31N-13W San Juan	6/59	D&A	3,485	Tertiary		
Williams No. 1	SW SE 33-31N-13W San Juan	/25	D&A		Tertiary		
Skelly Oil Co. No. 4 Ute A	790 FSL, 1850 FEL 5-31N-14W San Juan	5/60	D&A	3,248	Tertiary	Dakota (Cretaceous)	
M. A. Riddle No. 1 Ute Mountain	790 FNL, 1120 FEL 15-31N-14W San Juan	10/69	D&A	9,281	Tertiary	Hermosa (Pennsylvanian)	DST 2281-2481 ft (Gallup), rec 450 mud; DST 3114-87 ft (Dakota), rec 15 mud; DST 8281-8309 ft (Hermosa), rec 30 GCM; DST 8395-8418 ft (Hermosa), rec 25 MCO, 627 HGCM
Thomas Dugan No. 1 Foxtail	790 FSL, 790 FWL 35-31N-14W San Juan	8/70	D&A	1,300	Cretaceous	Pictured Cliffs (Cretaceous)	
Aztec Oil & Gas No. 1 Ute Indian "B"	2020 FNL, 1980 FEL 4-31N-15W San Juan	9/59	D&A	2,675	Cretaceous	Graneros (Cretaceous)	
Pan American Petr. No. 1 West Barker Dome	1650 FSL, 990 FEL 1-31N-16W San Juan	3/63	D&A	3,632	Cretaceous	Morrison (Jurassic)	
Standard Oil of Texas No. 6-1 Ute Mtn.	2310 FSL, 1650 FWL 3-31N-16W San Juan	12/57	D&A	9,030	Cretaceous	Elbert (Devonian)	
Bert F Gray, Jr. No. 1 Navajo	560 FSL, 930 FEL 5-31N-16W San Juan	10/61	D&A	1,847	Cretaceous	Sanostee (Cretaceous)	
Paul F. Rutledge No. 2 Navajo Ute "A"	2130 FSL, 1980 FWL 8-31N-16W San Juan	9/62	D&A	1,807	Cretaceous	Tocito (Cretaceous)	
William Bush No. 3 Bush	2100 FSL, 355 FWL 9-31N-16W San Juan	3/66	D&A	1,720	Cretaceous	Sanostee (Cretaceous)	
Zoller & Danneberg No. 1 North Many Rocks	660 FSL, 660 FEL 11-31N-16W San Juan	12/64	D&A	2,030	Cretaceous	Gallup (Cretaceous)	
Childers & R. R. Burke No. 1 Ute	500 FNL, 150 FWL 24-31N-16W San Juan	12/25	D&A	2,050	Cretaceous		Show of oil & gas 1360-70 ft; show gas 1715-1718 ft
Childers Drilling No. 2 Westwater	NW SE NW 24-31N-16W San Juan	7/29	D&A	2,490	Cretaceous		Show oil & gas 2970-90 ft Show of oil 1113-18 ft; 1970-83 ft; 2070-90 ft

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Standard Oil of Texas No. 4-1 Ute	660 FSL, 660 FEL 24-31N-16W San Juan	7/57	D&A	1,876	Cretaceous	Gallup (Cretaceous)	Oil in Gallup
R. L. Bayless No. 3 Navajo	660 FSL, 660 FWL 6-31N-17W San Juan	4/58	D&A	1,615	Cretaceous	Dakota (Cretaceous)	
Honolulu Oil Co. No. 1 Navajo	660 FNL, 660 FWL 6-31N-17W San Juan	1/54	D&A	8,676	Cretaceous	Cutler (Permian)	
Amax Petroleum No. 11 Navajo	1980 FSL, 1980 FWL 17-31N-17W San Juan	4/65	D&A	1,100	Cretaceous	Sanostee (Cretaceous)	
Amax Petroleum No. 7 Navajo	1980 FNL, 1980 FEL 18-31N-17W San Juan	4/65	D&A	1,100	Cretaceous	Sanostee (Cretaceous)	
Amax Petroleum No. 7 Navajo	1980 FNL, 660 FEL 19-31N-17W San Juan	4/65	D&A	1,100	Cretaceous	Sanostee (Cretaceous)	
Harold Brown No. 1 Navajo	660 FSL, 660 FEL 21-31N-17W San Juan	4/69	D&A	1,545	Cretaceous	Morrison (Jurassic)	
Harold Brown No. 2 Navajo 21	900 FSL, 1710 FWL 21-31N-17W San Juan	5/69	D&A	1,361	Cretaceous	Dakota (Cretaceous)	
Harold Brown No. 3 Navajo-21	1650 FSL, 2310 FWL 21-31N-17W San Juan	6/69	D&A	326	Cretaceous		
Harold Brown No. 3-X Navajo-21	1650 FSL, 1650 FWL 21-31N-17W San Juan	8/69	D&A	795	Cretaceous	Mancos (Cretaceous)	
B. A. Dodgen No. 1 Navajo Buch	435 FSL, 1590 FWL 21-31N-17W San Juan	11/69	D&A	1,368	Cretaceous	Dakota (Cretaceous)	
Byrd Frost	C SW SE 22-31N-17W San Juan	/48	D&A	1,365	Cretaceous		
King Oil Co. No. 1 El Paso	2310 FSL, 990 FEL 22-31N-17W San Juan	6/59	D&A	1,410	Cretaceous	Dakota (Cretaceous)	
Reynolds Mining No. 1 Chimney Rock	2000 FNL, 2380 FWL 22-31N-17W San Juan	3/57	D&A	8,516	Cretaceous	Ignacio (Cambrian)	
Byrd Frost No. 2 Core Hole	C SE SW 23-31N-17W San Juan	1948	D&A	865	Cretaceous		
King Oil Co. No. 3 El Paso	2310 FNL, 330 FWL 26-31N-17W San Juan	7/59	D&A	1,365	Cretaceous	Dakota (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
King Oil Co. No. 2 El Paso	330 FNL, 1980 FEL 27-31N-17W San Juan	9/59	D&A	1,310	Cretaceous	Dakota (Cretaceous)	
B. A. Dodgen No. 1 Navajo-28	330 FNL, 1650 FWL 28-31N-17W San Juan	11/69	D&A	813	Cretaceous	Gallup (Cretaceous)	
Arapahoe Drilling No. 1 Navajo	1650 FNL, 330 FWL 34-31N-17W San Juan	7/64	D&A	1,280	Cretaceous	Dakota (Cretaceous)	
E. S. & P. C. Brasher No. 2 Navajo A	2251 FNL, 378 FEL 34-31N-17W San Juan	9/53	D&A	1,295	Cretaceous	Dakota (Cretaceous)	
King Oil Co. No. 2 Navajo "B"	660 FSL, 660 FEL 34-31N-17W San Juan	11/59	D&A	1,289	Cretaceous	Dakota (Cretaceous)	
The Texas Co. No. 1-A Navajo Tr.	1980 FSL, 660 FEL 34-31N-17W San Juan	6/52	D&A	8,147	Cretaceous		
The Texas Co. No. 3 Navajo "A"	1980 FEL, 660 FWL 34-31N-17W San Juan	8/57	D&A	7,790	Cretaceous	Leadville (Mississippian)	
Ken Blackford No. 2 Navajo	1980 FNL, 760 FEL 35-31N-17W San Juan	11/57	D&A	960	Cretaceous	Sanostee (Cretaceous)	
The Texas Co. No. 2 Navajo	1980 FSL, 1980 FWL 35-31N-17W San Juan	11/56	D&A	892	Cretaceous	Gallup (Cretaceous)	
Humble Oil & Refining No. 1 Indians "H"	660 FNL, 660 FWL 4-31N-18W San Juan	1/60	D&A	8,230	Cretaceous	Mississippian	
Humble Oil & Refining No. 19 Core Hole	533 FNL, 746 FWL 7-31N-18W San Juan	11/61	D&A	771	Cretaceous	Sanostee (Cretaceous)	
Humble Oil & Refining No. 1 Navajo "C"	990 FNL, 990 FEL 8-31N-18W San Juan	8/56	D&A	8,681	Cretaceous	Precambrian	
Humble Oil & Refining No. 2 Core Hole	1980 FNL, 1980 FEL 10-31N-18W San Juan	10/61	D&A	880	Cretaceous	Sanostee (Cretaceous)	
R. L. Bayless No. 1 Haystack	990 FWL, 2310 FSL 14-31N-18W San Juan	5/64	D&A	825	Mancos (Cretaceous)	Mancos (Cretaceous)	
R. L. Bayless No. 2 Haystack	2310 FNL, 2310 FEL 14-31N-18W San Juan	5/64	D&A	894	Mancos (Cretaceous)	Mancos (Cretaceous)	
R. L. Bayless No. 3 Haystack	1650 FNL, 430 FWL 14-31N-18W San Juan	5/64	D&A	795	Mancos (Cretaceous)	Mancos (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Humble Oil & Refining No. 4 Core Hole	2131 FNL, 534 FWL 15-31N-18W San Juan	10/61	D&A	776	Cretaceous	Sanostee (Cretaceous)	
Humble Oil & Refining No. 1 Navajo Tr. 24	990 FNL, 990 FEL 15-31N-18W San Juan	8/63	D&A	7,785	Cretaceous	Atoka (Pennsylvanian)	
Leora O. Shaw No. 1 Hartley Navajo	1744 FNL, 990 FWL 17-31N-18W San Juan	11/62	D&A	1,285	Cretaceous	Dakota (Cretaceous)	
Henry S. Birdseye No. 1 Navajo Ind.	865 FSL, 2310 FEL 21-31N-18W San Juan	6/63	D&A	579	Cretaceous	Gallup (Cretaceous)	
Humble Oil & Refining No. 5 Core Hole	660 FNL, 1980 FEL 21-31N-18W San Juan	11/61	D&A	685	Cretaceous	Sanostee (Cretaceous)	
Humble Oil & Refining No. 15 Core Hole	660 FSL, 1980 FWL 21-31N-18W San Juan	11/61	D&A	650	Cretaceous	Sanostee (Cretaceous)	
Humble Oil & Refining No. 17 Core Hole	2310 FSL, 2310 FEL 21-31N-18W San Juan	12/61	D&A	720	Cretaceous	Sanostee (Cretaceous)	
Dugan Prod. No. 2 Ricky	1650 FSL, 1650 FEL 22-31N-18W San Juan	5/75	D&A	1,273	Cretaceous	Dakota (Cretaceous)	
Zoller & Danneberg No. 1 Navajo Cone	1675 FWL, 665 FSL 27-31N-18W San Juan	5/65	D&A	7,050	Cretaceous	Akah (Pennsylvanian)	
Humble Oil & Refining No. 6 Core Hole	1995 FNL, 1987 FWL 28-31N-18W San Juan	10/61	D&A	700	Cretaceous	Sanostee (Cretaceous)	
Humble Oil & Refining No. 20 Core Hole	1980 FNL, 600 FEL 28-31N-18W San Juan		D&A		Cretaceous		
Cactus Drilling No. 1 Navajo A	550 FNL, 880 FEL 29-31N-18W San Juan	12/65	D&A	6,975	Cretaceous	Akah (Pennsylvanian)	
Humble Oil & Refining No. 8 Core Hole	585 FSL, 2018 FWL 33-31N-18W San Juan	10/61	D&A	210	Mancos (Cretaceous)	Mancos (Cretaceous)	
Humble Oil & Refining No. 8A Core Hole	1715 FSL, 2140 FWL 33-31N-18W San Juan	11/61	D&A	630	Cretaceous	Sanostee (Cretaceous)	
Standard of Texas No. 1-21 Navajo Tr.	1980 FNL, 1980 FWL 35-31N-18W San Juan	12/63	D&A	7,008	Cretaceous		
Standard of Texas No. 1 Navajo-Tribal 21	2310 FNL, 1980 FWL 35-31N-18W San Juan	1/65	D&A	622	Cretaceous	Tocito (Cretaeous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Standard of Texas No. 2 Navajo-Tr 21-36	1980 FNL, 660 FEL 36-31N-18W San Juan	3/64	D&A	8,120	Cretaceous	Mississippian	
Nelson Standifer No. 1 Navajo	660 FSL, 1980 FEL 2-31N-19W San Juan	7/64	D&A	576	Cretaceous		
Monsanto Chemical No. 1 Natoni	830 FNL, 1980 FWL 7-31N-19W San Juan	6/63	D&A	7,400	Cretaceous	Devonian	Perf Paradox, swbd 615 MCFG
Pan American Pet. No. 1 Navajo "B"	1650 FNL, 1650 FWL 10-31N-19W San Juan	9/57	D&A	7,750	Cretaceous	Hermosa (Pennsylvanian)	
Humble Oil & Refining No. 21 Core Hole	1855 FNL, 1980 FWL 13-31N-19W San Juan	11/61	D&A	570	Cretaceous	Sanostee (Cretaceous)	
Superior Oil Co. No. 1 Navajo X	1930 FNL, 1980 FEL 17-31N-19W San Juan	6/67	D&A	6,717	Cretaceous	Barker Creek (Pennsylvanian)	
Kirby Exploration No. 1 Navajo	1826 FNL, 1783 FEL 23-31N-19W San Juan	9/76	D&A	7,470	Cretaceous	Molas (Pennsylvanian)	DST 6480-6545 ft (Ismay) rec 126 ft muddy water 2918 ft SWTR. DST 7049-7112 ft (Barker Creek) rec 38 mud; DST 6680-6759 ft (Desert Creek-Akah) rec GTS immed @ 121 MCFGPD, 380 mud
Humble Oil & Refining No. 23 Core Hole	1980 FSL, 1538 FEL 24-31N-19W San Juan	11/61	D&A	595	Cretaceous	Sanostee (Cretaceous)	
Humble Oil & Refining No. 25 Core Hole	1650 FNL, 2095 FEL 36-31N-19W San Juan	11/61	D&A	520	Cretaceous	Sanostee (Cretaceous)	
British American No. 1 Navajo "E"	1980 FNL, 1980 FWL 15-31N-20W San Juan	8/61	D&A	7,308	Cretaceous	Aneth (Devonian)	
Atlantic Richfield No. 1 Chevron-Navajo	920 FSL, 810 FWL 19-31N-20W San Juan	2/67	D&A	6,451	Cretaceous	Pinkerton Trail (Pennsylvanian)	
Standard of Texas No. 1 Navajo 17	1820 FNL, 2050 FEL 1-31N-21W San Juan	9/61	D&A	7,203	Cretaceous	Paradox (Pennsylvanian)	
Amerada Petr. Corp. No. 1 Allison Unit	1980 FNL, 660 FWL 17-32N-6W San Juan	10/50	D&A	8,660	Tertiary	Morrison (Jurassic)	
Strook, Rodgers, Vaughn Pet. No. 141 Gov. Phillips-Ute	625 FNL, 635 FEL 14-32N-7W San Juan	11/57	D&A	1,892	Tertiary		
El Paso Nat. Gas No. 1 Cundiff	990 FNL, 990 FEL 19-32N-12W San Juan	5/57	D&A	2,313	Tertiary	Pictured Cliffs (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Williams No. 1 Dehart	388 FSL, 912 FEL 20-32N-13W San Juan	/25	D&A	970	Tertiary		
Frank Schultz No. 1 Holloway	1850 FSL, 1850 FWL 21-32N-13W San Juan	4/60	D&A	4,610	Tertiary	Dakota (Cretaceous)	
Farmington Pet. No. 1 Love	SE SW 22-32N-13W San Juan		D&A	1,430	Tertiary		
Southern Union Gas No. 1 Jones	1840 FNL, 880 FEL 22-32N-13W San Juan	2/60	D&A	5,670	Tertiary	Dakota (Cretaceous)	
Four States Oil Syn. No. 1 Sickler	2340 FNL, 300 FWL 31-32N-13W San Juan	11/25	D&A	2,943	Tertiary	Dakota (Cretaceous)	Show of oil 849-70 ft; 2935-43 ft; show of gas 2180-2245 ft; 2610-2738 ft
Texas National Pet. No. 1 Johns	660 FSL, 1980 FEL 32-32N-13W San Juan	1/60	D&A	5,755	Tertiary	Tocito (Cretaceous)	
Aztec Oil & Gas No. 1 Ute Mtn.	1650 FSL, 790 FWL 15-32N-15W San Juan	5/60	D&A	3,483	Cretaceous	Morrison (Jurassic)	
Amoco Production No. 1 Mountain Ute Tribal A	1175 FNL, 1650 FEL 27-32N-15W San Juan	9/78	D&A	3,167	Cretaceous	Dakota (Cretaceous)	
Amoco Production No. 1 Mountain Ute Tribal-B	1160 FNL, 790 FEL 26-32N-15W San Juan	10/79	D&A	3,600	Cretaceous	Morrison (Jurassic)	Crd 3218-78 ft (Dakota) rec 57 shaley sand; perf 3403-18 ft (Dakota) swbd 87 BWPD
Forest Oil Corp. No. 31-1 Ute	1170 FSL, 1170 FWL 31-32N-15W San Juan	11/58	D&A	10,010	Cretaceous	Mississippian	DST 9214-305 ft (Miss) gas flowed after 10 minutes @ 50 MCFGD, rec 270 GCM & lgt free oil; DST 9500-600 ft (Miss) gas flowed in 12 min @ 86 MCFGD, rec 7700 salt water; DST 9875-10010 ft (Miss) rec CO_2-cut salt water
Kern County Land Co. No. 1 Forest-Ute	480 FSL, 1783 FEL 34-32N-15W San Juan	9/59	D&A	2,125	Cretaceous	Gallup (Cretaceous)	
Bonanza Oil Corp. No. 1 Ute Mountain	990 FNL, 990 FEL 36-32N-15W San Juan	6/61	D&A	3,290	Cretaceous	Dakota (Cretaceous)	
Aztec Oil & Gas No. 1 Ute Mt Strat 'A'	800 FSL, 890 FEL 14-32N-16W San Juan	7/60	D&A	3,540	Cretaceous		
Miami Oil Producers No. 1 Navajo Ute	330 FSL, 690 FWL 15-32N-16W San Juan	10/64	D&A	2,050	Cretaceous	Sanostee (Cretaceous)	
Stone Drilling No. 1 Navajo-Ute	2310 FSL, 820 FWL 28-32N-16W San Juan	5/64	D&A	1,934	Sanostee (Cretaceous)		

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
British American No. 1 Navajo Ute Tr.	1980 FSL, 1980 FEL 32-32N-16W San Juan	11/63	D&A	1,915	Cretaceous	Sanostee (Cretaceous)	
Atlantic Refining No. 33 Tribal "E"	1980 FNL, 660 FWL 33-32N-16W San Juan	10/64	D&A	1,925	Cretaceous	Sanostee (Cretaceous)	
Cities Service Oil No. 1 Ute-A	1980 FSL, 1980 FWL 35-32N-16W San Juan	11/76	D&A	10,000	Cretaceous	Ismay (Pennsylvanian)	DST 3210-3568 ft (Dakota) rec 200 mud, 116 MCW; DST 9160-9310 ft (Pennsylvanian) rec 283 mud
Arizona Exploration No. 1 Ute	100 FSL, 510 FWL 35-32N-16W San Juan	6/61	D&A	2,050	Cretaceous	Sanostee (Cretaceous)	
Miami Oil Producers No. 1 Navajo	660 FNL, 1980 FWL 13-32N-17W San Juan	10/64	D&A	3,616	Cretaceous	Morrison (Jurassic)	
Strook & Rogers No. 1 Phillips-Navajo	660 FNL, 1980 FEL 15-32N-17W San Juan	9/68	D&A	1,950	Cretaceous	Sanostee (Cretaceous)	
Zoller & Danneberg No. 1 Blue Hills Navajo	1980 FSL, 1980 FEL 15-32N-17W San Juan	4/65	D&A	1,866	Cretaceous	Sanostee (Cretaceous)	
Curtis J. Little No. 1 Navajo	1980 FSL, 660 FWL 21-32N-17W San Juan	9/62	D&A	1,831	Cretaceous	Sanostee (Cretaceous)	
Curtis J. Little No. 2 Navajo	1970 FSL, 690 FWL 21-32N-17W San Juan	1/63	D&A	1,722	Cretaceous	Sanostee (Cretaceous)	
Walter Duncan No. 1 Superior Ute Navajo	2303 FNL, 337 FEL 25-32N-17W San Juan	/65	D&A	1,882	Cretaceous		
Curtis J. Little No. 1 Lynch	1650 FWL, 2310 FNL 26-32N-17W San Juan	12/65	D&A	1,791	Cretaceous	Sanostee (Cretaceous)	
Superior Oil No. 32-26 Navajo-Ute Mt.	1975 FEL, 2282 FNL 26-32N-17W San Juan	9/64	D&A	1,797	Cretaceous	Gallup (Cretaceous)	
Superior Oil No. 12-26 Navajo-Ute Mt.	698 FWL, 2090 FNL 26-32N-17W San Juan	9/64	D&A	1,872	Cretaceous	Sanostee (Cretaceous)	
Curtis J. Little No. 11-27 Navajo	1360 FNL, 260 FWL 27-32N-17W San Juan	6/64	D&A	1,694	Cretaceous	Carlile (Cretaceous)	
Texas Pacific Coal & Oil No. 1 Navajo B	1910 FNL, 1890 FWL 28-32N-17W San Juan	8/60	D&A	9,336	Cretaceous	Pinkerton Trail (Pennsylvanian)	
Texas Pacific Coal & Oil No. 1 Navajo "B" WW	1792 FNL, 2186 FWL 28-32N-17W San Juan	10/67	D&A	2,684	Cretaceous	Gallup (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Stevenson Drilling Co. No. 1 Murphy-Navajo	990 FNL, 2310 FEL 29-32N-17W San Juan	4/67	D&A	1,752	Cretaceous	Sanostee (Cretaceous)	
Baumgartner Co. No. 1-30 Tribal	1980 FNL, 1980 FEL 30-32N-17W San Juan	1/79	D&A	9,138	Cretaceous	Leadville (Mississippian)	
Stevenson Drilling No. 2 Murphy-Navajo	2310 FSL, 670 FEL 30-32N-17W San Juan	4/67	D&A	2,277	Cretaceous	Dakota (Cretaceous)	
El Paso Natural Gas No. 1 Navajo	1650 FNL, 1549 FWL 31-32N-17W San Juan	9/70	D&A	1,901	Cretaceous	Dakota (Cretaceous)	
Curtis J. Little No. 1 Horseshoe A	330 FSL, 330 FEL 32-32N-17W San Juan	12/59	D&A	1,255	Cretaceous	Gallup (Cretaceous)	
Murphy Corp. No. 1-32 Navajo Tr.	660 FNL, 560 FEL 32-32N-17W San Juan	1/59	D&A	1,145	Cretaceous	Sanostee (Cretaceous)	
Drilling & Coring No. 1 Navajo "B"	330 FNL, 330 FEL 8-32N-18W San Juan	5/62	D&A	234	Cretaceous	Gallup (Cretaceous)	
Haynes & V. T. Drilling No. 2 Navajo	540 FSL, 350 FWL 10-32N-18W San Juan	5/64	D&A	1,183	Cretaceous		
Exploration Drilling No. 6 Navajo	365 FSL, 760 FWL 13-32N-18W San Juan	1/62	D&A	1,462	Cretaceous	Sanostee (Cretaceous)	
Texas No. 1 Navajo	1980 FNL, 660 FWL 17-32N-18W San Juan	12/57	D&A	7,851	Cretaceous	Leadville (Mississippian)	
Thomas A. Dugan No. 1 Butte	2310 FNL, 660 FEL 20-32N-18W San Juan	12/62	D&A	1,150	Cretaceous	Sanostee (Cretaceous)	
Aztec Oil & Gas No. 3 Texas Navajo	790 FSL, 535 FEL 25-32N-18W San Juan	11/59	D&A	1,616	Cretaceous	Sanostee (Cretaceous)	
Wilbur Stevenson No. 1 Tracy	330 FSL, 1610 FWL 25-32N-18W San Juan	1/69	D&A	1,610	Cretaeous	Dakota (Cretaceous)	
Zoller & Danneburg No. 1 South Blue Hills	2510 FNL, 1980 FEL 25-32N-18W San Juan	7/65	D&A	1,573	Cretaceous	Dakota (Cretaceous)	
Compass Exploration No. 1-32 Navajo	1980 FNL, 660 FWL 32-32N-18W San Juan	5/59	D&A	8,000	Cretaceous	Molas (Pennsylvanian)	
C. M. Sartain No. 1 Sartain	410 FNL, 2040 FEL 34-32N-18W San Juan	1/66	D&A	1,190	Cretaceous	Gallup (Cretaceous)	

TABLE 1 (cont'd)

Operator, well number, and lease	Location (section, township, range and county)	Completion date	Status	Total depth	Rock unit at surface	Rock unit at total depth	Comments
Southern Union No. 2-A Texas Navajo	1450 FNL, 1650 FWL 35-32N-18W San Juan	10/53	D&A	8,168	Cretaceous	Paradox (Pennsylvanian)	
Walter Duncan No. 1 Bluehill	990 FNL, 990 FEL 36-32N-18W San Juan	11/68	D&A	1,660	Cretaceous	Dakota (Cretaceous)	
Frank Yockey No. 1 Liz	990 FSL, 330 FEL 21-32N-19W San Juan	6/63	D&A	250	Gallup	Gallup (Cretaceous)	
Mesa Petroleum No. 1 Navajo-32	660 FSL, 1980 FWL 32-32N-19W San Juan	12/68	D&A	6,870	Cretaceous	Barker Creek (Pennsylvanian)	DST 6370-95 ft (Desert Creek), gas in 5 min @ 235 MCFD, rec 210 GCM; DST 6750-6870 ft (Barker Creek), rec 180 black sulfur mud emulsion
Lonnie Kramer No. 1 Navajo	330 FSL, 330 FWL 23-32N-19W San Juan	6/64	D&A	321	Cretaceous		
Continental Oil No. 1 South Ute Mtn.	580 FNL, 1890 FWL 26-32N-20W San Juan	8/54	D&A	8,021	Cretaceous	Cambrian	
Continental Oil No. 1 Navajo Tribal-13	650 FSL, 480 FEL 13-32N-20W San Juan	12/71	D&A	6,317	Cretaceous	Desert Creek (Pennsylvanian)	
Continental Oil No. 8 V.A. Strat Test	990 FSL, 990 FEL 26-32N-20W San Juan	1/55	D&A	525	Cretaceous		
Tenneco Oil Co. No. 1 Navajo 590	1855 FNL, 565 FWL 36-32N-20W San Juan	1/63	D&A	6,925	Cretaceous	Molas (Pennsylvanian)	
El Paso Nat. Gas No. 6 4 Corners Strat Test	1242 FNL, 1534 FWL 24-32N-21W San Juan		D&A		Cretaceous		
El Paso Nat. Gas No. 2 Bita Peak	1750 FNL, 2030 FEL 26-32N-21W San Juan	10/56	D&A	6,135	Cretaceous	Paradox (Pennsylvanian)	
B. K. Pet. No. 1 Mission Federal	330 FSL, 330 FEL 15-24N-10W San Juan	4/85	D&A	3,884	Tertiary	Point Lookout (Cretaceous)	Perf Menefee, swbd 204 BW

APPENDIX 3

Summary sheets of oil and gas pools in San Juan County. IP, initial potential; IPP, initial potential pumping; IPF, initial potential flowing; MCFGPD, thousand ft^3 gas per day; BOPD, bbls oil per day; BWPD, bbls water per day; BO, bbls oil; BW, bbls water; MCFG, thousand ft^3 gas.

POOL NAME: Arch Nacimiento Gas Pool

LOCATION: Sec. 14, T. 31 N., R. 10 W., San Juan County, New Mexico.

PRODUCING UNIT(S): Nacimiento Formation (Tertiary)

DISCOVERY WELL: El Paso Natural Gas Co. No. 84 San Juan 32-9, located in Sec. 14, T. 31 N., R. 10 W., completed 6/5/75 through perforations from 978 to 990 ft. Total depth 3,195 ft; artificially fractured. IP 1,338 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, approximately 12 ft thick.

TYPE OF TRAP: Stratigraphic, formed by channel-sandstone complex.

PROPERTIES OF OIL AND GAS: Oil gravity is 47° API. Gas is 98.94% hydrocarbons.

ANNUAL PRODUCTION, 1984: 3,726 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 23,037 MCFG + 480 BO

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 30,000 MCFG

REFERENCES: Emmendorfer (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Kiffen Nacimiento Gas Pool

LOCATION: Sec. 34, T. 32 N., R. 11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Nacimiento Formation (Tertiary)

DISCOVERY WELL: Kimbark Operating Company NO. 3 Stoney, located in Sec. 34, T. 32 N., R. 11 W., completed 2/19/76 through open-hole interval from 710 ft to total depth of 725 ft. IP 410 MCFGPD + 5 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Pay zone is 7 ft thick, lithology undetermined.

TYPE OF TRAP: Stratigraphic

PROPERTIES OF OIL AND GAS: Gas is sweet and has a high BTU heating value.

ANNUAL PRODUCTION, 1984: 0, pool is currently shut in.

CUMULATIVE PRODUCTION TO 12/31/84: 11,767 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 12,000 MCFG

REFERENCES: Riggs (1983a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Alamo Farmington Oil Pool

LOCATION: Sec. 4, T. 30 N., R. 9 W., San Juan County, New Mexico

PRODUCING UNIT(S): Farmington Sandstone Member of Kirtlard Shale (Cretaceous)

DISCOVERY WELL: El Paso Natural Gas Co. No. 4 Riddle, located in Sec. 4, T. 30 N., R. 9 W., completed 11/9/67 through perforations from 2,280 to 2,296 ft; artificially fractured. Total depth 3,116 ft. IP 50 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded very fine- to medium-grained sandstone, siltstone and shale. 10-20 ft net pay of sandstone, 3-17% porosity.

TYPE OF TRAP: Stratigraphic, channel sandstones.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 369 BO

CUMULATIVE PRODUCTION TO 12/31/84: 23,436 BO

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Hoppe (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Aztec Farmington Gas Pool

LOCATION: T. 30 N., R. 11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Farmington Sandstone Member of Kirtland Shale (Cretaceous)

DISCOVERY WELL: Aztec Oil Syndicate No. 1 State, located in Sec. 16, T. 30 N., R. 11 W., completed 10/21/21 through an open-hole interval of unknown depth. Total depth 1,750 ft, plugged back to 1,040 ft. IP 4,000 MCFGPD. Gas flowed from 890 to 900 ft.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine-grained sandstone, approximately 10 ft thick.

TYPE OF TRAP: Stratigraphic, sandstone lense.

PROPERTIES OF OIL AND GAS: Gas is at least 84% hydrocarbons.

ANNUAL PRODUCTION, 1984: 5,707 MCFG + 37 BO

CUMULATIVE PRODUCTION TO 12/31/84: 94,567 MCFG + 416 BO

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Kendrick and Dugan (1978); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Bisti Farmington Gas Pool

LOCATION: T. 25-26N, R. 12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Farmington Sandstone Member of Kirtland Shale (Cretaceous)

DISCOVERY WELL: Dome Petroleum Corp. No. 14 Frew Federal, located in Sec. 29, T. 26 N., R. 12 W., completed 8/30/79 through perforations from 580 to 590 ft; artificially fractured. Total depth 1,230 ft. IP 387 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 15 ft thick, 20-30% porosity.

TYPE OF TRAP: Stratigraphic, fluvial sandstone lenses.

PROPERTIES OF OIL AND GAS: Gas is sweet and contains 98.9% hydrocarbons.

ANNUAL PRODUCTION, 1984: 35,180 MCFG + 6 BW

CUMULATIVE PRODUCTION TO 12/31/84: 211,893 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 6

ESTIMATED ULTIMATE RECOVERY: 250,000 MCFG

REFERENCES: Hyndman (1983a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Bloomfield Farmington Oil Pool

LOCATION: T. 29 N., R. 11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Farmington Sandstone Member of Kirtland Shale (Cretaceous)

DISCOVERY WELL: Bloomfield Oil Co. No. 1 Casimero Saiz, located in Sec. 14, T. 29 N., R. 11 W., completed 7/?/24; producing interval unknown. Total depth 787 ft. IPP 5 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Argillaceous fine- to coarse-grained sandstones, 3-5 ft thick.

TYPE OF TRAP: Stratigraphic, lenticular sand bodies.

PROPERTIES OF OIL AND GAS: Oil gravity is 57 API; high pour point. Gas is sweet and flammable.

ANNUAL PRODUCTION, 1984: 1,262 BO + 12,254 MCFG + 14 BW

CUMULATIVE PRODUCTION TO 12/31/84: 28,363 BO

NUMBER PRODUCING WELLS, 12/31/84: 8

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Riggs (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: South Gallegos Farmington Gas Pool

LOCATION: T. 26 N., R. 12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Farmington Sandstone Member of Kirtland Shale (Cretaceous)

DISCOVERY WELL: Dugan Production Corp. No. 1 Benjamin Franklin, located in Sec. 10, T. 26 N., R. 26 N., R. 12 W., completed 8/21/76 through perforations from 640 to 648 ft. Total depth 1,389 ft. IPCAOF 112 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstone and shale, 30 ft thick; 10-15 ft net pay, 18% porosity.

TYPE OF TRAP: Stratigraphic, discontinuous sandstone lenses.

PROPERTIES OF OIL AND GAS: Gas is sweet and contians 98.25% hydrocarbons.

ANNUAL PRODUCTION, 1984: 935 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 9,090 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Dugan and Fagrelius (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Kutz Farmington Gas Pool

LOCATION: T. 28 N., R. 11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Farmington Sandstone Member of Kirtland Shale (Cretaceous)

DISCOVERY WELL: R&G Drilling No. 11 Krause, located in Sec. 28, T. 28 N., R. 11 W., completed 10/2/55 through perforations from 1,105 to 1,118 ft. Total depth 1,711 ft. IP 1,690 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 30-40 ft thick, 20 ft average net pay, 15-20% porosity.

TYPE OF TRAP: Stratigraphic, fluvial sandstone lenses.

PROPERTIES OF OIL AND GAS: Gas is at least 97.82% hydrocarbons.

ANNUAL PRODUCTION, 1984: 8,178 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 460,789 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 2

ESTIMATED ULTIMATE RECOVERY: 500,000 MCFG

REFERENCES: Malone (1978g); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Manzanares Farmington Gas Pool

LOCATION: Sec. 9, T. 29 N., R. 9 W., San Juan County, New Mexico

PRODUCING UNIT(S): Kirtland Shale (Cretaceous)

DISCOVERY WELL: Amoco Production Co. No. 14, WD Heath A, located in Sec. 9, T. 29 N., R. 9 W., completed 4/30/81 thraough perforations from 1,116 to 1,154 ft; artificially fractured. Total depth 2,247 ft. IPF 2,349 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone

TYPE OF TRAP: Probably stratigraphic

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 3,603 MCFG + 2 BW

CUMULATIVE PRODUCTION TO 12/31/84: 28,796 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: New Mexico Oil & Gas Engineering Committee (1985); unpublished data of New Mexico Bureau of Mines and Mineral Resources

POOL NAME: Oswell Farmington Oil Pool

LOCATION: T. 29-30 N., R. 11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Farmington Sandstone Member of Kirtland Shale (Cretaceous)

DISCOVERY WELL: Anna Oil Corp. No. 2, Oswell, located in Sec. 34, T. 30 N., R. 11 W., completed 1/1/32; producing interval unknown. Total depth 1,455 ft. IPP 25 BOPD + 5 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Argillaceous sandstone, thickness unknown.

TYPE OF TRAP: Assumed to be stratigraphic.

PROPERTIES OF OIL AND GAS: Oil gravity is 54-57° API. Gas is sweet and flammable.

ANNUAL PRODUCTION, 1984: 628 BO + 9,657 MCFG + 128 BW

CUMULATIVE PRODUCTION TO 12/31/84: 15,845 BO (a minimum value because production records are not available for several abandoned, but previously productive wells).

NUMBER PRODUCING WELLS, 12/31/84: 2

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Riggs (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Wyper Farmington Oil Pool

LOCATION: Sec. 29, T. 30 N., R. 12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Farmington Sandstone Member of Kirtland Shale (Cretaceous)

DISCOVERY WELL: B.M.N.S. No. 1 Wyper, located in Sec. 29, T. 30 N., R. 12 W., completed 7/24/46 through an open-hole interval from 542 ft to total depth of 580 ft. IPF 12 BOPD + 750 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 12 ft thick.

TYPE OF TRAP: Assumed to be stratigraphic.

PROPERTIES OF OIL AND GAS: Oil gravity is 50° API.

ANNUAL PRODUCTION, 1984: 0, pool inactive since 1950.

CUMULATIVE PRODUCTION TO 12/31/84: 6,582 BO, estimated.

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Riggs (1983c);

POOL NAME: Aztec Fruitland (gas)

LOCATION: T. 29-30 N., R. 10-11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Francis L. Harvey No. 1 Hare, located in Sec. 14, T. 29 N., R. 11 W., completed 6/20/52 through perforations from 1,563 to 1,605 ft. Total depth 1,880 ft. IP 500 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 10-60 ft thick, 10-18% porosity.

TYPE OF TRAP: Stratigrpahic, discontinuous fluvial sandstones.

PROPERTIES OF OIL AND GAS: Gas is at least 97.5% hydrocarbons.

ANNUAL PRODUCTION, 1984: 811,291 MCFG + 303 BO + 481 BW

CUMULATIVE PRODUCTION TO 12/31/84: 20,779,887 MCFG + 3,613 BO

NUMBER PRODUCING WELLS, 12/31/84: 65

ESTIMATED ULTIMATE RECOVERY: 33,600,000 MCFG

REFERENCES: Malone (1978e); New Mexico Oil & Gas Engineering Committee (1985);

POOL NAME: North Aztec Fruitland Gas Pool

LOCATION: Sec. 20, T. 30 N., R. 10 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: El Paso Natural Gas Co. No. 1 Gage, located in Sec. 20, T. 30 N., R. 10 W., completed 8/2/54 through perforations from 2,486 to 2,500 ft; artificially fractured. Total depth 2,851 ft. IP 400 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 10-35 ft thick, 10-16% porosity.

TYPE OF TRAP: Stratigraphic, discontinuous channel sand lenses.

PROPERTIES OF OIL AND GAS: Gas is at least 96.77% hydrocarbons.

ANNUAL PRODUCTION, 1984: 38,437 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 259,549 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 2

ESTIMATED ULTIMATE RECOVERY: 1,700,000 MCFG

REFERENCES: Malone (1978f); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Blanco Fruitland Gas Pool

LOCATION: T. 29-30 N., R. 8-9 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Tenneco Oil Co. No. 1 Florance, located in Sec. 29, T. 30 N., R. 8 W., completed 3/1/68 through perforations from 2,580 to 2,607 ft; artificially fractured. Total depth 3,010 ft. IPF 2,077 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 15-35 ft thick, 20 ft average net pay, 8-15% porosity.

TYPE OF TRAP: Stratigraphic, northeast-trending channel sandstones.

PROPERTIES OF OIL AND GAS: Gas is at least 98.19% hydrocarbons.

ANNUAL PRODUCTION, 1984: 166,617 MCFG + 420 BO + 19 BW

CUMULATIVE PRODUCTION TO 12/31/84: 2,778,811 MCFG + 23,334 BO

NUMBER PRODUCING WELLS, 12/31/84: 13

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Malone (1978d); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Cedar Hill Fruitland-Basal Coal Gas Pool

LOCATION: T. 31-32 N., R. 10 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Amoco Production Co. No. 1 Homeberg Gas Com. A, located in Sec. 28, T. 32 N., R. 10 W., completed 12/5/72 through perforations from 2,504 to 2,522 ft; artificially fractured. Total depth 2,897 ft. IPF 1,164 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Undetermined; most wells produce through an open-hole interval 20-50 ft thick. Thickness of net pay is not known. At least one well produces from a coal bed.

TYPE OF TRAP: Probably stratigraphic.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 1,414,511 MCFG + 57,893 BW

CUMULATIVE PRODUCTION TO 12/31/84: 3,902,856 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 7

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: New Mexico Oil & Gas Engineering Committee (1985); unpublished data of New Mexico Bureau of Mines and Mineral Resources; Perlman (1985)

POOL NAME: Conner Fruitland Gas Pool

LOCATION: T. 30 N., R. 14 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Shar Allen Oil No. 3 Dick Hunt Federal, located in Sec. 1, T. 30 N., R. 14 W., completed 12/28/76 through perforations from 1,171 to 1,194 ft. Total depth 6,275 ft; artificially fractured. IP 297 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fluvial sandstone, 20 ft thick; 12-16% porosity.

TYPE OF TRAP: Stratigraphic, northeast-trending channel sandstone

PROPERTIES OF OIL AND GAS: Gas is at least 98.97% hydrocarbons.

ANNUAL PRODUCTION, 1984: 0, pool currently shut in.

CUMULATIVE PRODUCTION TO 12/31/84: 26,279 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 200,000 MCFG

REFERENCES: Malone (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Crouch Mesa Fruitland Gas Pool

LOCATION: Sec. 4, T. 29 N., R. 12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Devonian Gas and Oil Co. No. 1 Federal, located in Sec. 4, T. 27 N., R. 12 W., completed 6/26/59 through perforations from 1,566 to 1,576 ft; artificially fractured. Total depth 1,856 ft. IP 1,500 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 10 ft thick, 13% porosity.

TYPE OF TRAP: Stratigraphic, sandstone lenses.

PROPERTIES OF OIL AND GAS: Gas has a heating value of 1,100-1,200 BTU/ft^3.

ANNUAL PRODUCTION, 1984: 1,016 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 125,811 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 124,000 MCFG; pool has reached approximate maximum pay.

REFERENCES: Riggs (1983b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Farmer Fruitland Gas Pool

LOCATION: T. 30 N., R. 11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Mañana No. 1 Bobbie Herrera, located in Sec. 4, T. 30 N., R. 11 W., completed 2/14/79 through perforations from 1,950 to 2,055 ft; artificially fractured. Total dpeth 2,350 ft. IP 830 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 0-18 ft thick, 12% porosity.

TYPE OF TRAP: Stratigraphic, deltaic distributary and overbank sandstones.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 41,626 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 45,617 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 2

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Fortner et al. (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Flora Vista Fruitland Gas Pool

LOCATION: T. 30 N., R. 12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Northwest Production Corp. NO. 3 Blanco 30-12A, located in Sec. 10, T. 30 N., R. 12 W.; completed 12/29/56 through perforations from 1,754 to 1,774 ft; artificially fractured. Total depth 4,568 ft. IP 4,528 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 10-50 ft thick, 8-16% porosity.

TYPE OF TRAP: Stratigraphic, northeast-trending channel sandstone.

PROPERTIES OF OIL AND GAS: Gas is at least 96.77% hydrocarbons.

ANNUAL PRODUCTION, 1984: 40,473 MCFG + 25 BW

CUMULATIVE PRODUCTION TO 12/31/84: 1,619,249 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 8

ESTIMATED ULTIMATE RECOVERY: 1,700,000 MCFG

REFERENCES: Malone (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Gallegos Fruitland Gas Pool

LOCATION: Sec. 27, T. 27 N., R. 11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: British-American Petroleum Corp. No. 2 Douthit, located in Sec. 27, T. 27 N., R. 11 W.; completed 3/16/52 through perforations from 1,672 to 1,682 ft. Total depth 2,042 ft. IP 1,300 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 20 ft thick, 12 ft average net pay.

TYPE OF TRAP: Stratigraphic, isolated sandstone lenses.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 13,303 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 962,058 MCFG + 13 BO

NUMBER PRODUCING WELLS, 12/31/84: 4

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Hopson (1978); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: South Gallegos Fruitland Gas Pool

LOCATION: T. 26-27 N., R. 11-12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Skelly Oil Co. No. 16 Navajo, located in Sec. 12, T. 26 N., R. 12 W.; completed 5/27/68 through perforations from 1,100 to 1,113 ft; acidized and artificially fractured. Total depth 5,115 ft. IP 1,767 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstones, siltstones, and coals, 12 ft average net pay.

TYPE OF TRAP: Stratigraphic, lenticular channel sandstones.

PROPERTIES OF OIL AND GAS: Gas is 98.93% hydrocarbons.

ANNUAL PRODUCTION, 1984: 595,109 MCFG + 390 BW

CUMULATIVE PRODUCTION TO 12/31/84: 8,388,012 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 23

ESTIMATED ULTIMATE RECOVERY: 10,000,000 MCFG

REFERENCES: Bircher (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Glades Fruitland Gas Pool

LOCATION: T. 31-32 N., R. 11-12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Mesa Petroleum No. 15-A State Com. S., located in Sec. 36, T. 32 N., R. 12 W.; completed 5/25/78 through perforations from 2,806 to 2,820 ft; acidized and artificially fractured. Total depth 5,581 ft. IPF 1,002 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Approximately 40 ft of sandstone; 20 ft net pay; 8-15% porosity.

TYPE OF TRAP: Stratigraphic, northeast-trending channel sandstones.

PROPERTIES OF OIL AND GAS: Oil gravity is 46.3° API. Gas is 97.57% hydrocarbons.

ANNUAL PRODUCTION, 1984: 114,830 MCFG + 68 BO + 518 BO

CUMULATIVE PRODUCTION TO 12/31/84: 741,916 MCFG + 2,660 BO

NUMBER PRODUCING WELLS, 12/31/84: 11

ESTIMATED ULTIMATE RECOVERY: 1,710,000 MCFG

REFERENCES: Bircher (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Jasis Canyon Fruitland Gas Pool

LOCATION: T. 28-29 N., R. 7-8 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Mesa Petroleum Co. No. 39 State Com., located in Sec. 36, T. 29 N., R. 8 W.; completed 6/6/76 through perforations from 2,594 to 2,618 ft; acidized and artificially fractured. Total depth 2,980 ft. IP 965 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine-grained sandstone, 20 ft average net pay, 13.5% porosity.

TYPE OF TRAP: Stratigraphic, northwest-trending fluvial sand lens.

PROPERTIES OF OIL AND GAS: Gas is dry and sweet. Oil gravity is 64° API.

ANNUAL PRODUCTION, 1984: 8,721 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 176,992 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 400,000 MCFG

REFERENCES: Hamilton (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Kutz Fruitland Gas Pool

LOCATION: T. 28 N., R. 10-11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: R&G Drilling Co. No. 25 Schlosser, located in Sec. 27, T. 28 N., R. 11 W.; completed 10/30/56 through perforations from 1,330 to 1,345 ft; artificially fractured. Total depth 1,610 ft. IP 5,000 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 10-35 ft thick, 10-16% porosity.

TYPE OF TRAP: Stratigraphic, lenticular channel sandstones.

PROPERTIES OF OIL AND GAS: Gas is at least 97.9% hydrocarbons.

ANNUAL PRODUCTION, 1984: 330,529 MCFG + 20 BW

CUMULATIVE PRODUCTION TO 12/31/84: 9,361,446 MCFG + 912 BO

NUMBER PRODUCING WELLS, 12/31/84: 21

ESTIMATED ULTIMATE RECOVERY: 16,000,000 MCFG

REFERENCES: Malone (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: West Kutz Fruitland Gas Pool

LOCATION: T. 29 N., R. 12-13 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Locke-Taylor Drilling Co. No. 1 Tycksen, located in Sec. 23, T. 29 N., R. 13 W.; completed 10/22/52 through an open-hole interval from 900 to 975 ft; artificially fractured. Total depth 1,230 ft. IP 370 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 20 ft thick, 16% porosity.

TYPE OF TRAP: Stratigraphic, northwest-trending sandstone lense.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 32,755 MCFG + 84 BW

CUMULATIVE PRODUCTION TO 12/31/84: 1,010,020 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 4

ESTIMATED ULTIMATE RECOVERY: 1,370,000 MCFG

REFERENCES: Conlon (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: North Los Piños Fruitland Gas Pool

LOCATION: T. 32 N., R. 7-8 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Phillips Petroleum Co. No. 3-18 Mesa Unit 32-7, located in Sec. 18, T. 32 N., R. 7 W.; completed 7/31/53 through perforations from 2,766 to 2,806 ft. Total depth 5,002 ft. IP 1,310 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Approximately 320 ft of interbedded sandstone, siltstone, and shale; 50 ft average net pay; 12-14% porosity.

TYPE OF TRAP: Stratigraphic, but production is from an anticlinal nose.

PROPERTIES OF OIL AND GAS: Gas is 96.94% hydrocarbons.

ANNUAL PRODUCTION, 1984: 93,753 MCFG + 13 BW

CUMULATIVE PRODUCTION TO 12/31/84: 1,626,207 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 4

ESTIMATED ULTIMATE RECOVERY: 929,000 MCFG

REFERENCES: Bowman (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Mt. Nebo Fruitland Gas Pool

LOCATION: T. 32 N., R. 10 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Amoco Production Co. No. 1 Holmberg Com. A., located in Sec. 28, T. 32 N., R. 10 W.; completed 12/5/72 through perforations from 2,504 to 2,522 ft; artificially fractured. Total depth 2,679 ft. IP 1,164 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 26 ft average net pay, 10% porosity, 0.21 millidarcy permeability

TYPE OF TRAP: Stratigraphic, lenticular channel sandstone

PROPERTIES OF OIL AND GAS: Gas is 98.25% hydrocarbons.

ANNUAL PRODUCTION, 1984: 39,560 MCFG + 24 BO + 49 BW

CUMULATIVE PRODUCTION TO 12/31/84: 296,333 MCFG + 462 BO

NUMBER PRODUCING WELLS, 12/31/84: 4

ESTIMATED ULTIMATE RECOVERY: 1,600,000 MCFG

REFERENCES: Maynard (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Piñon Fruitland Gas Pool

LOCATION: T. 28 N., R. 11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Amoco Production Co. No. 220 Gallegos Canyon Unit, located in Sec. 13, T. 28 N., R. 11 W.; completed 6/14/66 through perforations from 1,242 to 1,252 ft; acidized and artificially fractured. Total depth 1,332 ft. IP 4,300 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Argillaceous sandstone, 117 ft thick, 26 ft average net pay, 14.6% porosity, oil millidarcy permeability.

TYPE OF TRAP: Stratigraphic, lenticular channel sandstone.

PROPERTIES OF OIL AND GAS: Gas is 99.51% hydrocarbons.

ANNUAL PRODUCTION, 1984: 221,530 MCFG + 121 BW

CUMULATIVE PRODUCTION TO 12/31/84: 7,229,759 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 14

ESTIMATED ULTIMATE RECOVERY: 5,406,000 MCFG

REFERENCES: Maynard (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: North Piñon Fruitland Gas Pool

LOCATION: Sec. 28, T. 29 N., R. 12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Pan American No. 82 Gallegos Canyon Unit, located in Sec. 28, T. 29 N., R. 12 W.; completed 9/?/66 through perforations from 950 to 964 ft; artificially fractured. Total depth 1,304 ft. IP 900 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 20 ft thick, 16% porosity.

TYPE OF TRAP: Stratigraphic, northwest-trending sandstone lense.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 207,504 MCFG + 630 BW

CUMULATIVE PRODUCTION TO 12/31/84: 753,830 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 6

ESTIMATED ULTIMATE RECOVERY: 180,000 MCFG

REFERENCES: Conlon (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Pump Mesa Fruitland Gas Pool

LOCATION: Secs. 31 and 32, T. 32 N., R. 8 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Aztec Oil and Gas No. 1 Rattlesnake Canyon, located in Sec. 32, T. 32 N., R. 8 W.; completed 8/25/69 through perforations from 3,280 to 3,300 ft; artificially fractured. Total depth 8,298 ft. IPF 1,625 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 20 ft thick, 12% porosity.

TYPE OF TRAP: Stratigraphic

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 11,053 MCFG + 15 BW

CUMULATIVE PRODUCTION TO 12/31/84: 370,750 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Babcock (1978); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Sedro Canyon Fruitland Gas Pool

LOCATION: Sec. 23, T. 31 N., R. 9 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation (Cretaceous)

DISCOVERY WELL: Southern Union Production Co. No. 9 Seymour, located in Sec. 3, T. 31 N., R. 9 W.; completed 7/26/73 through perforations from 2,640 to 2,962 ft; acidized and artificially fractured. Total depth 3,086 ft. IP 685 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstone, siltstone, shale, and coal; fractured coal is primary reservoir; 80 ft average net pay.

TYPE OF TRAP: Stratigraphic, fractured coals and sandstones on an anticlinal crest.

PROPERTIES OF OIL AND GAS: Gas is 92.58% hydrocarbons.

ANNUAL PRODUCTION, 1984: 28,102 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 352,864 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 1,000,000 MCFG

REFERENCES: Sperandio (1983a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Albino Pictured Cliffs Gas Pool

LOCATION: T. 32 N., R. 8 W., San Juan County, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: John E. Schalk No. 3 Lone Star Industries-Schalk 94, located in Sec. 26, T. 32 N., R. 8 W.; completed 6/1/74 through perforations from 2,815 to 2,880 ft; artificially fractured. Total depth 4,007 ft. IP 556 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded, fine-grained, sandstones, shales, coals, and siltstones, approximately 200 ft thick, 40 ft net pay, 12% porosity.

TYPE OF TRAP: Stratigraphic, northwest-trending lenticular sandstones.

PROPERTIES OF OIL AND GAS: Gas is 98.23% hydrocarbons.

ANNUAL PRODUCTION, 1984: 472,272 MCFG + 701 BO + 1,111 BW

CUMULATIVE PRODUCTION TO 12/31/84: 2,141,643 MCFG + 2,411 BO

NUMBER PRODUCING WELLS, 12/31/84: 7

ESTIMATED ULTIMATE RECOVERY: 4,520,000 MCFG

REFERENCES: Middleman (1983a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Aztec Pictured Cliffs Gas Pool

LOCATION: T. 28-31 N., R. 9-12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: George Greer No. 2 Thompson, located in Sec. 10, T. 30 N., R. 11 W.; completed 9/16/41 through an open-hole interval from 2,097 ft to total depth of 2,362 ft. IP 180 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Very fine- to medium-grained sandstone, 40 ft thick, 15% porosity.

TYPE OF TRAP: Stratigraphic, northwest-trending lenticular beach and bar sandstones.

PROPERTIES OF OIL AND GAS: Gas is at least 99.35% hydrocarbons.

ANNUAL PRODUCTION, 1984: 6,437,123 MCFG + 609 BO + 2,622 BW

CUMULATIVE PRODUCTION TO 12/31/84: 296,149,750 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 534

ESTIMATED ULTIMATE RECOVERY: 432,992,540 MCFG

REFERENCES: C. F. Brown (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Ballard Pictured Cliffs Gas Pool

LOCATION: T. 22-27 N., R. 2-9 W., Sandoval, San Juan, and Rio Arriba Counties, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: Jack Foster Trust No. 1-A Riddle, located in Sec. 4, T. 25 N., R. 7 W., Rio Arriba County, New Mexico; completed 4/8/53 through an open-hole interval from 2,208 ft to total depth of 2,304 ft; artificially fractured. IP 396 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Very fine- to medium-grained sandstone, 30-80 ft thick, 25 ft average net pay, 15% average porosity, 5.4 millidarcies average permeability.

TYPE OF TRAP: Stratigraphic, northwest-trending lenticular bar and beach sandstone.

PROPERTIES OF OIL AND GAS: Gas is at least 98.57% hydrocarbons.

ANNUAL PRODUCTION, 1984: 3,729,967 MCFG + 27 BO + 48 BW from San Juan County part of pool.

CUMULATIVE PRODUCTION TO 12/31/84: 178,913,667 MCFG + 25,156 BO from San Juan County pat of pool.

NUMBER PRODUCING WELLS, 12/31/84: 231 in San Juan County part of pool

ESTIMATED ULTIMATE RECOVERY: 479,412,454 MCFG, from all 3 counties.

REFERENCES: C. F. Brown (1978d); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Blanco Pictured Cliffs Gas Pool

LOCATION: T. 28-32 N., R. 7-12 W., San Juan and Rio Arriba Counties, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: Huntington Park Oil Co. No. 1 Goede, located in Sec. 29, T. 30 N., R. 9 W., San Juan County; completed 12/27 through an undetermined open-hole interval; total depth 4,550 ft. IP is unknown.

LITHOLOGY AND THICKNESS OF RESERVOIR: Very fine- to medium-grained sandstone, 60-150 ft thick, 40 ft average net pay, 15% porosity.

TYPE OF TRAP: Stratigraphic, northwest-trending lenticular bar and beach sandstones.

PROPERTIES OF OIL AND GAS: Gas is at least 98.75% hydrocarbons.

ANNUAL PRODUCTION, 1984: 21,248,39 MCFG + 6,999 BO + 7,883 BW in San Juan County part of pool.

CUMULATIVE PRODUCTION TO 12/31/84: 443,418,970 MCFG + 215,548 BO in San Juan County part of pool.

NUMBER PRODUCING WELLS, 12/31/84: 709 in San Juan County part of pool.

ESTIMATED ULTIMATE RECOVERY: 818,357,633 MCFG

REFERENCES: C. F. Brown (1978e); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: South Blanco Pictured Cliffs Gas Pool

LOCATION: T. 23-28 N., R. 1-9 W., Sandoval, San Juan, and Rio Arriba Counties, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: Doswell Federal No. 1-B, located in Sec. 15, T. 26 N., R. 6 W., Rio Arriba County; completed 6/19/51 through an open-hole interval frcm 2,861 ft to total depth of 2,929 ft. IP 1,900 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine- to medium-graind sandstone, 60-100 ft thick, 30 ft average net pay, 15% porosity, 0-5.5 millidarcies permeability.

TYPE OF TRAP: Stratigraphic, northwest-trending lenticular beach and bar sandstones.

PROPERTIES OF OIL AND GAS: Gas is at least 99.14% hydrocarbons.

ANNUAL PRODUCTION, 1984: 4,949,003 MCFG + 15 BO + 244 BW in San Juan County part of pool.

CUMULATIVE PRODUCTION TO 12/31/84: 244,819,546 MCFG + 5,641 BO in San Juan County part of pool.

NUMBER PRODUCING WELLS, 12/31/84: 321 in San Juan County part of pool.

ESTIMATED ULTIMATE RECOVERY: 1,377,618,000 MCFG

REFERENCES: C. F. Brown (1978f); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Fulcher-Kutz Pictured Cliffs Gas Pool

LOCATION: T. 17-30 N., R. 9-13 W., San Juan County, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: Congress No. 1 Frank Garland, located in Sec. 34, T. 29 N., R. 11 W.; completed 11/25/27 through an open-hole interval from 1,626 ft to total depth of 1,910 ft. IPF 650 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Very fine- to medium-grained sandstone, 20-75 ft thick, 15% porosity. Most wells in Fulcher-Pictured Cliffs Gas Pool are artificially fractured to enhance reservoir permeability.

TYPE OF TRAP: Stratigraphic, northwest-trending lenticular bar and beach sandstones.

PROPERTIES OF OIL AND GAS: Gas is at least 99.26% hydrocarbons.

ANNUAL PRODUCTION, 1984: 5,453,397 MCFG + 136 BO + 1,883 BW

CUMULATIVE PRODUCTION TO 12/31/84: 287,147,059 MCFG + 5,765 BO

NUMBER PRODUCING WELLS, 12/31/84: 339

ESTIMATED ULTIMATE RECOVERY: 326,375,500 MCFG

REFERENCES: C. F. Brown (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: South Gallegos Fruitland-Pictured Cliffs Gas Pool

LOCATION: T. 26-27 N., R. 11-12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation and Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: Skelly Oil Co. No. 16 Navajo, located in Sec. 12, T. 26 N., R. 12 W.; completed 5/27/68 through perforations from 1,100 to 1,113 ft; acidized and artificially fractured. Total depth 5,115 ft. IPF 1,767 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstones, siltstones, and coals, approximately 55 ft thick, 12 ft average net pay.

TYPE OF TRAP: Stratigraphic, lenticular channel sandstones.

PROPERTIES OF OIL AND GAS: Gas is 98.93% hydrocarbons.

ANNUAL PRODUCTION, 1984: 595,109 MCFG + 390 BW

CUMULATIVE PRODUCTION TO 12/31/84: 8,388,012 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 23

ESTIMATED ULTIMATE RECOVERY: 10,000,000 MCFG

REFERENCES: Bircher (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Harper Hill Fruitland-Pictured Cliffs Gas Pool

LOCATION: Sec. 1, T. 29 N., R. 14 W., San Juan County, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone and Fruitland Formation (Cretaceous)

DISCOVERY WELL: Dugan Production Corp. No. 4 Federal I, located in Sec. 1, T. 29 N., R. 14 W.; completed 2/24/69 through perforatios from 860 to 865 ft (Fruitland) and 1,203 to 1,208 ft (Pictured Cliffs); artificially fractured. Total depth 1,274 ft. IPAOF 1,069 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 200 ft thick, 10 ft net pay, 15% porosity, 5-25 millidarcies permeability.

TYPE OF TRAP: Stratigraphic, combined with a homoclinal dip.

PROPERTIES OF OIL AND GAS: Gas is 99.19% hydrocarbons.

ANNUAL PRODUCTION, 1984: 67,708 MCFG + 1,190 BW

CUMULATIVE PRODUCTION TO 12/31/84: 1,161,477 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 8

ESTIMATED ULTIMATE RECOVERY: 3,900,000 MCFG

REFERENCES: Dugan and Fagrelius (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Harper Hill Fruitland-Pictured Cliffs Gas Pool

LOCATION: Sec. 1, T. 29 N., R. 14 W., San Juan County, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone and Fruitland Formation (Cretaceous)

DISCOVERY WELL: Dugan Production Corp. No. 4 Federal I, located in Sec. 1, T. 29 N., R. 14 W.; completed 2/24/69 through perforations from 860 to 865 ft (Fruitland) and 1,203 to 1,208 ft (Pictured Cliffs); artificially fractured. Total depth 1,274 ft. IPAOF 1,069 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 200 ft thick, 10 ft net pay, 15% porosity, 5-25 millidarcies permeability.

TYPE OF TRAP: Stratigraphic, combined with a homoclinal dip.

PROPERTIES OF OIL AND GAS: Gas is 99.19% hydrocarbons.

ANNUAL PRODUCTION, 1984: 67,708 MCFG + 1,190 BW

CUMULATIVE PRODUCTION TO 12/31/84: 1,161,477 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 8

ESTIMATED ULTIMATE RECOVERY: 3,900,000 MCFG

REFERENCES: Dugan and Fagrelius (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Huerfano Pictured Cliffs Gas Pool

LOCATION: T. 25-26 N., R. 9-10 W., San Juan County, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: Stanolind No. 1 Earl Ader, Jr., located in Sec. 25, T. 26 N., R. 10W.; completed 10/24/50 through an open-hole interval from 2,033 ft to total depth of 2,105 ft; artificially fractured. IP 428 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 110 ft thick, 50 ft net pay, 15% porosity.

TYPE OF TRAP: Probably stratigraphic, formed by permeability barriers associated with lenticular sandstones; structural control by faults and homoclinal dips is possible.

PROPERTIES OF OIL AND GAS: Gas contains 99.00% hydrocarbons.

ANNUAL PRODUCTION, 1984: 12,018 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 1,472,072 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 1,600,000 MCFG

REFERENCES: Matheny (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: West Kutz Pictured Cliffs Gas Pool

LOCATION: T. 26-29 N., R. 10-13 W., San Juan County, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: J. D. Hancock No. 1 Edgar, located in Sec. 12, T. 27 N., R. 12 W.; completed 5/31/50 through an open-hole interval from 1,771 to 1,850 ft; artificially fractured. Total depth 1,900 ft, plugged back to 1,850 ft. IP 1,250 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 80 ft thick, 25 ft net pay, 14% porosity, 5.45 millidarcies average permeability.

TYPE OF TRAP: Stratigraphic, lenticular beach and bar sandstones.

PROPERTIES OF OIL AND GAS: Gas contains at least 98.76% hydrocarbons.

ANNUAL PRODUCTION, 1984: 6,573,831 MCFG + 1 BO + 253,417 BW

CUMULATIVE PRODUCTION TO 12/31/84: 158,151,160 MCFG + 242 BO

NUMBER PRODUCING WELLS, 12/31/84: 255

ESTIMATED ULTIMATE RECOVERY: 211,800,873

REFERENCES: C. F. Brown (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: South Los Piños Fruitland-Pictured Cliffs Gas Pool

LOCATION: T. 31 N., R. 7 W., San Juan County, New Mexico

PRODUCING UNIT(S): Fruitland Formation and Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: Phillips Petroleum Co. No. 6-17 San Juan 32-7 Unit, located in Sec. 17, T. 31 N., R. 7 W.; completed 8/24/53 through an open-hole interval from 3,054 to 3,240 ft. Total depth 3,240 ft. IP 1,790 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstone, siltstone, shale, and coal, approximately 320 ft thick; reservoir is naturally fractured.

TYPE OF TRAP: Stratigraphic

PROPERTIES OF OIL AND GAS: Gas contains 95.96% hydrocarbons

ANNUAL PRODUCTION, 1984: 1,070,471 MCFG + 1,638 BO + 744 BW

CUMULATIVE PRODUCTION TO 12/31/84: 8,127,121 MCFG + 9,560 BO

NUMBER PRODUCING WELLS, 12/31/84: 31

ESTIMATED ULTIMATE RECOVERY: 2,500,000 MCFG

REFERENCES: Bowman (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Ojo Fruitland-Pictured Cliffs Gas Pool

LOCATION: T. 28 N., R. 15 W., San Juan County, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: Dugan Production Corp. No. 2 Pet Inc., located in Sec. 36, T. 28 N., R. 15 W.; completed 2/13/71 through perforations from 767 to 772 ft; artificially fractured. Total depth 848 ft. IP 130 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstone and shale, 200 ft thick, 5-10 ft net pay, 16% porosity, 0.25 millidarcy permeability.

TYPE OF TRAP: Stratigraphic, lenticular sand bodies.

PROPERTIES OF OIL AND GAS: Gas is 97.45% hydrocarbons.

ANNUAL PRODUCTION, 1984: 42,251 MCFG + 1,239 BW

CUMULATIVE PRODUCTION TO 12/31/84: 931,639 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 16

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Fagrelius and Jacobs (1978); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Potwin Pictured Cliffs Gas Pool

LOCATION: T. 24 N., R. 8 W., San Juan County, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: Dugan Production Corp. No. 1 Mountain, located in Sec. 15, T. 24 N., R. 8 W.; completed 5/7/76 through perforations from 2,030 to 2,039 ft; artificially fractured. Total depth 3,040 ft. IP 1,100 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, with interbedded shale, 80 ft thick, 10 ft net pay, 18% porosity, 0.5 millidarcy permeability

TYPE OF TRAP: Stratigraphic, lenticular sandstone

PROPERTIES OF OIL AND GAS: Gas is 95.92% hydrocarbons.

ANNUAL PRODUCTION, 1984: 16,071 MCFG + 402 BW

CUMULATIVE PRODUCTION TO 12/31/84: 46,905 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 3

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Jacobs and Fagrelius (1978); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Twin Mounds Pictured Cliffs Gas Pool

LOCATION: Sec. 33, T. 30 N., R. 14 W., San Juan County, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone (Cretaceous)

DISCOVERY WELL: Pubco Development Co. No. 2 Russell Federal, located in Sec. 33, T. 30 N., R. 14 W.; completed 7/28/54 through perforations from 921 to 939 ft. Total depth 3,512 ft. IP 1,875 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine- to medium-grained, glauconitic, friable sandstone, 16-26 ft thick, 24% porosity, 65 millidarcies permeability.

TYPE OF TRAP: Combined stratigraphic and structural, up-dip permeability barrier formed by sandstone-to-shale transition.

PROPERTIES OF OIL AND GAS: Gas is sweet.

ANNUAL PRODUCTION, 1984: 60,569 MCFG + 1,769 BW

CUMULATIVE PRODUCTION TO 12/31/84: 1,891,098 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 6

ESTIMATED ULTIMATE RECOVERY: 1,600,000 MCFG

REFERENCES: Hamilton (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: WAW Fruitland-Pictured Cliffs Gas Pool

LOCATION: T. 26-27 N., R. 13 W., San Juan County, New Mexico

PRODUCING UNIT(S): Pictured Cliffs Sandstone and Fruitland Formation (Cretaceous)

DISCOVERY WELL: Dugan Production Corp. NO. 1 WAW, located in Sec. 32, T. 27 N., R. 13 W.; completed 6/30/70 through perforations from 1,325 to 1,329 ft (Pictured Cliffs); artificially fractured. Total depth 1,411 ft.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 15 ft thick, 18% porosity, 1-10C millidarcies permeability.

TYPE OF TRAP: Stratigraphic, lenticular sandstone bodies.

PROPERTIES OF OIL AND GAS: Gas is 90% methane.

ANNUAL PRODUCTION, 1984: 2,150,441 MCFG + 9,150 BW

CUMULATIVE PRODUCTION TO 12/31/84: 21,039,644 MCFG + 5 BC

NUMBER PRODUCING WELLS, 12/31/84: 155

ESTIMATED ULTIMATE RECOVERY: 4,000,000 MCFG

REFERENCES: Fagrelius (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Blanco Mesaverde Gas Pool

LOCATION: T. 25-32 N., R. 2-13 W., San Juan and Rio Arriba Counties, New Mexico

PRODUCING UNIT(S): Mesaverde Group (Cretaceous), including Cliff House Sandstone, Menefee Formation, and Point Lookout Sandstone.

DISCOVERY WELL: Huntington Park No. 1 Goede, located in Sec. 29, T. 30 N., R. 9 W., San Juan County; completed 12/27 through an open-hole interval from 4,130 ft to total depth of 4,550 ft. IP 600 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstones, shales, and coals, 700-1,100 ft thick, 80-200 ft net pay, 10-16% porosity. Permeability is 0.5 millidarcy in Cliff House Sandstone and 2.0 millidarcies in Point Lookout Sandstone. Modern wells are generally completed to produce only through gas-bearing sandstone beds, which are artificially fractured.

TYPE OF TRAP: Combination stratigraphic and hydrodynamic; hydrodynamics traps gas within northwest-trending, bench-shaped bodies of shoreline sandstone.

PROPERTIES OF OIL AND GAS: Oil gravity is 33-60° API. Gas is 98.88% hydrocarbons.

ANNUAL PRODUCTION, 1984: 124,952,181 MCFG + 552,758 BO + 47,651 BW from San Juan County part of pool.

CUMULATIVE PRODUCTION TO 12/31/84: 4,534,392,036 MCFG + 21,257,387 BO from San Juan County part of pool.

NUMBER PRODUCING WELLS, 12/31/84: 2,202 wells in San Juan County part of pool.

ESTIMATED ULTIMATE RECOVERY: 12,000,000,000 MCFG from both San Juan and Rio Arriba Counties.

REFERENCES: Pritchard (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Crouch Mesa Mesaverde Gas Pool

LOCATION: Sec. 6, T. 29 N., R. 11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Cliff House Sandstone (Cretaceous)

DISCOVERY WELL: Pubco Petroleum Corp. No. 6 Pubco Federal B, located in Sec. 6, T. 29 N., R. 11 W.; conpleted 5/7/61 through perforations from 3,695 to 3,710 ft. Total depth 6,683 ft. IP 9,304 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 60 ft thick, 22 ft net pay, 14% porosity.

TYPE OF TRAP: Combination stratigraphic and structural, formed by updip pinchout of a lenticular sandstone body.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 360,335 MCFG + 1,341 BO + 2,568 BW

CUMULATIVE PRODUCTION TO 12/31/84: 4,949,803 MCFG + 20,207 BO

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 4,000,000 MCFG

REFERENCES: Pritchard (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Cuervo Mesaverde Oil Pool

LOCATION: Sec. 28, T. 24 N., R. 8 W., San Juan County, New Mexico

PRODUCING UNIT(S): Point Lookout Sandstone (Cretaceous)

DISCOVERY WELL: Haynes and V. T. No. 1 Sapp, located in Sec. 28, T. 24 N., R. 8 W.; completed 1/9/56 through perforations from 4,115 to 4,135 ft; acidized and artificially fractured. Total depth 5,480 ft. IPP 96 BOPD + gas too small to measure.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstone and shale, 200 ft thick; net pay is 15 ft of siliceous sandstone interbedded with shale, 14-19% porosity, 0.13-10.0 millidarcies permeability.

TYPE OF TRAP: Combined stratigraphic and structural, formed by updip pinchout of reservoir sandstone.

PROPERTIES OF OIL AND GAS: Oil gravity is 38° API.

ANNUAL PRODUCTION, 1984: 850 BO

CUMULATIVE PRODUCTION TO 12/31/84: 49,723 BO

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 60,000 BO

REFERENCES: Dugan and Fagrelius (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Flora Vista Mesaverde Gas Pool

LOCATION: T. 30 N., R. 12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Cliff House Sandstone (Cretaceous)

DISCOVERY WELL: J. Glenn Turner No. 1-22 Osburn, located in Sec. 22, T. 30 N., R. 12 W.;

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 80 ft thick, 18.5 ft net pay, 14-17% porosity, 2-3 millidarcies permeability.

TYPE OF TRAP: Combination stratigraphic and structural, formed by updip pinchout of a lenticular sandstone body.

PROPERTIES OF OIL AND GAS: Oil is described as distillate. Gas is sweet, contains 98.9% hydrocarbons.

ANNUAL PRODUCTION, 1984: 44,438 MCFG + 34 BO + 577 BW

CUMULATIVE PRODUCTION TO 12/31/84: 19,880,376 MCFG + 95,569 BO

NUMBER PRODUCING WELLS, 12/31/84: 7

ESTIMATED ULTIMATE RECOVERY: 18,750,000 MCFG + 97,000 BO

REFERENCES: Pritchard (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Nenahnezad Mesaverde Oil Pool

LOCATION: Sec. 10, T. 29 N., R. 15 W., San Juan County, New Mexico

PRODUCING UNIT(S): Menefee Formation of Mesaverde Group

DISCOVERY WELL: Atom Inc. No. 1 Atom, located in Sec. 10, T. 29 N., R. 15 W.; completed 6/17/70 through perforations from 2,551 to 2,556 ft; acidized, artificially fractured. Total depth 4,358 ft. IP 9 BOPD + 19 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 30 ft thick, 23% porosity.

TYPE OF TRAP: Stratigraphic, formed by sandstone lense on a north-plunging anticlinal nose.

PROPERTIES OF OIL AND GAS: Oil has a high pour point.

ANNUAL PRODUCTION, 1984: 0, abandoned in 1974

CUMULATIVE PRODUCTION TO 12/31/84: 1,025 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 1,025 BO

REFERENCES: Meibos (1983b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Stoney Butte Mesaverde Oil Pool

LOCATION: Sec. 36, T. 22 N., R. 14 W., San Juan County, New Mexico

PRODUCING UNIT(S): Allison Member of Menefee Formation

DISCOVERY WELL: L. G. Stearns et al. No. 1 Navajo-149 Indian 7178, located in Sec. 36, T. 22 N., R. 14 W.; completed 9/22/53 through an open-hole interval from 857 ft to total depth of 889 ft. IP 12 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, average thickness 5-1/2 ft, 18% porosity.

TYPE OF TRAP: Combination stratigraphic and structural, formed by sandstone lense. Northwest boundary of pool may be fault controlled.

PROPERTIES OF OIL AND GAS: Oil gravity is 33° API; pour point is 30°F. Oil has low sulfur content.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1960.

CUMULATIVE PRODUCTION TO 12/31/84: 15,851 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Lauth (1978a)

POOL NAME: Twin Mounds Mesaverde Gas Pool

LOCATION: Sec. 4, T. 29 N., R. 14 W., San Juan County, New Mexico

PRODUCING UNIT(S): Point Lookout Sandstone (Cretaceous)

DISCOVERY WELL: Pubco Development, Inc. No. 1 Russell Federal, located in Sec. 4, T. 29 N., R. 14 W.; completed 1/27/54 through perforations fro m3,348 to 3,358 ft. Total depth 5,760 ft. IP 2,416 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 15 ft thick, 25% porosity, 6 millidarcies permeability.

TYPE OF TRAP: Combination structural and stratigraphic; permeability pinchout of northwest-trending coastal sandstone on a northeast-plunging structural nose.

PROPERTIES OF OIL AND GAS: Gas is sweet and contains mostly hydrocarbons.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1955.

CUMULATIVE PRODUCTION TO 12/31/84: 652,995 MCFG + 4,575 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 654,884 MCFG

REFERENCES: Hamilton (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Animas Chacra Gas Pool

LOCATION: Sec. 6, T. 31 N., R. 10 W., San Juan County, New Mexico

PRODUCING UNIT(S): La Ventana Member of Cliff House Sandstone (Cretaceous)

DISCOVERY WELL: Mesa Petroleum Co. No. 1A Primo Federal, located in Sec. 6, T. 31 N., R. 10 W.; completed 12/16/75 through perforations from 3,444 to 3,446 ft, 3,454 to 3,456 ft, 3,470 to 3,486 ft, 3,737 to 3,739 ft, 3,929 to 3,935 ft, 3,942 to 3,946 ft, 3,952 to 3,956 ft, and 3,980 to 3,990 ft; artificially fractured. Total depth 5,082 ft. IP 3,300 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Very fine-grained sandstone, 86 ft thick, 42 ft net pay, 4-6% porosity.

TYPE OF TRAP: Stratigraphic, northwest-trending lenticular coastal sandstone.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 429,607 MCFG + 336 BO + 163 BW

CUMULATIVE PRODUCTION TO 12/31/84: 5,685,379 MCFG + 1,813 BO

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 3,400,000 MCFG

REFERENCES: Hoppe (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Navajo City Chacra Gas Pool

LOCATION: Sec. 35, T. 30 N., R. 8 W., San Juan County, New Mexico

PRODUCING UNIT(S): Lewis Shale (Cretaceous)

DISCOVERY WELL: Lively Exploration Co. No. 7Y, located ir Sec. 35, T. 30 N., R. 8 W.; completed 4/30/74 through perforations from 3,685 to 3,700 ft; artificially fractured. Total depth 7,406 ft.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fractured shale, 50 ft thick; matrix porosity is 3-4%.

TYPE OF TRAP: Fracture trap, located on northwest limb of northeast-plunging anticlinal nose.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 586,914 MCFG + 43 BW

CUMULATIVE PRODUCTION TO 12/31/84: 5,983,121 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 11,600,000 MCFG

REFERENCES: Meibos (1983a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Otero Chacra Gas Pool

LOCATION: T. 25-29 N., R. 5-11 W., San Juan and Rio Arriba Counties, New Mexico

PRODUCING UNIT(S): Chacra Sandstone (Cretaceous)

DISCOVERY WELL: Amerada Petroleum Corp. No. 3 Jicarilla Apache A, located in Sec. 23, T. 25 N., R. 5 W.; completed 12/5/55 through perforations from 3,784 to 3,815 ft; artificially fractured. Total depth 7,505 ft. IP 600 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine-grained, silty shaly sandstone, 10-45 ft thick, 20-30 ft net pay, 6-12% porosity, 0.15-0.3 millidarcy permeability.

TYPE OF TRAP: Stratigraphic, northwest-trending shoreline sandstone.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 3,878,550 MCFG + 6 BO + 2,480 BW from San Juan County part of pool.

CUMULATIVE PRODUCTION TO 12/31/84: 25,780,763 MCFG + 6,635 BO from San Juan County part of pool.

NUMBER PRODUCING WELLS, 12/31/84: 173 in San Juan County part of pool.

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Hoppe (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Alamito Gallup Oil Pool

LOCATION: T. 22-23 N., R. 7-8 W., San Juan and Sandoval Counties, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: BCO No. 1 Federal C, located in Sec. 31, T. 23 N., R. 7 W., Sandoval County; completed 5/14/71 through perforations from 4,706 to 4,958 ft; acidized and artificially fractured. Total depth 6,015 ft. IPF 50 BOPD + 200 MCFGPD + 2 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Shaly sandstone, approximately 300 ft thick, 50 ft net pay, 10% average porosity, less than 0.5 millidarcy permeability.

TYPE OF TRAP: Combination stratigraphic and structural, formed by a northwest-trending, linear, offshore sand body folded by a northeast-plunging structural nose.

PROPERTIES OF OIL AND GAS: Oil gravity is 38-42° API. Oil is sweet.

ANNUAL PRODUCTION, 1984: 798 BO, 1 MCFG, and 218 BW in San Juan County part of pool.

CUMULATIVE PRODUCTION TO 12/31/84: 18,874 BO in San Juan County part of pool.

NUMBER PRODUCING WELLS, 12/31/84: 2 in San Juan County part of pool.

ESTIMATED ULTIMATE RECOVERY: Not available.

REFERENCES: Matheny (1983a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Albino Gallup Gas Pool

LOCATION: Sec. 26, T. 32 N., R. 8 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: John L. Schalk No. 1 Lone Star, locted in Sec. 26, T. 32 N., r. 8 W.; completed 1/24/74 through perforations from 7,545 to 7,560 ft; acidized and artificially fractured. Total depth 8,446 ft. Initial potential 2,900 MCFGPD (includes commingled gas produced from the Dakota Sandstone (Cretaceous)

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded marine shale, siltstone, and fine-grained sandstone, approximately 600 ft thick; produces from fractures, fractured zone is up to 400 ft thick.

TYPE OF TRAP: Fractured trap; silty, sandy, calcareous Gallup Zone is fractured on limb of north-trending anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 38-42° API. Oil is sweet.

ANNUAL PRODUCTION, 1984: 7,967 MCFG + 94 BW

CUMULATIVE PRODUCTION TO 12/31/84: 165,484 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Middleman (1983c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Amarillo Gallup Oil Pool

LOCATION: T. 28 N., R. 13 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Royal Development No. 1 Douthit, located in Sec. 33, T. 28 N., R. 13 W.; completed 3/1/58 through perforations from 5,388 to 5,548 ft; artificially fractured. Total depth 6,361 ft. IPF 106 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Shaly sandstone, approximately 500 ft thick; 25-30 ft average net pay; 8-10% porosity; less than 1 millidarcy permeability.

TYPE OF TRAP: Stratigraphic

PROPERTIES OF OIL AND GAS: Oil gravity is 40° API. Oil is sweet.

ANNUAL PRODUCTION, 1984: 270 BO

CUMULATIVE PRODUCTION TO 12/31/84: 51,200 BO

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 55,000 BO

REFERENCES: Dugan and Fagrelius (1978d); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Angel's Peak Gallup Oil Pool

LOCATION: T. 26-27 N., R. 9-10 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Weaver and Brown No. 1 McAdams, located in Sec. 34, T. 27 N., R. 10 W.; completed 3/3/58 through perforations from 6,106 to 6,140 ft; artificially fractured. Total depth 6,289 ft. IP 9,000 MCFGPD + 72 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine- to medium-grained sandstone, approximately 20 ft thick, 15% average porosity, 75 millidarcies average permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine bars.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° API. Oil is sweet and paraffin based. Gas is sweet, contains 98.62% hydrocarbons.

ANNUAL PRODUCTION, 1984: 12,798 BO + 1,050,672 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 826,435 BO

NUMBER PRODUCING WELLS, 12/31/84: 41

ESTIMATED ULTIMATE RECOVERY: 854,000 BO, primary recovery

REFERENCES: Matheny and Matheny (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Armenta Gallup Oil Pool

LOCATION: T. 28-29 N., R. 10-11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Amoco Production Co. No. 1 Pollack Gas Com. B, located in Sec. 28, T. 29 N., R. 10 W.; completed 7/13/80 through an open-hole interval from 5,315 ft to a total depth of 5,749 ft; artificially fractured. IP 117 BOPD + 193 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Thinly interbedded sandstone, siltstone, and shale, approximately 450 ft thick. Effective porosity and permeability are provided by natural fractures.

TYPE OF TRAP: Fractured trap. Fractures are associated with north-northeast trending, Laramide-age folds.

PROPERTIES OF OIL AND GAS: Oil gravity is 40° API. Oil is paraffin based. Gas is sweet, contains 97.58% hydrocarbons.

ANNUAL PRODUCTION, 1984: 208,416 BO + 2,333,381 MCFG + 2,734 BW

CUMULATIVE PRODUCTION TO 12/31/84: 530,829 BO

NUMBER PRODUCING WELLS, 12/31/84: 81

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Sperandio (1983b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Bisti Gallup Oil Pool

LOCATION: T. 25-27 N., R. 9-14 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: El Paso Natural Gas Co. No. 1 Kelly State, located in Sec. 16, T. 25 N., R 12 W.; completed 10/755 through perforations from 4,760 to 4,842 ft; artificially fractured. Total depth 5,150 ft. IPF 180 BOPD + 100 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 55 ft thick, 10 ft average net pay, 15% average porosity, 25-35 millidarcies average permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine bars.

PROPERTIES OF OIL AND GAS: Oil gravity is 39° API. Oil has low sulfur content.

ANNUAL PRODUCTION, 1984: 341,736 BO + 448,729 MCFG + 1,352,247 BW.

CUMULATIVE PRODUCTION TO 12/31/84: 35,150,252 BO

NUMBER PRODUCING WELLS, 12/31/84: 155

ESTIMATED ULTIMATE RECOVERY: 45,000,000 BO

REFERENCES: Collins (1978); Sabins (1963); New Mexico Oil & Gas Engineering Committee (1985); Tomkins (1957)

POOL NAME: Calloway Gallup Gas Pool

LOCATION: T. 30 N., R. 10-11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Southland Royalty No. 17 Nye, located in Sec. 1, T. 30 N., R. 11 W.; completed 8/27/81 through perforations from 6,154 to 6,288 ft; artificially fractured. Total depth 7,126 ft. IPF 503 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone

TYPE OF TRAP: Probably stratigraphic

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 38,936 MCFG + 582 BC + 18 BW

CUMULATIVE PRODUCTION TO 12/31/84: 56,445 MCFG + 1,417 BC

NUMBER PRODUCING WELLS, 12/31/84: 2

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: New Mexico Oil & Gas Engineering Committee (1985); unpublished data of New Mexico Bureau of Mines and Mineral Resources

POOL NAME: Cha Cha Gallup Oil Pool

LOCATION: T. 28-29 N., R. 12-15 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Benson-Montin-Greer No. 2 Jones, located in Sec. 17, T. 28 N., R. 13 W.; completed 10/21/59 through perforations from 5,623 to 5,676 ft; artificially fractured. Total depth 5,772 ft. IPP 132 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine- to medium-grained sandstone; two pay zones, each 10 ft thick.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine bars.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° APi. Oil is sweet and paraffin based.

ANNUAL PRODUCTION, 1984: 104,390 BO + 196,242 MCFG + 246,827 BW

CUMULATIVE PRODUCTION TO 12/31/84: 9,546,151 BO

NUMBER PRODUCING WELLS, 12/31/84: 48

ESTIMATED ULTIMATE RECOVERY: 9,000,000+ BO

REFERENCES: Matheny and Matheny (1978d); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Cuervo Gallup Oil Pool

LOCATION: T. 24 N., R. 8 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Dugan Production Corp. No. 1 Adobe A, located in Sec. 29, T. 24 N., R. 8 W.; completed 11/3/75 through perforations from 5,093 to 5,336 ft; artificially fractured. Total depth 5,520 ft. IP 377 BOPD + 16 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine- to medium-grained, sandstone, 40 ft thick, 4-12% porosity, 0.05-1.0 millidarcy permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine bars.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° APi. Oil is sweet. Gas is 98.19% hydrocarbons.

ANNUAL PRODUCTION, 1984: 2,804 BO + 14,353 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 32,291 BO

NUMBER PRODUCING WELLS, 12/31/84: 2

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Fagrelius (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Dusenberry Gallu Gas Pool

LOCATION: Sec. 1, T. 31 N., R. 12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Southland Royalty No. 3-E Dusenberry, located in Sec. 1, T. 31 N., R. 12 W.; completed 11/6/79 through perforations from 6,818 to 6,871 ft; artificially fractured. Total depth 7,704 ft. IPF 140 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone

TYPE OF TRAP: Probably stratigraphic

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 1,069 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 6,675 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: New Mexico Oil & Gas Engineering Committee (1985); unpublished data of New Mexico Bureau of Mines and Mineral Resources

POOL NAME: Eagle Gallup Gas Pool

LOCATION: Sec. 36, T. 30 N., R. 16 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous), Sanastee Member of lower Mancos Shale (Cretacecus)

DISCOVERY WELL: Aztec Energy No. 1 Stock, located in Sec. 36, T. 30 N., R. 16 W.; completed 11/4/81 through perforations from 3,701 to 3,778 ft (Gallup) and 3,864 to 3,883 ft (Sanastee); artificially fractured. Total depth 4,050 ft. IPP 3 BOPD + 20 MCFGPD + 1 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, shale.

TYPE OF TRAP: Probably stratigraphic, sandstone lense

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984:

CUMULATIVE PRODUCTION TO 12/31/84: 0, pool is inactive

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: New Mexico Oil & Gas Engineering Committee (1985); unpublished data of New Mexico Bureau of Mines and Mineral Resources

POOL NAME: Escrito Gallup Oil Pool

LOCATION: T. 24 N., R. 6-8 W., San Juan and Rio Arriba Counties, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Standard of Texas No. 1 Federal 1-27, located in Sec. 27, T. 24 N., R. 7 W., Rio Arriba Co.; completed 6/10/57 through perforations from 5,700 to 5,713 ft and 5,757 to 5,768 ft; artificially fractured. Total depth 6,956 ft. IP 70 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstones and shales, approximately 400 ft thick; reservoirs are 10-30 ft thick, shaly, low-porosity sandstone beds; 80 ft average net pay, 1.31 millidarcies average permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine bars.

PROPERTIES OF OIL AND GAS: Oil gravity is 40° API. Oil is paraffin based. Gas is sweet, contains more than 90% hydrocarbons.

ANNUAL PRODUCTION, 1984: 16,150 BO + 61,601 MCFG + 272 BW for San Juan County part of pool.

CUMULATIVE PRODUCTION TO 12/31/84: 396,896 BO for San Juan County part of pool.

NUMBER PRODUCING WELLS, 12/31/84: 8 wells in San Juan County part of pool.

ESTIMATED ULTIMATE RECOVERY: Not available for San Juan County part of pool.

REFERENCES: Reese (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Flora Vista Gallup Gas Pool

LOCATION: T. 30 N., R. 12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Consolidated Oil and Gas Co. No. 1-2 Clayton, located in Sec. 2, T. 30 N., R. 12 W.; completed 10/24/61 through perforations from 5,954 to 5,961 ft; artificially fractured. Total depth 6,701 ft. IP 1,070 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine- to medium-grained, sandstone, 16 ft thick, 10% porosity.

TYPE OF TRAP: Stratigraphic, formed by north-trending, offshore, marine sand bodies.

PROPERTIES OF OIL AND GAS: Gas is sweet, contains 98.48% hydrocarbons.

ANNUAL PRODUCTION, 1984: 357,126 MCFG + 5,388 BO + 115 BW

CUMULATIVE PRODUCTION TO 12/31/84: 8,329,525 MCFG + 94,115 BO

NUMBER PRODUCING WELLS, 12/31/84: 12

ESTIMATED ULTIMATE RECOVERY: 8,600,000 MCFG + 64,000 BO

REFERENCES: Hornbeck (1978); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Gallegos Gallup Oil Pool

LOCATION: T. 26-27 N., R. 11-12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Skelly Oil Co. No. 1 Navajo B, located in Sec. 14, T. 26 N., R. 12 W.; completed 9/54 through perforations from 5,010 to 5,050 ft. Total depth 7,134 ft. IP 3,500 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fractured, calcarecus siltstones and silty sandstones, 20-100 ft thick, 19 ft average net pay, 8.6% average porosity, 0.50-0.65 millidarcy permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine bars.

PROPERTIES OF OIL AND GAS: Oil gravity is 40° API.

ANNUAL PRODUCTION, 1984: 37,517 BO + 704,441 MCFG + 7,855 BW

CUMULATIVE PRODUCTION TO 12/31/84: 1,978,541 BO

NUMBER PRODUCING WELLS, 12/31/84: 36

ESTIMATED ULTIMATE RECOVERY: 2,256,000 BO, primary recovery

REFERENCES: Dunn (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Horseshoe Gallup Oil Pool

LOCATION: T. 30-32 N., r. 15-17 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Arizona Explorations, Inc. No. 1 Horseshoe Canyon, located in Sec. 4, T. 30 N., R. 16 W.; completed 9/21/56 upper sandstone bed through perforations from 1,300 to 1,324 ft; artificially fractured. Total depth 1,085 ft. IPP 75 BOPD. Completed 4/20/60 in lower sandstone bed through perforations from 1,288 to 1,300 ft. IPP 92 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Upper sandstone bed 10-40 ft thick, 14-15% porosity, 30 millidarcies permeability. Lower sandstone bed 0-40 ft thick, 17-18% porosity, 90 millidarcies permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine sand bodies. Sands were deposited in northwest-trending strike valleys eroded into the Gallup Sandstone and Carlisle Shale.

PROPERTIES OF OIL AND GAS: Oil gravity is 43° API.

ANNUAL PRODUCTION, 1984: 300,988 BO + 9,203 MCFG + 6,040,936 BW

CUMULATIVE PRODUCTION TO 12/31/84: 37,593,810 BO

NUMBER PRODUCING WELLS, 12/31/84: 194

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: McEachin and Royce (1978); New Mexico Oil & Gas Engineering Committee (1985); McCubbin (1969); Penttila (1964)

POOL NAME: Jewet Valley Gallup Oil Pool

LOCATION: T. 29 N., R. 16 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Grossman Peters Associates No. 1 Don Stock, located in Sec. 3, T. 29 N., R. 16 W.; completed 4/17/61 through perforations from 3,519 to 3,542 ft; artificially fractured. Total depth 3,576 ft. IP 3 BOPD + 5 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded shale and fine-grained sandstone, 35-50 ft thick, 40 ft average net pay (sandstone), 6-10% porosity.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending strike-valley, marine sands.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 0, abandoned in 1965.

CUMULATIVE PRODUCTION TO 12/31/84: 21,486 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 22,377 BO

REFERENCES: Middleman (1983b); New Mexico Oil & Gas Engineering Committee (1985); McCubbin (1969)

POOL NAME: Knickerbocker Buttes Gallup Oil Pool

LOCATION: Sec. 17, T. 30 N., R. 10 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: El Paso Natural Gas Co. No. 13 Schumacher, located in Sec. 17, T. 30 N., R. 10 W.; completed 5/21/75 through perforations from 6,440 to 6,779 ft; artificially fractured. Total depth 6,816 ft.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstone, shale, and siltstone, approximately 300 ft thick, 35 ft net pay (sandstone), 7% porosity.

TYPE OF TRAP: Stratigraphic, formed by offshore marine sand body, probably lenticular in shape.

PROPERTIES OF OIL AND GAS: Gas contains 98.68% hydrocarbons.

ANNUAL PRODUCTION, 1984: 468 BO + 9,434 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 10,006 BO

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Pritchard (1978d); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Kutz Gallup Oil Pool

LOCATION: T. 27 N., R. 11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: El Paso Products Co. No. 1-B Frontier, located in Sec. 9, T. 27 N., R. 11 W.; completed 7/25/58 through perforations from 5,818 to 5,868 ft and 5,916 to 5,938 ft; artificially fractured. Total depth 6,770 ft. IPF 31 BOPD + 776 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 25 ft thick, 15% average porosity, 50 millidarvies average permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine bars.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° API. Oil is sweet and paraffin based. Gas is sweet, 99.25% hydrocarbons.

ANNUAL PRODUCTION, 1984: 1,648 BO + 49,393 MCFG + 36 BW

CUMULATIVE PRODUCTION TO 12/31/84: 551,613 BO

NUMBER PRODUCING WELLS, 12/31/84: 2

ESTIMATED ULTIMATE RECOVERY: 542,000 BO, primary recovery

REFERENCES: Stevenson and Matheny (1978); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: La Plata Gallup Oil Pool

LOCATION: T. 31-32 N., R. 13-14 W., San Juan County, New Mexico

PRODUCING UNIT(S): Mancos Shale (Cretaceous)

DISCOVERY WELL: Standard Oil Co. of Texas No. 1-5 Federal 12, located in Sec. 5, T. 31 N., R. 13 W.; completed 5/5/59 through a liner slotted from 5,900 to 6,200 ft; artificially fractured. Total depth 6,200 ft. IPF 241 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fractured shale, 60 ft thick.

TYPE OF TRAP: Fractured trap.

PROPERTIES OF OIL AND GAS: Oil gravity is 38° API. Oil and gas are sweet.

ANNUAL PRODUCTION, 1984: 7,696 BO + 24,116 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 600,048 BO

NUMBER PRODUCING WELLS, 12/31/84: 4

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Greer (1978); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Lybrook Gallup Oil Pool

LOCATION: T. 23-24 N., R. 6-8 W., San Juan, Sandoval, and Rio Arriba Counties, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Harrell Budd No. 1 Dunn, located in Sec. 9, T. 23 N., R. 7 W., Rio Arriba County; completed 3/11/57 through perforations from 5,716 to 5,846 ft; artificially fractured. IPF 47 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstones and shales, approximately 400 ft thick, 73 ft average porosity, 0.56 millidarcy average permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine bars.

PROPERTIES OF OIL AND GAS: Oil gravity is 40° API. Oil is paraffin based. Gas is sweet, contains more than 90% methane.

ANNUAL PRODUCTION, 1984: 97,763 BO, 508,419 MCFG, and 92 BW from San Juan County part of pool.

CUMULATIVE PRODUCTION TO 12/31/84: 494,271 BO from San Juan County part of pool.

NUMBER PRODUCING WELLS, 12/31/84: 39 in San Juan County

ESTIMATED ULTIMATE RECOVERY: Not available for San Juan County part of pool.

REFERENCES: Reese (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Many Rocks Gallup Oil Pool

LOCATION: T. 31-32 N., R. 16-17 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Curtis J. Little No. 2-27 Navajo, located in Sec. 27, T. 32 N., R. 17 W.; completed 11/27/62 through perforations from 1,240 to 1,251 ft; artificially fractured. Total depth 1,288 ft. IPP 40 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine- to medium-grained sandstone, 30 ft thick, 15% average porosity, 145 millidarvies permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine bars.

PROPERTIES OF OIL AND GAS: Oil gravity is 40° API. Oil is sweet and paraffin based. Gas contains 97.34% hydrocarbons.

ANNUAL PRODUCTION, 1984: 17,404 BO + 2,833 MCFG + 99,578 BW

CUMULATIVE PRODUCTION TO 12/31/84: 2,955,808 BO

NUMBER PRODUCING WELLS, 12/31/84: 34

ESTIMATED ULTIMATE RECOVERY: 3,100,000 BO

REFERENCES: Matheny and Little (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: North Many Rocks Gallup Oil Pool

LOCATION: T. 32 N., R. 17 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Murphy Corp. No. 3 Navajo AA, located in Sec. 18, T. 32 N., R. 17 E.; completed 7/24/63 through perforations from 1,443 to 1,446 ft; artificially fractured. Total depth 1,492 ft. IPP 65 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine- to medium-grained sandstone, 13 ft thick, 15% porosity, 160 millidarcies permeability.

TYPE OF TRAP: Combination stratigraphic and structural, formed by northwest-trending strike-valley sand. Northwest and southeast edge of field are fault controlled.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° API. Oil is sweet and paraffin based. Gas is sweet, contains 97.34% hydrocarbons.

ANNUAL PRODUCTION, 1984: 4,056 BO + 5,480 MCFG + 812 BW

CUMULATIVE PRODUCTION TO 12/31/84: 338,676 BO

NUMBER PRODUCING WELLS, 12/31/84: 9

ESTIMATED ULTIMATE RECOVERY: 560,000 BO

REFERENCES: Matheny and Little (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: McDermott Gallup Gas Pool

LOCATION: T. 32 N., R. 12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone and Greenhorn Limestone (Cretaceous)

DISCOVERY WELL: Amoco Production Co. No. 1 Stanolind Gas Com. B, located in Sec. 9, T. 32 N., R. 12 W.; completed 1/15/81 through perforations from 5,968 to 6,058 ft and 6,139 to 6,260 ft (Gallup), and perforations from 6,722 to 6,778 ft (Greenhorn); acidized and artificially fractured. Total depth 7,109 ft. IPF (Gallup) 2,523 MCFGPD. IPF (Greenhorn) 368 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone and shale.

TYPE OF TRAP: Probably stratigraphic, possibly fracture enhanced.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 33,956 MCFG + 9 BC + 13 BW

CUMULATIVE PRODUCTION TO 12/31/84: 140,152 MCFG + 93 BC

NUMBER PRODUCING WELLS, 12/31/84: 2

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: New Mexico Oil & Gas Engineering Committee (1985); unpublished data of New Mexico Bureau of Mines and Mineral Resources

POOL NAME: Meadows Gallup Oil Pool

LOCATION: T. 30 N., R. 15 W., San Juan County, New Mexicc

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Sunray Mid-Continent Oil Co. No. 1 Harry Amargis, located in Sec. 33, T. 30 N., R. 15 W.; completed 9/11/61 through perforations from 4,060 to 4,166 ft; artificially fractured. Total depth 4,330 ft.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandy shale, 300 ft thick.

TYPE OF TRAP: Stratigraphic

PROPERTIES OF OIL AND GAS: Oil gravity is 41° API.

ANNUAL PRODUCTION, 1984: 12,416 BO + 47,094 MCFG + 688 BW

CUMULATIVE PRODUCTION TO 12/31/84: 156,234 BO

NUMBER PRODUCING WELLS, 12/31/84: 13

ESTIMATED ULTIMATE RECOVERY: 105,000 BO

REFERENCES: Fagrelius (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Mesa Gallup Oil Pool

LOCATION: T. 32 N., R. 17-18 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Amalgamated Petroleum No. 3 Navajo, located in Sec. 24, T. 32 N., R. 18 W.; completed 8/24/64 through perforations from 1,110 to 1,126 ft; artificially fractured. Total depth 1,164 ft. IPP 49 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine-grained sandstone, 0-20 ft thick, 17% average porosity, 90 millidarcies permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending, offshore marine bar.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° API. Oil is sweet and paraffin based. Gas is sweet and wet, contains 97.34% hydrocarbons.

ANNUAL PRODUCTION, 1984: 9,008 BO + 193 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 549,379 BO

NUMBER PRODUCING WELLS, 12/31/84: 18

ESTIMATED ULTIMATE RECOVERY: 545,000 BO, primary recovery

REFERENCES: Matheny and Little (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Nageezi Gallup Oil Pool

LOCATION: T. 23 N., R. 8-9 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: El Paso Natural Gas Co. No. 1 English, located in Sec. 1, T. 23 N., R. 9 W.; completed 5/17/71 through perforations from 5,079 to 5,320 ft; artificially fractured. Total depth 6,378 ft.

LITHOLOGY AND THICKNESS OF RESERVOIR: Tight, very fine-grained, limy sandstone, siltstone, and shale, approximately 130 ft thick, 38 ft net pay, 8% porosity, less than 1 millidarcy permeability.

TYPE OF TRAP: Combination stratigraphic and fractured, formed by fractured, low-permeabiality, lenticular sandstones.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 14,188 BO + 144,825 MCFG + 894 BW

CUMULATIVE PRODUCTION TO 12/31/84: 95,524 BO

NUMBER PRODUCING WELLS, 12/31/84: 12

ESTIMATED ULTIMATE RECOVERY: 75,000 BO

REFERENCES: H. H. Brown (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Ojo Gallup Gas Pool

LOCATION: T. 28 N., R. 15 W., San Juan County, New Mexicc

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Exploration Drilling Co. NO. 1 Pet Inc., locted in Sec. 26, T. 28 N., R. 15 W.; completed 11/9/61 through perforatios from 4,512 to 4,528 ft; acidized. Total depth 4,600 ft. IPCAOF 5,250 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Silty sandstone, 3C0 ft thick, 15 ft net pay, 14% porosity, 70 millidarcies permeability.

TYPE OF TRAP: Stratigraphic, formed by a lenticular sandstone bed.

PROPERTIES OF OIL AND GAS: Condensate, gravity is 65° API. Gas contains 96.84% hydrocarbons.

ANNUAL PRODUCTION, 1984: 15,470 MCFG + 202 BC

CUMULATIVE PRODUCTION TO 12/31/84: 851,351 MCFG + 10,418 BC

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Dugan and Fagrelius (1978e); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Piñon Gallup Oil Pool

LOCATION: T. 28 N., R. 11-12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Pan American Petroleum Corp. No. 250 Gallegos Canyon Unit, located in Sec. 14, T. 28 N., R. 12 W.; completed 5/14/66 through perforations from 5,646 to 5,662 ft; artificially fractured. Total depth 5,715 ft. IPF 125 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 23 ft thick, 18 ft average net pay, 12% porosity, 6 millidarcies average permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine bars.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° API. Oil is sweet and paraffin based.

ANNUAL PRODUCTION, 1984: 5,901 BO + 29,070 MCFG + 84 BW

CUMULATIVE PRODUCTION TO 12/31/84: 354,175 BO

NUMBER PRODUCING WELLS, 12/31/84: 4

ESTIMATED ULTIMATE RECOVERY: 350,000+ BO

REFERENCES: Matheny and Matheny (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Rattlesnake Gallup Oil Pool

LOCATION: T. 29 N., R. 19 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Eastern Petroleum Co. No. 23 Navajo, located in Sec. 2, T. 29 N., R. 19 W.; completed 7/19/68 through an open-hole interval from 195 ft to total depth of 420 ft. IPP 18 BOPD + 9 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstone, siltstone, and shale, 225 ft thick, 10 ft average net pay, 12% porosity. Reservoirs are thin, lenticular sandstone beds.

TYPE OF TRAP: Combination structural and stratigraphic, formed by thin, lenticular sandstone reservoirs on the northwest-trending Rattlesnake anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 58-67° API.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1970.

CUMULATIVE PRODUCTION TO 12/31/84: 1,425 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 6,000 BO

REFERENCES: Matheny (1983b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Shiprock Gallup Oil Pool

LOCATION: T. 29 N., R. 18 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Universal Oil Corp. No. 2 Navajo, located in Sec. 17, T. 29 N., R. 18 W.; completed 3/10/59 through an open-hole interval from 80 ft to a total depth of 100 ft. IPP 8 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 5 ft average pay, 200 millidarcies permeability.

TYPE OF TRAP: Combination stratigraphic and structural, formed by northwest-trending offshore marine bar.

PROPERTIES OF OIL AND GAS: Oil gravity is 51° API.

ANNUAL PRODUCTION, 1984: 2,954 BO + 1,353 BW

CUMULATIVE PRODUCTION TO 12/31/84: 251,820 BO

NUMBER PRODUCING WELLS, 12/31/84: 17

ESTIMATED ULTIMATE RECOVERY: 300,000 BO

REFERENCES: Edmister and Hornbeck (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: North Shiprock Gallup Gas Pool

LOCATION: T. 30 N., R. 18 W., San Juan County, New Mexicc

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Thomas A. Dugan No. 8 Shiprock, located in Sec. 14, T. 30 N., R. 18 W.; completed 4/21/67 through an undocumented open-hole interval. Total depth 395 ft. IP 2,600 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstcne and shale, 150 ft thick, 6 ft net pay, 20% porosity, 100 millidarcies permeability.

TYPE OF TRAP: Stratigraphic, formed by lenticular offshore marine bar.

PROPERTIES OF OIL AND GAS: Gas is sweet.

ANNUAL PRODUCTION, 1984: 0, pool has been inactive since 1973.

CUMULATIVE PRODUCTION TO 12/31/84: 82,894 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 82,894 MCFG

REFERENCES: Dugan and Fagrelius (1978f); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Simpson Gallup Oil Pool

LOCATION: T. 28 N., R. 11-12 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Pan American Oil Corp. No. 83 Gallegos Canyon Unit, located in Sec. 26, T. 28 N., R. 12 W.; completed 2/25/59 through perforations from 5,548 to 5,620 ft, 6,200 to 6,230 ft, and 6,280 to 6,294 ft; artificially fractured. Total depth 6,343 ft.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 60 ft thick, 8 ft average net pay, 12.6% average porosity, 6.4 millidarcies average permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine bars.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° API. Oil is sweet and paraffin based.

ANNUAL PRODUCTION, 1984: 4,213 BO + 45,221 MCFG + 40 BW

CUMULATIVE PRODUCTION TO 12/31/84: 913,089 BO

NUMBER PRODUCING WELLS, 12/31/84: 3

ESTIMATED ULTIMATE RECOVERY: 900,000 BO, primary recovery

REFERENCES: Matheny and Matheny (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Totah Gallup Oil Pool

LOCATION: T. 28-29 N., R. 12-14 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Tenneco Oil Co. No. 8 Callow, located in Sec. 27, T. 29 N., R. 13 W.; completed 9/7/59 through perforations from 5,185 to 5,245 ft (Gallup). Total depth 6,030 ft. IPF 505 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine- to medium-grained sandstone, 20 ft thick, 12% porosity, 47 millidarcies permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offfshore marine bars.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° API. Oil is sweet and paraffin based.

ANNUAL PRODUCTION, 1984: 119 BO + 761 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 3,353,679 BO

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 3,394,000 BO

REFERENCES: Matheny and Matheny (1978e); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Trail Canyon Gallup Gas Pool

LOCATION: T. 32 N., R. 8 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Bixco Inc. No. 2 Trail Canyon, located in Sec. 18, T. 32 N., R. 8 W.; completed 5/7/81 through an open-hole interval from 7,559 ft to tctal depth of 7,597 ft. IPF 12,195 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone

TYPE OF TRAP: Probably stratigraphic or fractured.

PROPERTIES OF OIL AND GAS:

ANNUAL PRODUCTION, 1984: 15,383 MCFG

CUMULATIVE PRODUCTION TO 12/31/84: 100,989 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 2

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: New Mexico Oil & Gas Engineering Committee (1985); unpublished data of New Mexico Bureau of Mines and Mineral Resources

POOL NAME: Verde Gallup Oil Pool

LOCATION: T. 31 N., R. 14-15 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: C. M. Carroll No. 1 Ute located in Sec. 14, T. 31 N., R. 15 W.; completed 10/20/55 through an open-hole interval from 2,335 ft to total depth of 2,400 ft. IPP 180 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fractured sandstones and siltstones.

TYPE OF TRAP: Fractured trap, fractures formed on south-dipping Hogback monocline.

PROPERTIES OF OIL AND GAS: Oil gravity is 38-42° API. Gas is sweet and contains mostly hydrocarbons.

ANNUAL PRODUCTION, 1984: 20,987 BO + 17,001 MCFG + 11,944 BW

CUMULATIVE PRODUCTION TO 12/31/84: 7,834,154 BO

NUMBER PRODUCING WELLS, 12/31/84: 28

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Riggs (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: South Waterflow Gallup Oil Pool

LOCATION: T. 29 N., R. 15 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone (Cretaceous)

DISCOVERY WELL: Humble Oil & Refining Co. No. 1 Navajo, Tract 2, located in Sec. 18, T. 29 N., R. 15 W.; completed 11/1/63 through perforations from 4,109 to 4,114 ft; artificially fractured. Total depth 11,165 ft. IP 15 BOPD + 894 MCFGPD + 5 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine- to medium-grained, vertically fractured sandstone, 0-40 ft thick, 13-15% porosity, 60 millidarcies permeability.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending offshore marine bar.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° API.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1982.

CUMULATIVE PRODUCTION TO 12/31/84: 224,230 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 224,000 BO

REFERENCES: Endsley (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Barker Creek Dakota Gas Pool

LOCATION: T. 32 N., R. 14 W., San Juan County, New Mexicc

PRODUCING UNIT(S): Dakota Sandstone (Cretaceous)

DISCOVERY WELL: Gypsy Oil Co. No. 1 Ute, located in Sec. 16, T. 32 N., R. 14 W.; completed 7/25 through an open-hole interval from 3,128 ft to total depth of 3,325 ft. IP estimated at 10,000-30,000 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Lenticular, offshore, marine, bar-shaped sandstone bodies; 75 ft, gross thickness, 40 ft net pay, 14% porosity, 0-1,500 millidarcies permeability.

TYPE OF TRAP: Structural, formed by northeast-trending anticline.

PROPERTIES OF OIL AND GAS: Gas is sweet, contains 97.74% hydrocarbons.

ANNUAL PRODUCTION, 1984: 0, pool inactive since 1983.

CUMULATIVE PRODUCTION TO 12/31/84: 20,989,470 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 18,100,000 MCFG

REFERENCES: Matheny (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Basin Dakota Gas Pool

LOCATION: T. 23-32 N., R. 3-14 W., San Juan, Rio Arriba, and Sandoval Counties, New Mexico

PRODUCING UNIT(S): Dakota Sandstone and Graneros Shale (Cretaceous)

DISCOVERY WELL: Byrd, Frost, Inc. No. 1 Hargrove, located in Sec. 4, T. 27 N., R. 10 W., San Juan County; completed 4/12/47 through an interval from 6,495 to 6,730 ft; artificially fractured. Total depth 6,745 ft. IP 1,200 MCFGPD + 10 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Dakota Sandstone and Graneros Shale, 200-350 ft thick. Dakota consists mostly of fine-grained sandstones and shales and minor conglomerates and coals. Graneros consists of marine silt, shale, and fine-grained sandstones. 50-70 ft net pay, 5-15% porosity, 0.1-0.25 millidarcy permeability enhanced by natural fractures.

TYPE OF TRAP: Stratigraphic, formed by northwest-trending beach sandstones. Hydrodynamic mechanisms may be involved.

PROPERTIES OF OIL AND GAS: Oil gravity is 50° API. Gas is sweet, contains at least 94% hydrocarbons.

ANNUAL PRODUCTION, 1984: 87,776,497 MCFG + 679,186 BO + 165,686 BW in San Juan County part of pool.

CUMULATIVE PRODUCTION TO 12/31/84: 2,766,418,314 MCFG + 25,933,990 BO in San Juan County part of pool.

NUMBER PRODUCING WELLS, 12/31/84: 2,501 in San Juan County part of pool.

ESTIMATED ULTIMATE RECOVERY: 5,000,000,000 MCFG for San Juan, Rio Arriba, and Sandoval County part of pool.

REFERENCES: Hoppe (1978d); New Mexico Oil & Gas Engineering Committee (1985); Silver (1968); Deischl (1973)

POOL NAME: Dufers Point Gallup-Dakota Oil Pool

LOCATION: T. 24-25 N., R. 8 W., San Juan County, New Mexico

PRODUCING UNIT(S): Gallup Sandstone, Graneros Shale, Dakota Sandstone (Cretaceous)

DISCOVERY WELL: Merrion and Bayless No. 1 Stephenson, located in Sec. 17, T. 25 N., R. 8 W.; completed 9/20/59 through perforations from 6,334 to 6,356 ft (Dakota); artificially fractured. Total depth 6,705 ft. IPF 260 BOPD + 65 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Graneros and Dakota consist of fine-grained sandstone, 300 ft thick, 16 ft average net pay, 13% porosity. Gallup consists of fine-grained sandstone, 275 ft thick, 18 ft average net pay, 10% porosity.

TYPE OF TRAP: Reported to be stratigraphic.

PROPERTIES OF OIL AND GAS: Oil gravity is 40° API.

ANNUAL PRODUCTION, 1984: 63,205 BO + 581,092 MCFG + 1,632 BW

CUMULATIVE PRODUCTION TO 12/31/84: 414,289 BO

NUMBER PRODUCING WELLS, 12/31/84: 31

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Dunn (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Hogback Dakota Oil Pool

LOCATION: T. 29 N., R. 16 W., San Juan County, New Mexicc

PRODUCING UNIT(S): Dakota Sandstone (Cretaceous)

DISCOVERY WELL: Midwest Refining No. 1 Navajo, located in Sec. 19, T. 29 N., R. 16 W.; completed 9/25/22 through an open-hole interval from 776 ft to total depth of 796 ft. IPP 375 BOPD + 61 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstcne and shale, 210 ft thick, 20 ft average net pay.

TYPE OF TRAP: Structural, formed by a faulted anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 60-63° API.

ANNUAL PRODUCTION, 1984: 33,852 BO + 2,671,296 BW

CUMULATIVE PRODUCTION TO 12/31/84: 5,521,571 BO

NUMBER PRODUCING WELLS, 12/31/84: 15

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Maynard (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Rattlesnake Dakota Oil Pool

LOCATION: T. 29 N., R. 19 W., San Juan County, New Mexicc

PRODUCING UNIT(S): Dakota Sandstone (Cretaceous)

DISCOVERY WELL: Santa Fe Corp. No. 1 Rattlesnake, located in Sec. 1, T. 29 N., R. 19 W.; completed 2/27/24 through open-hole interval from 826 ft to total depth of 835 ft. IP 10 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstone, shale, and coal, 215 ft thick; net pay 14 ft of lenticular sandstores.

TYPE OF TRAP: Structural, formed by north-trending anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 76° API. Gas is 98.68% hydrocarbons, 61.27% propane and heavier hydrocarbons.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1978.

CUMULATIVE PRODUCTION TO 12/31/84: 4,802,900 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Baars (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Salt Creek Dakota Oil Pool

LOCATION: T. 30 N., R. 17 W., San Juan County, New Mexico

PRODUCING UNIT(S): Dakota Sandstone (Cretaceous)

DISCOVERY WELL: King Oil Co. No. 1X Navajo C, located in Sec. 4, T. 30 N., R. 17 W.; completed 7/21/58 through an open-hole interval from 1,039 ft to total depth of 1,043 ft. IPP 192 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstone and shale, 100 ft thick, 30-40 ft net pay.

TYPE OF TRAP: Structural, formed by east-trending fault on the south end of a northeast-trending anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 52° API.

ANNUAL PRODUCTION, 1984: 5,331 BO + 2,600 BW

CUMULATIVE PRODUCTION TO 12/31/84: 156,686 BO

NUMBER PRODUCING WELLS, 12/31/84: 9

ESTIMATED ULTIMATE RECOVERY: 170,000 BO

REFERENCES: Jacobs and Fagrelius (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: North Shiprock Dakota Oil Pool

LOCATION: Sec. 14, T. 30 N., R. 18 W., San Juan County, New Mexico

PRODUCING UNIT(S): Dakota Sandstone (Cretaceous)

DISCOVERY WELL: Dugan Production Corp. No. 1 Shiprock, located in Sec. 14, T. 30 N., R. 18 W.; completed 6/20/66 through perforations from 1,006 to 1,400 ft; acidized. IPP 1 BOPD + 98 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded sandstone and shale, 500 ft thick 5-10 ft net pay, 15-17% porosity.

TYPE OF TRAP: Reported to be stratigraphic.

PROPERTIES OF OIL AND GAS: Oil gravity is 50° API. Gas is sweet.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1975.

CUMULATIVE PRODUCTION TO 12/31/84: 1,069 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 1,069 BO

REFERENCES: Dugan and Fagrelius (1978g); New Mexico Oil & Gas Engineering Committee (1985)

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POOL NAME: Slick Rock Dakota Oil Pool

LOCATION: T. 29 N., R. 16-17 W., San Juan County, New Mexico

PRODUCING UNIT(S): Dakota Sandstone (Cretaceous)

DISCOVERY WELL: Walter Duncan No. 2 Hogback, located in Sec. 1, T. 29 N., R. 17 W.; completed 1/23/67 through an open-hole interval from 661 to total depth of 663 ft. IPF 72 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 20 ft thick, 15-22% porosity, 75-400 millidarcies permeability.

TYPE OF TRAP: Structural, formed by northwest-trending anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 58° API.

ANNUAL PRODUCTION, 1984: 6,963 BO + 10,060 BW

CUMULATIVE PRODUCTION TO 12/31/84: 782,186 BO

NUMBER PRODUCING WELLS, 12/31/84: 26

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Garvin (1978); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Snake Eyes Dakota Gas Pool

LOCATION: Sec. 20, T. 21 N., R. 8 W., San Juan County, New Mexico

PRODUCING UNIT(S): D zone of Dakota Sandstone (Cretaceous)

DISCOVERY WELL: Davis Oil Co. No. 1 Snake Eyes, located in Sec. 20, T. 21 N., R. 8 W.; completed 6/15/71 through perforations from 4,597 to 4,607 ft; acidized. Total depth 4,379 ft. IP 2,553 MCFGPD + 10 BCPD + 85 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone

TYPE OF TRAP: Probably stratigraphic, formed by channel sandstone.

PROPERTIES OF OIL AND GAS: Condensate gravity is 62° API.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1976 because of water encroachment on the single productive well in the pool.

CUMULATIVE PRODUCTION TO 12/31/84: 671,555 MCFG + 10,465 BO.

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Bryant (1978); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Stoney Butte Dakota Oil Pool

LOCATION: Sec. 1, T. 21 N., R. 14 W., San Juan County, New Mexico

PRODUCING UNIT(S): Dakota Sandstone (Cretaceous)

DISCOVERY WELL: Southern Union Gas Co. No. 1 Navajo, located in Sec. 1, T. 21 N., R. 14 W.; completed 9/13/50 through an open-hole interval from 3,645 ft to total depth of 3,650 ft. Well subsequently drilled to total depth of 9,346 ft. IPP 54 BOPD + 26 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Two sandstone units, 36 ft and 5 ft thick.

TYPE OF TRAP: Combination structural and stratigraphic, formed by a lenticular marine sandstone on a north-trendig anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 48° API.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1952.

CUMULATIVE PRODUCTION TO 12/31/84: 7,714 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 7,714 BO

REFERENCES: Lauth (1978b)

POOL NAME: Straight Canyon Dakota Gas Pool

LOCATION: Sec. 14, T. 31 N., R. 16 W., San Juan County, New Mexico

PRODUCING UNIT(S): Dakota Sandstone (Cretaceous)

DISCOVERY WELL: Robert C. Anderson No. 1 Ute Mountain, located in Sec. 14, T. 31 N., R. 16 W.; completed 10/3/75 through perforations from 2,262 to 2,279 ft. Total depth 2,521 ft. IP 303 MCFGPD, no water, no condensate or oil.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded fine-grained sandstone and shale, 150-200 ft thick, 12 ft average net pay, 15% porosity, 0.66-17 millidarcies permeability.

TYPE OF TRAP: Structural, formed by southeast-trending anticline.

PROPERTIES OF OIL AND GAS: Gas is 95.68% hydrocarbons.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1982.

CUMULATIVE PRODUCTION TO 12/31/84: 144,155 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 1,000,000 MCFG

REFERENCES: Malinowski (1983a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Table Mesa Dakota Oil Pool

LOCATION: T. 27 N., R. 17 W., San Juan County, New Mexicc

PRODUCING UNIT(S): Dakota Sandstone (Cretaceous)

DISCOVERY WELL: Continental Oil Co. No. 1 Table Mesa, located in Sec. 3, T. 27 N., R. 17 W.; completed 9/25/25 through an open-hole interval from 1,315 ft to plugged-back total depth of 1,320 ft. Total depth 1,333 ft. IPF 312 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded lenticular sandstone and shale, 200 ft thick, 12 ft average net pay, 20% average porosity, 200 millidarcies average permeability.

TYPE OF TRAP: Structural, formed by northeast-trending anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 56° API. Oil is paraffin based.

ANNUAL PRODUCTION, 1984: 3,436 BO + 372,134 BW

CUMULATIVE PRODUCTION TO 12/31/84: 1,387,858 BO

NUMBER PRODUCING WELLS, 12/31/84: 2

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Lauth (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Ute Dome Dakota Gas Pool

LOCATION: T. 31-32 N., R. 13-14 W., San Juan County, New Mexico

PRODUCING UNIT(S): Dakota Sandstone (Cretaceous)

DISCOVERY WELL: Stanolind No. 1-30X, located in Sec. 35, T. 32 N., R. 14 W.; completed in 1921 through an open-hole interval from 1,971 ft to total depth of 2,325 ft. Estimated IP 12,000 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded very fine- to fine-grained sandstone and shale, 80-160 ft thick. Pay zones are sandstones, 20-55 ft net pay, 15% porosity, 10 millidarcies permeability.

TYPE OF TRAP: Structural, formed by northwest-trending, faulted anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 45° API. Gas is sweet, contains mostly hydrocarbons.

ANNUAL PRODUCTION, 1984: 941,225 MCFG + 5,083 BO + 12,80C BW

CUMULATIVE PRODUCTION TO 12/31/84: 13,808,274 MCFG

NUMBER PRODUCING WELLS, 12/31/84: 26

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Tezak (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: White Wash Mancos-Dakota Oil Pool

LOCATION: T. 24 N., R. 9 W., San Juan County, New Mexico

PRODUCING UNIT(S): lower Mancos Shale, Dakota Sandstone (Cretaceous)

DISCOVERY WELL: Dugan Production Corp. No. 2 Blanco Wash, located in Sec. 2, T. 24 N., R. 9 W.; completed 12/25/77 through perforations from 4,904 to 4,920 ft, 5,122 to 5,168 ft, 5,230 to 5,319 ft, and 6,064 to 6,118 ft; artificially fractured. Total depth 6,350 ft. IP 34 BOPD from Mancos.

LITHOLOGY AND THICKNESS OF RESERVOIR: Mancos consists of blanket shales and siltstones, 300 ft thick, 40 ft net pay; Dakota consists of a blanket sandstone, 40 ft thick, 15 ft net pay.

TYPE OF TRAP: Reported to be stratigraphic, but not documented by facies and isopach maps. Mancos may be a fracture trap.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° API. Oil is sweet. Gas is mostly hydrocarbons.

ANNUAL PRODUCTION, 1984: 4,329 BO + 18,005 MCFG + 569 BW

CUMULATIVE PRODUCTION TO 12/31/84: 59,963 BO

NUMBER PRODUCING WELLS, 12/31/84: 8

ESTIMATED ULTIMATE RECOVERY: 120,000 BO, primary recovery

REFERENCES: Jacobs (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Leggs Entrada Oil Pool

LOCATION: Sec. 11, T. 21 N., R. 10 W., San Juan County, New Mexico

PRODUCING UNIT(S): Entrada Sandstone (Jurassic)

DISCOVERY WELL: Dome Petroleum Corp. No. 1 Santa Fe Leggs, located in Sec. 11, T. 21 N., R. 10 W.; completed 8/14/77 through perforations from 5,404 to 5,412 ft. Total depth 5,644 ft. IPP 235 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 200 ft thick, 20-24 ft net pay, 23% porosity.

TYPE OF TRAP: Stratigraphic, formed by closure on a buried aeolian sand dune.

PROPERTIES OF OIL AND GAS: Oil gravity is 32° API. Oil is paraffin based.

ANNUAL PRODUCTION, 1984: 20,559 BO + 1,587,816 BW

CUMULATIVE PRODUCTION TO 12/31/84: 209,501 BO

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 275,000 BO, primary recovery

REFERENCES: Hyndman (1983b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Snake Eyes Entrada Oil Pool

LOCATION: Sec. 20, T. 21 N., R. 8 W., San Juan County, New Mexico

PRODUCING UNIT(S): Entrada Sandstone (Jurassic)

DISCOVERY WELL: Dome Petroleum corp. No. 20-1 Santa Fe, located in Sec. 20, T. 21 N., R. 8 W.; completed 2/10/77 through perforations from 5,604 to 5,612 ft. Total depth 5,818 ft. IPP 231 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, approximately 200 ft thick, 35 ft average net pay, 25% porosity, 665 millidarcies permeability.

TYPE OF TRAP: Stratigraphic, formed by closure on a buried aeolian sand dune.

PROPERTIES OF OIL AND GAS: Oil gravity is 29° API. Oil is paraffin based.

ANNUAL PRODUCTION, 1984: 17,667 BO + 2,381,737 BW

CUMULATIVE PRODUCTION TO 12/31/84: 241,384 BO

NUMBER PRODUCING WELLS, 12/31/84: 2

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Bryant (1978); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Barker Creek Paradox Gas Pool

LOCATION: T. 32 N., R. 14 W., San Juan County, New Mexico and La Plata County, Colorado

PRODUCING UNIT(S): Paradox Formation (Pennsylvanian)

DISCOVERY WELL: Southern Union Gas Co. No. D-9 Barker, located in Sec. 21, T. 32 N., R. 14 W.; completed 3/18/45 through perforations from 8,420 to 8,498 ft and 8,630 to 8,650 ft; acidized. Total depth 9,468 ft. IPAOF 42,000 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Vuggy, fractured dolostone and limestone, approximately 200 ft thick, approximately 100 ft net pay in 6 zones, 2-10% porosity.

TYPE OF TRAP: Structural, formed by northeast-trending anticline.

PROPERTIES OF OIL AND GAS: Pay zones in upper part of Paradox produce sweet gas; pay zones in lower part of Paradox produce sour gas. Gas in upper pay zones is 94% methane; gas in lower pay zones is 82% methane.

ANNUAL PRODUCTION, 1984: 477,739 MCFG + 1,465 BC + 2,239 BW in New Mexico part of pool.

CUMULATIVE PRODUCTION TO 12/31/84: 105,264,600 MCFG + 77,790 BC in New Mexico part of pool.

NUMBER PRODUCING WELLS, 12/31/84: 2 in New Mexico part of pool.

ESTIMATED ULTIMATE RECOVERY: 230,000,000 MCFG + 142,000 BC

REFERENCES: Matheny (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Big Gap Pennsylvanian Oil Pool

LOCATION: T. 27 N., R. 19 W., San Juan County, New Mexicc

PRODUCING UNIT(S): Barker Creek zone of Paradox Formation (Pennsylvanian)

DISCOVERY WELL: Bass Enterprises Production Co. No. 1-20 Navajo, located in Sec. 20, T. 27 N., R. 19 W.; completed 1/11/79 through perforations from 5,589 to 5,594 ft; acidized. Total depth 5,670 ft. IPP 22 BOPD + 60 MCFGPD + 46 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Dense to finely crystalline vuggy limestone, 70-80 ft thick, 6 ft average net pay, 8-13.5% porosity, 6.5-113 millidarcies permeability.

TYPE OF TRAP: Combination stratigraphic and structural, formed by algal mounds on a structural dome.

PROPERTIES OF OIL AND GAS: Oil gravity is 48° API. Gas is 73% methane, 9% ethane, and 5% prcpane.

ANNUAL PRODUCTION, 1984: Not available.

CUMULATIVE PRODUCTION TO 12/31/84: 299 BO

NUMBER PRODUCING WELLS, 12/31/84: Not available

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Walker (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Blue Hill Paradox Gas Pool

LOCATION: Sec. 26, T. 32 N., R. 18 W., San Juan County, New Mexico

PRODUCING UNIT(S): Barker Creek zone of Paradox Formation (Pennsylvanian)

DISCOVERY WELL: Southern Union Gas Co. No. 1A Navajo, located in Sec. 26, T. 32 N., R. 18 W.; completed 2/23/53 through perforations from 7,604 to 7,628 ft and 7,690 to 7,695 ft. Total depth 8,150 ft. IP 13,900 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Porous limestone, 38 ft thick, 12 ft net pay.

TYPE OF TRAP: Structural, formed by northeast-trending anticline. POsosible stratigraphic control caused by porosity variations within the Barker Creek.

PROPERTIES OF OIL AND GAS: Gas is 11.2% CO_2, 0.3% H_2S, 1.6% N_2, 83.7% methane, 1.6% ethane, and 1.6% other constituents.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1964.

CUMULATIVE PRODUCTION TO 12/31/84: 1,221,724 MCFG.

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Riggs (1978d); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Buena Suerte Pennsylvanian Oil Pool

LOCATION: Sec. 3, T. 24 N., R. 11 W., San Juan County, New Mexico

PRODUCING UNIT(S): Paradox Formation (Pennsylvanian)

DISCOVERY WELL: Tenneco Oil Co. No. 1 Pah, located in Sec. 3, T. 25 N., R. 11 W.; completed 8/27/71 through perforations from 10,956 to 10,958 ft; acidized and artificially fractured. Total depth 11,490 ft. IPF 192 BOPD + 116 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Medium- to coarse-grained sandstone, 6 ft thick, 2 ft net pay, 12% porosity.

TYPE OF TRAP: Reported to be stratigraphic.

PROPERTIES OF OIL AND GAS: Oil gravity is 53° API.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1972.

CUMULATIVE PRODUCTION TO 12/31/84: 5,296 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Brown (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Cone Paradox Oil Pool

LOCATION: Sec. 22, T. 31 N., R. 18 W., San Juan County, New Mexico

PRODUCING UNIT(S): Desert Creek zone of Paradox Formation (Pennsylvanian)

DISCOVERY WELL: Dugan Production Corp. No. 1 Ricky, located in Sec. 22, T. 31 N., R. 18 W.; completed 6/13/64 through perforations from 6,734 to 6,859 ft; acidized. Total depth 7,194 ft. IPF 51 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Interbedded crystalline limestone and shale, 250 ft thick, 40-50 ft net pay, 8-10% porosity, 2-3 millidarcies permeability.

TYPE OF TRAP: Stratigraphic, formed by a porous algal mound.

PROPERTIES OF OIL AND GAS: Oil gravity is 50° API. Gas is sour.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1981.

CUMULATIVE PRODUCTION TO 12/31/84: 15,527 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 16,000 BO, primary recovery.

REFERENCES: Fagrelius (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Four Corners Paradox Oil Pool

LOCATION: T. 32 N., R. 20 W., San Juan County, New Mexicc

PRODUCING UNIT(S): Ismay zone of Honaker Trail Formation (Pennsylvanian)

DISCOVERY WELL: Humble Oil & Refining Co. No. 1B Navajo, located in Sec. 29, T. 32 N., R. 20 W.; completed 4/29/56 through perforations from 5,608 to 5,632 ft; acidized. Total depth 6,850 ft. IP 369 BOPD (13% water).

LITHOLOGY AND THICKNESS OF RESERVOIR: Medium- to coarsely crystalline vuggy limestone, 40 ft thick, 7% porosity, 34 millidarcies permeability.

TYPE OF TRAP: Combination stratigraphic and structural, formed by a porous algal mound located on a structural nose.

PROPERTIES OF OIL AND GAS: Oil gravity is 44° API. Oil has a low sulfur content. Gas is 7.60% carbon dioxide, 1.33% nitrogen, 59.06% methane, 11.83% ethane, 10.86% propane, 5.91% butane, 2.12% pentane, and 1.29% hexane.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1968.

CUMULATIVE PRODUCTION TO 12/31/84: 91,945 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 92,000 BO

REFERENCES: Bircher (1978b); New Mexico Oil & Gas Engineering Committee (1985); unpublished data of New Mexico Bureau of Mines and Mineral Resources

POOL NAME: Hogback Pennsylvanian Oil Pool

LOCATION: Sec. 19, T. 29 N., R. 16 W., San Juan County, New Mexico

PRODUCING UNIT(S): Paradox Formation (Pennsylvanian)

DISCOVERY WELL: Pan American Petroleum Corp. No. 13 U.S.G. 19, located in Sec. 19, T. 29 N., R. 16 W.; completed 3/18/54 through perforations from 6,6166 to 6,214 ft, 6,330 to 6,400 ft, 6,514 to 6,524 ft, and 6,620 to 6,632 ft; acidized and artificially fractured. Total depth 7,406 ft. IPF 145 BOPD + 6,650 MCFGPD + 5 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Carbonaceous limestone, 900 ft thick, 16 ft average net pay, 8-20% porosity.

TYPE OF TRAP: Structural, formed by a faulted dome.

PROPERTIES OF OIL AND GAS: Oil gravity is 57° API. Gas is 29.1% methane, 6.3% ethane and heavier hydrocarbons, 54.6% nitrogen, 0.6% argon, 7.17% helium, 2.0% CO_2, trace % hydrogen.

ANNUAL PRODUCTION, 1984: 2,538 BO

CUMULATIVE PRODUCTION TO 12/31/84: 387,567 BO

NUMBER PRODUCING WELLS, 12/31/84: 1

ESTIMATED ULTIMATE RECOVERY: 230,000 BO

REFERENCES: Maynard (1978d); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: North Tocito Dome Pennsylvanian Gas Pool

LOCATION: T. 26 N., R. 18 W., San Juan County, New Mexico

PRODUCING UNIT(S): Paradox Formation (Pennsylvanian)

DISCOVERY WELL: Campbell, Kiel, and Rothwell No. 1 Navajo Tocito, located in Sec. 9, T. 26 N., R. 18 W.; completed 12/2/67 through perforations from 6,322 to 6,328 ft. Total depth 6,365 ft. IPF 384 BOPD + 8,275 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Algal and corallie limestone bioherms and biostromes, 100 ft thick, 10 ft average net pay, 6-14% porosity.

TYPE OF TRAP: Combination structural and stratigraphic trap. Pool located on northeast-plunging anticlinal nose, bounded on southwest by a normal fault and bounded on west by a porosity pinchout.

PROPERTIES OF OIL AND GAS: Oil gravity was initially 57-62.9° API, decreased to 47° API in 1978. Gas is 49.6% methane, 5.7% ethane, 4.7% propane and heavier hydrocarbons, 34.2% nitrogen, 0.1% oxygen, 0.3% argon, 2.1% carbon dioxide, 3.26% helium, and trace % hydrogen.

ANNUAL PRODUCTION, 1984: 0, poo is currently shut in.

CUMULATIVE PRODUCTION TO 12/31/84: 289,748 Bo

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Spencer (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Pajarito Pennsylvanian D Oil Pool

LOCATION: T. 29 N., R. 17 W., San Juan County, New Mexico

PRODUCING UNIT(S): Barker Creek zone of Paradox Formation (Pennsylvanian)

DISCOVERY WELL: Amerada Petroleum Corp. No. 20-1 Navajo Tract, located in Sec. 31, T. 29 N., R. 17 W.; completed 5/23/63 through perforations from 7,198 to 7,222 ft; acidized. Total depth 8,101 ft. IPF 346 BOPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Vuggy, fractured limestone, 16 ft thick, 14% porosity, 13 millidarcies permeability. Most porosity is in leached corals.

TYPE OF TRAP: Structural, formed by faulted, northeast-trending anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 43° API. Gas is 12.9% carbon dioxide.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1983.

CUMULATIVE PRODUCTION TO 12/31/84: 166,549 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 177,000 BO

REFERENCES: Dunn (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Rattlesnake Pennsylvanian BCD Oil Pool

LOCATION: T. 29 N., R. 19 W., San Juan County, New Mexico

PRODUCING UNIT(S): Hermosa Group (Pennsylvanian)

DISCOVERY WELL: Continental Oil Co. No. 17 Rattlesnake, located in SEc. 2, T. 29 N., R. 19 W.; completed 6/7/29 through an open-hole interval from 6,769 to 6,771 ft. Total depth 6,985 ft. IPF 650 BOPD + 1,700 MCFGPD + 1,300 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Limestone, 3-25 ft thick, 12 ft average net pay.

TYPE OF TRAP: Combination stratigraphic and structural trap, formed by lenticular reservoir limestones folded by north-trending anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° API. Gas is 46.9% methane, 49.6% ethane and heavier hydrocarbons, 3.9% nitrogen, 0.5% carbon dioxide, and 0.1% oxygen.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1972.

CUMULATIVE PRODUCTION TO 12/31/84: 405,270 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 951,000 BO

REFERENCES: Baars and Middleman (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Table Mesa Pennsylvanian C Oil Pool

LOCATION: T. 27-28N., R. 17 W., San Juan County, New Mexico

PRODUCING UNIT(S): Barker Creek zone of Paradox Formation (Pennsylvanian)

DISCOVERY WELL: Continental Oil Co. No. 17 Table Mesa, located in Sec. 3, T. 27 N., R.17 W.; completed 1/15/51 through perforations from 7,010 to 7,060 ft; acidized. Total depth 7,763 ft. IPF 2,C00 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Vuggy algal limestone, 110 ft thick.

TYPE OF TRAP: Combined structural and stratigraphic, formed mostly by northeast-trending anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 41° API. Gas composition is 77.8% nitrogen, 10.0% methane, 5.4% helium, 0.2% carbon dioxide, 2.2% ethane, 1.8% propane, 2.6% butanes and heavier hydrocarbons.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1979.

CUMULATIVE PRODUCTION TO 12/31/84: 174,220 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Hoppe (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Tocito Dome Pennsylvanian D Oil Pool

LOCATION: T. 26 N., R. 18 W., San Juan County, New Mexico

PRODUCING UNIT(S): Paradox Formation (Pennsylvanian)

DISCOVERY WELL: Pan American Oil Corp. No. 1 Tribal N, located in Sec. 17, T. 26 N., R. 18 W.; completed 4/21/63 through perforations from 6,338 to 6,410 ft; acidized. Total depth 6,694 ft. IP 5,077 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Limestone bioherms interbedded with minor shale and siltstone, 100-120 ft thick, 17 ft net pay, 8.6% average porosity in pay zones.

TYPE OF TRAP: Combined structural and stratigraphic, formed by discontinuous algal and coral bioherms located on a faulted anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 44-47° API. Gas is 79.9% methane, 10.6% ethane and heavier hydrocarbons, 7.9% nitrogen, 0.3% oxygen, 0.1% argon, 0.5% helium, 0.8% carbon dioxide.

ANNUAL PRODUCTION, 1984: 61,170 BO + 156,874 MCFG + 917,782 BW

CUMULATIVE PRODUCTION TO 12/31/84: 12,571,836 BO

NUMBER PRODUCING WELLS, 12/31/84: 22

ESTIMATED ULTIMATE RECOVERY: 15,000,000 BO, primary recovery

REFERENCES: Spencer (1978a); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Ute Dome Paradox Gas Pool

LOCATION: T. 31-32 N., R. 13-14 W., San Juan County, New Mexico

PRODUCING UNIT(S): Barker Creek zone of Paradox Formation (Pennsylvanian)

DISCOVERY WELL: Stanolind Oil Co. No. 4 Ute Indian, located in Sec. 35, T. 32 N., R. 14 W.; completed 9/8/48 through perforations from 8,295 to 8,360 ft; acidized. Total depth 8,602 ft. IP 13,100 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Medium-crystalline, algal, bioclastic limestone, approximately 700 ft thick, 116 ft average net pay, 3.5% porosity.

TYPE OF TRAP: Structural, formed by a northeast-trending faulted anticline.

PROPERTIES OF OIL AND GAS: Gas is sour, contains 2% H_2S, and 21% CO_2.

ANNUAL PRODUCTION, 1984: 4,772,310 MCFG + 10,138 BC + 15,368 BW

CUMULATIVE PRODUCTION TO 12/31/84: 76,032,302 MCFG + 81,003 BC

NUMBER PRODUCING WELLS, 12/31/84: 14

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Tezak (1978b); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Beautiful Mountain Mississippian Gas Pool

LOCATION: T. 26-27 N., R. 19 W., San Juan County, New Mexico

PRODUCING UNIT(S): Leadville Limestone (Mississippian)

DISCOVERY WELL: Petroleum Energy Inc. No. 1-5 Navajo, located in Sec. 5, T. 26 N., R. 19 W.; completed 6/3/75 through perforations from 5,960 to 6,040 ft. Total depth 6,080 ft. IPF 110 BOPD + 38 MCFGPD + 154 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fractured, dense, finely crystalline limestone, locally oolitic, approximately 150 ft thick; 8 ft average net pay.

TYPE OF TRAP: Combination fractured and structural trap, formed by fractures originating from flexure of a structural nose.

PROPERTIES OF OIL AND GAS: Gas is 88% nitrogen, 7% helium, 2% carbon dioxide, and 3% hydrocarbons. Gas is produced from helium, which is extracted and sold separately. Oil gravity is 41° API.

ANNUAL PRODUCTION, 1984: 842,612 MCFG + 1,931 BO + 4,801 BW

CUMULATIVE PRODUCTION TO 12/31/84: 3,047,862 MCFG + 29,103 BO

NUMBER PRODUCING WELLS, 12/31/84: 6

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: H. H. Brown (1978c); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Hogback Mississippian Oil Pool

LOCATION: Sec. 19, T. 19 N., R. 16 W., San Juan COunty, New Mexico

PRODUCING UNIT(S): Leadville Limestone (Mississippian)

DISCOVERY WELL: Stanolid No. 13 U.S.G. Sec. 19, located in Sec. 19, T. 19 N., R. 16 W.; completed 10/15/52 through perforations from 6,930 to 7,030 ft; acidized. Total depth 7,406 ft. IPF 147 BOPD + 14,900 MCFGPD + 6 BWPD. No record of commercial production is available. Leadville Limestone was abandoned as a producing zone and the well was recompleted on 3/18/54 in a Pennsylvanian reservoir.

LITHOLOGY AND THICKNESS OF RESERVOIR: Limestone and fractured dolostone, 75 ft thick, 48 ft average net pay, 8-20% porosity.

TYPE OF TRAP: Structural, formed by a faulted dome.

PROPERTIES OF OIL AND GAS: Oil gravity is 49° API. Gas is 6.1% methane, 4.8% ethane and heavier hydrocarbons, 63.5% nitrogen, 0.5% argon, 20% carbon dioxide, and 5.15% helium.

ANNUAL PRODUCTION, 1984: 0

CUMULATIVE PRODUCTION TO 12/31/84: 0, no commercial

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Maynard (1978e)

POOL NAME: Table Mesa Mississippian Gas Pool

LOCATION: T. 27-28 N., R. 17 W., San Juan County, New Mexico

PRODUCING UNIT(S): Leadville Limestone (Mississippian)

DISCOVERY WELL: Continental Oil Co. No. 17 Table Mesa, located in Sec. 3, T. 27 N., R. 17 W.; completed 1/15/51 through perforations from 7,450 to 7,533 ft; acidized. Total depth 7,763 ft.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fossiliferous limestone, approximately 130 ft thick, 40 ft net pay, fracture and intercrystalline porosity.

TYPE OF TRAP: Structural, formed by northeast-trending anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 59° API. Gas is 1.4% carbon dioxide, 83.8% nitrogen, 5.7% helium, 0.1% oxygen, 0.7% argon, 6.1% hydrocarbons.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1975.

CUMULATIVE PRODUCTION TO 12/31/84: 1,193,006 MCFG + 74,393 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Hoppe (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: North Tocito Dome Mississippian Gas Pool

LOCATION: Sec. 34, T. 27 N., R. 18 W., San Juan County, New Mexico

PRODUCING UNIT(S): Leaville Limestone (Mississippian)

DISCOVERY WELL: Sinclair Oil and Gas Co. No. 1 Navajo Tribal 141, located in Sec. 34, T. 27 N., R. 18 W.; completed 8/23/63 through perforations from 6,812 to 6,828 ft; acidized. Total depth 7,309 ft. IP 1,006 MCFGPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Carbonate rocks, approximately 180 ft thick, 64 ft average net pay, 10% porosity.

TYPE OF TRAP: Structural; exact nature of trap is undetermined.

PROPERTIES OF OIL AND GAS: Gas is 7.2% helium, 0.1% carbon dioxide, 0.7% argon, 0.3% oxygen, 89.6% nitrogen, and 2.1% hydrocarbons. Gas was produced for helium, which was extracted and sold separately.

ANNUAL PRODUCTION, 1984: 0, pool is presently shut in.

CUMULATIVE PRODUCTION TO 12/31/84: 1,104,668 MCFG + 828 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Riggs (1978e); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Akah Nez Devonian Oil Pool

LOCATION: Sec. 23, T. 23 N., R. 20 W., San Juan County, New Mexico

PRODUCING UNIT(S): McCracken Sandstone Member of Elbert Formation (Devonian)

DISCOVERY WELL: Kerr-McGee Corp. No. 1 Navajo J, located in Sec. 23, T. 23 N., R. 20 W.; completed 11/19/67 through perforations from 3,982 to 4,028 ft; acidized and artificially fractured. Total depth 4,300 ft.

LITHOLOGY AND THICKNESS OF RESERVOIR: Sandstone, 46 ft thick; 31 ft net pay, 9-18% porosity.

TYPE OF TRAP: Structural, formed by north-trending anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 48° API. Gas has a low heating value, indicating that it consists mostly of non-flammable components, such as nitrogen, carbon dioxide, and helium.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1973.

CUMULATIVE PRODUCTION TO 12/31/84: 17,199 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: Not available

REFERENCES: Dawson (1983); New Mexico Oil & Gas Engineering Committee (1985)

POOL NAME: Tom Devonian Oil Pool

LOCATION: Sec. 33, T. 26 N., R. 19 W., San Juan County, New Mexico

PRODUCING UNIT(S): McCracken Sandstone Member of Elbert Formation (Devonian)

DISCOVERY WELL: Brooks Hall Oil Corp. No. 1 Navajo Tribe AO, located in Sec. 33, T. 25 N., R. 19 W.; completed 9/12/76 through perforations from 6,453 to 6,570 ft; acidized. Total depth 6,613 ft. IP 20 BOPD + 83 MCFGPD + 5 BWPD.

LITHOLOGY AND THICKNESS OF RESERVOIR: Fine- to medium-grained, poorly sorted sandstone, approximately 75 ft thick; 28 ft net pay, 3-8% porosity, 1.1 millidarcies permeability.

TYPE OF TRAP: Structural, formed by northeast-trending Beautiful Mountain anticline.

PROPERTIES OF OIL AND GAS: Oil gravity is 45° API. Gas is 85% nitrogen.

ANNUAL PRODUCTION, 1984: 0, pool abandoned in 1982.

CUMULATIVE PRODUCTION TO 12/31/84: 1,605 BO

NUMBER PRODUCING WELLS, 12/31/84: 0

ESTIMATED ULTIMATE RECOVERY: 4,000 BO

REFERENCES: Malinowski (1983b); New Mexico Oil & Gas Engineering Committee (1985)

Wells productive from undesignated oil and gas pools in San Juan County. Data from unpublished records of New Mexico Bureau of Mines and Mineral Resources, and New Mexico Oil & Gas Engineering Committee (1985). OWWO, old well worked over; BO, bbls oil; MCFG, thousand ft^3 gas; BW, bbls water; abd, abandoned.

Operator, well number, and lease	Location (section-township-range, county)	Date completed (month/year)	Total depth (ft)	Producing interval (ft)	Producing unit	1984 production	Cumulative production to 12/31/84	Comments
Lee M. Crane No. 1 Martin	34-30N-11W, San Juan				Ojo Alamo (Tertiary)	0 BO + 5,505 MCFG	4,264 BO	
El Paso Natural Gas Co. No. 1 Omler	36-38N-10W, San Juan	10/54	1,112		Farmington (Cretaceous)	467 MCFG	108,913 MCFG	
Dugan Production Corp. No. 7 Redfern	9-28N-11W, San Juan	9/81	902	877-902	Farmington (Cretaceous)	328 MCFG	3,831 MCFG	open-hole completion
Dugan Production Corp. No. 8 Redfern	9-28N-11W, San Juan	12/81	801	500-508	Farmington (Cretaceous)	0	74 BO	
Dugan Production Corp. No. 3 Redfern (owwo)	16-28N-11W, San Juan	4/64	695		Farmington (Cretaceous)	607 BO	24,595 BO	
Supron Energy No. 3 Largo Federal	34-29N-9W, San Juan	3/80	1,650	1,527-1,532	Farmington (Cretaceous)	4,421 MCFG	23,457 MCFG	artificially fractured
Amoco Production Co. No. Trujillo Gas Com. (owwo)	21-29N-10W, San Juan	11/59	1,860		Farmington (Cretaceous)	0, abd before 1974	11,590 MCFG	dual completion with Pictured Cliffs (Cretaceous)
Southern Union Gas Co. No. 1 Armenta	27-29N-10W, San Juan	1/59	1,925	988-1,010; 1,815-1,880	Farmington (Cretaceous)	0, abd before 1974	170,043 MCFG	
Energy Reserves Group, Inc. No. 274 Gallegos Canyon Unit	20-28N-12W, San Juan	8/81	1,500	614-644	Farmington (Cretaceous)	8,052 MCFG	33,240 MCFG	artificially fractured
Orville S. Slaughter, Jr. No. 3G Sangre de Cristo	29-29N-10W, San Juan				Farmington (Cretaceous)	163 BO + 205 MCFG + 100 BW	4,291 BO	
Orville S. Slaughter, Jr. No. 4G Sangre de Cristo	29-29N-10W, San Juan	4/83	996	735-755	Farmington (Cretaceous)	111 MCFG + 100 BO + 24 BW	111 MCFG 100 BO	
Beartooth Oil and Gas Co. No. 11 Elledge Federal 34	34-29N-11W, San Juan	4/81	1,567	1,060-1,064; 1,517-1,525	Farmington (Cretaceous)	4,347 MCFG	17,059 MCFG	artificially fractured
El Paso Natural Gas Co. No. 5 Riddle	4-30N-9W San Juan	5/68	2,775	1,915-2,244	Farmington (Cretaceous)	0, abd in 1972	4,761 BO	acidized, artificially fractured
El Paso Natural Gas Co. No. 7 Riddle A	15-30N-9W, San Juan	9/68	3,250	2,146-2,508	Farmington (Cretaceous)	0, abd in 1972	1,106 BO	artificially fractured
Tenneco Oil Co. No. 15 Omler A	26-28N-10W, San Juan	6/82	1,700	1,624-1,630	Fruitland (Cretaceous)	16,315 MCFG	45,906 MCFG	acidized, artificially fractured
El Paso Natural Gas Co. No. 2 Bolin A	34-29N-8W, San Juan	2/81	3,159	2,778-2,790	Fruitland (Cretaceous)	5,145 MCFG	32,570 MCFG	artificially fractured; dual completion with Pictured Cliffs (Cretaceous)
Amoco Production Co. No. 14 WD Heath A	9-29N-9W, San Juan	4/81	2,247	1,116-1,506	Fruitland (Cretaceous)	0, shut in since 1982	7,92[illegible] MCFG	artificially fractured
El Paso Natural Gas Co. No. 5 Cornell (owwo)	1-29N-12W, San Juan	10/81	2,060	1,644-1,664	Fruitland (Cretaceous)	8,105 MCFG + 118 BO	26,823 MCFG + 757 BO	artificially fractured

TABLE 6 (cont'd)

Operator, well number, and lease	Location (section-township-range, county)	Date completed (month/year)	Total depth (ft)	Producing interval (ft)	Producing unit	1984 production	Cumulative production to 12/31/84	Comments
Tenneco Oil Co. No. 103 Florance	6-30N-8W, San Juan	5/81	2,903	2,696-2,704	Fruitland (Cretaceous)	15,904 MCFG	43,416 MCFG	artificially fractured
Tenneco Oil Co. No. 9 Pritchard	1-30N-9W, San Juan	10/83	2,650	2,470-2,650	Fruitland (Cretaceous)	20,928 MCFG	20,928 MCFG	acidized, artificially fractured
Mañana Gas Inc. No. 1 Bobbie Herrera	4-30N-11W, San Juan	2/79	2,350	1,950-2,055	Fruitland (Cretaceous)	17,706 MCFG	127,193 MCFG	artificially fractured; dual completion with Pictured Cliffs (Cretaceous)
C and E Operator's Inc. No. 8 Fee A	8-30N-11N, San Juan	4/81	4,801	1,886-1,894	Fruitland (Cretaceous)	5,717 MCFG	11,727 MCFG	artificially fractured; production commingled with Pictured Cliffs and Mesaverde (Cretaceous)
El Paso Natural Gas Co. No. 3 Morris A	28-30N-11W, San Juan	5/79	2,292	2,000-2,040	Fruitland (Cretaceous)	0, shut in since 1981	11,551 MCFG	artificially fractured
Orville S. Slaughter, Jr. No. 2 Sangre de Cristo S	34-30N-11W, San Juan				Fruitland (Cretaceous)	1,454 MCFG	4,174 MCFG	
Orville S. Slaughter, Jr. No. 2D Sangre de Cristo	34-30N-11W, San Juan	12/76	2,037	1,964-2,000	Fruitland (Cretaceous)	170 MCFG	28,350 MCFG + 160 FO	acidized
Northwest Production Corp. No. 5-9 Blanco 30 12	9-30N-12W, San Juan	3/57	2,115	1,806-1,942	Fruitland (Cretaceous)	0, abd in 1963	27,202 MCFG	artificially fractured
Supron Energy No. 2 Read A	1-30N-13W, San Juan	11/81	6,890	1,850-1,860	Fruitland (Cretaceous)	13,129 MCFG	57,860 MCFG	acidized, artificially fractured; dual completion with Dakota (Cretaceous)
Dugan Production Corp. No. 2 Seven of Diamonds	2-30N-13W, San Juan	12/83	2,100	1,720-1,738	Fruitland (Cretaceous)	26,198 MCFG + 28 BW	26,198 MCFG	acidized
Dugan Production Corp. No. 2 Five of Diamonds	10-30N-13W, San Juan	9/79	1,840	1,315-1,329; 1,697-1,707	Fruitland (Cretaceous)	3,992 MCFG	18,541 MCFG	
Union Texas Petroleum Corp. No. 11-Y Johnston Federal	7-31N-9W, San Juan	12/77	3,655	3,334-3,412	Fruitland (Cretaceous)	3,824 MCFG	130,871 MCFG	acidized; dual completion with Pictured Cliffs (Cretaceous)
El Paso Natural Gas Co. No. 3 Pritchard	34-31N-9W, San Juan	3/82	7,497	2,486-2,648	Fruitland (Cretaceous)	3,216 MCFG + 340 BW	227,942 MCFG	artificially fractured
Southland Royalty No. 2 Childers	1-31N-11W, San Juan	10/78	3,052	2,535-2,749	Fruitland (Cretaceous)	10,352 MCFG	70,603 MCFG + 14 BO	acidized, artificially fractured, dual completion with Pictured Cliffs (Cretaceous)
El Paso Natural Gas Co. No. 18 Mudge	15-31N-11W, San Juan	3/82	7,497	2,486-2,648	Fruitland (Cretaceous)	13,461 MCFG	51,717 MCFG	artificially fractured
Southland Royalty No. 2 Calloway	22-31N-11W, San Juan	5/79	2,627	2,216-2,318	Fruitland (Cretaceous)	6,476 MCFG + 6 BW	73,924 MCFG	artificially fractured; dual completion with Pictured Cliffs (Cretaceous)

TABLE 6 (cont'd)

Operator, well number, and lease	Location (section-township-range, county)	Date completed (month/year)	Total depth (ft)	Producing interval (ft)	Producing unit	1984 production	Cumulative production to 12/31/84	Comments
Consolidated Oil & Gas No. 2 Cain	25-31N-13W, San Juan	4/83	2,205	1,790-2,064	Fruitland (Cretaceous)	14,217 MCFG + 1,216 BW	26,470 MCFG	acidized, artificially fractured
Consolidated Oil & Gas No. 4 Payne	35-31N-13W, San Juan	12/82	2,260	1,792-2,076; 2,130-2,145; 1,218-1,229	Fruitland Pictured Cliffs (Cretaceous) Ojo Alamo (Tertiary)	12,021 MCFG + 1,900 BW	35,152 MCFG	acidized, artificially fractured
El Paso Natural Gas Co. No. 80 San Juan 32-9 Unit	23-32N-10W, San Juan	4/78	3,894	3,460-3,718	Fruitland (Cretaceous)	0, abd in 1978	131 MCFG + 19 BO	artificially fractured
Amoco Production Co. No. 1 Keys Gas Com. F	27-32N-10W, San Juan	11/73	2,900	2,451-2,676	Fruitland (Cretaceous)	0, abd in 1975	209 MCFG	artificially fractured
El Paso Natural Gas Co. No. 4 Fields A	28-32N-11W, San Juan	5/78	5,615	2,488-2,663	Fruitland (Cretaceous)	10,524 MCFG	123,562 MCFG + 10 BO	artificially fractured; dual completion with with Mesaverde (Cretaceous)
Southland Royalty No. 2 Vasaly Federal	31-32N-11W, San Juan	10/79	3,252	2,734-2,942	Fruitland (Cretaceous)	8,868 MCFG + 54 BO + 6 BW	63,141 MCFG + 448 BO	artificially fractured
Southland Royalty No. 2 Chamberlin	14-32N-12W, San Juan	10/81	2,950	2,465-2,596	Fruitland (Cretaceous)	3,376 MCFG + 73 BO + 6 BW	26,455 MCFG + 320 BO	artificially fractured; dual completion with Pictured Cliffs (Cretaceous)
Southland Royalty No. 6 Hubbard	15-32N-12W, San Juan	9/81	2,685	2,154-2,363	Fruitland (Cretaceous)	8,471 MCFG + 608 BO + 17 BW	29,271 MCFG + 3,280 BO	artificially fractured; dual completion with Pictured Cliffs (Cretaceous)
Dugan Production Corp. No. 1 Elwood P. Dowd	10-24N-9W, San Juan	4/83	2,814	1,740-1,744	Pictured Cliffs (Cretaceous)	1,846 MCFG + 1,501 BW	1,846 MCFG	acidized, artificially fractured
El Paso Natural Gas Co. No. 1 Pipkin A Federal	1-25N-10W, San Juan	10/53	2,195	2,118-2,175	Pictured Cliffs (Cretaceous)	0, abd in 1966	10,468 MCFG	artificially fractured
El Paso Natural Gas Co. No. 2 Huerfano Unit	25-26N-10W, San Juan	10/50	2,105	2,045-2,085	Pictured Cliffs (Cretaceous)	0, abd in 1967	149,376 MCFG	
Dugan Production Corp. No. 4 Sullivan	25-29N-11W, San Juan	6/58	1,840	1,554-1,574	Pictured Cliffs (Cretaceous)	0 zone abd	899 MCFG	artificially fractured
Northwest Production Corp. No. 12-4 Blanco 30 12 D	4-30N-12W, San Juan	4/57	2,133	2,076-2,084	Pictured Cliffs (Cretaceous)	0, abd in 1958	812 MCFG	artificially fractured
Northwest Production Corp. No. 11-9 Blanco 30 12 D	9-30N-12W, San Juan	3/57	2,105	2,002-2,022	Pictured Cliffs (Cretaceous)	0, abd in 1971	117,968 MCFG	artificially fractured
Dugan Production Corp. No. 1 Five of Diamonds	10-30N-13W, San Juan	5/78	1,830	1,708-1,716	Pictured Cliffs (Cretaceous)	4,380 MCFG + 945 BW	172,725 MCFG	
Dugan Production Corp. No. 1 Dinero	13-30N-14W, San Juan	8/78	1,770	1,618-1,628	Pictured Cliffs (Cretaceous)	999 MCFG + 684 BW	7,757 MCFG	
Northwest Pipeline Corp. No. 88 Rosa Unit	8-31N-6W, San Juan	2/82	5,840	3,204-3,309	Pictured Cliffs (Cretaceous)	0, shut in since 1983	526 MCFG	acidized, artificially fractured; dual completion with Mesaverde (Cretaceous)

TABLE 6 (cont'd)

Operator, well number, and lease	Location (section-township-range, county)	Date completed (month/year)	Total depth (ft)	Producing interval (ft)	Producing unit	1984 production	Cumulative production to 12/31/84	Comments
Palmer Oil & Gas No. 3 Federal	10-31N-7W, San Juan	5/78	3,630	3,325-3,522	Pictured Cliffs (Cretaceous)	4,489 MCFG + 428 BW	4,489 MCFG	acidized, artificially fractured; dual completion with Fruitland (Cretaceous)
Blackwood & Nichols Co. Ltd. No. 217 Northeast Blanco Unit	27-31N-7W, San Juan	9/83	3,660	3,364-3,442	Pictured Cliffs (Cretaceous)	74,366 MCFG	74,366 MCFG	acidized, artificially fractured
Supron Energy No. 9 Quinn	20-31N-8W, San Juan	1/81	3,650	3,476-3,535	Pictured Cliffs (Cretaceous)	0, shut in since 1982	11,940 MCFG	acidized, artificially fractured
Standard of Texas No. 1 Ute Mountain	14-31N-14W, San Juan	12/58	3,695	2,916-2,980	upper part of Mancos Shale (Cretaceous)	0, abd in 1964	2,363 BO	artificially fractured; oil gravity 40° API
M. Martin Oil and Gas Co. No. 1 McKee	1-25N-11W, San Juan	6/57	5,645	4,296-5,418	upper Mancos; Gallup (Cretaceous)	0, abd in 1967	15,133 BO	artificially fractured; oil gravity 34° API
Merrion Oil and Gas Corp. No. 5 Navajo Tribal H (cwwo)	13-29N-14W, San Juan	4/68	5,070	3,355-3,365	Mesaverde (Cretaceous)	4,544 MCFG	142,494 MCFG + 39,575 BO	artificially fractured
Amoco Production Co. No. 1 Martin Gas Com. C	11-27N-10W, San Juan	12/81	6,600	3,018-3,031	Chacra (Cretaceous)	0, shut in since 1982	4,235 MCFG	artificially fractured; dual completion with Graneros and Dakota (Cretaceous)
El Paso Natural Gas Co. No. 12 Russell	24-28N-8W, San Juan	2/81	3,982	3,791-3,927	Chacra (Cretaceous)	39,371 MCFG	218,940 MCFG	artificially fractured; dual completion with Pictured Cliffs (Cretaceous)
Southland Royalty No. 3 Hughes	23-28N-11W, San Juan	7/82	2,950	2,756-2,975	Chacra (Cretaceous)	5,376 MCFG + 15 BW	18,208 MCFG	artificially fractured; dual completion with Fruitland (Cretaceous)
Tenneco Oil Co. No. 126 Florance	26-29N-9W, San Juan	1/82	6,615		Chacra (Cretaceous)	90,914 MCFG	90,914 MCFG	
Tenneco Oil Co. No. 3 Hamner	29-29N-9W, San Juan	6/81	6,659	3,105-3,234	Chacra (Cretaceous)	19,355 MCFG	73,229 MCFG	acidized, artificially fractured; dual completion with Dakota (Cretaceous)
Amoco Production Co. No. 1 State Gas Com. BP	32-29N-9W, San Juan	1/82	7,220	3,468-3,602	Chacra (Cretaceous)	14,345 MCFG + 42 BW	41,817 MCFG	artificially fractured; dual completion with Dakota (Cretaceous)
Tenneco Oil Co. No. 6 State Com. C	32-29N-9W, San Juan	12/82	3,395	3,160-3,292	Chacra (Cretaceous)	16,221 MCFG	43,344 MCFG	acidized, artificially fractured; dual completion with Pictured Cliffs (Cretaceous)
Tenneco Oil Co. No. 117 Florance E	35-29N-9W, San Juan	2/80	6,635	3,036-3,072; 3,172-3,201	Chacra (Cretaceous)	63,043 MCFG	205,102 MCFG	acidized, artificially fractured; dual completion with Dakota (Cretaceous)
Pioneer Production Corp. No. 1 Dustin E	6-29N-12W, San Juan	2/81	6,297	2,586-2,684	Chacra (Cretaceous)	1,871 MCFG + 146 BW	6,075 MCFG	acidized, artificially fractured; dual completion with Dakota (Cretaceous)

TABLE 6 (cont'd)

Operator, well number, and lease	Location (section-township-range, county)	Date completed (month/year)	Total depth (ft)	Producing interval (ft)	Producing unit	1984 production	Cumulative production to 12/31/84	Comments
El Paso Natural Gas Co. No. 1 Hill	20-26N-12W, San Juan	5/55	5,895	4,836-4,854	Hospah (Cretaceous)	0, abd in 1963	2,499 BO	artificially fractured
Great Western Drilling Co. No. 1 Chaco Canyon unit	14-23N-9W, San Juan	10/55	5,830	4,609-4,770	Hospah (Cretaceous)	0, abd in 1958	3,129 BO	
BCO Inc. No. 1 Federal E	17-22N-9W, San Juan	10/75	4,968	3,655-3,734	Mancos (Cretaceous)	0 zone abd	88 BO	artificially fractured
BCO Inc. No. 1 Federal E	17-22N-9W, San Juan	10/75	4,968	3,804-3,842	Gallup (Cretaceous)	0, shut in since 1979	393 BO	artificially fractured
Kenai Oil & Gas No. 21 Dome Federal 24	24-23N-8W, San Juan	12/81	5,402	5,148-5,316	Gallup (Cretaceous)	1,666 BO + 3,710 MCFG + 288 BW	6,222 BO	acidized, artificially fractured; oil gravity 42° API
Great Western Drilling Co. No. 3 Chaco Canyon unit	21-23N-8W, San Juan	9/56	5,000	4,879-4,908; 4,922-4,930; 4,958-4,966	Gallup (Cretaceous)	0, abd in 1958	3,476 BO	artificially fractured
Great Western Drilling Co. No. 2 Chaco Canyon unit	16-23N-8W, San Juan	10/55	6,098	4,921-5,069	Gallup (Cretaceous)	0, abd in 1958	4,559 BO	artificially fractured oil gravity 39° API
Dugan Production Corp. No. 5 April Surprise	7-23N-9W, San Juan	8/84	4,955	4,517-4,813	Gallup (Cretaceous)	3,053 BO + 760 MCFG + 76 BW	3,053 BO	artificially fractured oil gravity 40° API
Dugan Production Corp. No. 1 December Dream	7-23N-9W, San Juan	1/84	5,936	4,499-4,883	Gallup (Cretaceous)	5,754 BO + 10,393 MCFG + 171 BW	5,754 BO	artificially fractured oil gravity 40° API
Dugan Production Corp. No. 2 Witty	12-23N-10W, San Juan	8/84	5,025	4,173-4,869	Gallup (Cretaceous)	2,916 BO + 2,693 MCFG + 183 BW	2,916 BO	artificially fractured oil gravity 40° API
Dugan Production Corp. No. 4 Witty	12-23N-10W, San Juan	10/84	4,925	4,574-4,864	Gallup (Cretaceous)	2,009 BO + 2,989 MCFG + 247 BW	2,009 BO	artificially fractured oil gravity 40° API
Dugan Production Corp. No. 1 McDougall	17-23N-10W, San Juan	1/84	5,512	4,160-4,423	Gallup (Cretaceous)	163 BO + 362 MCFG + 37 BW	163 BO	artificially fractured oil gravity 40° API
Noel Reynolds No. 2 Paquenche	3-24N-8W, San Juan	1/58	7,39	5,904-6,004	Gallup (Cretaceous)	0, abd in 1975	14,388 BO	artificially fractured oil gravity 39° API
Exxon Corp. No. 1 E KA NE PAH Federal	27-24N-8W, San Juan	6/57	4,395	4,106-4,124	Gallup (Cretaceous)	0, abd in 1958	2,106 BO	acidized; oil gravity 38° API
El Paso Natural Gas Co. No. 2 Sapp	19-24N-8W, San Juan	7/57	5,428	5,307-5,333	Gallup (Cretaceous)	0, abd in 1963	9,100 BO	artificially fractured
Yates Petroleum Corp. No. 1 Kinbeto RG Federal	8-23N-10W, San Juan	8/81	5,520	4,232-4,273	Gallup (Cretaceous)	2,729 BO + 119 BW	10,346 BO	acidized, artificially fractured
Thomas A. Dugan No. 1 Royal Federal	3-24N-8W, San Juan	8/60	6,830	5,590-5,818	Gallup (Cretaceous)	0, abd in 1966	15,376 BO	artificially fractured oil gravity 41° API

TABLE 6 (cont'd)

Operator, well number, and lease	Location (section-township-range, county)	Date completed (month/year)	Total depth (ft)	Producing interval (ft)	Producing unit	1984 production	Cumulative production to 12/31/84	Comments
Dugan Production Corp. No. 1 Bright Angel	27-24N-8W, San Juan	8/81	6,470	5,148-5,322	Gallup (Cretaceous)	3,380 BO + 11,598 MCFG + 245 BW	10,486 BO	acidized, artificially fractured; oil gravity 40° API
Noel Reynolds No. 1 Noel Reynolds (owwo)	34-24N-8W, San Juan	9/66	6,535	5,212-5,222	Gallup (Cretaceous)	0, abd in 1975	787 BO	
Gulf Oil Corp. No. 1 Largo	14-24N-9W, San Juan	12/57	5,350	5,057-5,210	Gallup (Cretaceous)	0, abd in 1960	3,966 BO	
Gulf Oil Corp. No. 1 Kinbeto Federal	21-24N-9W, San Juan	9/57	5,475	5,320-5,333	Gallup (Cretaceous)	0, abd in 1960	876 BO	artificially fractured
El Paso Natural Gas No. 1 Sapp	30-24N-8W, San Juan	4/57	5,469	5,326-5,341; 5,362-5,376; 5,420-5,430	Gallup (Cretaceous)	0, abd in 1963	4,418 BO	artificially fractured
Kenail Oil & Gas No. 43 Federal 27	27-24N-9W, San Juan	4/82	5,554	5,092-5,476	Gallup (Cretaceous)	1,723 BO + 4,584 MCFG + 51 BW	5,166 BO	acidized, artificially fractured; oil gravity is 40° API
Dugan Production Corp. No. 1 Pacheco	13-24N-9W, San Juan	8/84	5,595	4,783-5,447	Gallup (Cretaceous)	847 BO + 1,181 MCFG + 99 BW	847 BO	artificially fractured; oil gravity 40° API
Dugan Production Corp. No. 1 Nageezi	33-24N-9W, San Juan	3/57	6,022	4,995-4,969; 5,014-5,027	Gallup (Cretaceous)	682 BO + 2,075 MCFG	27,758 BO	artificially fractured
Dugan Production Corp. No. 1 Silver Medal	27-24N-10W, San Juan	9/84	4,952	4,544-4,856	Gallup (Cretaceous)	1,708 BO + 3,196 MCFG + 240 BW	1,708 BO	artificially fractured; oil gravity 40° API
Dugan Production Corp. No. 1 Gold Medal	34-24N-10W, San Juan	8/84	6,050	4,655-4,939	Gallup (Cretaceous)	1,117 BO + 7,191 MCFG + 184 BW	1,117 BO	artificially fractured; oil gravity 43° API
Dugan Production Corp. No. 2 Snuffle Upagus	27-24N-12W, San Juan	4/83	5,103	3,826-3,859	Gallup (Cretaceous)	49 BO + 281 MCFG + 296 BW	188 BO	oil gravity 40° API
Arco Oil & Gas Co. No. 1 Crow Mesa	23-25N-8W, San Juan	3/84	7,110	5,800-6,128	Gallup (Cretaceous)	5,899 BO + 8,578 MCFG + 30 BW	5,899 BO	acidized, artificially fractured; oil gravity is 41° API
John H. Trigg No. 1 Federal HU	3-25N-10W, San Juan	8/61	6,752	5,989-6,008	Gallup (Cretaceous)	0, abd in 1963	1,292 BO	artificially fractured
British American Oil Co. No. 2 Ross Federal	24-25N-13W, San Juan	8/56	5,905	4,916-5,020	Gallup (Cretaceous)	0, abd in 1960	3,125 BO	acidized, artificially fractured; oil gravity 37° API
Union Texas Petroleum Corp. No. 5 Newsom A	3-26N-8W, San Juan	9/84	7,448	6,358-6,786	Gallup (Cretaceous)	22 BO + 1,011 MCFG	22 BO	acidized, artificially fractured; oil gravity 40° API
Union Texas Petroleum Corp. No. 20 Newsom A (owwo)	4-26N-8W, San Juan	7/84	6,890	4,794-6,224	Gallup (Cretaceous)	894 BO + 40,293 MCFG	894 BO	acidized; artificially fractured;
Union Texas Petroleum Corp. No. 5 Starr	5-26N-8W, San Juan	8/83	6,164	5,439-6,044	Gallup (Cretaceous)	922 BO + 77,986 MCFG + 53 BW	947 BO	acidized, artificially fractured; oil gravity 41° API

TABLE 6 (cont'd)

Operator, well number, and lease	Location (section-township-range, county)	Date completed (month/year)	Total depth (ft)	Producing interval (ft)	Producing unit	1984 production	Cumulative production to 12/31/84	Comments
Union Texas Petroleum Corp. No. 3 Newsom A	4-26N-8W, San Juan	7/84	6,890	5,794-6,224	Gallup (Cretaceous)	174 BO + 7,666 MCFG	174 BO	acidized, artificially fractured
Union Texas Petroleum Corp. No. 7 Newsom B	8-26N-8W, San Juan	2/84	6,823	5,634-6,430	Gallup (Cretaceous)	1,456 BO + 59,311 MCFG	1,456 BO	acidized, artificially fractured; oil gravity 40° API; dual completion with Dakota (Cretaceous)
Union Texas Petroleum Corp. No. 26 Newsom A	9-26N-8W, San Juan	11/84	6,653	6,822-6,246	Gallup (Cretaceous)	50 BO	50 BO	acidized, artificially fractured; oil gravity 40° API
Union Texas Petroleum Corp. No. 16 Newsom A	10-26N-8W, San Juan	11/83	7,135	6,179-7,078	Gallup (Cretaceous)	753 BO + 51,182 MCFG + 35 BW	753 BO	acidized; artificially fractured
Union Texas Petroleum Corp. No. 22 Nickson	14-26N-8W, San Juan	11/83	6,520	5,641-6,446	Gallup (Cretaceous)	2,375 BO + 40,376 MCFG	2,376 BO	acidized, artificially fractured; oil gravity 41° API
El Paso Natural Gas Co. No. 104 Huerfano Unit	17-26N-10W, San Juan	11/58	6,698	5,580-5,874	Gallup (Cretaceous)	0, zone abd	43,632 BO	artificially fractured
El Paso Natural Gas Co. No. 1514 Huerfano Unit (owwo)	35-26N-10W, San Juan	11/70	6,854	5,762-6,066	Gallup (Cretaceous)	0, abd in 1973	2,033 BO	artificially fractured
Southwest Production Co. No. 1 Rummel Federal	36-27N-12W, San Juan	4/60	6,260	5,116-5,340	Gallup (Cretaceous)	0, abd in 1964	2,928 BO	artificially fractured
Dugan Production Corp. No. 1 Rex (owwo)	8-27N-13W, San Juan	3/58	6,064	5,418-5,438	Gallup (Cretaceous)	0, abd in 1970	9,049 BO	artificially fractured; oil gravity 39° API
Dugan Production Corp. No. 2 Rex	18-27N-13W, San Juan	1/58	6,145	5,192-5,406	Gallup (Cretaceous)	243 BO + 171 MCFG	11,598 BO	artificially fractured
Union Oil Co. of California No. 1 Newman Federal	27-27N-13W, San Juan	1/59	5,340	5,242-5,276	Gallup (Cretaceous)	0, abd in 1971	68,548 BO	artificially fractured; oil gravity 42° API
Utah Southern Oil No. 2 Jernigan (owwo)	19-27N-13W, San Juan	2/59	5,340	5,208-5,252	Gallup (Cretaceous)	0, abd in 1963	6,456 BO	artificially fractured; oil gravity 39° API
Dugan Production Corp. No. 10 Windfall (owwo)	31-26N-1W, San Juan	6/80	5,800	4,704-5,206	Gallup (Cretaceous)	11 BO + 280 BW	184 BO	artificially fractured; oil gravity 40° API
Standard of Texas No. 1 Navajo	2-26N-15W, San Juan	12/58	4,830	4,460-4,650	Gallup (Cretaceous)	0, abd in 1959	45 BO	artificially fractured
Nessco Inc. No. 1 Rudman Federal	27-25N-9W, San Juan	6/63	6,527	5,282-5,502	Gallup (Cretaceous)	747 BO + 482 MCFG + 61 BW	19,318 BO	artificially fractured
Elliott A. Riggs No. 1 Donella	3-29N-15W, San Juan	8/61	4,494	4,300-4,314	Gallup (Cretaceous)	0, abd in 1969	19,074 BO	artificially fractured
EPROC Associates & Martin Oil and Gas Co. No. 1 Martin Stampfel	3-29N-16W, San Juan	2/63	3,567	3,492-3,505	Gallup (Cretaceous)	0, abd in 1967	2,011 BO	artificially fractured

TABLE 6 (cont'd)

Operator, well number, and lease	Location (section-township-range, county)	Date completed (month/year)	Total depth (ft)	Producing interval (ft)	Producing unit	1984 production	Cumulative production to 12/31/84	Comments
Zeller & Danneberg No. 1 Navajo 2024	23-29N-16W, San Juan	11/64	4,212	4,101-4,106	Gallup (Cretaceous)	0, abd in 1966	4,740 BO	artificially fractured
Eastern Petroleum Co. No. 4 Navajo	2-29N-19W, San Juan	12/67	431	413-431	Gallup (Cretaceous)	0, abd in 1973	4,571 BO	
Tenneco Oil Co. No. 1 Hamner	20-29N-9W, San Juan				Gallup (Cretaceous)	4,557 MCFG + 202 BO + 115 BW	19,862 MCFG + 950 BO	
Sunray DX Oil Co. No. 2 New Mexico K Federal	34-30N-15W, San Juan	12/62	4,525		Gallup (Cretaceous)	0, abd in 1967	7,113 BO	artificially fractured
John H. Trigg No. 1 Petro Atlas Federal	33-30N-16W, San Juan	8/61	3,649	3,579-3,596	Gallup (Cretaceous)	0, abd in 1963	1,167 BO	artificially fractured
Lobo Production No. 1 Mesa Twin Mounds	30-30N-14W, San Juan	7/83	5,830	4,729-5,161	Gallup (Cretaceous)	2,506 BO + 11,914 MCFG	4,703 BO	acidized, artificially fractured; production commingled with Greenhorn & Dakota (Cretaceous) production
Lobo Production No. 2 Mesa Twin Mounds	30-30N-14W, San Juan	12/83	5,708	4,607-5,044	Gallup (Cretaceous)	2,047 BO + 10,186 MCFG	2,746 BO	acidized, artificially fractured; production commingled with Dakota (Cretaceous) production
Lobo Production No. 1 Mesa Twin Mounds 31	31-30N-14W, San Juan	5/84	5,618	4,508-4,949	Gallup (Cretaceous)	1,338 BO + 4,590 MCFG	1,338 BO	acidized, artificially fractured; oil gravity 41° API
Southern Union Production Co. No. 1 Johns	20-32N-13W, San Juan	9/58	3,426	2,533-2,655	Gallup (Cretaceous)	0, abd in 1962	1,144 BO	artificially fractured
Curtis J. Little No. 1 Navajo Horseshoe	32-32N-17W, San Juan	12/59	1,255	1,137-1,145	Gallup (Cretaceous)	0, abd in 1966	103 BO	artificially fractured
Dugan Production Corp. No. 1 Herry Monster	2-24N-11W, San Juan	1/83	5,906	4,682-4,823; 4,824-4,914	Gallup lower Mancos (Cretaceous)	216 BO + 1,220 MCFG + 440 BW	445 BO	artificially fractured; oil gravity 40° API
Gulf Oil Corp. No. 2 Amarillo Navajo Federal	22-28N-14W, San Juan	5/59	5,904	5,140-5,160	Gallup or lower Mancos (Cretaceous)	0, abd in 1962	4,363 BO	artificially fractured
Sunray DX Oil Co. No. 1 New Mexico L Federal	29-30N-15W, San Juan	10/59	4,897	4,176-4,198	Gallup or lower Mancos (Cretaceous)	0, abd in 1967	4,27[illegible] BO	artificially fractured
Sunray DX Oil Co. No. 1 New Mexico P Federal	30-30N-15W, San Juan	10/60	4,115	3,960-4,115	Gallup or lower Mancos (Cretaceous)	0, abd in 1967	6,767 BO	artificially fractured
Sunray DX Oil Co. No. 3 New Mexico L Federal	33-30N-15W, San Juan	6/63	4,331	4,136-4,238	Gallup or lower Mancos (Cretaceous)	0, abd in 1967	8,465 BO	artificially fractured
Sunray DX Oil Co. No. 4 New Mexico K Federal	34-30N-15W, San Juan	3/63	4,660	4,491-5,611	Gallup; lower Mancos (Cretaceous)	0, abd in 1967	4,490 BO	artificially fractured

TABLE 6 (cont'd)

Operator, well number, and lease	Location (section-township-range, county)	Date completed (month/year)	Total depth (ft)	Producing interval (ft)	Producing unit	1984 production	Cumulative production to 12/31/84	Comments
Union Texas Petroleum Corp. No. 1 State 16	16-28N-9W, San Juan	9/83	6,620	5,732-6,292; 6,385-6,558	Gallup Greenhorn (Cretaceous)	4,095 BO + 32,309 MCFG + 60 BW	5,573 BO	acidized, artificially fractured; oil gravity 40° API
Union Texas Petroleum Corp. No. 2 State 16	16-28N-9W, San Juan	12/83	7,040	6,178-6,644; 6,944-6,980	Gallup Greenhorn (Cretaceous)	4,611 BO + 61,454 MCFG + 48 BW	4,739 BO	acidized, artificially fractured; oil gravity 40° API
Union Texas Petroleum Corp. No. 3 State 16	16-28N-9W, San Juan	12/83	6,896	5,994-6,559; 6,766-6,820	Gallup Greenhorn (Cretaceous)	2,949 BO + 45,533 MCFG + 35 BW	3,102 BO	acidized, artificially fractured; oil gravity 40° API
Union Texas Petroleum Corp. No. 4 State 16	16-28N-9W, San Juan	12/83	6,965	6,039-6,600; 6,8386-6,892	Gallup; Greenhorn (Cretaceous)	439 BO + 21,938 MCFG + 134 BW	454 BO	acidized, artificially fractured; oil gravity 40° API
Dugan Production Corp. No. 1 July Jubilee	30-24N-9W, San Juan	9/81	6,245	5,008-5,234; 6,148-6,158	Gallup Greenhorn (Cretaceous)	4,061 BO + 4,045 MCFG + 183 BW	15,214 BO	artificially fractured
Dugan Production Corp. No. 3 MF	14-24N-10W, San Juan	3/84	6,300	5,069-5,334; 6,067-6,255	Gallup; Dakota (Cretaceous)	102 BO + 237 MCFG + 52 BW	102 BO	artificially fractured; oil gravity 38° API
Skelly Oil Co. No. 1 New Mexico Federal J	17-25N-8W, San Juan	9/60	6,645	6,302-6,321	lower Mancos (Cretaceous)	0, abd in 1964	11,617 BO	artificially fractured; oil gravity 40° API
Gulf Oil Corp. No. 1 Nye Federal	24-25N-9W, San Juan	12/59	6,652		lower Mancos (Cretaceous)	0, abd in 1962	4,268 BO	artificially fractured
Sunray DX Oil Co. No. 2 New Mexico L Federal	34-30N-15W, San Juan	6/63	4,460	4,290-4,404	lower Mancos (Cretaceous)	0, abd in 1967	5,620 BO	artificially fractured
Tenneco Oil Co. No. 2 Omler A	35-28N-10W, San Juan	8/65	6,526	5,810-5,815; 6,248-6,453	Gallup Dakota (Cretaceous)	0, abd in 1966	2,180 BO	artificially fractured
El Paso Natural Gas Co. No. 199 Huerfano Unit NP (owwo)	17-25N-9W, San Juan	12/74	6,684	6,368-6,414	Greenhorn (Cretaceous)	0, shut in since 1976	1,126 BO	artificially fractured; oil gravity 40° API
Consolidated Oil and Gas Inc. No. 2 Navajo E	11-25N-10W, San Juan	1/81	6,700	6,458-6,506	Greenhorn (Cretaceous)	639 BO + 18,361 MCFG + 63 BW	3,446 BO	acidized, artificially fractured; oil gravity 48° API; dual completion with Dakota (Cretaceous)
Coleman Oil and Gas Inc. No. 1 Navajo Smith	24-26N-12W, San Juan	5/81	5,877	5,612-5,652	Greenhorn (Cretaceous)	146 BO + 8,915 MCFG	938 BO	acidized, artificially fractured; oil gravity 39° API
Amoco Production Co. No. 1 Stanolind Gas Com. B (owwo)	9-32N-12W, San Juan	11/81	7,109	6,722-6,778	Greenhorn (Cretaceous)	21,840 MCFG + 84 BO + 14 BW	83,905 MCFG 161 BO	acidized; multiple completion with Mesaverde and Gallup (Cretaceous)
Harry L. Bigbee No. 4 Nancy	12-24N-8W, San Juan	3/67	7,257	6,950-6,986	Graneros (Cretaceous)	0, zone abd in 1978	4,671 BO	

TABLE 6 (cont'd)

Operator, well number, and lease	Location (section-township-range, county)	Date completed (month/year)	Total depth (ft)	Producing interval (ft)	Producing unit	1984 production	Cumulative production to 12/31/84	Comments
Tenneco Oil Co. No. 2 Monument	16-24N-10W, San Juan				Dakota (Cretaceous)	0, shut in since 1974	881 BO	
Amerada Hess Corp. No. 1 Navajo Tract 4 (owwo)	20-27N-17W, San Juan	2/68	7,895	7,080-7,104	Paradox (Pennsylvanian)	0, shut in since 1976	83 BO	artificially fractured
Petroleum Energy Inc. No. 1 Navajo 20	20-27N-19W, San Juan	1/79	5,670	5,589-5,594	Barker Creek (Pennsylvanian)	0, zone abd	1,173 BO	acidized
Sun Oil Co. No. 1 Navajo Table Mesa	27-28N-17W, San Juan	9/65	7,411		Paradox (Pennsylvanian)	0, abd in 1972	22,302 BO	
Sun Oil Co. No. 2 Navajo Table Mesa	27-29N-17W, San Juan	11/65	8,008	7,295-7,300	Table Mesa (Pennsylvanian)	0, abd in 1972	47,533 BO	
Navajo Tribal Utility Authority No. 1 Navajo B	14-30N-18W, San Juan	6/74	6,740	6,489-6,502	Ismay (Pennsylvanian)	0, abd	70,392 MCFG + 374 BO	acidized
Amerada Hess Corp. No. 1 Navajo Tract 4 (owwo)	20-27N-17W, San Juan	2/68	7,895	7,454-7,520	Mississippian	0, shut in since 1976	188,821 MCFG + 1,002 BO	artificially fractured
Petroleum Energy Inc. No. 1 Navajo 20 (owwo)	20-27N-19W, San Juan	7/83	5,908	5,812-5,875	Mississippian	52,516 MCFG	132,699 MCFG + 12 BO	acidized
Exxon Corp. No. 1 Tanner Unit	21-24N-12W, San Juan	8/57	5,272			0, abd in 1958	158 BO	
Estate of Kay Kimbell No. 1 Hanson Federal	5-25N-10W, San Juan					0	49 BO	
Chevron U.S.A. Inc. No. 1 Navajo Tribal 21	35-31N-18W, San Juan	3/66	7,008			0, abd in 1967	4,460 BO	

Appendix 5 Coal Analyses Data

The analyses data for determining coal quality for the fields discussed in the text are entered on the form shown below. The data in Appendix 3 is only the non-confidential data and may or may not reflect the entire data set used for the coal quality figures used in the text.

```
SAMPLE NO. \\\\\\\\\\\\\\\\ DONE FOR \\\\\\\\\\\\\\\\
SAMPLE LOCATION: \\1/4, \\1/4, SEC. \\, T.\\\, R.\\\
FIELD: \\\\\\\\\\\  COUNTY:\\\\\\\\\\\\\\\\ QUAD:\\\\\\\\\\\\\\\\
TYPE OF SAMPLE: \\\\\\\\\\\  DEPTH INTERVAL \\\\\\\\\\\\\\\
FORMATION: \\\\\\\\\\\\\  THICKNESS OF SEAM: \\\\\\\\\
PROXIMATE ANALYSIS (%)
  MOISTURE:\\\\\\    ASH:\\\\  VOLATILE MATTER: \\\\\
  FIXED CARBON: \\\\\

ULTIMATE ANALYSIS(%)
  MOISTURE: \\\\\   CARBON: \\\\\   HYDROGEN: \\\\\   NITROGEN: \\\\\
  SULFUR: \\\\\   ASH: \\\\\   OXYGEN: \\\\\

BTU: \\\\\\\\\\\\ FORMS OF SULFUR (%) ORG:\\\\ PYR: \\\\ SULFATE: \\\

FUSION TEMPERATURE OF ASH (F)  REDUCING      OXIDIZING
  INITIAL DEFORMATION:          \\\\\\\      \\\\\\\\
  SOFTENING                     \\\\\\\      \\\\\\\\
  HEMISPHERICAL                 \\\\\\\      \\\\\\\\
  FLUID                         \\\\\\\      \\\\\\\\ Conf \
LAT-LONG: \\\\\\\\-\\\\\\\\ MEM: \\\\\\\\\\\\\\\\ ZNE: \\\\\\\\\\\\\\\\
HGI:\\\\\ EQ MOIST:\\\\\ FSI:\\\ DATE REC:\/\\/\\ COMPL:\/\\/\\
```

Explanation of form:

SAMPLE NO. - Number assigned by the original source to the coal sample analyzed.

DONE FOR - Source of sample or analyses.

SAMPLE LOCATION - Location by quarters of a section, section, township and range.

FIELD - Coal field the coal sample is from.

COUNTY and QUAD - County and quadrangle the coal sample is from.

TYPE OF SAMPLE - The type of sample if known, such as core, cuttings, or tipple.

DEPTH INTERVAL - Interval analyzed

FORMATION - Geologic formation in which coal sample occurs.

THICKNESS OF SEAM - Thickness of coal bed analyzed.

PROXIMATE ANALYSES - Elements of the proximate analysis on an as received basis by percent.

ULTIMATE ANALYSES - Elements of the ultimate analysis on an as received basis by percent.

BTU - Heating value per ton

FORMS OF SULFUR (by percent) - Organic Sulfur, Pyritic Sulfur, and Sulfate

FUSION TEMPERATURE of ash in degrees Farenheit - Temperature at different stages under reducing and oxidizing conditions.

LAT - LONG - Latitude and Longitude of sample point.

MEM - Member of the geologic formation in which the sample occurs.

ZNE - Zone of the geologic formation in which the sample occurs.

HGI - Hardgrove Grindability Index

EQ. MOISTURE - Equilibrium Moisture

FSI - Free Swelling Index

DATE RECEIVED - If known, the date (day/month/year) the sample was received by the lab.

COMPL - If known, the date (day/month/year) the analyses on the sample were completed by the lab.

APPENDIX

Coal Quality Data for Individual Samples from San Juan County

SAMPLE NO. 29025(usbm 569) DONE FOR marcelius mine
SAMPLE LOCATION: 1/4, swl/4, SEC. 28, T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:8.8 ASH:8.3 VOLATILE MATTER: 41.7 FIXED CARBON: 41.2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 11660 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 29026(usbm 569) DONE FOR prospect
SAMPLE LOCATION: 1/4, nwl/4, SEC. 28, T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:9.6 ASH:12.7 VOLATILE MATTER: 37.2 FIXED CARBON: 40.5

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 2.4 ASH: OXYGEN:

BTU: 10530 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 17749(usbm 569) DONE FOR new mexico mine
SAMPLE LOCATION: 1/4, 1/4, SEC. 22, T.32n, R.12w
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:6.6 ASH:13.1 VOLATILE MATTER: 35.4 FIXED CARBON: 44.9

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 11490 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 29250(usbm 569) DONE FOR jones mine
SAMPLE LOCATION: 1/4, 1/4, SEC. 21, T.32n, R.13w
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:6.9 ASH:11.9 VOLATILE MATTER: 38.1 FIXED CARBON: 43.1

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.3 ASH: OXYGEN:

BTU: 11630 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 29249(usbm 569) DONE FOR bill thomas mine
SAMPLE LOCATION: 1/4, nw1/4, SEC. 22, T.32n, R.13w
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.9 ASH:11.0 VOLATILE MATTER: 39.1 FIXED CARBON: 44.0

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 12050 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 22807(usbm 569) DONE FOR prospect
SAMPLE LOCATION: 1/4, 1/4, SEC. 31, T.24n, R.13w
FIELD: bisti COUNTY:san juan QUAD:alamo mesa west
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:19.1 ASH:6.2 VOLATILE MATTER: 33.0 FIXED CARBON: 41.7

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.4 ASH: OXYGEN:

BTU: 10180 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 22685(usbm 569) DONE FOR local mine
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.22n, R.13w
FIELD: san juan COUNTY:san juan QUAD:
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:16.1 ASH:7.0 VOLATILE MATTER: 36.2 FIXED CARBON: 40.7

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 10540 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 22508(usbm 569) DONE FOR black diamond mi
SAMPLE LOCATION: 1/4, 1/4, SEC. 3 , T.29n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:11.6 ASH:9.9 VOLATILE MATTER: 38.6 FIXED CARBON: 39.9

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 10990 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 22509(usbm 569) DONE FOR hendrickson mine
SAMPLE LOCATION: 1/4, 1/4, SEC. 4 , T.29n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:10.5 ASH:9.3 VOLATILE MATTER: 38.6 FIXED CARBON: 41.6

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 11210 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 2464(usbm 569) DONE FOR young or stevens
SAMPLE LOCATION: nw1/4, sw1/4, SEC. 3 , T.29n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
  MOISTURE:9.9 ASH:10.2 VOLATILE MATTER: 38.4 FIXED CARBON: 41.5

ULTIMATE ANALYSIS(%)
  MOISTURE: CARBON: HYDROGEN: NITROGEN:
  SULFUR: 0.6 ASH: OXYGEN:

BTU: 11300 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. d194012 DONE FOR emria
SAMPLE LOCATION: se1/4, nw1/4, SEC. 18, T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:kimbeto
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
  MOISTURE:15.0 ASH:15.9 VOLATILE MATTER: 31.7 FIXED CARBON: 37.4

ULTIMATE ANALYSIS(%)
  MOISTURE: 15.0 CARBON: 52.4 HYDROGEN: 5.6 NITROGEN: 1.1
  SULFUR: 0.6 ASH: 15.9 OXYGEN: 24.4

BTU: 9260 FORMS OF SULFUR (%) ORG:0.34 PYR: 0.21 SULFATE: 0.04

SAMPLE NO. d194015 DONE FOR usgs
SAMPLE LOCATION: se1/4, nw1/4, SEC. 18, T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 106.0
FORMATION: fruitland THICKNESS OF SEAM: 2.6
PROXIMATE ANALYSIS (%)
  MOISTURE:14.1 ASH:27.9 VOLATILE MATTER: 27.7 FIXED CARBON: 30.3

ULTIMATE ANALYSIS(%)
  MOISTURE: 14.1 CARBON: 43.0 HYDROGEN: 5.4 NITROGEN: 0.9
  SULFUR: 0.6 ASH: 27.9 OXYGEN: 22.3

BTU: 7570 FORMS OF SULFUR (%) ORG:0.46 PYR: 0.10 SULFATE: 0.01

SAMPLE NO. d194016 DONE FOR usgs
SAMPLE LOCATION: sel/4, nwl/4, SEC. 18, T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 116.1
FORMATION: fruitland THICKNESS OF SEAM: 9.4
PROXIMATE ANALYSIS (%)
MOISTURE:15.4 ASH:11.0 VOLATILE MATTER: 32.4 FIXED CARBON: 41.2

ULTIMATE ANALYSIS(%)
MOISTURE: 15.4 CARBON: 57.2 HYDROGEN: 5.9 NITROGEN: 1.2
SULFUR: 0.6 ASH: 11.0 OXYGEN: 24.1

BTU: 9980 FORMS OF SULFUR (%) ORG:0.37 PYR: 0.23 SULFATE: 0.02

SAMPLE NO. d194017 DONE FOR usgs of 79
SAMPLE LOCATION: sel/4, swl/4, SEC. 7 , T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 78.6
FORMATION: fruitland THICKNESS OF SEAM: 1.5
PROXIMATE ANALYSIS (%)
MOISTURE:14.9 ASH:9.3 VOLATILE MATTER: 34.5 FIXED CARBON: 41.3

ULTIMATE ANALYSIS(%)
MOISTURE: 14.9 CARBON: 59.4 HYDROGEN: 6.2 NITROGEN: 1.2
SULFUR: 0.6 ASH: 9.3 OXYGEN: 23.3

BTU: 10415 FORMS OF SULFUR (%) ORG:0.55 PYR: 0.05 SULFATE: 0.04

SAMPLE NO. d194018 DONE FOR usgs of 79
SAMPLE LOCATION: sel/4, swl/4, SEC. 7 , T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 82.5
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:12.7 ASH:18.5 VOLATILE MATTER: 33.5 FIXED CARBON: 35.3

ULTIMATE ANALYSIS(%)
MOISTURE: 12.7 CARBON: 52.3 HYDROGEN: 5.4 NITROGEN: 1.0
SULFUR: 0.6 ASH: 18.5 OXYGEN: 22.2

BTU: 9210 FORMS OF SULFUR (%) ORG:0.53 PYR: 0.07 SULFATE: 0.03

SAMPLE NO. d194019 DONE FOR usgs of 79
SAMPLE LOCATION: sel/4, swl/4, SEC. 7 , T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 134.0
FORMATION: fruitland THICKNESS OF SEAM: 7.0
PROXIMATE ANALYSIS (%)
MOISTURE:13.6 ASH:29.3 VOLATILE MATTER: 28.3 FIXED CARBON: 28.8

ULTIMATE ANALYSIS(%)
MOISTURE: 13.6 CARBON: 42.5 HYDROGEN: 4.9 NITROGEN: 0.9
SULFUR: 0.7 ASH: 29.3 OXYGEN: 21.9

BTU: 7585 FORMS OF SULFUR (%) ORG:0.46 PYR: 0.16 SULFATE: 0.05

SAMPLE NO. d194020 DONE FOR usgs of 79
SAMPLE LOCATION: sel/4, swl/4, SEC. 7 , T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 161.8
FORMATION: fruitland THICKNESS OF SEAM: 8.0
PROXIMATE ANALYSIS (%)
MOISTURE:16.8 ASH:24.2 VOLATILE MATTER: 27.0 FIXED CARBON: 32.0

ULTIMATE ANALYSIS(%)
MOISTURE: 16.8 CARBON: 44.0 HYDROGEN: 5.1 NITROGEN: 0.9
SULFUR: 0.4 ASH: 24.2 OXYGEN: 25.4

BTU: 7820 FORMS OF SULFUR (%) ORG:0.33 PYR: 0.04 SULFATE: 0.02

SAMPLE NO. d194021 DONE FOR usgs of 79
SAMPLE LOCATION: sel/4, swl/4, SEC. 7 , T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 191.2-196.2
FORMATION: fruitland THICKNESS OF SEAM: 5
PROXIMATE ANALYSIS (%)
MOISTURE:15.5 ASH:33.2 VOLATILE MATTER: 25.7 FIXED CARBON: 25.6

ULTIMATE ANALYSIS(%)
MOISTURE: 15.5 CARBON: 37.5 HYDROGEN: 4.8 NITROGEN: 0.8
SULFUR: 0.5 ASH: 33.2 OXYGEN: 23.2

BTU: 6630 FORMS OF SULFUR (%) ORG:0.32 PYR: 0.13 SULFATE: 0.02

SAMPLE NO. d194022 DONE FOR usgs of 79
SAMPLE LOCATION: sel/4, swl/4, SEC. 7 , T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 206.3-218.4
FORMATION: fruitland THICKNESS OF SEAM: 12.1
PROXIMATE ANALYSIS (%)
MOISTURE:15.4 ASH:25.2 VOLATILE MATTER: 26.3 FIXED CARBON: 33.1

ULTIMATE ANALYSIS(%)
MOISTURE: 15.4 CARBON: 45.0 HYDROGEN: 5.1 NITROGEN: 1.0
SULFUR: 0.4 ASH: 25.2 OXYGEN: 23.4

BTU: 7890 FORMS OF SULFUR (%) ORG:0.23 PYR: 0.10 SULFATE: 0.03

SAMPLE NO. d194023 DONE FOR usgs of 79
SAMPLE LOCATION: nwl/4, swl/4, SEC. 4 , T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 214-232.9
FORMATION: fruitland THICKNESS OF SEAM: 18.9
PROXIMATE ANALYSIS (%)
MOISTURE:13.6 ASH:22.1 VOLATILE MATTER: 32.1 FIXED CARBON: 32.2

ULTIMATE ANALYSIS(%)
MOISTURE: 13.6 CARBON: 48.5 HYDROGEN: 5.3 NITROGEN: 0.9
SULFUR: 0.5 ASH: 22.1 OXYGEN: 22.7

BTU: 8580 FORMS OF SULFUR (%) ORG:0.34 PYR: 0.11 SULFATE: 0.03

SAMPLE NO. d194024 DONE FOR usga of 79
SAMPLE LOCATION: nwl/4, swl/4, SEC. 4 , T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 245.6-246.2
FORMATION: fruitland THICKNESS OF SEAM: 0.6
PROXIMATE ANALYSIS (%)
MOISTURE:14.3 ASH:28.5 VOLATILE MATTER: 27.6 FIXED CARBON: 29.6

ULTIMATE ANALYSIS(%)
MOISTURE: 14.3 CARBON: 42.6 HYDROGEN: 5.0 NITROGEN: 0.9
SULFUR: 0.5 ASH: OXYGEN: 22.4

BTU: 7605 FORMS OF SULFUR (%) ORG:0.37 PYR: 0.11 SULFATE: 0.03

SAMPLE NO. dl94025 DONE FOR usgs of 79
SAMPLE LOCATION: nwl/4, swl/4, SEC. 4 , T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 255.0-258.5
FORMATION: fruitland THICKNESS OF SEAM: 3.5
PROXIMATE ANALYSIS (%)
MOISTURE:14.1 ASH:32.7 VOLATILE MATTER: 27.4 FIXED CARBON: 25.8

ULTIMATE ANALYSIS(%)
MOISTURE: 14.1 CARBON: 39.6 HYDROGEN: 4.9 NITROGEN: 0.8
SULFUR: 0.5 ASH: 32.7 OXYGEN: 21.4

BTU: 6940 FORMS OF SULFUR (%) ORG:0.36 PYR: 0.11 SULFATE: 0.02

SAMPLE NO. dl94026 DONE FOR usgs of 79
SAMPLE LOCATION: nwl/4, swl/4, SEC. 4 , T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 271.1-284
FORMATION: fruitland THICKNESS OF SEAM: 12.9
PROXIMATE ANALYSIS (%)
MOISTURE:14.7 ASH:28.6 VOLATILE MATTER: 28.0 FIXED CARBON: 28.7

ULTIMATE ANALYSIS(%)
MOISTURE: 14.7 CARBON: 41.9 HYDROGEN: 5.2 NITROGEN: 0.9
SULFUR: 0.4 ASH: 28.6 OXYGEN: 23.0

BTU: 7420 FORMS OF SULFUR (%) ORG:0.31 PYR: 0.11 SULFATE: 0.02

SAMPLE NO. dl94028 DONE FOR usgs of 79
SAMPLE LOCATION: sel/4, swl/4, SEC. 10, T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: DEPTH INTERVAL 192.8-228.5
FORMATION: fruitland THICKNESS OF SEAM: 35.7
PROXIMATE ANALYSIS (%)
MOISTURE:13.9 ASH:21.8 VOLATILE MATTER: 32.3 FIXED CARBON: 32.0

ULTIMATE ANALYSIS(%)
MOISTURE: 13.9 CARBON: 48.8 HYDROGEN: 5.4 NITROGEN: 0.9
SULFUR: 0.5 ASH: 21.8 OXYGEN: 22.5

BTU: 8560 FORMS OF SULFUR (%) ORG:0.36 PYR: 0.12 SULFATE: 0.01

SAMPLE NO. d176206 DONE FOR usgs
SAMPLE LOCATION: 1/4, swl/4, SEC. 36, T.28n, R.16w
FIELD: hogback COUNTY:san juan QUAD:the hogback north
TYPE OF SAMPLE: face channel DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:11.5 ASH:17.4 VOLATILE MATTER: 30.3 FIXED CARBON: 40.8

ULTIMATE ANALYSIS(%)
MOISTURE: 11.5 CARBON: 54.7 HYDROGEN: 5.1 NITROGEN: 1.2
SULFUR: 0.5 ASH: 17.4 OXYGEN: 21.1

BTU: 9570 FORMS OF SULFUR (%) ORG:0.44 PYR: 0.08 SULFATE: 0.02

SAMPLE NO. d176207 DONE FOR usgs
SAMPLE LOCATION: 1/4, nwl/4, SEC. 36, T.28n, R.16w
FIELD: navajo COUNTY:san juan QUAD:kirtland sw
TYPE OF SAMPLE: channel DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:9.2 ASH:18.7 VOLATILE MATTER: 30.4 FIXED CARBON: 41.7

ULTIMATE ANALYSIS(%)
MOISTURE: 9.2 CARBON: 55.6 HYDROGEN: 4.9 NITROGEN: 1.2
SULFUR: 0.5 ASH: 18.7 OXYGEN: 19.0

BTU: 9680 FORMS OF SULFUR (%) ORG:0.37 PYR: 0.16 SULFATE: 0.02

SAMPLE NO. usgs(d)d190721,b DONE FOR (dt 42077l-c)
SAMPLE LOCATION: 1/4, 1/4, SEC. 33, T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterf..ow
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM: 3.0,4.0ft
PROXIMATE ANALYSIS (%)
MOISTURE:5.0 ASH:13.3 VOLATILE MATTER: 39.4 FIXED CARBON: 42.3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 11399 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. usgs(d)dl90720,b DONE FOR (dt 420771-b)
SAMPLE LOCATION: 1/4, 1/4, SEC. 33, T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM: 3.0,4.0ft
PROXIMATE ANALYSIS (%)
MOISTURE:5.1 ASH:10.6 VOLATILE MATTER: 39.5 FIXED CARBON: 44.8

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 11401 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dl76213,4,5 DONE FOR
SAMPLE LOCATION: se1/4, sw1/4, SEC. 33, T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:4.8 ASH:17.0 VOLATILE MATTER: 37.3 FIXED CARBON: 40.9

ULTIMATE ANALYSIS(%)
MOISTURE: 4.8 CARBON: 60.7 HYDROGEN: 5.0 NITROGEN: 1.3
SULFUR: 0.9 ASH: 17.0 OXYGEN: 15.1

BTU: 10760 FORMS OF SULFUR (%) ORG:0.69 PYR: 0.18 SULFATE: 0.02

SAMPLE NO. dl76209,10,11,12 DONE FOR
SAMPLE LOCATION: 1/4, sw1/4, SEC. 36, T.28n, R.16w
FIELD: hogback COUNTY:san juan QUAD:the hogback north
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:8.0 ASH:25.8 VOLATILE MATTER: 33.1 FIXED CARBON: 33.1

ULTIMATE ANALYSIS(%)
MOISTURE: 8.0 CARBON: 50.8 HYDROGEN: 4.6 NITROGEN: 1.4
SULFUR: 0.7 ASH: 25.8 OXYGEN: 16.7

BTU: 8820 FORMS OF SULFUR (%) ORG:0.50 PYR: 0.18 SULFATE: 0.02

SAMPLE NO. usgs(d)dl90718 DONE FOR (mw-1-3-22)
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: san juan COUNTY:san juan QUAD:
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
  MOISTURE:4.3 ASH:20.0 VOLATILE MATTER: 35.8 FIXED CARBON: 39.9

ULTIMATE ANALYSIS(%)
  MOISTURE: CARBON: HYDROGEN: NITROGEN:
  SULFUR: 0.6 ASH: OXYGEN:

BTU: 10456 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-61218 DONE FOR usbm
SAMPLE LOCATION: swl/4, nwl/4, SEC. 4 , T.29n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: tipple DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
  MOISTURE:10.1 ASH: 9.1 VOLATILE MATTER: 39.1 FIXED CARBON: 41.7

ULTIMATE ANALYSIS(%)
  MOISTURE: CARBON: HYDROGEN: NITROGEN:
  SULFUR: ASH: OXYGEN:

BTU: FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-61248 DONE FOR usbm
SAMPLE LOCATION: sel/4, nel/4, SEC. 21, T.32n, R.13w
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: tipple DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
  MOISTURE:5.4 ASH:8.4 VOLATILE MATTER: 40.0 FIXED CARBON: 46.2

ULTIMATE ANALYSIS(%)
  MOISTURE: CARBON: HYDROGEN: NITROGEN:
  SULFUR: ASH: OXYGEN:

BTU: 12650 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-61247 DONE FOR usbm
SAMPLE LOCATION: sel/4, swl/4, SEC. 15, T.32n, R.13w
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: tipple DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.4 ASH:10.0 VOLATILE MATTER: 38.6 FIXED CARBON: 46.0

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: ASH: OXYGEN:

BTU: 12320 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. p-78-18-c DONE FOR cimarron coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL 200.9-228.3
FORMATION: fruitland THICKNESS OF SEAM: 27.4
PROXIMATE ANALYSIS (%)
MOISTURE: 6.44 ASH:24.5 VOLATILE MATTER: 32.39 FIXED CARBON: 36

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .65 ASH: OXYGEN:

BTU: 10043 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 7.89 ASH:36.9 VOLATILE MATTER: 28.83 FIXED CARBON: 26

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.89 ASH: OXYGEN:

BTU: 7274 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.93 ASH:32.0 VOLATILE MATTER: 30.36 FIXED CARBON: 32

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.57 ASH: OXYGEN:

* BTU: 8763 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.97 ASH:20.7 VOLATILE MATTER: 35.15 FIXED CARBON: 39

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.49 ASH: OXYGEN:

BTU: 10588 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.72 ASH:22.6 VOLATILE MATTER: 34.63 FIXED CARBON: 38

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.47 ASH: OXYGEN:

BTU: 10312 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 6.06 ASH:19.4 VOLATILE MATTER: 33.64 FIXED CARBON: 40

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.42 ASH: OXYGEN:

BTU: 10567 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 7.20 ASH:13.0 VOLATILE MATTER: 34.47 FIXED CARBON: 45

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.44 ASH: OXYGEN:

BTU: 11703 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 6.44 ASH:24.5 VOLATILE MATTER: 32.39 FIXED CARBON: 36

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .65 ASH: OXYGEN:

BTU: 10043 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 7.98 ASH:36.9 VOLATILE MATTER: 28.83 FIXED CARBON: 26

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.96 ASH: OXYGEN:

BTU: 7274 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.93 ASH:32.0 VOLATILE MATTER: 30.36 FIXED CARBON: 32

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.57 ASH: OXYGEN:

BTU: 8763 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.97 ASH:20.7 VOLATILE MATTER: 35.15 FIXED CARBON: 39

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.49 ASH: OXYGEN:

BTU: 10588 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.72 ASH:22.6 VOLATILE MATTER: 34.63 FIXED CARBON: 38

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.47 ASH: OXYGEN:

BTU: 10312 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 6.06 ASH:19.3 VOLATILE MATTER: 33.64 FIXED CARBON: 40

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.42 ASH: OXYGEN:

BTU: 10567 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #p-78-18-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 7.20 ASH:13.0 VOLATILE MATTER: 34.47 FIXED CARBON: 45

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.44 ASH: OXYGEN:

BTU: 11703 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dh #78-10-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.84 ASH:12.2 VOLATILE MATTER: 35.69 FIXED CARBON: 47

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.92 ASH: OXYGEN:

BTU: 11950 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dh #78-10-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 6.28 ASH:12.6 VOLATILE MATTER: 36.31 FIXED CARBON: 44

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.91 ASH: OXYGEN:

BTU: 10767 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dh #78-19-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.93 ASH:15.8 VOLATILE MATTER: 35.34 FIXED CARBON: 44

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.00 ASH: OXYGEN:

BTU: 11420 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dh #78-19-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.25 ASH:16.3 VOLATILE MATTER: 35.52 FIXED CARBON: 43

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.85 ASH: OXYGEN:

BTU: 11601 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dh #78-19-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 2.96 ASH:13.5 VOLATILE MATTER: 38.12 FIXED CARBON: 45

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.57 ASH: OXYGEN:

BTU: 12292 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dh #78-10-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 6.28 ASH:12.6 VOLATILE MATTER: 36.31 FIXED CARBON: 44

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.91 ASH: OXYGEN:

BTU: 10767 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dh #78-10-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.48 ASH:20.0 VOLATILE MATTER: 33.75 FIXED CARBON: 42

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.76 ASH: OXYGEN:

BTU: 11014 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dh #78-10-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.84 ASH:12.2 VOLATILE MATTER: 35.69 FIXED CARBON: 47

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.92 ASH: OXYGEN:

BTU: 11950 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dh #78-19 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.45 ASH:13.1 VOLATILE MATTER: 37.84 FIXED CARBON: 45

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.74 ASH: OXYGEN:

BTU: 11982 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dh #78-22-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.32 ASH:12.5 VOLATILE MATTER: 37.40 FIXED CARBON: 46

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.51 ASH: OXYGEN:

BTU: 12320 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dh #78-19-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.93 ASH:15.8 VOLATILE MATTER: 35.34 FIXED CARBON: 44

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.00 ASH: OXYGEN:

BTU: 11420 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dh 78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.29 ASH:11.5 VOLATILE MATTER: 36.89 FIXED CARBON: 48

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.50 ASH: OXYGEN:

BTU: 12545 FORMS OF SULFUR (%) ORG:0.45 PYR: 0.05 SULFATE:

SAMPLE NO. dh #78-19-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.68 ASH:32.5 VOLATILE MATTER: 30.76 FIXED CARBON: 33

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.59 ASH: OXYGEN:

BTU: 9044 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #78-19-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.18 ASH:23.7 VOLATILE MATTER: 34.16 FIXED CARBON: 38

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.47 ASH: OXYGEN:

BTU: 10565 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #78-19-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.14 ASH:15.9 VOLATILE MATTER: 34.66 FIXED CARBON: 46

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.42 ASH: OXYGEN:

BTU: 11815 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #78-19-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.39 ASH:19.6 VOLATILE MATTER: 36.31 FIXED CARBON: 40

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.58 ASH: OXYGEN:

BTU: 11302 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #78-22-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 2.90 ASH:28.7 VOLATILE MATTER: 32.53 FIXED CARBON: 35

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.67 ASH: OXYGEN:

BTU: 9808 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #78-22-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 2.78 ASH:24.8 VOLATILE MATTER: 32.93 FIXED CARBON: 39

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.60 ASH: OXYGEN:

BTU: 10465 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #78-22-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.03 ASH:16.0 VOLATILE MATTER: 35.94 FIXED CARBON: 45

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.46 ASH: OXYGEN:

BTU: 11869 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #78-22-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.07 ASH:12.3 VOLATILE MATTER: 38.71 FIXED CARBON: 45

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.55 ASH: OXYGEN:

BTU: 12376 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.75 ASH:19.9 VOLATILE MATTER: 36.30 FIXED CARBON: 43

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .69 ASH: OXYGEN:

BTU: 11725 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 5.54 ASH:27.7 VOLATILE MATTER: 32.94 FIXED CARBON: 39

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .48 ASH: OXYGEN:

BTU: 10328 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.66 ASH:19.9 VOLATILE MATTER: 36.71 FIXED CARBON: 43

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .50 ASH: OXYGEN:

BTU: 11647 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.45 ASH:17.9 VOLATILE MATTER: 36.66 FIXED CARBON: 45

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .56 ASH: OXYGEN:

BTU: 11991 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 5.02 ASH:13.5 VOLATILE MATTER: 38.14 FIXED CARBON: 48

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .60 ASH: OXYGEN:

BTU: 12650 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 5.00 ASH:14.6 VOLATILE MATTER: 37.88 FIXED CARBON: 47

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .64 ASH: OXYGEN:

BTU: 12584 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #78-10-c DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.48 ASH:20.0 VOLATILE MATTER: 33.75 FIXED CARBON: 42

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.76 ASH: OXYGEN:

BTU: 11014 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #78-19-c #53 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.25 ASH:16.3 VOLATILE MATTER: 35.52 FIXED CARBON: 43

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .85 ASH: OXYGEN:

BTU: 11601 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #78-19 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD:la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 3.87 ASH:23.8 VOLATILE MATTER: 32.89 FIXED CARBON: 39

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.01 ASH: OXYGEN:

BTU: 10260 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY: san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 5.49 ASH:19.8 VOLATILE MATTER: 36.07 FIXED CARBON: 44

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .56 ASH: OXYGEN:

BTU: 11669 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-201-1 DONE FOR western coal co.
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:4.82 ASH:20.9 VOLATILE MATTER: 33.77 FIXED CARBON: 40.51

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.60 ASH: OXYGEN:

BTU: 10685 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-201-2 DONE FOR western coal co.
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:7.67 ASH:61.4 VOLATILE MATTER: 17.52 FIXED CARBON: 13.42

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.93 ASH: OXYGEN:

BTU: 3650 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-201-3 DONE FOR western coal co.
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:4.12 ASH:13.4 VOLATILE MATTER: 37.86 FIXED CARBON: 44.61

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.66 ASH: OXYGEN:

BTU: 12154 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-205-1 DONE FOR western coal co.
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.61 ASH:27.2 VOLATILE MATTER: 33.76 FIXED CARBON: 33.40

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.80 ASH: OXYGEN:

BTU: 9357 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-205-2 DONE FOR western coal co.
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.21 ASH:39.1 VOLATILE MATTER: 28.13 FIXED CARBON: 27.52

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.61 ASH: OXYGEN:

BTU: 7728 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-205-3 DONE FOR western coal co.
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.27 ASH:18.6 VOLATILE MATTER: 35.01 FIXED CARBON: 41.10

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.51 ASH: OXYGEN:

BTU: 11030 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-208-1 DONE FOR western coal co.
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:17.68 ASH:20.0 VOLATILE MATTER: 26.01 FIXED CARBON: 36

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .44 ASH: OXYGEN:

BTU: 7070 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-212-4 DONE FOR western coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:6.78 ASH:27.6 VOLATILE MATTER: 31.87 FIXED CARBON: 33.67

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.10 ASH: OXYGEN:

BTU: 9259 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-212-2 DONE FOR western coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.71 ASH:21.3 VOLATILE MATTER: 33.60 FIXED CARBON: 39.35

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.74 ASH: OXYGEN:

BTU: 10388 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-212-3 DONE FOR western coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD:la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:6.51 ASH:39.8 VOLATILE MATTER: 27.78 FIXED CARBON: 25.93

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.96 ASH: OXYGEN:

BTU: 7272 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-213-4 DONE FOR western coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:6.54 ASH:41.7 VOLATILE MATTER: 24.79 FIXED CARBON: 26.94

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.84 ASH: OXYGEN:

BTU: 7235 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-213-1 DONE FOR western coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.59 ASH:31.7 VOLATILE MATTER: 29.81 FIXED CARBON: 32.93

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.39 ASH: OXYGEN:

BTU: 8953 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-213-2 DONE FOR western coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:7.00 ASH:66.8 VOLATILE MATTER: 14.23 FIXED CARBON: 11.99

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.15 ASH: OXYGEN:

BTU: 3012 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-7-80-213-3 DONE FOR western coal co.
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:4.43 ASH:32.5 VOLATILE MATTER: 29.79 FIXED CARBON: 33.27

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 2.20 ASH: OXYGEN:

BTU: 9094 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #30 78-14 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:21.30 ASH:35.6 VOLATILE MATTER: 29.54 FIXED CARBON: 34

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .54 ASH: OXYGEN:

BTU: 9131 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #38 78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.54 ASH:26.1 VOLATILE MATTER: 31.11 FIXED CARBON: 37.22

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .45 ASH: OXYGEN:

BTU: 9756 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #37 78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:4.75 ASH:18.9 VOLATILE MATTER: 34.58 FIXED CARBON: 41.75

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .66 ASH: OXYGEN:

BTU: 11168 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #12 78-24 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:4.05 ASH:25.1 VOLATILE MATTER: 33.82 FIXED CARBON: 37.07

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .87 ASH: OXYGEN:

BTU: 10000 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #15 78-22 DONE FOR cimarron caol co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:9.56 ASH:21.4 VOLATILE MATTER: 31.14 FIXED CARBON: 37.93

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .52 ASH: OXYGEN:

BTU: 9910 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #36 78-15 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:21.92 ASH:26.9 VOLATILE MATTER: 24.31 FIXED CARBON: 26

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .38 ASH: OXYGEN:

BTU: 7386 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #30 78-14 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:21.30 ASH:28.0 VOLATILE MATTER: 23.25 FIXED CARBON: 27

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .42 ASH: OXYGEN:

BTU: 7186 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #23 78-13 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:15.26 ASH:36.4 VOLATILE MATTER: 24.31 FIXED CARBON: 27

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.58 ASH: OXYGEN:

BTU: 7218 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #34 78-12 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.13 ASH:30.1 VOLATILE MATTER: 30.24 FIXED CARBON: 34.27

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.53 ASH: OXYGEN:

BTU: 9196 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #2 78-9 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:14.82 ASH:19.1 VOLATILE MATTER: 27.68 FIXED CARBON: 38

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.86 ASH: OXYGEN:

BTU: 8079 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #28 78-8 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:10.49 ASH:31.9 VOLATILE MATTER: 26.44 FIXED CARBON: 31

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.68 ASH: OXYGEN:

BTU: 5970 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #13 78-4 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:8.08 ASH:27.1 VOLATILE MATTER: 28.41 FIXED CARBON: 36.44

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.53 ASH: OXYGEN:

BTU: 9236 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #3 78-5 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.06 ASH:20.4 VOLATILE MATTER: 33.61 FIXED CARBON: 40.93

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.49 ASH: OXYGEN:

BTU: 10716 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #8 78-3 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:4.19 ASH:26.1 VOLATILE MATTER: 32.78 FIXED CARBON: 36.97

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.56 ASH: OXYGEN:

BTU: 9856 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #4 78-6 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:6.01 ASH:20.9 VOLATILE MATTER: 32.41 FIXED CARBON: 40.61

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.54 ASH: OXYGEN:

BTU: 10422 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #36 78-15 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:21.92 ASH:26.9 VOLATILE MATTER: 24.31 FIXED CARBON: 26

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.38 ASH: OXYGEN:

BTU: 7386 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. #21 78-19 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:6.13 ASH:44.7 VOLATILE MATTER: 23.38 FIXED CARBON: 25.83

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.69 ASH: OXYGEN:

BTU: 6491 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 7 78-23 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.70 ASH:22.9 VOLATILE MATTER: 30.89 FIXED CARBON: 40.50

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.49 ASH: OXYGEN:

BTU: 10164 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 16-78-25 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:4.62 ASH:28.7 VOLATILE MATTER: 28.69 FIXED CARBON: 37.98

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.49 ASH: OXYGEN:

BTU: 9273 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 39-78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:4.66 ASH:18.9 VOLATILE MATTER: 35.00 FIXED CARBON: 41.38

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.48 ASH: OXYGEN:

BTU: 11104 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 40-78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:4.45 ASH:17.1 VOLATILE MATTER: 35.03 FIXED CARBON: 43.43

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.54 ASH: OXYGEN:

BTU: 11458 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 41 78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.02 ASH:12.8 VOLATILE MATTER: 36.22 FIXED CARBON: 45.92

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.57 ASH: OXYGEN:

BTU: 12015 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 43-78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.00 ASH:13.9 VOLATILE MATTER: 35.99 FIXED CARBON: 45.14

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.61 ASH: OXYGEN:

BTU: 11955 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 42a 42b 78-28 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:5.49 ASH:18.8 VOLATILE MATTER: 34.09 FIXED CARBON: 41.65

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.53 ASH: OXYGEN:

BTU: 11029 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 22 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:4.03 ASH:12.8 VOLATILE MATTER: 35.47 FIXED CARBON: 47.69

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.54 ASH: OXYGEN:

BTU: 12223 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 8-78-3 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:4.19 ASH:16.2 VOLATILE MATTER: 34.35 FIXED CARBON: 45.27

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.46 ASH: OXYGEN:

BTU: 11437 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 9 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:24.73 ASH:25.3 VOLATILE MATTER: 23.09 FIXED CARBON: 26

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.34 ASH: OXYGEN:

BTU: 5218 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 11 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:27.36 ASH:18.0 VOLATILE MATTER: 24.08 FIXED CARBON: 30

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.39 ASH: OXYGEN:

BTU: 5619 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 14 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:7.68 ASH:35.4 VOLATILE MATTER: 25.70 FIXED CARBON: 31.21

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.77 ASH: OXYGEN:

BTU: 7848 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 27-78-8 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:25.02 ASH:22.6 VOLATILE MATTER: 23.78 FIXED CARBON: 28

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.45 ASH: OXYGEN:

BTU: 7559 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 5-78-10 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:6.63 ASH:39.7 VOLATILE MATTER: 25.38 FIXED CARBON: 28.26

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.24 ASH: OXYGEN:

BTU: 7458 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 33-78-12 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:6.69 ASH:39.2 VOLATILE MATTER: 25.26 FIXED CARBON: 28.85

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.63 ASH: OXYGEN:

BTU: 7558 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 31-78-13 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:7.18 ASH:43.1 VOLATILE MATTER: 23.22 FIXED CARBON:

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.73 ASH: OXYGEN:

BTU: 6915 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 35-2-78-15 DONE FOR cimarron
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:7.10 ASH:36.9 VOLATILE MATTER: 26.39 FIXED CARBON: 29.52

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.74 ASH: OXYGEN:

BTU: 7845 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 25-2-78-17 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:20.19 ASH:33.1 VOLATILE MATTER: 23.23 FIXED CARBON: 23

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.08 ASH: OXYGEN:

BTU: 6497 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 20-78-19 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:16.80 ASH:49.3 VOLATILE MATTER: 16.41 FIXED CARBON: 17

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.91 ASH: OXYGEN:

BTU: 4276 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 26-78-27 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:20.87 ASH:25.4 VOLATILE MATTER: 23.29 FIXED CARBON: 30

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.86 ASH: OXYGEN:

BTU: 7617 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 9-1 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:24.73 ASH:12.4 VOLATILE MATTER: 29.90 FIXED CARBON: 32

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.40 ASH: OXYGEN:

BTU: 6642 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 10 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:19.35 ASH:18.7 VOLATILE MATTER: 28.78 FIXED CARBON: 33

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.34 ASH: OXYGEN:

BTU: 6723 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 11 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:27.36 ASH:6.74 VOLATILE MATTER: 31.34 FIXED CARBON: 34

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.43 ASH: OXYGEN:

BTU: 7032 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 17-78-20 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:6.88 ASH:14.0 VOLATILE MATTER: 33.23 FIXED CARBON: 45.89

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.97 ASH: OXYGEN:

BTU: 11233 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 3a seam DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:18.35 ASH:12.1 VOLATILE MATTER: 32.32 FIXED CARBON: 37

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.68 ASH: OXYGEN:

BTU: 7735 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 3b seam DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:18.69 ASH:12.2 VOLATILE MATTER: 31.66 FIXED CARBON: 37

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.62 ASH: OXYGEN:

BTU: 7978 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 1-78-2 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:34.14 ASH:18.2 VOLATILE MATTER: 21.91 FIXED CARBON: 25

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.55 ASH: OXYGEN:

BTU: 6767 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 24-78-18 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:20.22 ASH:46.8 VOLATILE MATTER: 18.22 FIXED CARBON: 14

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.60 ASH: OXYGEN:

BTU: 3626 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 19-78-19 DONE FOR cimarron coal co
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: fruitland COUNTY:san juan QUAD: la plata
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:6.81 ASH:34.6 VOLATILE MATTER: 27.85 FIXED CARBON: 30.74

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.91 ASH: OXYGEN:

BTU: 7424 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. j-62557 DONE FOR mem 25
SAMPLE LOCATION: swl/4, swl/4, SEC. 26, T.21n, R.8w
FIELD: star lake COUNTY:san juan QUAD:fire rock well
TYPE OF SAMPLE: core DEPTH INTERVAL 35.5
FORMATION: fruitland THICKNESS OF SEAM: 16.0
PROXIMATE ANALYSIS (%)
MOISTURE: 13.6 ASH:17.6 VOLATILE MATTER: 33.4 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: 13.6 CARBON: 52.5 HYDROGEN: 5.5 NITROGEN: 1.0
SULFUR: .53 ASH: 17.6 OXYGEN: 22.9

BTU: 9110 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. j-61645 DONE FOR mem 25
SAMPLE LOCATION: sel/4, nel/4, SEC. 29, T.23n, R.11w
FIELD: bisti COUNTY:san juan QUAD:pretty rock
TYPE OF SAMPLE: core DEPTH INTERVAL 317
FORMATION: fruitland THICKNESS OF SEAM: 13.0
PROXIMATE ANALYSIS (%)
MOISTURE: 14.6 ASH:16.0 VOLATILE MATTER: 30.8 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: 14.6 CARBON: 54.4 HYDROGEN: 5.7 NITROGEN: 1.1
SULFUR: .3 ASH: 16.0 OXYGEN: 22.5

BTU: 9440 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 21-a DONE FOR mem 25
SAMPLE LOCATION: nel/4, swl/4, SEC. 9, T.23n, R.12w
FIELD: bisti COUNTY:san juan QUAD:pretty rock
TYPE OF SAMPLE: cuttings DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 5.28 ASH:18.0 VOLATILE MATTER: FIXED CARBON:

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .6 ASH: OXYGEN:

BTU: 10206 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. j-63220 DONE FOR mem 25
SAMPLE LOCATION: sel/4, nel/4, SEC. 29, T.23n, R.11w
FIELD: bisti COUNTY:san juan QUAD:pretty rock
TYPE OF SAMPLE: core DEPTH INTERVAL 252.5
FORMATION: fruitland THICKNESS OF SEAM: 29.5
PROXIMATE ANALYSIS (%)
MOISTURE: 12.7 ASH:21.2 VOLATILE MATTER: 31.9 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: 12.7 CARBON: 49.5 HYDROGEN: 5.3 NITROGEN: .9
SULFUR: .3 ASH: 21.2 OXYGEN: 22.9

BTU: 8680 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. j-63526 DONE FOR mem 25
SAMPLE LOCATION: nel/4, nel/4, SEC. 15, T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonito nw
TYPE OF SAMPLE: core DEPTH INTERVAL 267
FORMATION: fruitland THICKNESS OF SEAM: 22.2
PROXIMATE ANALYSIS (%)
MOISTURE: 12.4 ASH:16.1 VOLATILE MATTER: 33.9 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: 12.4 CARBON: 54.7 HYDROGEN: 5.6 NITROGEN: 1.0
SULFUR: .49 ASH: 16.1 OXYGEN: 22.1

BTU: 9630 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 7 DONE FOR mem 25
SAMPLE LOCATION: nel/4, sel/4, SEC. 25, T.23n, R.12w
FIELD: bisti COUNTY:san juan QUAD:pretty rock
TYPE OF SAMPLE: cuttings DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.98 ASH:20.2 VOLATILE MATTER: FIXED CARBON:

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .57 ASH: OXYGEN:

BTU: 10222 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 19 DONE FOR mem 25
SAMPLE LOCATION: sel/4, swl/4, SEC. 17, T.23n, R.12w
FIELD: bisti COUNTY:san juan QUAD:pretty rock
TYPE OF SAMPLE: cuttings DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 5.39 ASH:24.2 VOLATILE MATTER: FIXED CARBON:

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .46 ASH: OXYGEN:

BTU: 9497 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 28 DONE FOR mem 25
SAMPLE LOCATION: nel/4, sel/4, SEC. 32, T.24n, R.13w
FIELD: bisti COUNTY:san juan QUAD:bisti trading
TYPE OF SAMPLE: core DEPTH INTERVAL 17
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 14.4 ASH:13.1 VOLATILE MATTER: 31.8 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: 14.4 CARBON: 48.1 HYDROGEN: 4.7 NITROGEN: 1.14
SULFUR: .58 ASH: 13.1 OXYGEN: 32.4

BTU: 9067 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 5 DONE FOR mem 25
SAMPLE LOCATION: swl/4, nwl/4, SEC. 11, T.23n, R.13w
FIELD: bisti COUNTY:san juan QUAD:tanner lake
TYPE OF SAMPLE: core DEPTH INTERVAL 147
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 14.9 ASH:16.1 VOLATILE MATTER: 24.4 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: 14.9 CARBON: 54.4 HYDROGEN: 3.5 NITROGEN: 1.0
SULFUR: .6 ASH: 16.1 OXYGEN: 24.4

BTU: 9470 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 5 DONE FOR mem25
SAMPLE LOCATION: swl/4, nwl/4, SEC. 11, T.23n, R.13w
FIELD: bisti COUNTY:san juan QUAD:tanner lake
TYPE OF SAMPLE: core DEPTH INTERVAL 80
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 10.3 ASH:30.8 VOLATILE MATTER: 23.3 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: 10.3 CARBON: 42.3 HYDROGEN: 4.4 NITROGEN: .2
SULFUR: .7 ASH: 30.8 OXYGEN: 21.6

BTU: 7436 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 63 DONE FOR mem 25
SAMPLE LOCATION: nel/4, swl/4, SEC. 8, T.23n, R.13w
FIELD: bisti COUNTY:san juan QUAD:tanner lake
TYPE OF SAMPLE: core DEPTH INTERVAL 72
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.2 ASH:12.3 VOLATILE MATTER: 26.0 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: 13.2 CARBON: 55.9 HYDROGEN: 6.8 NITROGEN: .49
SULFUR: .63 ASH: 12.3 OXYGEN: 23.9

BTU: 9851 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 54 DONE FOR mem 25
SAMPLE LOCATION: swl/4, swl/4, SEC. 4, T.23n, R.13w
FIELD: bisti COUNTY:san juan QUAD:alamo mesa west
TYPE OF SAMPLE: core DEPTH INTERVAL 132
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 16.4 ASH:10.1 VOLATILE MATTER: 27.8 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: 16.4 CARBON: 58.6 HYDROGEN: 3.2 NITROGEN: .05
SULFUR: .7 ASH: 10.1 OXYGEN: 27.3

BTU: 10075 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 53 DONE FOR mem 25
SAMPLE LOCATION: swl/4, swl/4, SEC. 4, T.23n, R.13n
FIELD: bisti COUNTY:san juan QUAD:alamo mesa west
TYPE OF SAMPLE: core DEPTH INTERVAL 33
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 17.6 ASH:27.7 VOLATILE MATTER: 20.7 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: 17.6 CARBON: 44.6 HYDROGEN: 4.1 NITROGEN: .12
SULFUR: .71 ASH: 27.7 OXYGEN: 21.8

BTU: 8098 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 1 DONE FOR mem 25
SAMPLE LOCATION: nwl/4, sel/4, SEC. 1, T.23n, R.13w
FIELD: bisti COUNTY:san juan QUAD:alamo mesa west
TYPE OF SAMPLE: core DEPTH INTERVAL 192
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.0 ASH:27.1 VOLATILE MATTER: 23.5 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: 13.0 CARBON: 43.5 HYDROGEN: 3.7 NITROGEN: .5
SULFUR: .6 ASH: 27.1 OXYGEN: 22.8

BTU: 7410 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 15 DONE FOR mem 25
SAMPLE LOCATION: nwl/4, sel/4, SEC. 1, T.23n, R.13w
FIELD: bisti COUNTY:san juan QUAD:alamo mesa west
TYPE OF SAMPLE: core DEPTH INTERVAL 97
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 15.8 ASH:26.6 VOLATILE MATTER: 22.2 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: 15.8 CARBON: 42.3 HYDROGEN: 2.9 NITROGEN: .88
SULFUR: .48 ASH: 26.6 OXYGEN: 26.8

BTU: 7630 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 14 DONE FOR mem 25
SAMPLE LOCATION: nwl/4, sel/4, SEC. 1, T.23n, R.13w
FIELD: bisti COUNTY:san juan QUAD:alamo mesa west
TYPE OF SAMPLE: core DEPTH INTERVAL 80
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 15.4 ASH:19.1 VOLATILE MATTER: 24.8 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: 15.4 CARBON: 46.4 HYDROGEN: 4.4 NITROGEN: 1.07
SULFUR: .64 ASH: 19.1 OXYGEN: 28.4

BTU: 8652 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 23 DONE FOR mem 25
SAMPLE LOCATION: nel/4, nel/4, SEC. 10, T.23n, R.12w
FIELD: bisti COUNTY:san juan QUAD:pretty rock
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 9.39 ASH:17.4 VOLATILE MATTER: 30.11 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .72 ASH: OXYGEN:

BTU: 9915 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 34 DONE FOR mem 25
SAMPLE LOCATION: sel/4, sel/4, SEC. 9, T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonita nw
TYPE OF SAMPLE: cuttings DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 9.28 ASH:23.0 VOLATILE MATTER: 29.26 FIXED CARBON: 38

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .54 ASH: OXYGEN:

BTU: 9240 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 29 DONE FOR mem 25
SAMPLE LOCATION: nwl/4, nwl/4, SEC. 5, T.22n, R.10w
FIELD: bisti COUNTY:san juan QUAD:pueblo bonita nw
TYPE OF SAMPLE: cuttings DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 4.52 ASH:13.7 VOLATILE MATTER: FIXED CARBON:

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .59 ASH: OXYGEN:

BTU: 11035 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 72-4334 DONE FOR c-134 ct&e
SAMPLE LOCATION: nel/4, nwl/4, SEC. 35, T.31n, R.15w
FIELD: fruitland COUNTY: san juan QUAD: waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 96.-103.
FORMATION: fruitland THICKNESS OF SEAM: 7.0
PROXIMATE ANALYSIS (%)
MOISTURE: 8.55 ASH:18.0 VOLATILE MATTER: FIXED CARBON:

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 10221 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 72-4336 DONE FOR c-734 ct&e
SAMPLE LOCATION: nel/4, nwl/4, SEC. 35, T.31n, R.15w
FIELD: fruitland COUNTY: san juan QUAD: waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 73.-81.2
FORMATION: fruitland THICKNESS OF SEAM: 8.2
PROXIMATE ANALYSIS (%)
MOISTURE: 12.57 ASH:14.3 VOLATILE MATTER: FIXED CARBON:

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.09 ASH: OXYGEN:

BTU: 10193 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 72-4260 DONE FOR c-134 ct&e
SAMPLE LOCATION: nel/4, swl/4, SEC. 35, T.31n, R.15w
FIELD: fruitland COUNTY: san juan QUAD: waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 159.-164.9
FORMATION: fruitland THICKNESS OF SEAM: 5.9
PROXIMATE ANALYSIS (%)
MOISTURE: 13.21 ASH:18.7 VOLATILE MATTER: FIXED CARBON:

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.25 ASH: OXYGEN:

BTU: 9443 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 72-4337 DONE FOR c-134 ct&e
SAMPLE LOCATION: sel/4, swl/4, SEC. 25, T.31n, R.15w
FIELD: fruitland COUNTY: san juan QUAD: youngs lake
TYPE OF SAMPLE: core DEPTH INTERVAL 136.-147.8
FORMATION: fruitland THICKNESS OF SEAM: 11.8
PROXIMATE ANALYSIS (%)
MOISTURE: 10.44 ASH:19.8 VOLATILE MATTER: FIXED CARBON:

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.99 ASH: OXYGEN:

BTU: 9669 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 72-4335 DONE FOR c-134 ct&e
SAMPLE LOCATION: sel/4, swl/4, SEC. 25, T.31n, R.15w
FIELD: fruitland COUNTY: san juan QUAD: youngs lake
TYPE OF SAMPLE: core DEPTH INTERVAL 198.-205.9
FORMATION: fruitland THICKNESS OF SEAM: 7.9
PROXIMATE ANALYSIS (%)
MOISTURE: 11.02 ASH:11.8 VOLATILE MATTER: FIXED CARBON:

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.81 ASH: OXYGEN:

BTU: 10871 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 72-4338 DONE FOR c-734 ct&e
SAMPLE LOCATION: nel/4, sel/4, SEC. 25, T.31n, R.15w
FIELD: fruitland COUNTY: san juan QUAD: youngs lake
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.47 ASH:17.6 VOLATILE MATTER: FIXED CARBON:

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.88 ASH: OXYGEN:

BTU: 9670 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. dc-3 k 57025 DONE FOR n.m.b.m.m.r.
SAMPLE LOCATION: swl/4, nel/4, SEC. 7 , T.21n, R.8w
FIELD: star lake COUNTY:san juan QUAD:fire rock well
TYPE OF SAMPLE: core DEPTH INTERVAL 1275.8-1277.7
FORMATION: fruitland THICKNESS OF SEAM: 1.9
PROXIMATE ANALYSIS (%)
MOISTURE:12.0 ASH:9.5 VOLATILE MATTER: 33.6 FIXED CARBON: 44.9

ULTIMATE ANALYSIS(%)
MOISTURE: 12.0 CARBON: 62.0 HYDROGEN: 5.7 NITROGEN: 1.3
SULFUR: 1.0 ASH: 9.5 OXYGEN: 20.5

BTU: 10950 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 50ff DONE FOR western coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 52.55-67.75
FORMATION: fruitland THICKNESS OF SEAM: 15.2
PROXIMATE ANALYSIS (%)
MOISTURE:10.41 ASH:13.9 VOLATILE MATTER: 35.33 FIXED CARBON: 40

ULTIMATE ANALYSIS(%)
MOISTURE: 10.41 CARBON: 58.76 HYDROGEN: 4.52 NITROGEN: 1.21
SULFUR: 0.69 ASH: 13.96 OXYGEN: 10.44

BTU: 10357 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 50f DONE FOR western coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 164.0-179.3
FORMATION: fruitland THICKNESS OF SEAM: 15.3
PROXIMATE ANALYSIS (%)
MOISTURE:10.12 ASH:18.2 VOLATILE MATTER: 35.49 FIXED CARBON: 36

ULTIMATE ANALYSIS(%)
MOISTURE: 10.12 CARBON: 55.3 HYDROGEN: 4.23 NITROGEN: 1.28
SULFUR: 0.84 ASH: 18.24 OXYGEN: 9.99

BTU: 9792 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 50b DONE FOR western coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 73.5-89.65
FORMATION: fruitland THICKNESS OF SEAM: 16.15
PROXIMATE ANALYSIS (%)
MOISTURE:10.28 ASH:18.8 VOLATILE MATTER: 34.69 FIXED CARBON: 36

ULTIMATE ANALYSIS(%)
MOISTURE: 10.28 CARBON: 54.89 HYDROGEN: 4.23 NITROGEN: 1.21
SULFUR: 0.81 ASH: 18.79 OXYGEN: 9.79

BTU: 9652 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 48dd DONE FOR western coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 34.0-49.0
FORMATION: fruitland THICKNESS OF SEAM: 15.0
PROXIMATE ANALYSIS (%)
MOISTURE:13.16 ASH:13.7 VOLATILE MATTER: 34.71 FIXED CARBON: 38

ULTIMATE ANALYSIS(%)
MOISTURE: 13.16 CARBON: 55.44 HYDROGEN: 4.16 NITROGEN: 1.23
SULFUR: 0.82 ASH: 13.77 OXYGEN: 11.42

BTU: 9842 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. p-17h-0 DONE FOR san juan coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 60.8-64.5
FORMATION: fruitland THICKNESS OF SEAM: 3.7
PROXIMATE ANALYSIS (%)
MOISTURE:9.28 ASH:19.1 VOLATILE MATTER: 35.01 FIXED CARBON: 36.64

ULTIMATE ANALYSIS(%)
MOISTURE: 9.28 CARBON: 55.15 HYDROGEN: 4.27 NITROGEN: 1.09
SULFUR: 0.82 ASH: 19.07 OXYGEN: 10.22

BTU: 9956 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. s-17-h-0 DONE FOR san juan coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 212.2-216.5
FORMATION: fruitland THICKNESS OF SEAM: 4.3
PROXIMATE ANALYSIS (%)
MOISTURE:9.32 ASH:18.9 VOLATILE MATTER: 35.16 FIXED CARBON: 36.58

ULTIMATE ANALYSIS(%)
MOISTURE: 9.32 CARBON: 55.8 HYDROGEN: 4.46 NITROGEN: 1.21
SULFUR: 1.15 ASH: 18.94 OXYGEN: 9.09

BTU: 10185 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. k-23-j DONE FOR san juan coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: core comp DEPTH INTERVAL 311.2,316.05
FORMATION: fruitland THICKNESS OF SEAM: 9.85
PROXIMATE ANALYSIS (%)
MOISTURE:9.71 ASH:16.3 VOLATILE MATTER: 33.36 FIXED CARBON: 40.6

ULTIMATE ANALYSIS(%)
MOISTURE: 9.71 CARBON: 57.4 HYDROGEN: 4.22 NITROGEN: 1.15
SULFUR: 1.43 ASH: 16.33 OXYGEN: 9.71

BTU: 10254 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. p-21-h DONE FOR san juan coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san jaun QUAD:waterflos
TYPE OF SAMPLE: core DEPTH INTERVAL 202.3-215.4
FORMATION: fruitland THICKNESS OF SEAM: 13.1
PROXIMATE ANALYSIS (%)
MOISTURE:10.7 ASH:14.4 VOLATILE MATTER: 36.58 FIXED CARBON: 38.36

ULTIMATE ANALYSIS(%)
MOISTURE: 10.7 CARBON: 58.28 HYDROGEN: 4.36 NITROGEN: 1.27
SULFUR: 1.00 ASH: 14.36 OXYGEN: 10.00

BTU: 10445 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 47-5-gg DONE FOR western coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 128.5-143.85
FORMATION: fruitland THICKNESS OF SEAM: 15.35
PROXIMATE ANALYSIS (%)
MOISTURE:10.71 ASH:18.3 VOLATILE MATTER: 33.22 FIXED CARBON: 37

ULTIMATE ANALYSIS(%)
MOISTURE: 10.71 CARBON: 54.64 HYDROGEN: 4.29 NITROGEN: 1.23
SULFUR: 0.82 ASH: 18.26 OXYGEN: 10.05

BTU: 9633 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. k-23-j DONE FOR san juan coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 311.2-313.8
FORMATION: fruitland THICKNESS OF SEAM: 2.6
PROXIMATE ANALYSIS (%)
MOISTURE:9.77 ASH:13.6 VOLATILE MATTER: 34.29 FIXED CARBON: 42.33

ULTIMATE ANALYSIS(%)
MOISTURE: 9.77 CARBON: 60.03 HYDROGEN: 4.44 NITROGEN: 0.87
SULFUR: 1.29 ASH: 13.61 OXYGEN: 9.93

BTU: 10658 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. p-21-h DONE FOR san jaun
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 90.6-94.6
FORMATION: fruitland THICKNESS OF SEAM: 4.0
PROXIMATE ANALYSIS (%)
MOISTURE:11.87 ASH:22.3 VOLATILE MATTER: 32.28 FIXED CARBON: 33

ULTIMATE ANALYSIS(%)
MOISTURE: 11.87 CARBON: 50.71 HYDROGEN: 3.95 NITROGEN: 1.13
SULFUR: 0.62 ASH: 22.26 OXYGEN: 9.45

BTU: 9105 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. p-17-h DONE FOR san juan coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 193.9-208.7
FORMATION: fruitland THICKNESS OF SEAM: 14.8
PROXIMATE ANALYSIS (%)
MOISTURE:9.58 ASH:14.9 VOLATILE MATTER: 36.44 FIXED CARBON: 39.13

ULTIMATE ANALYSIS(%)
MOISTURE: 9.58 CARBON: 59.49 HYDROGEN: 4.36 NITROGEN: 1.06
SULFUR: 0.70 ASH: 14.85 OXYGEN: 9.95

BTU: 10548 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. p-09-f DONE FOR san juan coal
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.30n, R.15w
FIELD: fruitland COUNTY:san juan QUAD:waterflow
TYPE OF SAMPLE: core DEPTH INTERVAL 125.95-130-5
FORMATION: fruitland THICKNESS OF SEAM: 4.6
PROXIMATE ANALYSIS (%)
MOISTURE:9.69 ASH:13.4 VOLATILE MATTER: 38.79 FIXED CARBON: 39.03

ULTIMATE ANALYSIS(%)
MOISTURE: 9.69 CARBON: 59.54 HYDROGEN: 4.64 NITROGEN: 1.27
SULFUR: 0.81 ASH: 13.39 OXYGEN: 10.65

BTU: 10806 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-10-142 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 22, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.9 ASH:21.4 VOLATILE MATTER: 31.0 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 9106 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-11-44 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 15, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.1 ASH:22.5 VOLATILE MATTER: 29.2 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 8701 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-1-103 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 15, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.9 ASH:22.7 VOLATILE MATTER: 29.2 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.2 ASH: OXYGEN:

BTU: 8777 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-11-107 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 15, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 14.9 ASH:13.6 VOLATILE MATTER: 31.7 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.1 ASH: OXYGEN:

BTU: 9835 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-11-150 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 15, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.2 ASH:29.6 VOLATILE MATTER: 28.5 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 7956 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-12-52 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 15, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 15.8 ASH:12.3 VOLATILE MATTER: 31.7 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 9895 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-16-183 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 27, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.1 ASH:20.5 VOLATILE MATTER: 29.5 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 9350 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-17-56 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 14.6 ASH:12.3 VOLATILE MATTER: 31.9 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 10074 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-17-88 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.6 ASH:27.6 VOLATILE MATTER: 27.2 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 7981 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-17-99 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.3 ASH:28.7 VOLATILE MATTER: 28.5 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 8026 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-17-105 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.7 ASH:12.6 VOLATILE MATTER: 32.0 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 10189 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-17-128 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 14.6 ASH:19.7 VOLATILE MATTER: 27.7 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 9054 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-17-132 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.5 ASH:17.4 VOLATILE MATTER: 30.0 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 9523 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-18-43 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 33, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.2 ASH:16.6 VOLATILE MATTER: 32.1 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 9563 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-18-57 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 33, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 14.5 ASH:27.4 VOLATILE MATTER: 28.5 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 7880 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-18-80 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 33, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.8 ASH:34.3 VOLATILE MATTER: 24.6 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 7051 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-18-119 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 33, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 14.9 ASH:13.0 VOLATILE MATTER: 32.5 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.1 ASH: OXYGEN:

BTU: 10042 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-19-159 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 36, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.5 ASH:23.2 VOLATILE MATTER: 30.8 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 9135 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-19-94 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 36, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.1 ASH:18.4 VOLATILE MATTER: 31.4 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.8 ASH: OXYGEN:

BTU: 9544 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-19-124 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 36, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.5 ASH:24.6 VOLATILE MATTER: 29.6 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.8 ASH: OXYGEN:

BTU: 8856 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-19-50 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 36, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 23.9 ASH:17.2 VOLATILE MATTER: 21.5 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.8 ASH: OXYGEN:

BTU: 9516 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-19-224 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 36, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 10.9 ASH:22.7 VOLATILE MATTER: 32.1 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 9248 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-19-243 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 36, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.6 ASH:12.4 VOLATILE MATTER: 31.7 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 10367 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-20-43 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 16, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.9 ASH:25.1 VOLATILE MATTER: 29.7 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 8412 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-20-105 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 16, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 7.7 ASH:38.4 VOLATILE MATTER: 26.8 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 9482 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-20-110 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 16, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.3 ASH:16.0 VOLATILE MATTER: 33.7 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.8 ASH: OXYGEN:

BTU: 9300 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-1-108 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 15, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.6 ASH:21.1 VOLATILE MATTER: 33.1 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 9157 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-1-227 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 15, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 10.9 ASH:26.9 VOLATILE MATTER: 30.4 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 8369 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-2-71 DONE FOR utah int
SAMPLE LOCATION: 1/4, 1/4, SEC. 24, T.28n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.0 ASH:27.2 VOLATILE MATTER: 32.2 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .7 ASH: OXYGEN:

BTU: 8273 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-2-102 DONE FOR utah int
SAMPLE LOCATION: 1/4, 1/4, SEC. 24, T.28n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.9 ASH: 8.1 VOLATILE MATTER: 33.2 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .9 ASH: OXYGEN:

BTU: 10735 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-2-133 DONE FOR utah int
SAMPLE LOCATION: 1/4, 1/4, SEC. 24, T.28n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.2 ASH:17.4 VOLATILE MATTER: 32.4 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .5 ASH: OXYGEN:

BTU: 9669 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-3-88 DONE FOR utah int
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.28n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.8 ASH:19.6 VOLATILE MATTER: 31.8 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .7 ASH: OXYGEN:

BTU: 9219 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-4-195 DONE FOR utah int
SAMPLE LOCATION: 1/4, 1/4, SEC. 4, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.5 ASH:26.5 VOLATILE MATTER: 28.3 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .5 ASH: OXYGEN:

BTU: 8167 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-5-115 DONE FOR utah int
SAMPLE LOCATION: 1/4, 1/4, SEC. 25, T.28n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.3 ASH:17.6 VOLATILE MATTER: 33.9 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.9 ASH: OXYGEN:

BTU: 9661 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-5-142 DONE FOR utah int
SAMPLE LOCATION: 1/4, 1/4, SEC. 25, T.28n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.2 ASH:10.4 VOLATILE MATTER: 36.5 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 2.2 ASH: OXYGEN:

BTU: 10699 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-5-175 DONE FOR utah int
SAMPLE LOCATION: 1/4, 1/4, SEC. 25, T.28n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.1 ASH:16.4 VOLATILE MATTER: 33.1 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 2.1 ASH: OXYGEN:

BTU: 9628 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-7-123 DONE FOR utah int
SAMPLE LOCATION: 1/4, 1/4, SEC. 32, T.29n, R.15w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.0 ASH:20.4 VOLATILE MATTER: 33.2 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: .9 ASH: OXYGEN:

BTU: 9315 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-8-48 DONE FOR utah int
SAMPLE LOCATION: 1/4, 1/4, SEC. 24, T.28n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.8 ASH:32.3 VOLATILE MATTER: 30.7 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 6906 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-8-48 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 24, T.28n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.5 ASH:17.9 VOLATILE MATTER: 34.2 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.8 ASH: OXYGEN:

BTU: 9670 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-8-109 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 24, T.28n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.5 ASH:17.8 VOLATILE MATTER: 32.8 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 9534 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-9-59 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 2, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.2 ASH:30.0 VOLATILE MATTER: 26.5 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.5 ASH: OXYGEN:

BTU: 7739 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-9-69 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 2, T.26n, R.26w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 14.1 ASH:28.1 VOLATILE MATTER: 25.1 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.0 ASH: OXYGEN:

BTU: 7765 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-9-80 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 2, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.6 ASH:12.8 VOLATILE MATTER: 31.3 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 10219 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-9-129 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 2, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.4 ASH:29.5 VOLATILE MATTER: 26.4 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.9 ASH: OXYGEN:

BTU: 7759 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-9-145 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 2, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.6 ASH:21.8 VOLATILE MATTER: 29.4 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 9079 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-9-153 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 2, T.26n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.0 ASH:24.0 VOLATILE MATTER: 27.7 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 2.1 ASH: OXYGEN:

BTU: 8596 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-10-64 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 22, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.2 ASH:15.2 VOLATILE MATTER: 32.6 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.4 ASH: OXYGEN:

BTU: 9841 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-10-84 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 22, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.1 ASH:11.1 VOLATILE MATTER: 33.9 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 10581 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-12-75 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 15, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.5 ASH:18.2 VOLATILE MATTER: 32.6 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 2.1 ASH: OXYGEN:

BTU: 9539 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-12-86 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 15, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.9 ASH:43.8 VOLATILE MATTER: 21.8 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 5814 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-12-100 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 15, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 14.0 ASH:20.3 VOLATILE MATTER: 29.8 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 9079 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-12-123 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 15, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 9.4 ASH:37.3 VOLATILE MATTER: 27.7 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.1 ASH: OXYGEN:

BTU: 7082 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-12-153 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 15, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.8 ASH:20.6 VOLATILE MATTER: 31.0 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 9255 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-13-75 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 26, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.9 ASH:21.9 VOLATILE MATTER: 29.9 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.1 ASH: OXYGEN:

BTU: 9027 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-13-109 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 26, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.3 ASH:17.6 VOLATILE MATTER: 33.2 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 10085 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-13-163 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 26, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.3 ASH:17.3 VOLATILE MATTER: 32.1 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.8 ASH: OXYGEN:

BTU: 9881 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-13-176 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 26, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 15.1 ASH:24.1 VOLATILE MATTER: 27.4 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.8 ASH: OXYGEN:

BTU: 8107 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-13-186 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 26, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 10.7 ASH:18.5 VOLATILE MATTER: 32.9 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 9977 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-14-73 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.5 ASH:35.7 VOLATILE MATTER: 36.8 FIXED CARBON: 1

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.0 ASH: OXYGEN:

BTU: 6653 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-14-122 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.9 ASH:27.9 VOLATILE MATTER: 40.0 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 7917 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-14-133 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.1 ASH:20.9 VOLATILE MATTER: 44.0 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 8873 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-14-193 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.3 ASH:16.2 VOLATILE MATTER: 44.6 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 9175 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-14-228 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 9.9 ASH:28.2 VOLATILE MATTER: 38.8 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 8389 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-15-78 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.9 ASH:13.9 VOLATILE MATTER: 34.9 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 7729 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-15-92 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.7 ASH:22.1 VOLATILE MATTER: 31.6 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 9083 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-15-110 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.2 ASH:12.7 VOLATILE MATTER: 34.0 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 10256 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-14-193 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.3 ASH:16.2 VOLATILE MATTER: 44.6 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 9758 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-14-228 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 9.9 ASH:28.2 VOLATILE MATTER: 38.8 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 8389 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-15-78 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.9 ASH:13.3 VOLATILE MATTER: 34.9 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 7729 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-15-92 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.7 ASH:22.1 VOLATILE MATTER: 31.6 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 9083 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-15-110 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.2 ASH:12.7 VOLATILE MATTER: 34.0 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 10256 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-15-158 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.9 ASH:26.2 VOLATILE MATTER: 28.4 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 8116 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-15-179 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.7 ASH:29.0 VOLATILE MATTER: 29.0 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.0 ASH: OXYGEN:

BTU: 7998 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-15-189 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 34, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.5 ASH:15.9 VOLATILE MATTER: 33.2 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.0 ASH: OXYGEN:

BTU: 9775 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-16-57 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 22, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.2 ASH:34.6 VOLATILE MATTER: 39.3 FIXED CARBON: 1

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 10276 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-16-100 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 22, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 15.9 ASH:11.3 VOLATILE MATTER: 32.0 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 10153 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-16-165 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 22, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.5 ASH:27.2 VOLATILE MATTER: 29.6 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.2 ASH: OXYGEN:

BTU: 8334 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-21-35 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 11, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 14.4 ASH:21.5 VOLATILE MATTER: 31.9 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.0 ASH: OXYGEN:

BTU: 8479 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-21-75 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 11, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.4 ASH:16.3 VOLATILE MATTER: 34.6 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 10412 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-21-130 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 11, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.6 ASH:18.7 VOLATILE MATTER: 33.1 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.8 ASH: OXYGEN:

BTU: 9237 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-22-40 DONE FOR
SAMPLE LOCATION: 1/4, 1/4, SEC. 2, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD:
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.9 ASH:24.1 VOLATILE MATTER: 29.6 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 8568 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-22-82 DONE FOR
SAMPLE LOCATION: 1/4, 1/4, SEC. 2, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD:
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.8 ASH:14.5 VOLATILE MATTER: 31.7 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 9681 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-22-144 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 2, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD:
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.6 ASH:17.7 VOLATILE MATTER: 30.9 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 9487 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-23-62 DONE FOR
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD:
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 14.6 ASH:18.6 VOLATILE MATTER: 30.5 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.0 ASH: OXYGEN:

BTU: 9127 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-23-170 DONE FOR
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD:
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 14.1 ASH:15.4 VOLATILE MATTER: 31.9 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.3 ASH: OXYGEN:

BTU: 9598 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-24-62 DONE FOR
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD:
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.4 ASH:18.0 VOLATILE MATTER: 27.2 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 8055 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-24-115 DONE FOR
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD:
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 13.1 ASH:14.8 VOLATILE MATTER: 31.6 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.4 ASH: OXYGEN:

BTU: 9767 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-24-170 DONE FOR
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.25n, R.16w
FIELD: navajo COUNTY: san juan QUAD:
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.2 ASH:24.2 VOLATILE MATTER: 28.9 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 9064 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-14-228 DONE FOR
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD:
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 9.9 ASH:28.2 VOLATILE MATTER: 38.8 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 9758 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. ui-14-193 DONE FOR utah intl
SAMPLE LOCATION: 1/4, 1/4, SEC. 10, T.27n, R.16w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.3 ASH:16.2 VOLATILE MATTER: 44.6 FIXED CARBON: 2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 9758 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. h-19885 DONE FOR
SAMPLE LOCATION: 1/4, 1/4, SEC. 32, T.24n, R.13w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 12.0 ASH:16.2 VOLATILE MATTER: 32.5 FIXED CARBON: 3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.5 ASH: OXYGEN:

BTU: 9670 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. h-22722 DONE FOR
SAMPLE LOCATION: 1/4, 1/4, SEC. 3, T.23n, R.13w
FIELD: navajo COUNTY: san juan QUAD: fruitland
TYPE OF SAMPLE: core DEPTH INTERVAL
FORMATION: fruitland THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 6.7 ASH:10.5 VOLATILE MATTER: 35.9 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 11320 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 1-3-3c3 DONE FOR morrison-knudsen
SAMPLE LOCATION: 1/4, 1/4, SEC. , T. , R.
FIELD: san juan COUNTY: san juan QUAD: blanco
TYPE OF SAMPLE: core DEPTH INTERVAL 712.8
FORMATION: fruitland THICKNESS OF SEAM: 4.9
PROXIMATE ANALYSIS (%)
MOISTURE: 9.89 ASH:72.6 VOLATILE MATTER: 11.59 FIXED CARBON: 5

ULTIMATE ANALYSIS(%)
MOISTURE: 9.89 CARBON: 10.72 HYDROGEN: 1.42 NITROGEN: .33
SULFUR: .43 ASH: 72.55 OXYGEN: 4.66

BTU: 1382 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 17750(usbm 569) DONE FOR government mine
SAMPLE LOCATION: 1/4, 1/4, SEC. 21, T.30n, R.16w
FIELD: hogback COUNTY:san juan QUAD:chimney rock
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:10.6 ASH:3.1 VOLATILE MATTER: 36.7 FIXED CARBON: 49.6

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 11010 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 23003(usbm 569) DONE FOR blake mine
SAMPLE LOCATION: 1/4, swl/4, SEC. 13, T.22n, R.13w
FIELD: chaco cnyn COUNTY:san juan QUAD:la vida mission
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:19.0 ASH:5.4 VOLATILE MATTER: 32.4 FIXED CARBON: 43.2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 10190 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 3823(usbm569) DONE FOR pueblo bonita mi
SAMPLE LOCATION: 1/4, 1/4, SEC. 14, T.21n, R.11w
FIELD: chaco cnyn COUNTY:san juan QUAD:pueblo bonita
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:17.5 ASH:8.4 VOLATILE MATTER: 32.9 FIXED CARBON: 41.2

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 2.2 ASH: OXYGEN:

BTU: FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 23004(usbm 569) DONE FOR pueblo bonita
SAMPLE LOCATION: 1/4, 1/4, SEC. 14, T.21n, R.11w
FIELD: chaco cnyn COUNTY:san juan QUAD:pueblo bonita
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:14.4 ASH:7.5 VOLATILE MATTER: 34.8 FIXED CARBON: 42.3

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.5 ASH: OXYGEN:

BTU: 10220 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 29006 (usbm 569) DONE FOR shiprock indian
SAMPLE LOCATION: 1/4, 1/4, SEC. 21, T.30n, R.16w
FIELD: hogback COUNTY:san juan QUAD:chimney rock
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:10.1 ASH:4.2 VOLATILE MATTER: 39.9 FIXED CARBON: 45.8

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.9 ASH: OXYGEN:

BTU: 12010 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. a46364(usbm 569) DONE FOR shiprock indian
SAMPLE LOCATION: 1/4, 1/4, SEC. 21, T.30n, R.16w
FIELD: hogback COUNTY:san juan QUAD:chimney rock
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:9.8 ASH:5.0 VOLATILE MATTER: 38.7 FIXED CARBON: 46.5

ULTIMATE ANALYSIS(%)
MOISTURE: 9.8 CARBON: 66.0 HYDROGEN: 6.0 NITROGEN: 1.4
SULFUR: 1.3 ASH: 5.0 OXYGEN: 20.3

BTU: 11870 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. a46365(usbm 569) DONE FOR joe duncan mine
SAMPLE LOCATION: 1/4, nel/4, SEC. 21, T.30n, R.16w
FIELD: hogback COUNTY:san juan QUAD:chimney rock
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:10.5 ASH:3.2 VOLATILE MATTER: 39.1 FIXED CARBON: 47.2

ULTIMATE ANALYSIS(%)
MOISTURE: 10.5 CARBON: 68.5 HYDROGEN: 5.9 NITROGEN: 1.4
SULFUR: 0.8 ASH: 3.2 OXYGEN: 7.2

BTU: 12240 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 142 DONE FOR san juan
SAMPLE LOCATION: 1/4, 1/4, SEC. 31, T.19n, R.1w
FIELD: la ventana COUNTY:sandoval QUAD:la ventana
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:11.1 ASH:8.3 VOLATILE MATTER: 40.0 FIXED CARBON: 51.7

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 11180 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 143 DONE FOR san juan
SAMPLE LOCATION: 1/4, 1/4, SEC. 31, T.19n, R.1w
FIELD: la ventana COUNTY:sandoval QUAD:la ventana
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:10.6 ASH:8.5 VOLATILE MATTER: 40.0 FIXED CARBON: 51.5

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.6 ASH: OXYGEN:

BTU: 11300 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 144 DONE FOR san juan
SAMPLE LOCATION: 1/4, 1/4, SEC. 31, T.19n, R.1w
FIELD: la ventana COUNTY:sandoval QUAD:la ventana
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:16.5 ASH:11.9 VOLATILE MATTER: 39.6 FIXED CARBON: 48.5

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 1.0 ASH: OXYGEN:

BTU: 10120 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 145 DONE FOR san juan
SAMPLE LOCATION: 1/4, 1/4, SEC. 31, T.19n, R.1w
FIELD: la ventana COUNTY:sandoval QUAD:la ventana
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:14.0 ASH:10.4 VOLATILE MATTER: 37.6 FIXED CARBON: 52.0

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: 0.7 ASH: OXYGEN:

BTU: 10660 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. b-29026 DONE FOR usbm
SAMPLE LOCATION: swl/4, swl/4, SEC. 21, T.30n, R.16w
FIELD: barker COUNTY:san juan QUAD:chimney rock
TYPE OF SAMPLE: mine DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:9.6 ASH:12.7 VOLATILE MATTER: 37.2 FIXED CARBON: 40.5

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: ASH: OXYGEN:

BTU: 10530 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. c-31312 DONE FOR circ-134 usbm
SAMPLE LOCATION: nw1/4, nw1/4, SEC. 20, T.30n, R.16w
FIELD: barker COUNTY: san juan QUAD: chimney rock
TYPE OF SAMPLE: tipple DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 11.3 ASH: 3.4 VOLATILE MATTER: 39.3 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: ASH: OXYGEN:

BTU: 12090 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. a-46364 DONE FOR circ-134 usbm
SAMPLE LOCATION: nw1/4, se1/4, SEC. 19, T.30n, R.16w
FIELD: barker COUNTY: san juan QUAD: chimney rock
TYPE OF SAMPLE: mine DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE: 9.8 ASH: 5.0 VOLATILE MATTER: 38.7 FIXED CARBON: 4

ULTIMATE ANALYSIS(%)
MOISTURE: CARBON: HYDROGEN: NITROGEN:
SULFUR: ASH: OXYGEN:

BTU: 11870 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

SAMPLE NO. 3811(usbm 569) DONE FOR local mine
SAMPLE LOCATION: 1/4, 1/4, SEC. , T.23n, R.14w
FIELD: newcomb COUNTY:san juan QUAD:the pillar
TYPE OF SAMPLE: DEPTH INTERVAL
FORMATION: menefee THICKNESS OF SEAM:
PROXIMATE ANALYSIS (%)
MOISTURE:15.8 ASH:9.4 VOLATILE MATTER: 35.0 FIXED CARBON: 39.8

ULTIMATE ANALYSIS(%)
MOISTURE: 15.8 CARBON: 55.7 HYDROGEN: 5.9 NITROGEN: 1.4
SULFUR: 1.8 ASH: 9.4 OXYGEN: 25.8

BTU: 9970 FORMS OF SULFUR (%) ORG: PYR: SULFATE:

Appendix 6 Coal Resource Data

The data for calculating coal resources according to Wood and others (1983) has been entered on the form shown below. Data contained in this appendix is non-confidential data and may or may not reflect the entire data set used to obtain the resource/reserve figures given in the text.

```
WELL NUMBER \\\\\\\\\\\\\\\\\\ COUNTY \\\\\\\\\\\\\\
QUADRANGLE \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
\\ 1/4 \\ 1/4 \\ 1/4 SEC \\ T \\\ R \\\ FIELD: \\\\\\\\\\\\\\\\\\\
FORMATION: \\\\\\\\\\\\\\\\ COAL THICKNESS: \\\\ DEPTH: \\\\\\
ACRES: MEASURED \\\\\ INDICATED \\\\\\ INFERRED \\\\\\\
SOURCE: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ Conf \
REC NUM: \\\\\ LAT-LONG \\\\\\\\-\\\\\\\\ MEMBER \\\\\\\\\\\\\
ZONE \\\\\\\\\\\\\\\\\\
```

Explanation of form:

WELL NUMBER - Drill hole number or measured section number

COUNTY, QUADRANGLE, 1/4's, SEC., T. R. - Location of drill hole/measured section by county, quadrangle, quarters of a section, section, township and range.

FIELD - Coal field as defined by the text in which drill hole/measured section occurs.

FORMATION - Geologic formation containing the coal bed encountered in the drill hole/measured section.

COAL THICKNESS - Thickness of coal bed in feet.

DEPTH - Depth to top of the coal bed.

ACRES - The planimetered acres

MEASURED - 1/4 mi. circle from the drill hole/measured section

INDICATED - 3/4 mi. circle from the drill hole/measured section

INFERRED - 1 1/4 mi. circle from the drill hole/measured section

CONF. - Confidential or non-confidential status of the data

REC NUM - The record number in the NMBMMR data file.

LAT-LONG - Latitude and longitude of the drill hole/measured section

MEMBER - Member of the geologic formation in which the coal bed occurs.

ZONE - Zone of the geologic formation in which the coal bed occurs.

APPENDIX

Coal Resource Data for San Juan County

WELL NUMBER sj 399 COUNTY san juan
QUADRANGLE burnham trading post
1/4 1/4 1/4 SEC T 25n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 14.7 DEPTH: 18.3
ACRES: MEASURED 125.7 INDICATED 730.97 INFERRED
SOURCE: conpaso-burnham mine plan Conf
REC NUM: 1494 LAT-LONG 362322 -1082917 MEMBER
ZONE

WELL NUMBER sj 399 COUNTY san juan
QUADRANGLE burnham trading post
1/4 1/4 1/4 SEC T 25n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 2.9 DEPTH: 34.4
ACRES: MEASURED 125.7 INDICATED 730.97 INFERRED
SOURCE: conpaso-burnham mine plan Conf
REC NUM: 1496 LAT-LONG 362322 -1082917 MEMBER
ZONE

WELL NUMBER sj 399 COUNTY san juan
QUADRANGLE burnham trading post
1/4 1/4 1/4 SEC T 25n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 73.3
ACRES: MEASURED 125.7 INDICATED 730.97 INFERRED
SOURCE: conpaso-burnham mine plan Conf
REC NUM: 1497 LAT-LONG 362322 -1082917 MEMBER
ZONE

WELL NUMBER sj 399 COUNTY san juan
QUADRANGLE burnham trading post
1/4 1/4 1/4 SEC T 25n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 4.2 DEPTH: 100.8
ACRES: MEASURED 125.7 INDICATED 730.97 INFERRED
SOURCE: conpaso-burnham mine plan Conf
REC NUM: 1498 LAT-LONG 362322 -1082917 MEMBER
ZONE

WELL NUMBER sj 399 COUNTY san juan
QUADRANGLE burnham trading post
1/4 1/4 1/4 SEC T 25n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 4.5 DEPTH: 116.5
ACRES: MEASURED 125.7 INDICATED 730.97 INFERRED
SOURCE: conpaso-burnham mine plan Conf
REC NUM: 1499 LAT-LONG 362322 -1082917 MEMBER
ZONE

WELL NUMBER sj 400 COUNTY san juan
QUADRANGLE burnham trading post
ne 1/4 ne 1/4 sw 1/4 SEC 29 T 25n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 17.0 DEPTH: 140.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1500 LAT-LONG 362321 -1082712 MEMBER
ZONE

WELL NUMBER sj 400 COUNTY san juan
QUADRANGLE burnham trading post
ne 1/4 ne 1/4 sw 1/4 SEC 29 T 25n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 4.3 DEPTH: 166.5
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1501 LAT-LONG 362321 -1082712 MEMBER
ZONE

WELL NUMBER sj 400 COUNTY san juan
QUADRANGLE burnham trading post
ne 1/4 ne 1/4 sw 1/4 SEC 29 T 25n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 15.0 DEPTH: 182.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1502 LAT-LONG 362321 -1082712 MEMBER
ZONE

WELL NUMBER sj 400 COUNTY san juan
QUADRANGLE burnham trading post
ne 1/4 ne 1/4 sw 1/4 SEC 29 T 25n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 3.9 DEPTH: 198.6
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1504 LAT-LONG 362321 -1082712 MEMBER
ZONE

WELL NUMBER sj 401 COUNTY san juan
QUADRANGLE burnham trading post
se 1/4 sw 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 25.5
ACRES: MEASURED 125.7 INDICATED 603.46 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1505 LAT-LONG 362230 -1082901 MEMBER
ZONE

WELL NUMBER sj 401 COUNTY san juan
QUADRANGLE burnham trading post
se 1/4 sw 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 7.1 DEPTH: 32.0
ACRES: MEASURED 125.7 INDICATED 603.46 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1506 LAT-LONG 362230 -1082901 MEMBER
ZONE

WELL NUMBER sj 401 COUNTY san juan
QUADRANGLE burnham trading post
se 1/4 sw 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 9.6 DEPTH: 40.2
ACRES: MEASURED 125.7 INDICATED 603.46 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1507 LAT-LONG 362230 -1082901 MEMBER
ZONE

WELL NUMBER sj 401 COUNTY san juan
QUADRANGLE burnham trading post
se 1/4 sw 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 82.7
ACRES: MEASURED 125.7 INDICATED 603.46 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1508 LAT-LONG 362230 -1082901 MEMBER
ZONE

WELL NUMBER sj 401 COUNTY san juan
QUADRANGLE burnham trading post
se 1/4 sw 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 116.3
ACRES: MEASURED 125.7 INDICATED 603.46 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1509 LAT-LONG 362230 -1082901 MEMBER
ZONE

WELL NUMBER sj 401 COUNTY san juan
QUADRANGLE burnham trading post
se 1/4 sw 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 120.9
ACRES: MEASURED 125.7 INDICATED 603.46 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1510 LAT-LONG 362230 -1082901 MEMBER
ZONE

WELL NUMBER sj 401 COUNTY san juan
QUADRANGLE burnham trading post
se 1/4 sw 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 126.0
ACRES: MEASURED 125.7 INDICATED 603.46 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1511 LAT-LONG 362230 -1082901 MEMBER
ZONE

WELL NUMBER sj 401 COUNTY san juan
QUADRANGLE burnham trading post
se 1/4 sw 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 1.6 DEPTH: 131.6
ACRES: MEASURED 125.7 INDICATED 603.46 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1512 LAT-LONG 362230 -1082901 MEMBER
ZONE

WELL NUMBER sj 403 COUNTY san juan
QUADRANGLE newcomb se
ne 1/4 nw 1/4 sw 1/4 SEC 3 T 25n R 16w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 2.7 DEPTH: 45.4
ACRES: MEASURED 125.7 INDICATED 728.47 INFERRED
SOURCE: compaso burnham mine plan Conf
REC NUM: 1513 LAT-LONG 362200 -1083046 MEMBER
ZONE

WELL NUMBER sj 403 COUNTY san juan
QUADRANGLE newcomb se
ne 1/4 nw 1/4 sw 1/4 SEC 3 T 25n R 16w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 3.7 DEPTH: 51.1
ACRES: MEASURED 125.7 INDICATED 728.47 INFERRED
SOURCE: compaso burnham mine plan Conf
REC NUM: 1514 LAT-LONG 362200 -1083046 MEMBER
ZONE

WELL NUMBER sj 403 COUNTY san juan
QUADRANGLE newcomb se
ne 1/4 nw 1/4 sw 1/4 SEC 3 T 25n R 16w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 67.5
ACRES: MEASURED 125.7 INDICATED 728.47 INFERRED
SOURCE: compaso burnham mine plan Conf
REC NUM: 1515 LAT-LONG 362200 -1083046 MEMBER
ZONE

WELL NUMBER sj 404 COUNTY san juan
QUADRANGLE burnham trading post
1/4 1/4 1/4 SEC 26 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 6.9 DEPTH: 42.2
ACRES: MEASURED 125.7 INDICATED 574.3 INFERRED
SOURCE: compaso burnham mine plan Conf
REC NUM: 1516 LAT-LONG 362151 -1082908 MEMBER
ZONE

WELL NUMBER sj 404 COUNTY san juan
QUADRANGLE burnham trading post
1/4 1/4 1/4 SEC 26 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 3.3 DEPTH: 66.2
ACRES: MEASURED 125.7 INDICATED 574.3 INFERRED
SOURCE: compaso burnham mine plan Conf
REC NUM: 1517 LAT-LONG 362151 -1082908 MEMBER
ZONE

WELL NUMBER sj 404 COUNTY san juan
QUADRANGLE burnham trading post
1/4 1/4 1/4 SEC 26 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 2.8 DEPTH: 132.0
ACRES: MEASURED 125.7 INDICATED 574.3 INFERRED
SOURCE: compaso burnham mine plan Conf
REC NUM: 1518 LAT-LONG 362151 -1082908 MEMBER
ZONE

WELL NUMBER sj 404 COUNTY san juan
QUADRANGLE burnham trading post
1/4 1/4 1/4 SEC 26 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 143.8
ACRES: MEASURED 125.7 INDICATED 574.3 INFERRED
SOURCE: compaso burnham mine plan Conf
REC NUM: 1519 LAT-LONG 362151 -1082908 MEMBER
ZONE

WELL NUMBER sj 405 COUNTY san juan
QUADRANGLE burnham trading post
1/4 sw 1/4 sw 1/4 SEC 30 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 104.8
ACRES: MEASURED 125.7 INDICATED 682.6 INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1520 LAT-LONG 362140 -1082731 MEMBER
ZONE

WELL NUMBER sj 405 COUNTY san juan
QUADRANGLE burnham trading post
1/4 sw 1/4 sw 1/4 SEC 30 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 164.8
ACRES: MEASURED 125.7 INDICATED 682.6 INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1521 LAT-LONG 362140 -1082731 MEMBER
ZONE

WELL NUMBER sj 405 COUNTY san juan
QUADRANGLE burnham trading post
1/4 sw 1/4 sw 1/4 SEC 30 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 7.5 DEPTH: 167.6
ACRES: MEASURED 125.7 INDICATED 682.6 INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1522 LAT-LONG 362140 -1082731 MEMBER
ZONE

WELL NUMBER sj 405 COUNTY san juan
QUADRANGLE burnham trading post
1/4 sw 1/4 sw 1/4 SEC 30 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 1.4 DEPTH: 184.5
ACRES: MEASURED 125.7 INDICATED 682.6 INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1523 LAT-LONG 362140 -1082731 MEMBER
ZONE

WELL NUMBER sj 405 COUNTY san juan
QUADRANGLE burnham trading post
1/4 sw 1/4 sw 1/4 SEC 30 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 5.4 DEPTH: 194.3
ACRES: MEASURED 125.7 INDICATED 682.6 INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1524 LAT-LONG 362140 -1082731 MEMBER
ZONE

WELL NUMBER sj 405 COUNTY san juan
QUADRANGLE burnham trading post
1/4 sw 1/4 sw 1/4 SEC 30 T 24n R 5w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 1.3 DEPTH: 200.3
ACRES: MEASURED 125.7 INDICATED 682.6 INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1525 LAT-LONG 362140 -1082731 MEMBER
ZONE

WELL NUMBER sj 405 COUNTY san juan
QUADRANGLE burnham trading post
1/4 sw 1/4 sw 1/4 SEC 30 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 2.9 DEPTH: 216.2
ACRES: MEASURED 125.7 INDICATED 682.6 INFERRED
SOURCE: sconpaso burnham mine Conf
REC NUM: 1526 LAT-LONG 362140 -1082731 MEMBER
ZONE

WELL NUMBER sj 405 COUNTY san juan
QUADRANGLE burnham trading post
1/4 sw 1/4 sw 1/4 SEC 30 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 1.1 DEPTH: 231.7
ACRES: MEASURED 125.7 INDICATED 682.6 INFERRED
SOURCE: conpaso burnham mine plan Conf
REC NUM: 1527 LAT-LONG 362140 -1082731 MEMBER
ZONE

WELL NUMBER sj 405 COUNTY san juan
QUADRANGLE burnham trading post
1/4 sw 1/4 sw 1/4 SEC 30 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 1.8 DEPTH: 236.8
ACRES: MEASURED 125.7 INDICATED 682.6 INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1528 LAT-LONG 362140 -1082731 MEMBER
ZONE

WELL NUMBER sj 406 COUNTY san juan
QUADRANGLE newcomb se
ne 1/4 sw 1/4 ne 1/4 SEC 10 T 24n R 16w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 1.3 DEPTH: 14.2
ACRES: MEASURED 125.7 INDICATED 720.1 INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1529 LAT-LONG 362116 -1083031 MEMBER
ZONE

WELL NUMBER sj 406 COUNTY san juan
QUADRANGLE newcomb se
ne 1/4 sw 1/4 ne 1/4 SEC 10 T 24n R 16w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 7.8 DEPTH: 28.7
ACRES: MEASURED 125.7 INDICATED 720.1 INFERRED
SOURCE: conpaso mine plan Conf
REC NUM: 1530 LAT-LONG 362116 -1083031 MEMBER
ZONE

WELL NUMBER sj 406 COUNTY san juan
QUADRANGLE newcomb se
ne 1/4 sw 1/4 ne 1/4 SEC 10 T 24n R 16w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 2.1 DEPTH: 42.2
ACRES: MEASURED 125.7 INDICATED 720.1 INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1531 LAT-LONG 362116 -1083031 MEMBER
ZONE

WELL NUMBER sj 406 COUNTY san juan
QUADRANGLE newcomb se
ne 1/4 sw 1/4 ne 1/4 SEC 10 T 24n R 16w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 105.5
ACRES: MEASURED 125.7 INDICATED 720.1 INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1532 LAT-LONG 362116 -1083031 MEMBER
ZONE

WELL NUMBER sj 407 COUNTY san juan
QUADRANGLE burnham trading post
nw 1/4 sw 1/4 se 1/4 SEC 35 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 1.7 DEPTH: 23.3
ACRES: MEASURED 116.6 INDICATED INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1533 LAT-LONG 362055 -1082908 MEMBER
ZONE

WELL NUMBER sj 407 COUNTY san juan
QUADRANGLE burnham trading post
nw 1/4 sw 1/4 se 1/4 SEC 35 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 30.3
ACRES: MEASURED 116.6 INDICATED INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1534 LAT-LONG 362055 -1082908 MEMBER
ZONE

WELL NUMBER sj 407 COUNTY san juan
QUADRANGLE burnham trading post
nw 1/4 sw 1/4 se 1/4 SEC 35 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 40.4
ACRES: MEASURED 116.6 INDICATED INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1535 LAT-LONG 362055 -1082908 MEMBER
ZONE

WELL NUMBER sj 407 COUNTY san juan
QUADRANGLE burnham trading post
nw 1/4 sw 1/4 se 1/4 SEC 35 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 60.1
ACRES: MEASURED 116.6 INDICATED INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1536 LAT-LONG 362055 -1082908 MEMBER
ZONE

WELL NUMBER sj 407 COUNTY san juan
QUADRANGLE burnham trading post
nw 1/4 sw 1/4 se 1/4 SEC 35 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 1.8 DEPTH: 89.8
ACRES: MEASURED 116.6 INDICATED INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1537 LAT-LONG 362055 -1082908 MEMBER
ZONE

WELL NUMBER sj 407 COUNTY san juan
QUADRANGLE burnham trading post
nw 1/4 sw 1/4 se 1/4 SEC 35 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 2.6 DEPTH: 133.0
ACRES: MEASURED 116.6 INDICATED INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1538 LAT-LONG 362055 -1082908 MEMBER
ZONE

WELL NUMBER sj 407 COUNTY san juan
QUADRANGLE burnham trading post
nw 1/4 sw 1/4 se 1/4 SEC 35 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 13.0 DEPTH: 139.1
ACRES: MEASURED 116.6 INDICATED INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1539 LAT-LONG 362055 -1082908 MEMBER
ZONE

WELL NUMBER sj 408 COUNTY san juan
QUADRANGLE burnham trading post
nw 1/4 ne 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 1.8 DEPTH: 99.2
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1540 LAT-LONG 362110 -1082736 MEMBER
ZONE

WELL NUMBER sj 408 COUNTY san juan
QUADRANGLE burnham trading post
nw 1/4 ne 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 156.4
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1541 LAT-LONG 362110 -1082736 MEMBER
ZONE

WELL NUMBER sj 408 COUNTY san juan
QUADRANGLE burnham trading post
nw 1/4 ne 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 4.2 DEPTH: 183.2
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1542 LAT-LONG 362110 -1082736 MEMBER
ZONE

WELL NUMBER sj 408 COUNTY san juan
QUADRANGLE burnham trading post
nw 1/4 ne 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 2.8 DEPTH: 228.4
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1543 LAT-LONG 362110 -1082736 MEMBER
ZONE

WELL NUMBER sj 408 COUNTY san juan
QUADRANGLE burnham trading post
nw 1/4 ne 1/4 ne 1/4 SEC 36 T 24n R 15w FIELD: navajo
FORMATION: fruitland COAL THICKNESS: 1.7 DEPTH: 236.2
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: conpaso burnham mine Conf
REC NUM: 1544 LAT-LONG 362110 -1082736 MEMBER
ZONE

WELL NUMBER usgs-3 COUNTY san juan
QUADRANGLE ojo encino mesa
ne 1/4 ne 1/4 sw 1/4 SEC 23 T 20n R 6w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 222.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1248 Conf
REC NUM: 417 LAT-LONG - MEMBER
ZONE

WELL NUMBER hz 3 COUNTY san juan
QUADRANGLE waterflow
nw 1/4 nw 1/4 nw 1/4 SEC 1 T 29n R 16w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 16.0 DEPTH: 51.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 3664608 -1082831 MEMBER
ZONE

WELL NUMBER hz 1 COUNTY san juan
QUADRANGLE fruitland
se 1/4 sw 1/4 ne 1/4 SEC 3 T 29n R 15w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 2.9 DEPTH: 30.0
ACRES: MEASURED 120.0 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER hz 1 COUNTY san juan
QUADRANGLE fruitland
se 1/4 sw 1/4 ne 1/4 SEC 3 T 29n R 15w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 3.6 DEPTH: 50.9
ACRES: MEASURED 120.0 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER hz 2 COUNTY san juan
QUADRANGLE fruitland
sw 1/4 sw 1/4 ne 1/4 SEC 10 T 29n R 15w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 9.4 DEPTH: 51.0
ACRES: MEASURED 120.0 INDICATED 890.0 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER hz 13 COUNTY san juan
QUADRANGLE waterflow
nw 1/4 nw 1/4 se 1/4 SEC 23 T 30n R 16w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 6.1 DEPTH: 52.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 364823 -1082903 MEMBER
ZONE

WELL NUMBER hz 13 COUNTY san juan
QUADRANGLE waterflow
nw 1/4 nw 1/4 se 1/4 SEC 23 T 30n R 16w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 1.2 DEPTH: 70.9
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 364823 -1082903 MEMBER
ZONE

WELL NUMBER hz 13 COUNTY san juan
QUADRANGLE waterflow
nw 1/4 nw 1/4 se 1/4 SEC 23 T 30n R 16w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 1.2 DEPTH: 103.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 364823 -1082903 MEMBER
ZONE

WELL NUMBER hz 11 COUNTY san juan
QUADRANGLE waterflow
sw 1/4 sw 1/4 se 1/4 SEC 19 T 30n R 15w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 16.0 DEPTH: 50.0
ACRES: MEASURED 101.7 INDICATED 533.1 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 364803 -1082654 MEMBER
ZONE

WELL NUMBER hz 10 COUNTY san juan
QUADRANGLE waterflow
ne 1/4 ne 1/4 e 1/4 SEC 30 T 30n R 15w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 3.7 DEPTH: 104.2
ACRES: MEASURED 101.7 INDICATED 533.1 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 364759 -1082626 MEMBER
ZONE

WELL NUMBER hz 6 COUNTY san juan
QUADRANGLE youngs lake
nw 1/4 se 1/4 sw 1/4 SEC 34 T 30n R 14w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2148.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-62 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER ohio govt 1-20 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 20 T 31n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2194.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp 676-62 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER ohio govt 1-20 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 20 T 31n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 2309.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp 676-62 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER ohio govt 1-20 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 20 T 31n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2348.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp 676-62 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER ohio govt 1-20 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 20 T 31n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2353.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp 676-62 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER ohio govt 1-20 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 20 T 31n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2444.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp 676-62 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER ohio govt 1-20 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 20 T 31n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 4450.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp 676-62 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 14581-111 COUNTY rio arriba
QUADRANGLE gobernador
sw 1/4 se 1/4 ne 1/4 SEC 30 T 29n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.0 DEPTH: 3573.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw ; san juan 29-5,#13-30 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 14581-111 COUNTY rio arriba
QUADRANGLE gobernador
sw 1/4 se 1/4 ne 1/4 SEC 30 T 29n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 3537.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw; san juan 29-5,#13-30 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8815-108 COUNTY san juan
QUADRANGLE gould pass
nw 1/4 se 1/4 nw 1/4 SEC 21 T 29n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 9.0 DEPTH: 2970.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: el paso nat'l gas; #3 mv strat test Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8815-108 COUNTY san juan
QUADRANGLE gould pass
nw 1/4 se 1/4 nw 1/4 SEC 21 T 29n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 2386.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: el paso nat'l gas; #3 mv strat test Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8815-108 COUNTY san juan
QUADRANGLE gould pass
nw 1/4 se 1/4 nw 1/4 SEC 21 T 29n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 3002.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: el paso nat'l gas; #3 mv strat test Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8815-108 COUNTY san juan
QUADRANGLE gould pass
nw 1/4 se 1/4 nw 1/4 SEC 21 T 29n R 8w FIELD: san juan
FORMATION: friutland COAL THICKNESS: 18.0 DEPTH: 3062.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: el paso nat'l gas; #3 mv strat test Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8877-107 COUNTY san juan
QUADRANGLE bloomfield
nw 1/4 sw 1/4 sw 1/4 SEC 33 T 29n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2317.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: hdh drilling, sj#2 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8877-107 COUNTY san juan
QUADRANGLE bloomfield
nw 1/4 sw 1/4 sw 1/4 SEC 33 T 29n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 2403.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: hdh drilling, sj#2 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8877-107 COUNTY san juan
QUADRANGLE bloomfield
nw 1/4 sw 1/4 sw 1/4 SEC 33 T 29n R 9w FIELD: san juan
FORMATION: friutland COAL THICKNESS: 3.0 DEPTH: 2412.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: hdh drilling,sj#2 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8877-107 COUNTY san juan
QUADRANGLE bloomfield
nw 1/4 sw 1/4 sw 1/4 SEC 33 T 29n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 10.0 DEPTH: 2503.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: hdh drilling, sj#2 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8960-100 COUNTY san juan
QUADRANGLE farmington south
se 1/4 ne 1/4 ne 1/4 SEC 33 T 29n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 1096.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: tennessee gas & oil; callow #13 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8960-100 COUNTY san juan
QUADRANGLE farmington south
se 1/4 ne 1/4 ne 1/4 SEC 33 T 29n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 1140.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: tennessee oil & gas; callow #13 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8960-100 COUNTY san juan
QUADRANGLE farmington south
se 1/4 ne 1/4 ne 1/4 SEC 33 T 29n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 1147.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: tennessee oil & gas; callow #13 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8960-100 COUNTY san juan
QUADRANGLE farmington south
se 1/4 ne 1/4 ne 1/4 SEC 33 T 29n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 1151.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: tennessee oil and gas; callow #13 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9020-90 COUNTY rio arriba
QUADRANGLE gomez ranch
se 1/4 nw 1/4 sw 1/4 SEC 20 T 30n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 11.0 DEPTH: 3068.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: el paso nat'l gas; manning #1-a Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9020-90 COUNTY rio arriba
QUADRANGLE gomez ranch
se 1/4 nw 1/4 sw 1/4 SEC 20 T 30n R 6n FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7. DEPTH: 3102.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: el paso nat'l gas; manning #1-a Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 13715-82 COUNTY san juan
QUADRANGLE flora vista
sw 1/4 ne 1/4 sw 1/4 SEC 36 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4. DEPTH: 1842.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pubco petroleum; state #30 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 13715-82 COUNTY san juan
QUADRANGLE flora vista
sw 1/4 ne 1/4 sw 1/4 SEC 36 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2. DEPTH: 1850.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pubco pet.; state #30 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 13715-82 COUNTY san juan
QUADRANGLE flora vista
sw 1/4 ne 1/4 sw 1/4 SEC 36 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5. DEPTH: 1913.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pubco pet.; state #30 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 13715-82 COUNTY san juan
QUADRANGLE flora vista
sw 1/4 ne 1/4 sw 1/4 SEC 36 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3. DEPTH: 1921.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pubco pet.; state #30 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12278-69 COUNTY rio arriba
QUADRANGLE navajo dam
sw 1/4 ne 1/4 sw 1/4 SEC 31 T 31n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 2333.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline; sj 31-6 mesa 5-31 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12278-69 COUNTY rio arriba
QUADRANGLE navajo dam
sw 1/4 ne 1/4 sw 1/4 SEC 31 T 31n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4. DEPTH: 2358.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline;sj 31-6 mesa 5-31 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12278-69 COUNTY rio arriba
QUADRANGLE navajo dam
sw 1/4 ne 1/4 sw 1/4 SEC 31 T 31n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4. DEPTH: 2396.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline; sj 31-6, mesa 5-31 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12278-69 COUNTY rio arriba
QUADRANGLE navajo dam
sw 1/4 ne 1/4 sw 1/4 SEC 31 T 31n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4. DEPTH: 2954.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline; sj 31-6 mesa 5-31 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12278-69 COUNTY rio arriba
QUADRANGLE navajo dam
sw 1/4 ne 1/4 sw 1/4 SEC 31 T 31n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6. DEPTH: 2964.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline, sj 31-6, mesa 5-31 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12278-69 COUNTY rio arriba
QUADRANGLE navajo dam
sw 1/4 ne 1/4 sw 1/4 SEC 31 T 31n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5. DEPTH: 2982.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline; sj 31-6, mesa 5-31 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gomez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4. DEPTH: 3157.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline; rosa unit 15-29 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gomez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4. DEPTH: 3199.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline; rosa unit 15-29 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gomez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4. DEPTH: 3205.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline; rosa unit15-29 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gomez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3. DEPTH: 3238.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipe.;rosa unit 15-29 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gomez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5. DEPTH: 3247.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pl; rosa unit 15-29 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gomez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3. DEPTH: 3256.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pl; rosa unit 15-29 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gomez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6. DEPTH: 3264.
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pl; rosa unit 15-29 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER p79 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 se 1/4 SEC 14 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 05.5 DEPTH: 0055.0
ACRES: MEASURED 110.0 INDICATED 0610.6 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 370023 -1080939 MEMBER
ZONE

WELL NUMBER p79 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 se 1/4 SEC 14 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 04.5 DEPTH: 0066.5
ACRES: MEASURED 110.0 INDICATED 0610.6 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360023 -1080939 MEMBER
ZONE

WELL NUMBER p79 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 se 1/4 SEC 14 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 02.0 DEPTH: 0166.0
ACRES: MEASURED 110.0 INDICATED 0610.6 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360023 -1080939 MEMBER
ZONE

WELL NUMBER p79 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 se 1/4 SEC 14 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 07.5 DEPTH: 0169.5
ACRES: MEASURED 110.0 INDICATED 610.0 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360023 -1080939 MEMBER
ZONE

WELL NUMBER p79 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 se 1/4 SEC 14 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 03.0 DEPTH: 0255.5
ACRES: MEASURED 110.0 INDICATED 610.6 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360023 -1080939 MEMBER
ZONE

WELL NUMBER p79 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 se 1/4 SEC 14 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 03.0 DEPTH: 0260.0
ACRES: MEASURED 110.0 INDICATED 610.6 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360023 -1080939 MEMBER
ZONE

WELL NUMBER p79 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 se 1/4 SEC 14 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 02.8 DEPTH: 0292.2
ACRES: MEASURED 110.0 INDICATED 610.6 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360023 -1080939 MEMBER
ZONE

WELL NUMBER p79 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 se 1/4 SEC 14 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 02.5 DEPTH: 0295.5
ACRES: MEASURED 110.0 INDICATED 610.6 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360023 -1080939 MEMBER
ZONE

WELL NUMBER 179 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 se 1/4 SEC 15 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 02.0 DEPTH: 0138.0
ACRES: MEASURED 110.0 INDICATED 584.2 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360025 -1081052 MEMBER
ZONE

WELL NUMBER 179 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 se 1/4 SEC 15 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 05.0 DEPTH: 0141.0
ACRES: MEASURED 110.0 INDICATED 584.2 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360025 -1081052 MEMBER
ZONE

WELL NUMBER 179 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 se 1/4 SEC 15 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 01.3 DEPTH: 0189.0
ACRES: MEASURED 110.0 INDICATED 584.2 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360025 -1081052 MEMBER
ZONE

WELL NUMBER 179 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 se 1/4 SEC 15 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 02.0 DEPTH: 0191.0
ACRES: MEASURED 110.0 INDICATED 584.2 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360025 -1081052 MEMBER
ZONE

WELL NUMBER 179 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 se 1/4 SEC 15 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 06.0 DEPTH: 0196.0
ACRES: MEASURED 110.0 INDICATED 584.2 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360025 -1081052 MEMBER
ZONE

WELL NUMBER 179 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 se 1/4 SEC 15 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 03.0 DEPTH: 0351.0
ACRES: MEASURED 110.0 INDICATED 584.2 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360025 -1081052 MEMBER
ZONE

WELL NUMBER 179 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 se 1/4 SEC 15 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 30.0 DEPTH: 0355.0
ACRES: MEASURED 110.0 INDICATED 584.2 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360025 -1081052 MEMBER
ZONE

WELL NUMBER 179 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 se 1/4 SEC 15 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 04.0 DEPTH: 0386.0
ACRES: MEASURED 110.0 INDICATED 584.2 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 360025 -1081052 MEMBER
ZONE

WELL NUMBER 18-13-13 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 c 1/4 SEC 13 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 05.5 DEPTH: 0177.0
ACRES: MEASURED 122.0 INDICATED 668.8 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 370042 -1080851 MEMBER
ZONE

WELL NUMBER 18-13-13 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 c 1/4 SEC 13 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 05.0 DEPTH: 0193.0
ACRES: MEASURED 122.0 INDICATED 668.8 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 370042 -1080851 MEMBER
ZONE

WELL NUMBER 18-13-13 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 c 1/4 SEC 13 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 01.8 DEPTH: 0273.0
ACRES: MEASURED 122.0 INDICATED 668.8 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 370042 -1080851 MEMBER
ZONE

WELL NUMBER 18-13-13 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 c 1/4 SEC 13 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 01.8 DEPTH: 0276.0
ACRES: MEASURED 122.0 INDICATED 668.2 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 370042 -1080851 MEMBER
ZONE

WELL NUMBER 18-13-13 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 c 1/4 SEC 13 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 02.5 DEPTH: 0279.0
ACRES: MEASURED 122.0 INDICATED 668.8 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 370042 -1080851 MEMBER
ZONE

WELL NUMBER 18-13-13 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 c 1/4 SEC 13 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 04.5 DEPTH: 0283.0
ACRES: MEASURED 122.0 INDICATED 668.8 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 370042 -1080851 MEMBER
ZONE

WELL NUMBER 18-13-13 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 c 1/4 SEC 13 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 02.0 DEPTH: 0291.0
ACRES: MEASURED 122.0 INDICATED 668.8 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 370042 -1080851 MEMBER
ZONE

WELL NUMBER 18-13-13 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 c 1/4 SEC 13 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 26.0 DEPTH: 0376.0
ACRES: MEASURED 122.0 INDICATED 668.8 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 370042 -1080851 MEMBER
ZONE

WELL NUMBER 18-13-13 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 c 1/4 SEC 13 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 01.5 DEPTH: 0432.0
ACRES: MEASURED 122.0 INDICATED 668.8 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 370042 -1080851 MEMBER
ZONE

WELL NUMBER 18-13-13 COUNTY san juan
QUADRANGLE la plata
nw 1/4 sw 1/4 c 1/4 SEC 13 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 01.8 DEPTH: 0434.0
ACRES: MEASURED 122.0 INDICATED 668.8 INFERRED 0000000
SOURCE: Conf
REC NUM: 00000 LAT-LONG 370042 -1080851 MEMBER
ZONE

WELL NUMBER federal gas no. 1 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 20 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 1972.
ACRES: MEASURED 125.7 INDICATED 971.3 INFERRED
SOURCE: pp-676-40 Conf
REC NUM: 3 LAT-LONG - MEMBER
ZONE

WELL NUMBER federal gas no. 1 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 20 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 1994.
ACRES: MEASURED 125.7 INDICATED 971.3 INFERRED
SOURCE: pp-676-40 Conf
REC NUM: 4 LAT-LONG - MEMBER
ZONE

WELL NUMBER federal gas no. 1 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 20 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2072.
ACRES: MEASURED 125.7 INDICATED 971.3 INFERRED
SOURCE: pp-676-40 Conf
REC NUM: 5 LAT-LONG - MEMBER
ZONE

WELL NUMBER federal gas no. 1 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 20 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2076.
ACRES: MEASURED 125.7 INDICATED 971.3 INFERRED
SOURCE: pp-676-40 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER federal gas no. 1 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 20 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 19. DEPTH: 2173.
ACRES: MEASURED 125.7 INDICATED 971.3 INFERRED
SOURCE: pp-676-40 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER federal gas no. 1 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 20 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 2215.
ACRES: MEASURED 125.7 INDICATED 971.3 INFERRED
SOURCE: pp-676-40 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER moore no.6 COUNTY san juan
QUADRANGLE adobe downs ranch
1/4 1/4 1/4 SEC 25 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 25. DEPTH: 2605.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-41 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-48 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 14 T 32n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5. DEPTH: 3100.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-43 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-48 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 14 T 32n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5. DEPTH: 3122.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-43 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-48 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 14 T 32n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5. DEPTH: 3200.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-43 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-48 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 14 T 32n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 8. DEPTH: 3264.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-43 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-48 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 14 T 32n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 26.0 DEPTH: 3277.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-43 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-48 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 14 T 32n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3. DEPTH: 3313.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-43 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-48 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 14 T 32n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 19.0 DEPTH: 3405.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-43 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-63 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 36 T 32n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3108.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-45 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-63 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 36 T 32n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 3210.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-45 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-63 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 36 T 32n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 18.0 DEPTH: 3252.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-45 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-63 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 36 T 32n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 16.0 DEPTH: 3295.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-45 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-63 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 36 T 32n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 18.0 DEPTH: 3343.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-45 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-9-63 COUNTY san juan
QUADRANGLE aztec
1/4 1/4 1/4 SEC 36 T 32n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 3415.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-45 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-8 COUNTY san juan
QUADRANGLE navajo dam
1/4 1/4 1/4 SEC 20 T 32n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 26.0 DEPTH: 3562.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-46 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-8 COUNTY san juan
QUADRANGLE navajo dam
1/4 1/4 1/4 SEC 20 T 32n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 10.0 DEPTH: 3623.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-46 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-8 COUNTY san juan
QUADRANGLE navajo dam
1/4 1/4 1/4 SEC 20 T 32n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3640.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-46 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-8 COUNTY san juan
QUADRANGLE navajo dam
1/4 1/4 1/4 SEC 20 T 32n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 26.0 DEPTH: 3664.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-46 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER allison # 16 COUNTY rio arriba
QUADRANGLE burnt mesa
1/4 1/4 1/4 SEC 15 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3430.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-47 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER allison # 16 COUNTY rio arriba
QUADRANGLE burnt mesa
1/4 1/4 1/4 SEC 15 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 3452.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-47 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER allison # 16 COUNTY rio arriba
QUADRANGLE burnt mesa
1/4 1/4 1/4 SEC 15 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 3473.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-47 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER allison # 16 COUNTY rio arriba
QUADRANGLE burnt mesa
1/4 1/4 1/4 SEC 15 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 3488.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-47 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER allison # 16 COUNTY rio arriba
QUADRANGLE burnt mesa
1/4 1/4 1/4 SEC 15 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 23.0 DEPTH: 3496.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-47 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER allison # 16 COUNTY rio arriba
QUADRANGLE burnt mesa
1/4 1/4 1/4 SEC 15 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3554.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-47 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER allison # 13 COUNTY rio arriba
QUADRANGLE burnt mesa
1/4 1/4 1/4 SEC 12 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 16.0 DEPTH: 3104.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-48 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER allison # 13 COUNTY rio arriba
QUADRANGLE burnt mesa
1/4 1/4 1/4 SEC 12 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 3125.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-48 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER allison # 13 COUNTY rio arriba
QUADRANGLE burnt mesa
1/4 1/4 1/4 SEC 12 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 3134.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-48 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER allison # 13 COUNTY rio arriba
QUADRANGLE burnt mesa
1/4 1/4 1/4 SEC 12 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 15.0 DEPTH: 3176.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-48 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER allison # 17 COUNTY rio arriba
QUADRANGLE burnt mesa
1/4 1/4 1/4 SEC 24 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 26.0 DEPTH: 3126.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-49 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER allison # 17 COUNTY rio arriba
QUADRANGLE burnt mesa
1/4 1/4 1/4 SEC 24 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 14.0 DEPTH: 3178.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-49 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-2 no. 6-10 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 10 T 32n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 24.0 DEPTH: 2716.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-50 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-5 no. 6-10 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 10 T 32n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 10.0 DEPTH: 2745.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-50 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-5 no.14 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 26 T 32n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 24. DEPTH: 3017.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-51 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-5 no.14 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 26 T 32n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 10.0 DEPTH: 3056.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-51 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-5 no.1-31 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 31 T 32n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 24.0 DEPTH: 3344.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-52 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER sju 32-5 no.1-31 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 31 T 32n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.0 DEPTH: 3425.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-52 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER carracas mesa#1-26 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 26 T 32n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 22.0 DEPTH: 3765.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-53 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER carracas mesa#1-26 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 26 T 32n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 3799.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-53 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER mesaunit#32-4#1-29 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 29 T 32n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 23. DEPTH: 4020.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-54 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER mesaunit#32-4#1-29 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 29 T 32n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 4077.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-54 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER mesaunit#32-4#1-29 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 29 T 32n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 4087.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-54 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER mesaunit#32-4#2-16 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 16 T 32n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 3062.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-55 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER mesaunit#32-4#2-16 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 16 T 32n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3618.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-55 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER mesaunit#32-4#2-16 COUNTY rio arriba
QUADRANGLE bancos mesa nw
1/4 1/4 1/4 SEC 16 T 32n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 24.0 DEPTH: 3646.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-55 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER pagosa jicarilla COUNTY rio arriba
QUADRANGLE carracas canyon
1/4 1/4 1/4 SEC 23 T 32n R 3w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 10.0 DEPTH: 1030.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-56 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER fed lease no. 1 COUNTY san juan
QUADRANGLE la plata
1/4 1/4 1/4 SEC 34 T 31n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 1706.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-61 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER fed lease no. 1 COUNTY san juan
QUADRANGLE la plata
1/4 1/4 1/4 SEC 34 T 31n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 1733.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-61 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER fed lease no. 1 COUNTY san juan
QUADRANGLE la plata
1/4 1/4 1/4 SEC 34 T 31n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 1780.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-61 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER fed lease no. 1 COUNTY san juan
QUADRANGLE la plata
1/4 1/4 1/4 SEC 34 T 31n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 1865.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pp-676-61 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 15a COUNTY san juan
QUADRANGLE pueblo bonito nw
1/4 ne 1/4 ne 1/4 SEC 15 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 22.2 DEPTH: 267.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 2 LAT-LONG 361122 -1075220 MEMBER
ZONE

WELL NUMBER t1-7-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 33.0
ACRES: MEASURED 119.4 INDICATED 703.4 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 551 LAT-LONG 361454 -1080954 MEMBER
ZONE

WELL NUMBER t1-7-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.8 DEPTH: 54.0
ACRES: MEASURED 119.4 INDICATED 703.4 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 552 LAT-LONG 361454 -1080954 MEMBER
ZONE

WELL NUMBER t1-7-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 62.0
ACRES: MEASURED 119.4 INDICATED 703.4 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 553 LAT-LONG 361454 -1070954 MEMBER
ZONE

WELL NUMBER tl-7-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.1 DEPTH: 79.0
ACRES: MEASURED 119.4 INDICATED 703.4 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 554 LAT-LONG 361454 -1080954 MEMBER
ZONE

WELL NUMBER tl-7-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 85.0
ACRES: MEASURED 119.4 INDICATED 703.4 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 555 LAT-LONG 361454 -1080954 MEMBER
ZONE

WELL NUMBER tl-7-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.8 DEPTH: 103.0
ACRES: MEASURED 119.4 INDICATED 703.4 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 556 LAT-LONG 361454 -1080954 MEMBER
ZONE

WELL NUMBER tl-7-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.6 DEPTH: 114.0
ACRES: MEASURED 119.4 INDICATED 703.4 INFERRED
SOURCE: usgs 77-369 Conf
REC NUM: 557 LAT-LONG 361454 -1080954 MEMBER
ZONE

WELL NUMBER tl-29-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 29 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 52.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: usgs of 77-369 Conf n
REC NUM: LAT-LONG 361214 -1081427 MEMBER
ZONE

WELL NUMBER tl-27-1 COUNTY san juan
QUADRANGLE tanner lake
1/4 nw 1/4 ne 1/4 SEC 27 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 75.0
ACRES: MEASURED 125.7 INDICATED 978.6 INFERRED
SOURCE: usgs of 7-369 Conf n
REC NUM: LAT-LONG 361210 -1081238 MEMBER
ZONE

WELL NUMBER tl-26-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 se 1/4 nw 1/4 SEC 26 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 35.0
ACRES: MEASURED 125.7 INDICATED 932.8 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 550 LAT-LONG 361203 -1081144 MEMBER
ZONE

WELL NUMBER tl-25-1 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 sw 1/4 sw 1/4 SEC 25 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.8 DEPTH: 21.0
ACRES: MEASURED 125.7 INDICATED 932.8 INFERRED
SOURCE: usgs of 77-369 Conf n
REC NUM: LAT-LONG 361143 -1081105 MEMBER
ZONE

WELL NUMBER tl-25-1 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 sw 1/4 sw 1/4 SEC 25 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 61.0
ACRES: MEASURED 125.7 INDICATED 932.8 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 549 LAT-LONG 361143 -1081105 MEMBER
ZONE

WELL NUMBER usgs-2 COUNTY san juan
QUADRANGLE ojo encino mesa
1/4 1/4 c 1/4 SEC 15 T 20n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 53.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mr 1249 Conf
REC NUM: 416 LAT-LONG 355914 -1072047 MEMBER
ZONE

WELL NUMBER dhoe 5 COUNTY san juan
QUADRANGLE star lake
se 1/4 nw 1/4 ne 1/4 SEC 5 T 19n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 27.5
ACRES: MEASURED 125.7 INDICATED 732.6 INFERRED
SOURCE: mf 1248 Conf
REC NUM: 418 LAT-LONG 355745 -1072226 MEMBER
ZONE

WELL NUMBER dhoe 5 COUNTY san juan
QUADRANGLE star lake
se 1/4 nw 1/4 ne 1/4 SEC 5 T 19n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.7 DEPTH: 59.4
ACRES: MEASURED 125.7 INDICATED 732.6 INFERRED
SOURCE: mf 1248 Conf
REC NUM: 419 LAT-LONG 3557456 -1072226 MEMBER
ZONE

WELL NUMBER dhoe 5 COUNTY san juan
QUADRANGLE star lake
se 1/4 nw 1/4 ne 1/4 SEC 5 T 19n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 21.7 DEPTH: 158.7
ACRES: MEASURED 125.7 INDICATED 732.6 INFERRED
SOURCE: mf 1248 Conf
REC NUM: 420 LAT-LONG 355745 -1072226 MEMBER
ZONE

WELL NUMBER dhoe-2 COUNTY san juan
QUADRANGLE star lake
sw 1/4 sw 1/4 sw 1/4 SEC 4 T 19n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 21.8 DEPTH: 16.5
ACRES: MEASURED 125.7 INDICATED 732.6 INFERRED
SOURCE: mf 1248 Conf
REC NUM: 421 LAT-LONG 355706 -1072205 MEMBER
ZONE

WELL NUMBER dhoe-2 COUNTY san juan
QUADRANGLE star lake
sw 1/4 sw 1/4 sw 1/4 SEC 4 T 19n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 7.4 DEPTH: 58.6
ACRES: MEASURED 125.7 INDICATED 732.6 INFERRED
SOURCE: mf 1248 Conf
REC NUM: 422 LAT-LONG 355706 -1072205 MEMBER
ZONE

WELL NUMBER usgs 6 COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 sw 1/4 ne 1/4 SEC 6 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 295.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1124 Conf
REC NUM: 423 LAT-LONG 360543 -1074307 MEMBER
ZONE

WELL NUMBER usgs 6 COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 sw 1/4 ne 1/4 SEC 6 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 24.0 DEPTH: 312.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1124 Conf
REC NUM: 424 LAT-LONG 360543 -1074307 MEMBER
ZONE

WELL NUMBER usgs 5 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 se 1/4 nw 1/4 SEC 24 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 14.0 DEPTH: 380.5
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1124 Conf
REC NUM: 425 LAT-LONG 360230 -1073801 MEMBER
ZONE

WELL NUMBER usgs 5 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 se 1/4 nw 1/4 SEC 24 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.1 DEPTH: 424.5
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1124 Conf
REC NUM: 426 LAT-LONG 360230 -1073801 MEMBER
ZONE

WELL NUMBER usgs 5 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 se 1/4 nw 1/4 SEC 24 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.7 DEPTH: 430.7
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1124 Conf
REC NUM: 427 LAT-LONG 360230 -1073801 MEMBER
ZONE

WELL NUMBER usgs 7 COUNTY san juan
QUADRANGLE fire rock well
1/4 1/4 c 1/4 SEC 27 T 22n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 22.0 DEPTH: 662.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1124 Conf
REC NUM: 428 LAT-LONG 360817 -1072738 MEMBER
ZONE

WELL NUMBER usgs 7 COUNTY san juan
QUADRANGLE fire rock well
1/4 1/4 c 1/4 SEC 27 T 22n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 720.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1124 Conf
REC NUM: 429 LAT-LONG 360817 -1074002 MEMBER
ZONE

WELL NUMBER dhoe-1a COUNTY san juan
QUADRANGLE star lake
nw 1/4 nw 1/4 nw 1/4 SEC 7 T 19n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.4 DEPTH: 42.6
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 437 LAT-LONG 355653 -1072420 MEMBER
ZONE

WELL NUMBER dhoe-1a COUNTY san juan
QUADRANGLE star lake
nw 1/4 nw 1/4 nw 1/4 SEC 7 T 19n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 13.5 DEPTH: 48.1
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1248 Conf
REC NUM: 438 LAT-LONG 355653 -1072420 MEMBER
ZONE

WELL NUMBER dhoe-1a COUNTY san juan
QUADRANGLE star lake
nw 1/4 nw 1/4 nw 1/4 SEC 7 T 19n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 15.1 DEPTH: 101.2
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1248 Conf
REC NUM: 439 LAT-LONG 355653 -1072420 MEMBER
ZONE

WELL NUMBER dh-9k COUNTY san juan
QUADRANGLE kimbeto
se 1/4 se 1/4 sw 1/4 SEC 13 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.3 DEPTH: 79.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf-1118 Conf
REC NUM: 440 LAT-LONG 360827 -1075028 MEMBER
ZONE

WELL NUMBER dh-9k COUNTY san juan
QUADRANGLE kimbeto
se 1/4 se 1/4 sw 1/4 SEC 13 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 133.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf-1118 Conf
REC NUM: 441 LAT-LONG 360827 -1075028 MEMBER
ZONE

WELL NUMBER dh-9k COUNTY san juan
QUADRANGLE kimbeto
se 1/4 se 1/4 sw 1/4 SEC 13 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 173.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf-1118 Conf
REC NUM: 442 LAT-LONG 360827 -1075028 MEMBER
ZONE

WELL NUMBER dh-9k COUNTY san juan
QUADRANGLE kimbeto
se 1/4 se 1/4 sw 1/4 SEC 13 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 189.4
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf-1118 Conf
REC NUM: 443 LAT-LONG 360827 -1075028 MEMBER
ZONE

WELL NUMBER dh-9k COUNTY san juan
QUADRANGLE kimbeto
se 1/4 se 1/4 sw 1/4 SEC 13 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.2 DEPTH: 197.7
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf-1118 Conf
REC NUM: 444 LAT-LONG 360827 -1075028 MEMBER
ZONE

WELL NUMBER dh-9k COUNTY san juan
QUADRANGLE kimbeto
se 1/4 se 1/4 sw 1/4 SEC 13 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.8 DEPTH: 235.2
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf-1118 Conf
REC NUM: 445 LAT-LONG 360827 -1075028 MEMBER
ZONE

WELL NUMBER dh-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 se 1/4 nw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.9 DEPTH: 238.8
ACRES: MEASURED 125.7 INDICATED 644.3 INFERRED
SOURCE: mf 1074 Conf
REC NUM: 446 LAT-LONG 361559 -1080855 MEMBER
ZONE

WELL NUMBER dh-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 se 1/4 nw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 20.0 DEPTH: 297.5
ACRES: MEASURED 125.7 INDICATED 644.3 INFERRED
SOURCE: mf 1074 Conf
REC NUM: 447 LAT-LONG 361559 -1080855 MEMBER
ZONE

WELL NUMBER dh-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 se 1/4 nw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 18.5 DEPTH: 320.0
ACRES: MEASURED 125.7 INDICATED 644.3 INFERRED
SOURCE: mf 1074 Conf
REC NUM: 448 LAT-LONG 361559 -1080855 MEMBER
ZONE

WELL NUMBER dh-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 se 1/4 nw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 346.2
ACRES: MEASURED 125.7 INDICATED 644.3 INFERRED
SOURCE: mf 1074 Conf
REC NUM: 449 LAT-LONG 361559 -1080855 MEMBER
ZONE

WELL NUMBER dh-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 se 1/4 nw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 357.5
ACRES: MEASURED 125.7 INDICATED 644.3 INFERRED
SOURCE: mf 1074 Conf
REC NUM: 450 LAT-LONG 361559 -1080855 MEMBER
ZONE

WELL NUMBER dhoe-3 COUNTY san juan
QUADRANGLE ojo encino mesa
sw 1/4 se 1/4 sw 1/4 SEC 34 T 20n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.3 DEPTH: 19.7
ACRES: MEASURED 125.7 INDICATED 699.3 INFERRED
SOURCE: mf 1249 Conf
REC NUM: 451 LAT-LONG 355510 -1072054 MEMBER
ZONE

WELL NUMBER dhoe-3 COUNTY san juan
QUADRANGLE ojo encino mesa
sw 1/4 se 1/4 sw 1/4 SEC 34 T 20n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 18.0 DEPTH: 77.2
ACRES: MEASURED 125.7 INDICATED 699.3 INFERRED
SOURCE: mf 1249 Conf
REC NUM: 452 LAT-LONG 355510 -1072054 MEMBER
ZONE

WELL NUMBER dhoe-3 COUNTY san juan
QUADRANGLE ojo encino mesa
sw 1/4 sw 1/4 sw 1/4 SEC 34 T 20n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.4 DEPTH: 122.9
ACRES: MEASURED 125.7 INDICATED 699.30 INFERRED
SOURCE: mf 1249 Conf
REC NUM: 453 LAT-LONG 355510 -1072054 MEMBER
ZONE

WELL NUMBER dhoe-3 COUNTY san juan
QUADRANGLE ojo encino mesa
sw 1/4 se 1/4 sw 1/4 SEC 34 T 20n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 130.0
ACRES: MEASURED 125.7 INDICATED 699.3 INFERRED
SOURCE: mf 1249 Conf
REC NUM: 454 LAT-LONG 355510 -1072054 MEMBER
ZONE

WELL NUMBER dhoe-4 COUNTY san juan
QUADRANGLE ojo encino mesa
nw 1/4 ne 1/4 ne 1/4 SEC 3 T 19n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.2 DEPTH: 32.5
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: mf 1249 Conf
REC NUM: 455 LAT-LONG 355507 -1072016 MEMBER
ZONE

WELL NUMBER dhoe-4 COUNTY san juan
QUADRANGLE ojo encino mesa
nw 1/4 ne 1/4 ne 1/4 SEC 3 T 19n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 16.8 DEPTH: 46.6
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: mf1249 Conf
REC NUM: 456 LAT-LONG 355507 -1072016 MEMBER
ZONE

WELL NUMBER dhoe-4 COUNTY san juan
QUADRANGLE ojo encino mesa
nw 1/4 ne 1/4 ne 1/4 SEC 3 T 19n R 5w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 113.2
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: mf 1249 Conf
REC NUM: 457 LAT-LONG 355507 -1072016 MEMBER
ZONE

WELL NUMBER tl-7-2 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 ne 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 8.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 558 LAT-LONG 361451 -1080925 MEMBER
ZONE

WELL NUMBER tl-7-2 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 ne 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 18.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 559 LAT-LONG 361451 -1080925 MEMBER
ZONE

WELL NUMBER tl-7-2 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 ne 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.8 DEPTH: 35.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 560 LAT-LONG 361551 -1080925 MEMBER
ZONE

WELL NUMBER tl-7-2 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 ne 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 10.5 DEPTH: 62.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 561 LAT-LONG 361451 -1080925 MEMBER
ZONE

WELL NUMBER tl-7-2 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 ne 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 10.0 DEPTH: 75.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 562 LAT-LONG 361451 -1080925 MEMBER
ZONE

WELL NUMBER tl-7-2 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 ne 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 100.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 563 LAT-LONG 361551 -1080925 MEMBER
ZONE

WELL NUMBER tl-7-2 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 ne 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 9.5 DEPTH: 118.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 564 LAT-LONG 361451 -1080925 MEMBER
ZONE

WELL NUMBER tl-7-2 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 ne 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 133.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 565 LAT-LONG 361451 -1080925 MEMBER
ZONE

WELL NUMBER tl-7-2 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 ne 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 143.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 566 LAT-LONG 361451 -1080925 MEMBER
ZONE

WELL NUMBER tl-8-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 77.0
ACRES: MEASURED 110.7 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 567 LAT-LONG 361459 -1080845 MEMBER
ZONE

WELL NUMBER tl-8-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 84.0
ACRES: MEASURED 110.7 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 568 LAT-LONG 361459 -1080845 MEMBER
ZONE

WELL NUMBER tl-8-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.8 DEPTH: 102.0
ACRES: MEASURED 110.7 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 569 LAT-LONG 361459 -1080845 MEMBER
ZONE

WELL NUMBER tl-8-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 134.0
ACRES: MEASURED 110.0 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 570 LAT-LONG 361459 -1080845 MEMBER
ZONE

WELL NUMBER tl-8-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 8.4 DEPTH: 156.0
ACRES: MEASURED 110.7 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 571 LAT-LONG 361459 -1080845 MEMBER
ZONE

WELL NUMBER tl-8-1 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 167.0
ACRES: MEASURED 110.7 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 572 LAT-LONG 361459 -1080845 MEMBER
ZONE

WELL NUMBER tl-8-2 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 ne 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.8 DEPTH: 19.0
ACRES: MEASURED 117.4 INDICATED 747.9 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 573 LAT-LONG 361458 -1080808 MEMBER
ZONE

WELL NUMBER tl-8-2 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 ne 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.3 DEPTH: 25.0
ACRES: MEASURED 117.4 INDICATED 747.9 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 574 LAT-LONG 361458 -1080808 MEMBER
ZONE

WELL NUMBER tl-8-2 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 ne 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 82.0
ACRES: MEASURED 117.4 INDICATED 747.9 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 575 LAT-LONG 361458 -1080808 MEMBER
ZONE

WELL NUMBER tl-8-2 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 ne 1/4 SEC 18 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.8 DEPTH: 89.0
ACRES: MEASURED 117.4 INDICATED 747.9 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 576 LAT-LONG 361458 -1080808 MEMBER
ZONE

WELL NUMBER tl-8-2 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 ne 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 159.0
ACRES: MEASURED 117.4 INDICATED 747.9 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 577 LAT-LONG 361458 -1080808 MEMBER
ZONE

WELL NUMBER tl-8-2 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 ne 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.7 DEPTH: 185.0
ACRES: MEASURED 117.4 INDICATED 747.9 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 578 LAT-LONG 361458 -1080808 MEMBER
ZONE

WELL NUMBER tl-8-2 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 ne 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 201.0
ACRES: MEASURED 117.4 INDICATED 747.9 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 579 LAT-LONG 361458 -1080808 MEMBER
ZONE

WELL NUMBER tl-8-2 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 ne 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.3 DEPTH: 208.0
ACRES: MEASURED 117.4 INDICATED 747.9 INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 580 LAT-LONG 361458 -1080808 MEMBER
ZONE

WELL NUMBER amw 6-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 30.0
ACRES: MEASURED 119.5 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 581 LAT-LONG 361533 -1080916 MEMBER
ZONE

WELL NUMBER amw 6-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 36.0
ACRES: MEASURED 119.5 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 582 LAT-LONG 361533 -1080916 MEMBER
ZONE

WELL NUMBER amw 6-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 54.0
ACRES: MEASURED 119.5 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 583 LAT-LONG 361533 -1080916 MEMBER
ZONE

WELL NUMBER amw 6-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 101.0
ACRES: MEASURED 119.5 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 584 LAT-LONG 361533 -1080916 MEMBER
ZONE

WELL NUMBER amw 6-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 111.0
ACRES: MEASURED 119.5 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 585 LAT-LONG 361533 -1080916 MEMBER
ZONE

WELL NUMBER amw 6-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 125.0
ACRES: MEASURED 119.5 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 586 LAT-LONG 361533 -1080916 MEMBER
ZONE

WELL NUMBER amw 6-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 141.0
ACRES: MEASURED 119.5 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 587 LAT-LONG 361533 -1080916 MEMBER
ZONE

WELL NUMBER amw 6-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 149.0
ACRES: MEASURED 119.5 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 588 LAT-LONG 361533 -1080916 MEMBER
ZONE

WELL NUMBER amw 6-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.2 DEPTH: 155.0
ACRES: MEASURED 119.5 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 589 LAT-LONG 361533 -1080916 MEMBER
ZONE

WELL NUMBER amw 6-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 169.0
ACRES: MEASURED 119.5 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 590 LAT-LONG 361533 -1080916 MEMBER
ZONE

WELL NUMBER amw 6-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.3 DEPTH: 179.0
ACRES: MEASURED 119.5 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 591 LAT-LONG 361533 -1080916 MEMBER
ZONE

WELL NUMBER amw 6-2 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 se 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.7 DEPTH: 9.0
ACRES: MEASURED 100.2 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 592 LAT-LONG 361530 -1080834 MEMBER
ZONE

WELL NUMBER amw 6-2 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 se 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 49.0
ACRES: MEASURED 100.2 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 593 LAT-LONG 361530 -1080834 MEMBER
ZONE

WELL NUMBER amw 6-2 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 se 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.1 DEPTH: 53.0
ACRES: MEASURED 100.2 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 594 LAT-LONG 361530 -1080834 MEMBER
ZONE

WELL NUMBER amw 6-2 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 se 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.6 DEPTH: 58.0
ACRES: MEASURED 100.2 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 595 LAT-LONG 361530 -1080834 MEMBER
ZONE

WELL NUMBER amw 6-2 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 se 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 97.0
ACRES: MEASURED 100.2 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 596 LAT-LONG 361530 -1080834 MEMBER
ZONE

WELL NUMBER amw 6-2 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 se 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 15.5 DEPTH: 112.0
ACRES: MEASURED 100.2 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 597 LAT-LONG 361530 -1080834 MEMBER
ZONE

WELL NUMBER amw 6-2 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 se 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 135.0
ACRES: MEASURED 100.2 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 598 LAT-LONG 361530 -1080834 MEMBER
ZONE

WELL NUMBER amw 6-2 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 se 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 9.0 DEPTH: 179.0
ACRES: MEASURED 100.2 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 599 LAT-LONG 361530 -1080834 MEMBER
ZONE

WELL NUMBER amw 6-2 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 se 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.2 DEPTH: 195.0
ACRES: MEASURED 100.2 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 600 LAT-LONG 361530 -1080834 MEMBER
ZONE

WELL NUMBER amw 6-2 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 se 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.5 DEPTH: 207.0
ACRES: MEASURED 100.2 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 601 LAT-LONG 361530 -1080834 MEMBER
ZONE

WELL NUMBER dh 1k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 sw 1/4 SEC 18 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 26.0
ACRES: MEASURED 125.7 INDICATED 892.9 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 602 LAT-LONG 361052 -1075559 MEMBER
ZONE

WELL NUMBER dh 1k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 sw 1/4 SEC 18 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 62.4
ACRES: MEASURED 125.7 INDICATED 892.9 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 603 LAT-LONG 361052 -1075559 MEMBER
ZONE

WELL NUMBER dh 1k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 sw 1/4 SEC 18 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 82.10
ACRES: MEASURED 125.7 INDICATED 892.9 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 604 LAT-LONG 361052 -1075559 MEMBER
ZONE

WELL NUMBER dh 1k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 sw 1/4 SEC 18 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.6 DEPTH: 106.2
ACRES: MEASURED 125.7 INDICATED 892.9 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 605 LAT-LONG 361052 -1085559 MEMBER
ZONE

WELL NUMBER dh 1k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 sw 1/4 SEC 18 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 9.4 DEPTH: 116.3
ACRES: MEASURED 125.7 INDICATED 892.9 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 606 LAT-LONG 361052 -1085559 MEMBER
ZONE

WELL NUMBER dh 2k COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 ne 1/4 SEC 18 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 14.8 DEPTH: 90.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: mf 1117 Conf
REC NUM: 607 LAT-LONG 361121 -1075559 MEMBER
ZONE

WELL NUMBER dh 2k COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 ne 1/4 SEC 18 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.7 DEPTH: 107.1
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: mf 1117 Conf
REC NUM: 608 LAT-LONG 361121 -1075559 MEMBER
ZONE

WELL NUMBER dh 2k COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 ne 1/4 SEC 18 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.7 DEPTH: 133.1
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: mf 1117 Conf
REC NUM: 609 LAT-LONG 361121 -1085559 MEMBER
ZONE

WELL NUMBER dh 2k COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 ne 1/4 SEC 18 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 10.8 DEPTH: 153.3
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: mf 1117 Conf
REC NUM: 610 LAT-LONG 361121 -1075559 MEMBER
ZONE

WELL NUMBER dh 2k COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 ne 1/4 SEC 18 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.6 DEPTH: 174.2
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: mf 1117 Conf
REC NUM: 611 LAT-LONG 361121 -1075559 MEMBER
ZONE

WELL NUMBER dh 2k COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 ne 1/4 SEC 18 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.3 DEPTH: 186.5
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: mf 1117 Conf
REC NUM: 612 LAT-LONG 361121 -1075559 MEMBER
ZONE

WELL NUMBER dh 2k COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 ne 1/4 SEC 18 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 10.2 DEPTH: 196.6
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: mf 1117 Conf
REC NUM: 613 LAT-LONG 361121 -1075559 MEMBER
ZONE

WELL NUMBER dh 3k COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 ne 1/4 SEC 7 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 120.5
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 614 LAT-LONG 361213 -1075601 MEMBER
ZONE

WELL NUMBER dh 3k COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 ne 1/4 SEC 7 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 148.3
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 615 LAT-LONG 361213 -1075601 MEMBER ---
ZONE

WELL NUMBER dh 3k COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 ne 1/4 SEC 7 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 177.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 616 LAT-LONG 361213 -1075601 MEMBER
ZONE

WELL NUMBER dh 3k COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 ne 1/4 SEC 7 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 206.5
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 617 LAT-LONG 361213 -1075601 MEMBER
ZONE

WELL NUMBER dh 3k COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 ne 1/4 SEC 7 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 12.1 DEPTH: 221.6
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 618 LAT-LONG 361213 -1075601 MEMBER
ZONE

WELL NUMBER dh 4k COUNTY san juan
QUADRANGLE pueblo bonito nw
se 1/4 se 1/4 ne 1/4 SEC 17 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.2 DEPTH: 112.0
ACRES: MEASURED 125.7 INDICATED 834.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 619 LAT-LONG 361100 -1075419 MEMBER ---
ZONE

WELL NUMBER dh 4k COUNTY san juan
QUADRANGLE pueblo bonito nw
se 1/4 se 1/4 ne 1/4 SEC 17 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 30.5 DEPTH: 161.3
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 620 LAT-LONG 361100 -1075419 MEMBER ---
ZONE

WELL NUMBER dh 4k COUNTY san juan
QUADRANGLE pueblo bonito nw
se 1/4 se 1/4 nw 1/4 SEC 17 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.6 DEPTH: 198.7
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 621 LAT-LONG 361100 -1075419 MEMBER
ZONE

WELL NUMBER dh 4k COUNTY san juan
QUADRANGLE pueblo bonito nw
se 1/4 se 1/4 ne 1/4 SEC 17 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.4 DEPTH: 225.1
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 622 LAT-LONG 361100 -1075419 MEMBER
ZONE

WELL NUMBER dh 5k COUNTY san juan
QUADRANGLE pueblo bonito nw
se 1/4 se 1/4 nw 1/4 SEC 9 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 37.5 DEPTH: 261.0
ACRES: MEASURED 125.7 INDICATED 500.1 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 623 LAT-LONG 361153 -1075353 MEMBER
ZONE

WELL NUMBER dh 5k COUNTY san juan
QUADRANGLE pueblo bonito nw
se 1/4 se 1/4 nw 1/4 SEC 9 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.6 DEPTH: 310.9
ACRES: MEASURED 125.7 INDICATED 500.1 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 624 LAT-LONG 361153 -1075353 MEMBER ---
ZONE

WELL NUMBER dh 5k COUNTY san juan
QUADRANGLE pueblo bonito nw
se 1/4 se 1/4 nw 1/4 SEC 9 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 336.5
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 625 LAT-LONG 361153 -1075353 MEMBER ---
ZONE

WELL NUMBER dh 5k COUNTY san juan
QUADRANGLE pueblo bonito nw
se 1/4 se 1/4 nw 1/4 SEC 9 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.8 DEPTH: 343.4
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 626 LAT-LONG 361153 -1075353 MEMBER
ZONE

WELL NUMBER dh 5k COUNTY san juan
QUADRANGLE pueblo bonito nw
se 1/4 se 1/4 nw 1/4 SEC 9 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.6 DEPTH: 348.8
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 627 LAT-LONG 361153 -1075353 MEMBER
ZONE

WELL NUMBER dh 6k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 se 1/4 SEC 5 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 18.9 DEPTH: 213.7
ACRES: MEASURED 125.7 INDICATED 818.5 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 628 LAT-LONG 361242 -1075427 MEMBER
ZONE

WELL NUMBER dh 6k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 se 1/4 SEC 5 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.1 DEPTH: 250.2
ACRES: MEASURED 125.7 INDICATED 818.5 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 629 LAT-LONG 361242 -1075427 MEMBER ---
ZONE

WELL NUMBER dh 6k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 se 1/4 SEC 5 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.8 DEPTH: 254.7
ACRES: MEASURED 125.7 INDICATED 818.5 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 630 LAT-LONG 361242 -1075427 MEMBER
ZONE

WELL NUMBER dh 6k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 se 1/4 SEC 5 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 12.9 DEPTH: 270.8
ACRES: MEASURED 125.7 INDICATED 818.5 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 631 LAT-LONG 361242 -1075427 MEMBER
ZONE

WELL NUMBER dh 7k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 ne 1/4 SEC 22 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 23.3 DEPTH: 142.0
ACRES: MEASURED 125.7 INDICATED 985.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 632 LAT-LONG 361033 -1075213 MEMBER
ZONE

WELL NUMBER dh 7k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 ne 1/4 SEC 22 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.1 DEPTH: 170.0
ACRES: MEASURED 125.7 INDICATED 985.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 633 LAT-LONG 361033 -1075213 MEMBER
ZONE

WELL NUMBER dh 7k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 ne 1/4 SEC 22 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 243.1
ACRES: MEASURED 125.7 INDICATED 985.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 634 LAT-LONG 361033 -1075213 MEMBER
ZONE

WELL NUMBER dh 7k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 ne 1/4 SEC 22 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.6 DEPTH: 247.7
ACRES: MEASURED 125.7 INDICATED 985.3 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 635 LAT-LONG 361033 -1075213 MEMBER
ZONE

WELL NUMBER dh 8k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 se 1/4 sw 1/4 SEC 10 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 36.6 DEPTH: 192.8
ACRES: MEASURED INDICATED 922.5 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 636 LAT-LONG 361137 -1075249 MEMBER
ZONE

WELL NUMBER dh 8k COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 se 1/4 sw 1/4 SEC 10 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.2 DEPTH: 288.3
ACRES: MEASURED INDICATED 922.5 INFERRED
SOURCE: mf 1117 Conf
REC NUM: 637 LAT-LONG 361137 -1075249 MEMBER
ZONE

WELL NUMBER usgs 8 COUNTY san juan
QUADRANGLE sargent ranch
sw 1/4 ne 1/4 sw 1/4 SEC 27 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 275.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1120 Conf
REC NUM: 638 LAT-LONG 360818 -1074621 MEMBER
ZONE

WELL NUMBER usgs 8 COUNTY san juan
QUADRANGLE sargent ranch
sw 1/4 ne 1/4 sw 1/4 SEC 27 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.4 DEPTH: 282.7
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1120 Conf
REC NUM: 639 LAT-LONG 360818 -1074621 MEMBER
ZONE

WELL NUMBER usgs 8 COUNTY san juan
QUADRANGLE sargent ranch
sw 1/4 ne 1/4 sw 1/4 SEC 27 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 363.9
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1120 Conf
REC NUM: 640 LAT-LONG 360818 -1074621 MEMBER
ZONE

WELL NUMBER usgs 8 COUNTY san juan
QUADRANGLE sargent ranch
sw 1/4 ne 1/4 sw 1/4 SEC 27 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 435.9
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1120 Conf
REC NUM: 641 LAT-LONG 360818 -1074621 MEMBER
ZONE

WELL NUMBER blm-10k COUNTY san juan
QUADRANGLE sargent ranch
se 1/4 se 1/4 nw 1/4 SEC 19 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.2 DEPTH: 12.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1120 Conf
REC NUM: 642 LAT-LONG 360907 -1074936 MEMBER
ZONE

WELL NUMBER blm-10k COUNTY san juan
QUADRANGLE sargent ranch
se 1/4 se 1/4 nw 1/4 SEC 19 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.1 DEPTH: 125.3
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1120 Conf
REC NUM: 643 LAT-LONG 360907 -1074936 MEMBER
ZONE

WELL NUMBER blm-10k COUNTY san juan
QUADRANGLE sargent ranch
se 1/4 se 1/4 nw 1/4 SEC 19 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.8 DEPTH: 168.1
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mf 1120 Conf
REC NUM: 644 LAT-LONG 360907 -1074936 MEMBER
ZONE

WELL NUMBER amw 5-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 5 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.1 DEPTH: 52.0
ACRES: MEASURED 110.7 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 645 LAT-LONG 361531 -1080808 MEMBER
ZONE

WELL NUMBER amw 5-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 5 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.8 DEPTH: 57.
ACRES: MEASURED 110.7 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 646 LAT-LONG 361531 -1080808 MEMBER
ZONE

WELL NUMBER amw 5-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 5 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 16.4 DEPTH: 111.0
ACRES: MEASURED 110.7 INDICATED INFERRED
SOURCE: usgs of 77-369 Conf
REC NUM: 647 LAT-LONG 361531 -1080808 MEMBER
ZONE

WELL NUMBER amw 5-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 5 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 155.0
ACRES: MEASURED 110.7 INDICATED INFERRED
SOURCE: Conf
REC NUM: 648 LAT-LONG 361531 -1080808 MEMBER
ZONE

WELL NUMBER amw 5-1 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 sw 1/4 SEC 5 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 172.
ACRES: MEASURED 110.7 INDICATED INFERRED
SOURCE: Conf
REC NUM: 649 LAT-LONG 361531 -1080808 MEMBER
ZONE

WELL NUMBER p-22 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 se 1/4 SEC 24 T 21n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 29.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360229 -1074438 MEMBER
ZONE

WELL NUMBER p-22 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 se 1/4 SEC 24 T 21n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 46.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360229 -1074438 MEMBER
ZONE

WELL NUMBER p-24 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 se 1/4 SEC 24 T 21n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 11.0 DEPTH: 35.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: alamito coal-gallol wash Conf n
REC NUM: LAT-LONG 360226 -1074406 MEMBER
ZONE

WELL NUMBER p-24 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 se 1/4 SEC 24 T 21n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 50.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360226 -1074406 MEMBER
ZONE

WELL NUMBER p-26d COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 se 1/4 SEC 19 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 60.0
ACRES: MEASURED 105.2 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360341 -1074336 MEMBER
ZONE

WELL NUMBER p-26d COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 se 1/4 SEC 19 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 69.5
ACRES: MEASURED 105.2 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360341 -1074336 MEMBER
ZONE

WELL NUMBER p-26d COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 se 1/4 SEC 19 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 80.5
ACRES: MEASURED 105.2 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360341 -1074336 MEMBER
ZONE

WELL NUMBER p-26d COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 se 1/4 SEC 19 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 11.0 DEPTH: 95.0
ACRES: MEASURED 105.2 INDICATED INFERRED
SOURCE: alamito coal-gallol wash Conf n
REC NUM: LAT-LONG 360341 -1074336 MEMBER
ZONE

WELL NUMBER p-26d COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 se 1/4 SEC 19 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 112.0
ACRES: MEASURED 105.2 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360341 -1074336 MEMBER
ZONE

WELL NUMBER p-28 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 se 1/4 SEC 19 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 8.5 DEPTH: 95.0
ACRES: MEASURED 108.4 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360343 -1074305 MEMBER
ZONE

WELL NUMBER p-28 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 se 1/4 SEC 19 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 12.0 DEPTH: 112.0
ACRES: MEASURED 108.4 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360343 -1074305 MEMBER
ZONE

WELL NUMBER p-28 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 se 1/4 SEC 19 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 134.5
ACRES: MEASURED 108.4 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360343 -1074305 MEMBER
ZONE

WELL NUMBER p-28 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 se 1/4 SEC 19 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 138.0
ACRES: MEASURED 108.4 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360343 -1074305 MEMBER
ZONE

WELL NUMBER p-28 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 se 1/4 SEC 19 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 145.5
ACRES: MEASURED 108.4 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360343 -1074305 MEMBER
ZONE

WELL NUMBER p-28 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 se 1/4 SEC 19 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 157.0
ACRES: MEASURED 108.4 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360343 -1074305 MEMBER
ZONE

WELL NUMBER p-30 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 65.0
ACRES: MEASURED 101.1 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360348 -1074233 MEMBER
ZONE

WELL NUMBER p-30 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 103.0
ACRES: MEASURED 101.1 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360348 -1074233 MEMBER
ZONE

WELL NUMBER p-30 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 115.0
ACRES: MEASURED 101.1 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360348 -1074233 MEMBER
ZONE

WELL NUMBER p-30 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 128.0
ACRES: MEASURED 101.1 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360348 -1074233 MEMBER
ZONE

WELL NUMBER p-30 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 135.5
ACRES: MEASURED 101.1 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360348 -1074233 MEMBER
ZONE

WELL NUMBER p-30 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 ne 1/4 SEC 20 T 2ln R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 9.0 DEPTH: 141.0
ACRES: MEASURED 101.1 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360348 -1074223 MEMBER
ZONE

WELL NUMBER p-30 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 ne 1/4 SEC 20 T 2ln R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 10.5 DEPTH: 174.0
ACRES: MEASURED 101.1 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360348 -1074233 MEMBER
ZONE

WELL NUMBER p-30 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 ne 1/4 SEC 20 T 2ln R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 9.5 DEPTH: 187.0
ACRES: MEASURED 101.1 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360348 -1074233 MEMBER
ZONE

WELL NUMBER p-30 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 ne 1/4 SEC 20 T 2ln R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 204.0
ACRES: MEASURED 101.1 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360348 -1074233 MEMBER
ZONE

WELL NUMBER p-30 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 ne 1/4 SEC 20 T 2ln R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 223.0
ACRES: MEASURED 101.1 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360348 -1074233 MEMBER
ZONE

WELL NUMBER p-32 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 174.0
ACRES: MEASURED 94.5 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360349 -1074204 MEMBER
ZONE

WELL NUMBER p-32 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 180.0
ACRES: MEASURED 94.5 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360349 -1074204 MEMBER
ZONE

WELL NUMBER p-32 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 194.0
ACRES: MEASURED 94.5 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360349 -1074204 MEMBER
ZONE

WELL NUMBER p-32 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 201.0
ACRES: MEASURED 94.5 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360349 -1074204 MEMBER
ZONE

WELL NUMBER p-32 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 10.5 DEPTH: 233.0
ACRES: MEASURED 94.5 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360349 -1074204 MEMBER
ZONE

WELL NUMBER p-32 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 245.0
ACRES: MEASURED 94.5 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360349 -1074204 MEMBER
ZONE

WELL NUMBER p-32 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 254.0
ACRES: MEASURED 94.5 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360349 -1074204 MEMBER
ZONE

WELL NUMBER p-32 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 nw 1/4 ne 1/4 SEC 20 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 286.0
ACRES: MEASURED 94.5 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360349 -1074204 MEMBER
ZONE

WELL NUMBER p-34 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 ne 1/4 nw 1/4 SEC 21 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 86.0
ACRES: MEASURED 110.9 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360220 -1074127 MEMBER
ZONE

WELL NUMBER p-34 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 ne 1/4 nw 1/4 SEC 21 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 90.5
ACRES: MEASURED 110.9 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360220 -1074127 MEMBER
ZONE

WELL NUMBER p-34 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 ne 1/4 nw 1/4 SEC 21 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 8.5 DEPTH: 99.0
ACRES: MEASURED 110.9 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360220 -1074127 MEMBER
ZONE

WELL NUMBER p-34 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 ne 1/4 nw 1/4 SEC 21 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 108.5
ACRES: MEASURED 110.9 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360220 -1074127 MEMBER
ZONE

WELL NUMBER p-34 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 ne 1/4 nw 1/4 SEC 21 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 6.5 DEPTH: 132.0
ACRES: MEASURED 110.9 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360220 -1074127 MEMBER
ZONE

WELL NUMBER p-34 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 ne 1/4 nw 1/4 SEC 21 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 170.0
ACRES: MEASURED 110.9 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360220 -1074127 MEMBER
ZONE

WELL NUMBER p-34 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 ne 1/4 nw 1/4 SEC 21 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 180.0
ACRES: MEASURED 110.9 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360220 -1074127 MEMBER
ZONE

WELL NUMBER p-36 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 ne 1/4 nw 1/4 SEC 21 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 121.0
ACRES: MEASURED 112.6 INDICATED 519.5 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360218 -1074053 MEMBER
ZONE

WELL NUMBER p-36 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 ne 1/4 nw 1/4 SEC 21 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 29.0 DEPTH: 145.0
ACRES: MEASURED 112.6 INDICATED 519.5 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360218 -1074053 MEMBER
ZONE

WELL NUMBER p-36 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 ne 1/4 nw 1/4 SEC 21 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 232.0
ACRES: MEASURED 112.6 INDICATED 519.5 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360218 -1074053 MEMBER
ZONE

WELL NUMBER p-36 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 ne 1/4 nw 1/4 SEC 21 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 245.0
ACRES: MEASURED 112.6 INDICATED 519.5 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360218 -1074053 MEMBER
ZONE

WELL NUMBER r-24.5 COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 25 T 21n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 9.0 DEPTH: 7.0
ACRES: MEASURED 106.8 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360201 -1074357 MEMBER
ZONE

WELL NUMBER r-24.5 COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 25 T 21n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 20.0
ACRES: MEASURED 106.8 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360201 -1074357 MEMBER
ZONE

WELL NUMBER r-26 COUNTY san juan
QUADRANGLE fire rock well
nw 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 15.5
ACRES: MEASURED 105.8 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360146 -1074337 MEMBER
ZONE

WELL NUMBER r-26 COUNTY san juan
QUADRANGLE fire rock well
nw 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 12.0 DEPTH: 23.0
ACRES: MEASURED 105.8 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360146 -1074337 MEMBER
ZONE

WELL NUMBER r-26 COUNTY san juan
QUADRANGLE fire rock well
nw 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 46.0
ACRES: MEASURED 105.8 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360146 -1074337 MEMBER
ZONE

WELL NUMBER r-26 COUNTY san juan
QUADRANGLE fire rock well
nw 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 9.0 DEPTH: 62.0
ACRES: MEASURED 105.8 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360146 -1074337 MEMBER
ZONE

WELL NUMBER r-26 COUNTY san juan
QUADRANGLE fire rock well
nw 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 73.0
ACRES: MEASURED 105.8 INDICATED INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360146 -1074337 MEMBER
ZONE

WELL NUMBER r-28d COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 46.5
ACRES: MEASURED 115.0 INDICATED 377.1 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360318 -1074259 MEMBER
ZONE

WELL NUMBER r-28d COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 56.0
ACRES: MEASURED 115.0 INDICATED 377.1 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360318 -1074259 MEMBER
ZONE

WELL NUMBER r-28d COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 66.5
ACRES: MEASURED 115.0 INDICATED 377.1 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360318 -1074259 MEMBER
ZONE

WELL NUMBER r-28d COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 78.0
ACRES: MEASURED 115.0 INDICATED 377.1 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360318 -1074259 MEMBER
ZONE

WELL NUMBER r-28d COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 81.5
ACRES: MEASURED 115.0 INDICATED 377.1 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360318 -1074259 MEMBER
ZONE

WELL NUMBER r-28d COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 84.5
ACRES: MEASURED 115.0 INDICATED 377.1 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360318 -1074259 MEMBER
ZONE

WELL NUMBER r-28d COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 10.5 DEPTH: 126.0
ACRES: MEASURED 115.0 INDICATED 377.1 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360318 -1074259 MEMBER
ZONE

WELL NUMBER r-28d COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 142.0
ACRES: MEASURED 115.0 INDICATED 377.1 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360318 -1074259 MEMBER
ZONE

WELL NUMBER r-28d COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 30 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 11.0 DEPTH: 147.0
ACRES: MEASURED 115.0 INDICATED 377.1 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360318 -1074259 MEMBER
ZONE

WELL NUMBER r-28d COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 30 T 2ln R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 162.0
ACRES: MEASURED 115.0 INDICATED 377.1 INFERRED
SOURCE: alamito coal-gallo wash Conf n
REC NUM: LAT-LONG 360318 -1074259 MEMBER
ZONE

WELL NUMBER 30n15w3.1 COUNTY san juan
QUADRANGLE waterflow
sw 1/4 sw 1/4 sw 1/4 SEC 3 T 30n R 15w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 8.5 DEPTH: 148.0
ACRES: MEASURED 125.7 INDICATED 943.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 30n15w3.1 COUNTY san juan
QUADRANGLE waterflow
sw 1/4 sw 1/4 sw 1/4 SEC 3 T 30n R 15w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 158.55
ACRES: MEASURED 125.7 INDICATED 943.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 30n15w3.1 COUNTY san juan
QUADRANGLE waterflow
sw 1/4 sw 1/4 sw 1/4 SEC 3 T 30n R 15w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 4.5 DEPTH: 165.7
ACRES: MEASURED 125.7 INDICATED 943.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 30n15w16.1 COUNTY san juan
QUADRANGLE waterflow
ne 1/4 se 1/4 ne 1/4 SEC 16 T 30n R 15w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 3.45 DEPTH: 165.5
ACRES: MEASURED 125.7 INDICATED 963.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 30n15w16.1 COUNTY san juan
QUADRANGLE waterflow
ne 1/4 se 1/4 ne 1/4 SEC 16 T 30n R 15w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 8.85 DEPTH: 169.95
ACRES: MEASURED 125.7 INDICATED 963.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 30n15w27.1 COUNTY san juan
QUADRANGLE waterflow
nw 1/4 sw 1/4 nw 1/4 SEC 27 T 30n R 15w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 21.6 DEPTH: 156.0
ACRES: MEASURED 125.7 INDICATED 917.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 32n13w28.1 COUNTY san juan
QUADRANGLE la plata
se 1/4 nw 1/4 sw 1/4 SEC 28 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 10.3 DEPTH: 138.7
ACRES: MEASURED 125.7 INDICATED 940.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 32n13w28.1 COUNTY san juan
QUADRANGLE la plata
se 1/4 nw 1/4 sw 1/4 SEC 28 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 3.25 DEPTH: 152.55
ACRES: MEASURED 125.7 INDICATED 940.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 32n13w28.1 COUNTY san juan
QUADRANGLE la plata
se 1/4 nw 1/4 sw 1/4 SEC 28 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 2.55 DEPTH: 203.55
ACRES: MEASURED 125.7 INDICATED 940.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 32n13w28.1 COUNTY san juan
QUADRANGLE la plata
se 1/4 nw 1/4 sw 1/4 SEC 28 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 32.0 DEPTH: 372.55
ACRES: MEASURED 125.7 INDICATED 940.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 32n13w28.1 COUNTY san juan
QUADRANGLE la plata
se 1/4 nw 1/4 sw 1/4 SEC 28 T 32n R 13w FIELD: fruitland
FORMATION: fruitland COAL THICKNESS: 8.40 DEPTH: 407.15
ACRES: MEASURED 125.7 INDICATED 940.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w27.1 COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 se 1/4 SEC 27 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 34.6 DEPTH: 341.4
ACRES: MEASURED 125.7 INDICATED 965.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w27.1 COUNTY san juan
QUADRANGLE pueblo bonito nw
ne 1/4 ne 1/4 se 1/4 SEC 27 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 415.4
ACRES: MEASURED 125.7 INDICATED 965.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w36.1 COUNTY san juan
QUADRANGLE pueblo bonito nw
sw 1/4 sw 1/4 ne 1/4 SEC 36 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.2 DEPTH: 305.9
ACRES: MEASURED 125.7 INDICATED 999.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w36.1 COUNTY san juan
QUADRANGLE pueblo bonito nw
sw 1/4 sw 1/4 ne 1/4 SEC 36 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.7 DEPTH: 305.6
ACRES: MEASURED 125.7 INDICATED 999.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w36.1 COUNTY san juan
QUADRANGLE pueblo bonito nw
sw 1/4 sw 1/4 ne 1/4 SEC 36 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 318.6
ACRES: MEASURED 125.7 INDICATED 999.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w36.1 COUNTY san juan
QUADRANGLE pueblo bonito nw
sw 1/4 sw 1/4 ne 1/4 SEC 36 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 17.3 DEPTH: 385.7
ACRES: MEASURED 125.7 INDICATED 999.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n10w17.1 COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 se 1/4 SEC 17 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 27.2 DEPTH: 125.6
ACRES: MEASURED 125.0 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n10w17.1 COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 se 1/4 SEC 17 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.2 DEPTH: 165.7
ACRES: MEASURED 125.0 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n10w17.1 COUNTY san juan
QUADRANGLE pueblo bonito nw
nw 1/4 nw 1/4 se 1/4 SEC 17 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.25 DEPTH: 213.85
ACRES: MEASURED 125.0 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 21n8w7.1 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 sw 1/4 SEC 7 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 9.65 DEPTH: 259.3
ACRES: MEASURED 119.3 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 21n8w7.1 COUNTY san juan
QUADRANGLE fire rock well
sw 1/4 nw 1/4 sw 1/4 SEC 7 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 6.2 DEPTH: 277.35
ACRES: MEASURED 119.3 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 21n8w17.1 COUNTY san juan
QUADRANGLE fire rock well
nw 1/4 sw 1/4 se 1/4 SEC 17 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 8.5 DEPTH: 147.3
ACRES: MEASURED 118 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 21n8w17.1 COUNTY san juan
QUADRANGLE fire rock well
nw 1/4 sw 1/4 se 1/4 SEC 17 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 10.0 DEPTH: 163.0
ACRES: MEASURED 118 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 21n8w17.1 COUNTY san juan
QUADRANGLE fire rock well
nw 1/4 sw 1/4 se 1/4 SEC 17 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 9.35 DEPTH: 176.75
ACRES: MEASURED 118 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 21n8w22.1 COUNTY san juan
QUADRANGLE fire rock well
se 1/4 sw 1/4 se 1/4 SEC 22 T 21n R 8w FIELD: star lake
FORMATION: fruitland COAL THICKNESS: 31.1 DEPTH: 345.6
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w12.1 COUNTY san juan
QUADRANGLE pretty rock
se 1/4 se 1/4 sw 1/4 SEC 12 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.65 DEPTH: 185.3
ACRES: MEASURED 125.7 INDICATED 967.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w12.1 COUNTY san juan
QUADRANGLE pretty rock
se 1/4 se 1/4 sw 1/4 SEC 12 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.4 DEPTH: 285.3
ACRES: MEASURED 125.7 INDICATED 967.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w19.1 COUNTY san juan
QUADRANGLE pretty rock
ne 1/4 ne 1/4 ne 1/4 SEC 19 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 8.1 DEPTH: 214.75
ACRES: MEASURED 125.7 INDICATED 949.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w19.1 COUNTY san juan
QUADRANGLE pretty rock
ne 1/4 ne 1/4 ne 1/4 SEC 19 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 8.2 DEPTH: 256.5
ACRES: MEASURED 125.7 INDICATED 949.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w19.1 COUNTY san juan
QUADRANGLE pretty rock
ne 1/4 ne 1/4 ne 1/4 SEC 19 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.75 DEPTH: 237.7
ACRES: MEASURED 125.7 INDICATED 949.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w19.1 COUNTY san juan
QUADRANGLE pretty rock
ne 1/4 ne 1/4 ne 1/4 SEC 19 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.3 DEPTH: 309.55
ACRES: MEASURED 125.7 INDICATED 949.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w29.1 COUNTY san juan
QUADRANGLE pretty rock
sw 1/4 se 1/4 se 1/4 SEC 29 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 17.2 DEPTH: 153.25
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w29.1 COUNTY san juan
QUADRANGLE pretty rock
sw 1/4 se 1/4 se 1/4 SEC 29 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 10.5 DEPTH: 173.7
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n11w29.1 COUNTY san juan
QUADRANGLE pretty rock
sw 1/4 se 1/4 se 1/4 SEC 29 T 23n R 11w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.05 DEPTH: 186.05
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n10w23.1 COUNTY san juan
QUADRANGLE sargent ranch
nw 1/4 ne 1/4 sw 1/4 SEC 23 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 13.7 DEPTH: 46.65
ACRES: MEASURED 125.7 INDICATED 955.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n10w23.1 COUNTY san juan
QUADRANGLE sargent ranch
nw 1/4 ne 1/4 sw 1/4 SEC 23 T 22n R 10w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 11.7 DEPTH: 123.55
ACRES: MEASURED 125.7 INDICATED 955.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n9w29.1 COUNTY san juan
QUADRANGLE sargent ranch
se 1/4 nw 1/4 se 1/4 SEC 29 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.75 DEPTH: 168.4
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n9w29.1 COUNTY san juan
QUADRANGLE sargent ranch
se 1/4 nw 1/4 se 1/4 SEC 29 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.4 DEPTH: 189.4
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n9w29.1 COUNTY san juan
QUADRANGLE sargent ranch
se 1/4 nw 1/4 se 1/4 SEC 29 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.35 DEPTH: 219.75
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n9w29.1 COUNTY san juan
QUADRANGLE sargent ranch
se 1/4 nw 1/4 se 1/4 SEC 29 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 225.7
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n9w19 COUNTY san juan
QUADRANGLE kimbeto
ne 1/4 sw 1/4 nw 1/4 SEC 19 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.3 DEPTH: 123.7
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n13w2 COUNTY san juan
QUADRANGLE alamo mesa wast
se 1/4 se 1/4 nw 1/4 SEC 2 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 15.8 DEPTH: 225.8
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w6 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 ne 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.6 DEPTH: 114.4
ACRES: MEASURED 90.0 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w6 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 ne 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.35 DEPTH: 123.7
ACRES: MEASURED 90.0 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w6 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 ne 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.9 DEPTH: 134.55
ACRES: MEASURED 90.0 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w6 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 ne 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.65 DEPTH: 153.85
ACRES: MEASURED 90.0 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w6 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 ne 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.95 DEPTH: 158.0
ACRES: MEASURED 90.0 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w6 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 ne 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.2 DEPTH: 177.6
ACRES: MEASURED 90.0 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w6 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 ne 1/4 sw 1/4 SEC 6 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.6 DEPTH: 190.0
ACRES: MEASURED 90.0 INDICATED INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w4 COUNTY san juan
QUADRANGLE alamo mesa west
sw 1/4 ne 1/4 nw 1/4 SEC 4 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 17.4 DEPTH: 232.75
ACRES: MEASURED 125.7 INDICATED 888.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w4 COUNTY san juan
QUADRANGLE alamo mesa west
sw 1/4 ne 1/4 nw 1/4 SEC 4 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.05 DEPTH: 356.75
ACRES: MEASURED 125.7 INDICATED 888.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w4 COUNTY san juan
QUADRANGLE alamo mesa west
sw 1/4 ne 1/4 nw 1/4 SEC 4 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.3 DEPTH: 366.2
ACRES: MEASURED 125.7 INDICATED 888.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w3.1 COUNTY san juan
QUADRANGLE pretty rock
se 1/4 se 1/4 se 1/4 SEC 3 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.4 DEPTH: 201.0
ACRES: MEASURED 125.7 INDICATED 998.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w3.1 COUNTY san juan
QUADRANGLE pretty rock
se 1/4 se 1/4 se 1/4 SEC 3 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 13.0 DEPTH: 204.0
ACRES: MEASURED 125.7 INDICATED 998.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23n12w3.1 COUNTY san juan
QUADRANGLE pretty rock
se 1/4 se 1/4 se 1/4 SEC 3 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.85 DEPTH: 217.9
ACRES: MEASURED 125.7 INDICATED 998.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n9w36.1 COUNTY san juan
QUADRANGLE fire rock well ne
ne 1/4 ne 1/4 sw 1/4 SEC 36 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 13.1 DEPTH: 232.85
ACRES: MEASURED 125.7 INDICATED 998.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n9w36.1 COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 36 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 237.2
ACRES: MEASURED 125.7 INDICATED 998.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22n9w36.1 COUNTY san juan
QUADRANGLE fire rock well
ne 1/4 ne 1/4 sw 1/4 SEC 39 T 22n R 9w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.2 DEPTH: 326.6
ACRES: MEASURED 125.7 INDICATED 998.3 INFERRED
SOURCE: nmerdi coal quality study Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER b-1 COUNTY san juan
QUADRANGLE bisti trading post
ne 1/4 sw 1/4 nw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 219.0
ACRES: MEASURED 120 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361615 -1081458 MEMBER
ZONE

WELL NUMBER b-1 COUNTY san juan
QUADRANGLE bisti trading post
ne 1/4 sw 1/4 nw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.3 DEPTH: 223.0
ACRES: MEASURED 120 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361615 -1081458 MEMBER
ZONE

WELL NUMBER b-1 COUNTY san juan
QUADRANGLE bisti trading post
ne 1/4 sw 1/4 nw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.7 DEPTH: 226.0
ACRES: MEASURED 120 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361615 -1081458 MEMBER
ZONE

WELL NUMBER b-1 COUNTY san juan
QUADRANGLE bisti trading post
ne 1/4 sw 1/4 nw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.6 DEPTH: 229.1
ACRES: MEASURED 120 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361615 -1081458 MEMBER
ZONE

WELL NUMBER b-1 COUNTY san juan
QUADRANGLE bisti trading post
ne 1/4 sw 1/4 nw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.9 DEPTH: 259.1
ACRES: MEASURED 120 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361615 -1081458 MEMBER
ZONE

WELL NUMBER b-1 COUNTY san juan
QUADRANGLE bisti trading post
ne 1/4 sw 1/4 nw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 265.6
ACRES: MEASURED 120 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361615 -1081458 MEMBER
ZONE

WELL NUMBER b-1 COUNTY san juan
QUADRANGLE bisti trading post
ne 1/4 sw 1/4 nw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 301.0
ACRES: MEASURED 120 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361615 -1081458 MEMBER
ZONE

WELL NUMBER b-1 COUNTY san juan
QUADRANGLE bisiti trading post
ne 1/4 sw 1/4 nw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.7 DEPTH: 320.8
ACRES: MEASURED 120 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361615 -1081458 MEMBER
ZONE

WELL NUMBER b-1 COUNTY san juan
QUADRANGLE bisti trading post
ne 1/4 sw 1/4 nw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.1 DEPTH: 350.8
ACRES: MEASURED 120 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361615 -1081458 MEMBER
ZONE

WELL NUMBER b-2 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 ne 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.4 DEPTH: 123.4
ACRES: MEASURED 121 INDICATED 438 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361720 -1081440 MEMBER
ZONE

WELL NUMBER b-2 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 ne 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.4 DEPTH: 127.8
ACRES: MEASURED 121 INDICATED 438 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361720 -1081440 MEMBER
ZONE

WELL NUMBER b-2 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 ne 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.7 DEPTH: 130.6
ACRES: MEASURED 121 INDICATED 438 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361720 -1081440 MEMBER
ZONE

WELL NUMBER b-2 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 ne 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.8 DEPTH: 176.1
ACRES: MEASURED 121 INDICATED 438 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361720 -1081440 MEMBER
ZONE

WELL NUMBER b-2 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 ne 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.8 DEPTH: 264.1
ACRES: MEASURED 121 INDICATED 438 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361720 -1081440 MEMBER
ZONE

WELL NUMBER b-2 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 ne 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.7 DEPTH: 273.4
ACRES: MEASURED 121 INDICATED 438 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361720 -1081440 MEMBER
ZONE

WELL NUMBER b-3 COUNTY san juan
QUADRANGLE bisti trading post
sw 1/4 ne 1/4 sw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.7 DEPTH: 66.2
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361651 -1081501 MEMBER
ZONE

WELL NUMBER b-3 COUNTY san juan
QUADRANGLE bisti trading post
sw 1/4 ne 1/4 sw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 70.8
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361651 -1081501 MEMBER
ZONE

WELL NUMBER b-3 COUNTY san juan
QUADRANGLE bisti trading post
sw 1/4 ne 1/4 sw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.8 DEPTH: 73.5
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361651 -1081501 MEMBER
ZONE

WELL NUMBER b-3 COUNTY san juan
QUADRANGLE bisti trading post
sw 1/4 ne 1/4 sw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 87.0
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361651 -1081501 MEMBER
ZONE

WELL NUMBER b-3 COUNTY san juan
QUADRANGLE bisti trading post
sw 1/4 ne 1/4 sw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.7 DEPTH: 94.0
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361651 -1081501 MEMBER
ZONE

WELL NUMBER b-3 COUNTY san juan
QUADRANGLE bisti trading post
sw 1/4 ne 1/4 sw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.7 DEPTH: 119.5
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361651 -1085001 MEMBER
ZONE

WELL NUMBER b-3 COUNTY san juan
QUADRANGLE bisti trading post
sw 1/4 ne 1/4 sw 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.5 DEPTH: 199.3
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361651 -1081501 MEMBER
ZONE

WELL NUMBER b-4 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 se 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.3 DEPTH: 40.5
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361655 -1081437 MEMBER
ZONE

WELL NUMBER b-4 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 se 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.4 DEPTH: 44.5
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361655 -1081437 MEMBER
ZONE

WELL NUMBER b-4 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 se 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 53.5
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361655 -1081437 MEMBER
ZONE

WELL NUMBER b-4 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 se 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 95.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361655 -1081437 MEMBER
ZONE

WELL NUMBER b-4 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 se 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 133.8
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361655 -1081437 MEMBER
ZONE

WELL NUMBER b-4 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 se 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.4 DEPTH: 136.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361655 -1081437 MEMBER
ZONE

WELL NUMBER b-4 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 se 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.4 DEPTH: 138.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361655 -1081437 MEMBER
ZONE

WELL NUMBER b-4 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 se 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.4 DEPTH: 141.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361655 -1081437 MEMBER
ZONE

WELL NUMBER b-4 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 se 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 144.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361655 -1081437 MEMBER
ZONE

WELL NUMBER b-4 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 se 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 154.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361655 -1081437 MEMBER
ZONE

WELL NUMBER b-4 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 se 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.5 DEPTH: 202.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361655 -1081437 MEMBER
ZONE

WELL NUMBER b-4 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 se 1/4 SEC 29 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 209.8
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361655 -1081437 MEMBER
ZONE

WELL NUMBER b-5 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 28 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 142.4
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361718 -1081403 MEMBER
ZONE

WELL NUMBER b-5 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 28 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.4 DEPTH: 147.3
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361718 -1081403 MEMBER
ZONE

WELL NUMBER b-5 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 28 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.6 DEPTH: 230.8
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 36171 -1081403 MEMBER
ZONE

WELL NUMBER b-5 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 28 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.7 DEPTH: 243.0
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361718 -1081403 MEMBER
ZONE

WELL NUMBER b-5 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 28 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 247.0
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361718 -1081403 MEMBER
ZONE

WELL NUMBER b-5 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 28 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 255.8
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361718 -1081403 MEMBER
ZONE

WELL NUMBER b-5 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 28 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 270.0
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361718 -1081403 MEMBER
ZONE

WELL NUMBER b-5 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 28 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 9.2 DEPTH: 264.1
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361718 -1081403 MEMBER
ZONE

WELL NUMBER b-5 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 28 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 235.5
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361718 -1081403 MEMBER
ZONE

WELL NUMBER b-12 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 ne 1/4 SEC 34 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.8 DEPTH: 76.5
ACRES: MEASURED 126 INDICATED 1005 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361632 -1081226 MEMBER
ZONE

WELL NUMBER b-12 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 ne 1/4 SEC 34 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.5 DEPTH: 85.0
ACRES: MEASURED 126 INDICATED 1005 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361632 -1081226 MEMBER
ZONE

WELL NUMBER b-12 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 ne 1/4 SEC 34 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 125.0
ACRES: MEASURED 126 INDICATED 1005 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361632 -1081226 MEMBER
ZONE

WELL NUMBER b-12 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 ne 1/4 SEC 34 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.2 DEPTH: 205.5
ACRES: MEASURED 126 INDICATED 1005 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361632 -1081226 MEMBER
ZONE

WELL NUMBER b-12 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 ne 1/4 SEC 34 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 236.0
ACRES: MEASURED 126 INDICATED 1005 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361632 -1081226 MEMBER
ZONE

WELL NUMBER b-12 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 ne 1/4 SEC 34 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 238.7
ACRES: MEASURED 126 INDICATED 1005 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361632 -1081226 MEMBER
ZONE

WELL NUMBER b-12 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 ne 1/4 SEC 34 T 24n R 13w FIELD: bisti
FORMATION: fruitand COAL THICKNESS: 3.8 DEPTH: 245.6
ACRES: MEASURED 126 INDICATED 1005 INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361632 -1081226 MEMBER
ZONE

WELL NUMBER b-18 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 ne 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 24.5
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081328 MEMBER
ZONE

WELL NUMBER b-18 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 ne 1/4 SEC 4 T 23n R 13w FIELD: bisit
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 32.8
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081328 MEMBER
ZONE

WELL NUMBER b-18 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 ne 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.3 DEPTH: 127.0
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081328 MEMBER
ZONE

WELL NUMBER b-18 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 ne 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.6 DEPTH: 135.8
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081328 MEMBER
ZONE

WELL NUMBER b-18 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 ne 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 204.0
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081328 MEMBER
ZONE

WELL NUMBER b-18 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 ne 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.3 DEPTH: 206.2
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081328 MEMBER
ZONE

WELL NUMBER b-18 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 ne 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.2 DEPTH: 212.0
ACRES: MEASURED INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081328 MEMBER
ZONE

WELL NUMBER b-19 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 se 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.8 DEPTH: 35.2
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361515 -1081334 MEMBER
ZONE

WELL NUMBER b-19 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 se 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 93.8
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361515 -1081334 MEMBER
ZONE

WELL NUMBER b-19 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 se 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.7 DEPTH: 125.2
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361515 -1081334 MEMBER
ZONE

WELL NUMBER b-19 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 se 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.5 DEPTH: 133.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361515 -1081334 MEMBER
ZONE

WELL NUMBER b-19 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 se 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.4 DEPTH: 144.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361515 -1081334 MEMBER
ZONE

WELL NUMBER b-19 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 se 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.5 DEPTH: 200.4
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361515 -1081334 MEMBER
ZONE

WELL NUMBER b-19 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 se 1/4 SEC 4 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.7 DEPTH: 207.8
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361515 -1081334 MEMBER
ZONE

WELL NUMBER b-20 COUNTY san juan
QUADRANGLE alamo mesa wesr
ne 1/4 sw 1/4 nw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.3 DEPTH: 73.8
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361535 -1081302 MEMBER
ZONE

WELL NUMBER b-20 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.8 DEPTH: 174.5
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 351535 -1081302 MEMBER
ZONE

WELL NUMBER b-20 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.4 DEPTH: 182.3
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 351535 -1081302 MEMBER
ZONE

WELL NUMBER b-20 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.7 DEPTH: 199.5
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361535 -1081302 MEMBER
ZONE

WELL NUMBER b-20 COUNTY san juan
QUADRANGLE alamo mesa west
ne 1/4 sw 1/4 nw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.6 DEPTH: 253.0
ACRES: MEASURED 112 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361535 -1081302 MEMBER
ZONE

WELL NUMBER b-21 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 sw 1/4 ne 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.8 DEPTH: 114.1
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361527 -1081227 MEMBER
ZONE

WELL NUMBER b-21 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 sw 1/4 ne 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 186.0
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361527 -1081227 MEMBER
ZONE

WELL NUMBER b-21 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 sw 1/4 ne 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.6 DEPTH: 195.8
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361527 -1081227 MEMBER
ZONE

WELL NUMBER b-21 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 sw 1/4 ne 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 9.5 DEPTH: 199.3
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361527 -1081227 MEMBER
ZONE

WELL NUMBER b-21 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 sw 1/4 ne 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 210.0
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361527 -1081227 MEMBER
ZONE

WELL NUMBER b-21 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 sw 1/4 ne 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 218.5
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361527 -1081227 MEMBER
ZONE

WELL NUMBER b-21 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 sw 1/4 ne 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 222.6
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361527 -1081227 MEMBER
ZONE

WELL NUMBER b-21 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 sw 1/4 ne 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.7 DEPTH: 228.6
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 3615227 -1081227 MEMBER
ZONE

WELL NUMBER b-21 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 sw 1/4 ne 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.7 DEPTH: 278.0
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361527 -1081227 MEMBER
ZONE

WELL NUMBER b-21 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 sw 1/4 ne 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 236.7
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361527 -1081227 MEMBER
ZONE

WELL NUMBER b-22 COUNTY san juan
QUADRANGLE aalamo mesa west
se 1/4 nw 1/4 sw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.8 DEPTH: 45.0
ACRES: MEASURED 110 INDICATED 139 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361514 -1081258 MEMBER
ZONE

WELL NUMBER b-22 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 sw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 93.5
ACRES: MEASURED 110 INDICATED 139 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361514 -1081258 MEMBER
ZONE

WELL NUMBER b-22 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 sw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 100.0
ACRES: MEASURED 110 INDICATED 139 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361514 -1081258 MEMBER
ZONE

WELL NUMBER b-22 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 sw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 8.5 DEPTH: 130.8
ACRES: MEASURED 110 INDICATED 139 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361514 -1081258 MEMBER
ZONE

WELL NUMBER b-22 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 sw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.3 DEPTH: 140.0
ACRES: MEASURED 110 INDICATED 139 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361514 -1081258 MEMBER
ZONE

WELL NUMBER b-22 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 sw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 149.0
ACRES: MEASURED 110 INDICATED 139 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361514 -1081258 MEMBER
ZONE

WELL NUMBER b-22 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 sw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.3 DEPTH: 209.0
ACRES: MEASURED 110 INDICATED 139 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361514 -1081258 MEMBER
ZONE

WELL NUMBER b-22 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 sw 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 212.1
ACRES: MEASURED 110 INDICATED 139 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361514 -1081258 MEMBER
ZONE

WELL NUMBER b-22 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 sw 1/4 SEC 3 T 23n R 3w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.6 DEPTH: 217.1
ACRES: MEASURED 110 INDICATED 139 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361514 - MEMBER
ZONE

WELL NUMBER b-23 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 se 1/4 SEC 3 T 23n R 13w FIELD: bist
FORMATION: fruitland COAL THICKNESS: 1.7 DEPTH: 82.7
ACRES: MEASURED 104 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361510 -1081233 MEMBER
ZONE

WELL NUMBER b-23 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 se 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 134.0
ACRES: MEASURED 104 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361510 -1081233 MEMBER
ZONE

WELL NUMBER b-23 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 se 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 13.2 DEPTH: 176.1
ACRES: MEASURED 104 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361510 -1081233 MEMBER
ZONE

WELL NUMBER b-23 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 se 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.3 DEPTH: 246.2
ACRES: MEASURED 104 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361510 -1081233 MEMBER
ZONE

WELL NUMBER b-23 COUNTY san juan
QUADRANGLE alamo mesa west
se 1/4 nw 1/4 se 1/4 SEC 3 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 252.3
ACRES: MEASURED 104 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361510 -1081233 MEMBER
ZONE

WELL NUMBER a-4 COUNTY san juan
QUADRANGLE bisti trading post
se 1/4 nw 1/4 se 1/4 SEC 30 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 128.7
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361654 -1081600 MEMBER
ZONE

WELL NUMBER a-4 COUNTY san juan
QUADRANGLE bisti trading post
se 1/4 nw 1/4 se 1/4 SEC 30 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 132.1
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361654 -1081600 MEMBER
ZONE

WELL NUMBER a-4 COUNTY san juan
QUADRANGLE bisti trading post
se 1/4 nw 1/4 se 1/4 SEC 30 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.3 DEPTH: 135.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361654 -1081600 MEMBER
ZONE

WELL NUMBER a-4 COUNTY san juan
QUADRANGLE bisti trading post
se 1/4 nw 1/4 se 1/4 SEC 30 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 138.9
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361654 -1081600 MEMBER
ZONE

WELL NUMBER a-4 COUNTY san juan
QUADRANGLE bisti trading post
se 1/4 nw 1/4 se 1/4 SEC 30 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.4 DEPTH: 173.2
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361654 -1081600 MEMBER
ZONE

WELL NUMBER a-4 COUNTY san juan
QUADRANGLE bisti trading post
se 1/4 nw 1/4 se 1/4 SEC 30 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.4 DEPTH: 177.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361654 -1081600 MEMBER
ZONE

WELL NUMBER a-4 COUNTY san juan
QUADRANGLE bisti trading post
se 1/4 nw 1/4 se 1/4 SEC 30 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 226.5
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361654 -1081600 MEMBER
ZONE

WELL NUMBER a-4 COUNTY san juan
QUADRANGLE bisti trading post
se 1/4 nw 1/4 se 1/4 SEC 30 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 230.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361654 -1081600 MEMBER
ZONE

WELL NUMBER a-4 COUNTY san juan
QUADRANGLE bisti trading post
se 1/4 nw 1/4 se 1/4 SEC 30 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.9 DEPTH: 240.0
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361654 -1081600 MEMBER
ZONE

WELL NUMBER a--4 COUNTY san juan
QUADRANGLE bisti trading post
se 1/4 nw 1/4 se 1/4 SEC 30 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.6 DEPTH: 231.5
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361654 -1081600 MEMBER
ZONE

WELL NUMBER a-4 COUNTY san juan
QUADRANGLE bisti trading post
se 1/4 nw 1/4 se 1/4 SEC 30 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.6 DEPTH: 239.1
ACRES: MEASURED 116 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361654 -1081600 MEMBER
ZONE

WELL NUMBER a-8 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 ne 1/4 nw 1/4 SEC 8 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 82.0
ACRES: MEASURED 117 INDICATED 519 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1081449 MEMBER
ZONE

WELL NUMBER a-9 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 se 1/4 ne 1/4 SEC 8 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 55.5
ACRES: MEASURED 113 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361440 -1081425 MEMBER
ZONE

WELL NUMBER a-9 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 se 1/4 ne 1/4 SEC 8 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.6 DEPTH: 70.8
ACRES: MEASURED 113 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361440 -1081425 MEMBER
ZONE

WELL NUMBER a-9 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 se 1/4 ne 1/4 SEC 8 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.7 DEPTH: 75.1
ACRES: MEASURED 113 INDICATED INFERRED
SOURCE: usgs of 1289 Conf
REC NUM: LAT-LONG 361440 -1081425 MEMBER
ZONE

WELL NUMBER a-11 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 nw 1/4 nw 1/4 SEC 9 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.3 DEPTH: 44.8
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361447 -1081323 MEMBER
ZONE

WELL NUMBER a-11 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 nw 1/4 nw 1/4 SEC 9 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.5 DEPTH: 136.5
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361447 -1081323 MEMBER
ZONE

WELL NUMBER a-11 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 nw 1/4 nw 1/4 SEC 9 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 144.0
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361447 -1081323 MEMBER
ZONE

WELL NUMBER a-15 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 nw 1/4 SEC 1 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 194.0
ACRES: MEASURED 126 INDICATED 660 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081046 MEMBER
ZONE

WELL NUMBER a-15 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 nw 1/4 SEC 1 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.7 DEPTH: 251.7
ACRES: MEASURED 126 INDICATED 660 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081046 MEMBER
ZONE

WELL NUMBER a-15 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 nw 1/4 SEC 1 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 256.0
ACRES: MEASURED 126 INDICATED 660 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081046 MEMBER
ZONE

WELL NUMBER a-15 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 nw 1/4 SEC 1 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.1 DEPTH: 255.6
ACRES: MEASURED 126 INDICATED 660 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081046 MEMBER
ZONE

WELL NUMBER a-15 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 nw 1/4 SEC 1 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.3 DEPTH: 270.0
ACRES: MEASURED 126 INDICATED 660 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081046 MEMBER
ZONE

WELL NUMBER a-15 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 nw 1/4 SEC 1 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.6 DEPTH: 277.8
ACRES: MEASURED 126 INDICATED 660 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081046 MEMBER
ZONE

WELL NUMBER a-15 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 nw 1/4 SEC 1 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 235.4
ACRES: MEASURED 126 INDICATED 660 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081046 MEMBER
ZONE

WELL NUMBER a-15 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 nw 1/4 SEC 1 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.2 DEPTH: 238.0
ACRES: MEASURED 126 INDICATED 660 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081046 MEMBER
ZONE

WELL NUMBER a-15 COUNTY san juan
QUADRANGLE alamo mesa west
nw 1/4 se 1/4 nw 1/4 SEC 1 T 24n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 353.8
ACRES: MEASURED 126 INDICATED 660 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361534 -1081046 MEMBER
ZONE

WELL NUMBER a-16 COUNTY san juan
QUADRANGLE alamo mesa west
sw 1/4 ne 1/4 ne 1/4 SEC 1 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 89.0
ACRES: MEASURED 111 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361540 -1081011 MEMBER
ZONE

WELL NUMBER a-16 COUNTY san juan
QUADRANGLE alamo mesa west
sw 1/4 ne 1/4 ne 1/4 SEC 1 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.7 DEPTH: 137.2
ACRES: MEASURED 111 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361540 -1081011 MEMBER
ZONE

WELL NUMBER a-12 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 ne 1/4 nw 1/4 SEC 10 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.4 DEPTH: 101.0
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1081250 MEMBER
ZONE

WELL NUMBER a-12 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 ne 1/4 nw 1/4 SEC 10 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 107.2
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1081250 MEMBER
ZONE

WELL NUMBER a-12 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 ne 1/4 nw 1/4 SEC 10 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.1 DEPTH: 110.3
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1081250 MEMBER
ZONE

WELL NUMBER a-12 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 ne 1/4 nw 1/4 SEC 10 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 118.8
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1081250 MEMBER
ZONE

WELL NUMBER a-12 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 ne 1/4 nw 1/4 SEC 10 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.2 DEPTH: 182.5
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1081250 MEMBER
ZONE

WELL NUMBER a-12 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 ne 1/4 nw 1/4 SEC 10 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.6 DEPTH: 192.0
ACRES: MEASURED 115 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1081250 MEMBER
ZONE

WELL NUMBER a-13 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 ne 1/4 SEC 10 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 120.0
ACRES: MEASURED 102 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361451 -1081226 MEMBER
ZONE

WELL NUMBER a-13 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 ne 1/4 SEC 10 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.6 DEPTH: 206.1
ACRES: MEASURED 102 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361451 - MEMBER
ZONE

WELL NUMBER a-13 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 ne 1/4 SEC 10 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.7 DEPTH: 215.8
ACRES: MEASURED 102 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361451 -1081226 MEMBER
ZONE

WELL NUMBER a-14 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 nw 1/4 nw 1/4 SEC 11 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.8 DEPTH: 57.1
ACRES: MEASURED 122 INDICATED 560 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361639 -1081141 MEMBER
ZONE

WELL NUMBER a-14 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 nw 1/4 nw 1/4 SEC 11 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 94.5
ACRES: MEASURED 122 INDICATED 560 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361639 -1081141 MEMBER
ZONE

WELL NUMBER a-14 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 nw 1/4 nw 1/4 SEC 11 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 93.5
ACRES: MEASURED 122 INDICATED 560 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361639 -1081141 MEMBER
ZONE

WELL NUMBER a-14 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 nw 1/4 nw 1/4 SEC 11 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.4 DEPTH: 123.3
ACRES: MEASURED 122 INDICATED 560 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361639 -1081141 MEMBER
ZONE

WELL NUMBER a---14 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 nw 1/4 nw 1/4 SEC 11 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.7 DEPTH: 127.0
ACRES: MEASURED 122 INDICATED 560 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361639 -1081141 MEMBER
ZONE

WELL NUMBER a-14 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 nw 1/4 nw 1/4 SEC 11 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 4.1 DEPTH: 134.0
ACRES: MEASURED INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361639 -1081141 MEMBER
ZONE

WELL NUMBER a-14 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 nw 1/4 nw 1/4 SEC 11 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 1.6 DEPTH: 139.0
ACRES: MEASURED 122 INDICATED 560 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361639 -1081141 MEMBER
ZONE

WELL NUMBER a-14 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 nw 1/4 nw 1/4 SEC 11 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.3 DEPTH: 163.4
ACRES: MEASURED 122 INDICATED 560 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361639 -1081141 MEMBER
ZONE

WELL NUMBER a-14 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 nw 1/4 nw 1/4 SEC 11 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 188.5
ACRES: MEASURED 122 INDICATED 560 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361639 -1081141 MEMBER
ZONE

WELL NUMBER a-14 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 nw 1/4 nw 1/4 SEC 11 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.4 DEPTH: 198.5
ACRES: MEASURED 122 INDICATED 560 INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361639 -1081141 MEMBER
ZONE

WELL NUMBER a-19 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 sw 1/4 SEC 7 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.7 DEPTH: 49.5
ACRES: MEASURED 110 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361430 -1080942 MEMBER
ZONE

WELL NUMBER a-19 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 sw 1/4 SEC 7 T 23n R 13w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 60.8
ACRES: MEASURED 110 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361430 -1080942 MEMBER
ZONE

WELL NUMBER a-20 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 sw 1/4 se 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.5 DEPTH: 55.0
ACRES: MEASURED 119 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361428 -1080919 MEMBER
ZONE

WELL NUMBER a-20 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 sw 1/4 se 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 75.1
ACRES: MEASURED 119 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361428 -1080919 MEMBER
ZONE

WELL NUMBER a-20 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 sw 1/4 se 1/4 SEC 7 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 85.5
ACRES: MEASURED 119 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361428 -1080919 MEMBER
ZONE

WELL NUMBER a-21 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 sw 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.4 DEPTH: 23.0
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361434 -1080838 MEMBER
ZONE

WELL NUMBER a-21 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 sw 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.7 DEPTH: 89.3
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361434 -1080838 MEMBER
ZONE

WELL NUMBER a-21 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 sw 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 111.4
ACRES: MEASURED 126 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361434 -1080838 MEMBER
ZONE

WELL NUMBER a-22 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 se 1/4 se 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 94.8
ACRES: MEASURED 114 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361420 -1080800 MEMBER
ZONE

WELL NUMBER a-22 COUNTY san juan
QUADRANGLE tanner lake
nw 1/4 se 1/4 se 1/4 SEC 8 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.3 DEPTH: 110.0
ACRES: MEASURED 114 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361420 -1080800 MEMBER
ZONE

WELL NUMBER a-23 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 ne 1/4 ne 1/4 SEC 9 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 30.6
ACRES: MEASURED 118 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1080800 MEMBER
ZONE

WELL NUMBER a-23 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 9 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2.2 DEPTH: 33.0
ACRES: MEASURED 118 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1080733 MEMBER
ZONE

WELL NUMBER a-23 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 9 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 76.0
ACRES: MEASURED 118 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1080733 MEMBER
ZONE

WELL NUMBER a-23 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 9 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 87.0
ACRES: MEASURED 118 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1080733 MEMBER
ZONE

WELL NUMBER a-23 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 9 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.3 DEPTH: 161.5
ACRES: MEASURED 118 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1080733 MEMBER
ZONE

WELL NUMBER a-23 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 9 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.2 DEPTH: 108.8
ACRES: MEASURED 118 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361454 -1080733 MEMBER
ZONE

WELL NUMBER a-24 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 sw 1/4 SEC 9 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.8 DEPTH: 39.5
ACRES: MEASURED 114 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361421 -1080733 MEMBER
ZONE

WELL NUMBER a-24 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 sw 1/4 SEC 9 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 2 .0 DEPTH: 57.3
ACRES: MEASURED 114 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361421 -1080733 MEMBER
ZONE

WELL NUMBER a-24 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 sw 1/4 SEC 9 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.2 DEPTH: 109.3
ACRES: MEASURED 114 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361421 -1080733 MEMBER
ZONE

WELL NUMBER a-24 COUNTY san juan
QUADRANGLE tanner lake
ne 1/4 sw 1/4 sw 1/4 SEC 9 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 120.1
ACRES: MEASURED 114 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361421 -1080733 MEMBER
ZONE

WELL NUMBER a-26 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 18 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.4 DEPTH: 43.5
ACRES: MEASURED 113 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361401 -1080910 MEMBER
ZONE

WELL NUMBER a-27 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 nw 1/4 SEC 17 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.2 DEPTH: 19.6
ACRES: MEASURED 123 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361356 -1080836 MEMBER
ZONE

WELL NUMBER a-27 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 nw 1/4 SEC 17 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.3 DEPTH: 42.0
ACRES: MEASURED 123 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361356 -1080836 MEMBER
ZONE

WELL NUMBER a-28 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 ne 1/4 SEC 17 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.8 DEPTH: 70.0
ACRES: MEASURED 120 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361356 -1080807 MEMBER
ZONE

WELL NUMBER a-28 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 ne 1/4 SEC 17 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 86.0
ACRES: MEASURED 120 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361356 -1080807 MEMBER
ZONE

WELL NUMBER a-30 COUNTY san juan
QUADRANGLE tanner lake
sw 1/4 ne 1/4 se 1/4 SEC 17 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 5.3 DEPTH: 32.3
ACRES: MEASURED 122 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361332 -1080801 MEMBER
ZONE

WELL NUMBER a-33 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 nw 1/4 nw 1/4 SEC 21 T 23n R 12w FIELD: bisti
FORMATION: fruitland COAL THICKNESS: 3.2 DEPTH: 33.0
ACRES: MEASURED 118 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 361305 -1080733 MEMBER
ZONE

WELL NUMBER sj 41 COUNTY san juan
QUADRANGLE newcomb se
1/4 sw 1/4 sw 1/4 SEC 36 T 25n R 17w FIELD: navajo
FORMATION: menefee COAL THICKNESS: 6.0 DEPTH: 31.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 880 LAT-LONG 362100 -1083528 MEMBER
ZONE

WELL NUMBER sj 41 COUNTY san juan
QUADRANGLE newcomb se
1/4 sw 1/4 sw 1/4 SEC 36 T 25n R 17w FIELD: navajo
FORMATION: menefee COAL THICKNESS: 9.0 DEPTH: 56.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 881 LAT-LONG 362100 -1083528 MEMBER
ZONE

WELL NUMBER sj 41 COUNTY san juan
QUADRANGLE newcomb se
1/4 sw 1/4 sw 1/4 SEC 36 T 25n R 17w FIELD: navajo
FORMATION: menefee COAL THICKNESS: 4.0 DEPTH: 69.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 882 LAT-LONG 362100 -1083528 MEMBER
ZONE

WELL NUMBER sj 41 COUNTY san juan
QUADRANGLE newcomb se
1/4 sw 1/4 sw 1/4 SEC 36 T 25n R 17w FIELD: navajo
FORMATION: menefee COAL THICKNESS: 2.0 DEPTH: 256.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 883 LAT-LONG 362100 -1083528 MEMBER
ZONE

WELL NUMBER sj 41 COUNTY san juan
QUADRANGLE newcomb se
1/4 sw 1/4 sw 1/4 SEC 36 T 25n R 17w FIELD: navajo
FORMATION: menefee COAL THICKNESS: 4.0 DEPTH: 292.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 884 LAT-LONG 362100 -1083528 MEMBER
ZONE

WELL NUMBER sj-53 COUNTY san juan
QUADRANGLE alamo mesa east
sw 1/4 sw 1/4 sw 1/4 SEC 5 T 24n R 11w FIELD: bisti
FORMATION: menefee COAL THICKNESS: 4.0 DEPTH: 3426.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: n.m.b.m. circ. Conf
REC NUM: 789 LAT-LONG 362143 -1080138 MEMBER
ZONE

WELL NUMBER sj-53 COUNTY san juan
QUADRANGLE alamo mesa east
sw 1/4 sw 1/4 sw 1/4 SEC 5 T 24n R 11w FIELD: bisti
FORMATION: menefee COAL THICKNESS: 3.0 DEPTH: 3457.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: n.m.b.m. circ. Conf
REC NUM: 790 LAT-LONG 362143 -1080138 MEMBER
ZONE

WELL NUMBER 3115-25-1 COUNTY san juan
QUADRANGLE heifer point
1/4 ne 1/4 se 1/4 SEC 25 T 31n R 15w FIELD: barker
FORMATION: menefee COAL THICKNESS: 12.4 DEPTH: 118.0
ACRES: MEASURED 125.0 INDICATED INFERRED
SOURCE: circ 134 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 3115-25-1 COUNTY san juan
QUADRANGLE heifer point
1/4 ne 1/4 se 1/4 SEC 25 T 31n R 15w FIELD: barker
FORMATION: menefee COAL THICKNESS: 4.4 DEPTH: 185.0
ACRES: MEASURED 125.0 INDICATED INFERRED
SOURCE: circ 134 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 3115-25-1 COUNTY san juan
QUADRANGLE heifer point
1/4 ne 1/4 se 1/4 SEC 25 T 31n R 15w FIELD: barker
FORMATION: menefee COAL THICKNESS: 3.6 DEPTH: 206.0
ACRES: MEASURED 125.0 INDICATED INFERRED
SOURCE: circ 134 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 3114-30-3 COUNTY san juan
QUADRANGLE youngs lake
1/4 ne 1/4 sw 1/4 SEC 30 T 31n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 7.0 DEPTH: 294.0
ACRES: MEASURED 116.7 INDICATED INFERRED
SOURCE: circ 134 Conf
REC NUM: LAT-LONG 365143 -1082037 MEMBER
ZONE

WELL NUMBER 3114-30-3 COUNTY san juan
QUADRANGLE youngs lake
1/4 ne 1/4 sw 1/4 SEC 30 T 31n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 5.0 DEPTH: 364.0
ACRES: MEASURED 116.7 INDICATED INFERRED
SOURCE: circ 134 Conf
REC NUM: LAT-LONG 365143 -1082037 MEMBER
ZONE

WELL NUMBER 3114-30-3 COUNTY san juan
QUADRANGLE youngs lake
1/4 ne 1/4 sw 1/4 SEC 30 T 31n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 4.0 DEPTH: 390.0
ACRES: MEASURED 116.7 INDICATED INFERRED
SOURCE: circ 134 Conf
REC NUM: LAT-LONG 365143 -1082037 MEMBER
ZONE

WELL NUMBER 3114-31-1 COUNTY san juan
QUADRANGLE youngs lake
1/4 ne 1/4 nw 1/4 SEC 31 T 31n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 5.0 DEPTH: 443.
ACRES: MEASURED 91.8 INDICATED INFERRED
SOURCE: Conf
REC NUM: 160 LAT-LONG 365127 -1082127 MEMBER
ZONE

WELL NUMBER 3114-31-1 COUNTY san juan
QUADRANGLE youngs lake
1/4 ne 1/4 nw 1/4 SEC 31 T 31n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 5.0 DEPTH: 534.0
ACRES: MEASURED 91.8 INDICATED INFERRED
SOURCE: Conf
REC NUM: 161 LAT-LONG 365127 -1082127 MEMBER
ZONE

WELL NUMBER 3114-31-2 COUNTY san juan
QUADRANGLE youngs lake
1/4 nw 1/4 nw 1/4 SEC 31 T 31n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 11.0 DEPTH: 413.0
ACRES: MEASURED 91.8 INDICATED INFERRED
SOURCE: circ 134 Conf
REC NUM: 162 LAT-LONG 365129 -1082107 MEMBER
ZONE

WELL NUMBER 3114-31-2 COUNTY san juan
QUADRANGLE youngs lake
1/4 nw 1/4 nw 1/4 SEC 31 T 31n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 8.0 DEPTH: 492.0
ACRES: MEASURED 91.8 INDICATED INFERRED
SOURCE: circ 134 Conf
REC NUM: LAT-LONG 365129 -1082107 MEMBER
ZONE

WELL NUMBER 3114-31-2 COUNTY san juan
QUADRANGLE youngs lake
1/4 nw 1/4 nw 1/4 SEC 31 T 31n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 4.0 DEPTH: 511.0
ACRES: MEASURED 91.8 INDICATED INFERRED
SOURCE: circ 1134 Conf
REC NUM: LAT-LONG 365129 -1082107 MEMBER
ZONE

WELL NUMBER sj 40 COUNTY san juan
QUADRANGLE newcomb
nw 1/4 sw 1/4 sw 1/4 SEC 2 T 23n R 17w FIELD: newcomb
FORMATION: menefee COAL THICKNESS: 2.0 DEPTH: 80.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 945 LAT-LONG 361309 -1083734 MEMBER
ZONE

WELL NUMBER sj 40 COUNTY san juan
QUADRANGLE newcomb
nw 1/4 sw 1/4 sw 1/4 SEC 2 T 23n R 17w FIELD: newcomb
FORMATION: menefee COAL THICKNESS: 2.0 DEPTH: 83.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 946 LAT-LONG 361309 -1083734 MEMBER
ZONE

WELL NUMBER sj 40 COUNTY san juan
QUADRANGLE newcomb
nw 1/4 sw 1/4 sw 1/4 SEC 2 T 23n R 17w FIELD: newcomb
FORMATION: menefee COAL THICKNESS: 4.0 DEPTH: 97.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 947 LAT-LONG 361309 -1083734 MEMBER
ZONE

WELL NUMBER sj 40 COUNTY san juan
QUADRANGLE newcomb
nw 1/4 sw 1/4 sw 1/4 SEC 2 T 23n R 17w FIELD: newcomb
FORMATION: menefee COAL THICKNESS: 2.0 DEPTH: 102.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 948 LAT-LONG 361309 -1083734 MEMBER
ZONE

WELL NUMBER sj 40 COUNTY san juan
QUADRANGLE newcomb
nw 1/4 sw 1/4 sw 1/4 SEC 2 T 23n R 17w FIELD: newcomb
FORMATION: menefee COAL THICKNESS: 4.0 DEPTH: 144.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 949 LAT-LONG 361309 -1083734 MEMBER
ZONE

WELL NUMBER sj 40 COUNTY san juan
QUADRANGLE newcomb
nw 1/4 sw 1/4 sw 1/4 SEC 2 T 23n R 17w FIELD: newcomb
FORMATION: menefee COAL THICKNESS: 5.0 DEPTH: 152.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 950 LAT-LONG 361309 -1083734 MEMBER
ZONE

WELL NUMBER sj 40 COUNTY san juan
QUADRANGLE newcomb
nw 1/4 sw 1/4 sw 1/4 SEC 2 T 23n R 17w FIELD: newcomb
FORMATION: menefee COAL THICKNESS: 4.0 DEPTH: 168.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 951 LAT-LONG 361309 -1083734 MEMBER
ZONE

WELL NUMBER sj 40 COUNTY san juan
QUADRANGLE newcomb
nw 1/4 sw 1/4 sw 1/4 SEC 2 T 23n R 17w FIELD: newcomb
FORMATION: menefee COAL THICKNESS: 2.0 DEPTH: 190.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 952 LAT-LONG 361309 -1083734 MEMBER
ZONE

WELL NUMBER sj 40 COUNTY san juan
QUADRANGLE newcombn
ws 1/4 ws 1/4 w 1/4 SEC 22 T 3nl R 7w FIELD: newcomb
FORMATION: menefee COAL THICKNESS: 3.0 DEPTH: 233.01
ACRES: MEASURED 25.71 INDICATED 005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 953 LAT-LONG 361309 -1083734 MEMBER
ZONE

WELL NUMBER sj 40 COUNTY san juan
QUADRANGLE newcomb
nw 1/4 sw 1/4 sw 1/4 SEC 2 T 23n R 17w FIELD: newcomb
FORMATION: menefee COAL THICKNESS: 5.0 DEPTH: 237.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 954 LAT-LONG 361309 -1083734 MEMBER
ZONE

WELL NUMBER sj 40 COUNTY san juan
QUADRANGLE newcomb
nw 1/4 sw 1/4 sw 1/4 SEC 2 T 23n R 17w FIELD: newcomb
FORMATION: menefee COAL THICKNESS: 6.0 DEPTH: 247.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mem 25 Conf
REC NUM: 955 LAT-LONG 361309 -1083734 MEMBER
ZONE

WELL NUMBER sj 367 COUNTY san juan
QUADRANGLE tanner lake
se 1/4 se 1/4 nw 1/4 SEC 34 T 23n R 13w FIELD: chaco canyon
FORMATION: menefee COAL THICKNESS: DEPTH:
ACRES: MEASURED INDICATED INFERRED
SOURCE: Conf
REC NUM: 1167 LAT-LONG 361106 -1081222 MEMBER
ZONE

WELL NUMBER sj 181 COUNTY san juan
QUADRANGLE kin klizhin ruins
nw 1/4 ne 1/4 sw 1/4 SEC 6 T 21n R 11w FIELD: chaco canyon
FORMATION: menefee COAL THICKNESS: 3.1 DEPTH: 233.6
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: of 80-184 Conf
REC NUM: 1168 LAT-LONG 360447 -1080314 MEMBER
ZONE

WELL NUMBER sj 182 COUNTY san juan
QUADRANGLE kin klizhin ruins
1/4 nw 1/4 sw 1/4 SEC 16 T 21n R 11w FIELD: chaco canyon
FORMATION: menefee COAL THICKNESS: 5.1 DEPTH: 52.8
ACRES: MEASURED 64.0 INDICATED 405.0 INFERRED
SOURCE: usgs of 80-184 Conf
REC NUM: 1169 LAT-LONG 360306 -1080119 MEMBER
ZONE

WELL NUMBER sj 184 COUNTY san juan
QUADRANGLE kin klizhin ruins
1/4 ne 1/4 se 1/4 SEC 21 T 21n R 11w FIELD: chaco canyon
FORMATION: menefee COAL THICKNESS: 1.6 DEPTH: 86.9
ACRES: MEASURED 92.0 INDICATED 599.0 INFERRED
SOURCE: usgs of 80-184 Conf
REC NUM: 1170 LAT-LONG 360218 -1080026 MEMBER
ZONE

WELL NUMBER sj 184 COUNTY san juan
QUADRANGLE kin klizhin ruins
1/4 ne 1/4 se 1/4 SEC 21 T 21n R 11w FIELD: chaco canyon
FORMATION: menefee COAL THICKNESS: 2.6 DEPTH: 294.8
ACRES: MEASURED INDICATED INFERRED
SOURCE: usgs of 80-184 Conf
REC NUM: 1171 LAT-LONG 360218 -1080026 MEMBER
ZONE

WELL NUMBER sj 187 COUNTY san juan
QUADRANGLE kin klizhin ruins
1/4 sw 1/4 sw 1/4 SEC 3 T 21n R 12w FIELD: chaco canyon
FORMATION: menefee COAL THICKNESS: 1.4 DEPTH: 51.3
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: usgs of 80-184 Conf
REC NUM: 1172 LAT-LONG 360439 -1080650 MEMBER
ZONE

WELL NUMBER sj-50 COUNTY san juan
QUADRANGLE sargent ranch
1/4 nw 1/4 se 1/4 SEC 20 T 21n R 9w FIELD: chaco canyon
FORMATION: menefee COAL THICKNESS: 3.0 DEPTH: 175.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: Conf
REC NUM: 1278 LAT-LONG 360203 -1074847 MEMBER
ZONE

WELL NUMBER sj-50 COUNTY san juan
QUADRANGLE sargent ranch
1/4 nw 1/4 se 1/4 SEC 20 T 21n R 9w FIELD: chaco canyon
FORMATION: menefee COAL THICKNESS: 3.0 DEPTH: 217.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: Conf
REC NUM: 1279 LAT-LONG 360203 -1074847 MEMBER
ZONE

WELL NUMBER sj-50 COUNTY san juan
QUADRANGLE sargent ranch
1/4 nw 1/4 se 1/4 SEC 20 T 21n R 9w FIELD: chaco canyon
FORMATION: menefee COAL THICKNESS: 4.0 DEPTH: 236.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: Conf
REC NUM: 1280 LAT-LONG 360203 -1074847 MEMBER
ZONE

WELL NUMBER navajo 17-5 COUNTY san juan
QUADRANGLE chimney rock
nw 1/4 se 1/4 se 1/4 SEC 17 T 31n R 16w FIELD: barker
FORMATION: menefee COAL THICKNESS: 4.5 DEPTH: 352.0
ACRES: MEASURED INDICATED INFERRED
SOURCE: n.m.b.m. lib 14326 Conf
REC NUM: 1434 LAT-LONG 365149 -1083038 MEMBER
ZONE

WELL NUMBER navajo 17-5 COUNTY san juan
QUADRANGLE chimney rock
nw 1/4 se 1/4 se 1/4 SEC 17 T 31n R 16w FIELD: barker
FORMATION: menefee COAL THICKNESS: 2.0 DEPTH: 736.0
ACRES: MEASURED INDICATED INFERRED
SOURCE: n.m.b.m. lib 14326 Conf
REC NUM: 1435 LAT-LONG 365149 -1083038 MEMBER
ZONE

WELL NUMBER navajo 17-5 COUNTY san juan
QUADRANGLE chimney rock
nw 1/4 se 1/4 se 1/4 SEC 17 T 31n R 16w FIELD: barker
FORMATION: menefee COAL THICKNESS: 5.0 DEPTH: 930.0
ACRES: MEASURED INDICATED INFERRED
SOURCE: n.m.b.m. lib 14326 Conf
REC NUM: 1436 LAT-LONG 365149 -1083038 MEMBER
ZONE

WELL NUMBER navajo 17-5 COUNTY san juan
QUADRANGLE chimney rock
nw 1/4 se 1/4 se 1/4 SEC 17 T 31n R 16w FIELD: barker
FORMATION: menefee COAL THICKNESS: 4.5 DEPTH: 1034.0
ACRES: MEASURED INDICATED INFERRED
SOURCE: n.m.b.m. lib 14326 Conf
REC NUM: 1437 LAT-LONG 365149 -1083038 MEMBER
ZONE

WELL NUMBER navajo tribe 6213 COUNTY san juan
QUADRANGLE chimney rock
nw 1/4 sw 1/4 sw 1/4 SEC 1 T 31n R 17w FIELD: barker
FORMATION: menefee COAL THICKNESS: 5.0 DEPTH: 440.0
ACRES: MEASURED INDICATED INFERRED
SOURCE: n.m.b.m. lib 14335 Conf
REC NUM: 1438 LAT-LONG 365329 -1083332 MEMBER
ZONE

WELL NUMBER 2-a ute COUNTY san juan
QUADRANGLE heifer point
sw 1/4 nw 1/4 sw 1/4 SEC 21 T 31n R 18w FIELD: barker
FORMATION: menefee COAL THICKNESS: 6.0 DEPTH: 279.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: n.m.b.m. lib 9546 Conf
REC NUM: 1439 LAT-LONG 365141 -1082551 MEMBER
ZONE

WELL NUMBER 2-a ute COUNTY san juan
QUADRANGLE heifer point
sw 1/4 nw 1/4 sw 1/4 SEC 21 T 31n R 18w FIELD: barker
FORMATION: menefee COAL THICKNESS: 6.0 DEPTH: 310.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: n.m.b.m. lib 9546 Conf
REC NUM: 1440 LAT-LONG 365141 -1082551 MEMBER
ZONE

WELL NUMBER 2-a ute indians COUNTY san juan
QUADRANGLE purgatory
se 1/4 nw 1/4 se 1/4 SEC 2 T 31n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 7.0 DEPTH: 371.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: n.m.b.m. lib 23215 Conf
REC NUM: 1441 LAT-LONG 365525 -1081633 MEMBER
ZONE

WELL NUMBER mountain tribe b-3 COUNTY san juan
QUADRANGLE chimney rock
sw 1/4 se 1/4 sw 1/4 SEC 21 T 31n R 16w FIELD: barker
FORMATION: menefee COAL THICKNESS: 9.0 DEPTH: 42.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: n.m.b.m. lib 9700 Conf
REC NUM: 1442 LAT-LONG 365054 -1083007 MEMBER
ZONE

WELL NUMBER navajo #1-f COUNTY san juan
QUADRANGLE chimney rock
se 1/4 nw 1/4 nw 1/4 SEC 74 T 31n R 17w FIELD: barker
FORMATION: menefee COAL THICKNESS: 35.0 DEPTH: 15.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: n.m.b.m. lib 13439 Conf
REC NUM: 1443 LAT-LONG 365406 -1083640 MEMBER
ZONE

WELL NUMBER navajo #1-f COUNTY san juan
QUADRANGLE chimney rock
se 1/4 nw 1/4 nw 1/4 SEC 4 T 31n R 17w FIELD: barker
FORMATION: menefee COAL THICKNESS: 13.0 DEPTH: 237.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: n.m.b.m. lib 14349 Conf
REC NUM: 1444 LAT-LONG 365406 -1083207 MEMBER
ZONE

WELL NUMBER chimney rock 23-7 COUNTY san juan
QUADRANGLE chimney rock
se 1/4 ne 1/4 sw 1/4 SEC 7 T 31n R 16w FIELD: barker
FORMATION: menefee COAL THICKNESS: 6.0 DEPTH: 320.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: n.m.b.m. lib 14319 Conf
REC NUM: 1446 LAT-LONG 365251 -1083207 MEMBER
ZONE

WELL NUMBER hz 35 COUNTY san juan
QUADRANGLE purgatory canyon
1/4 1/4 1/4 SEC T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 2.4 DEPTH: 90.0
ACRES: MEASURED 125.7 INDICATED 846.2 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365911 -1082012 MEMBER
ZONE

WELL NUMBER hz 14 COUNTY san juan
QUADRANGLE heifer point sw
sw 1/4 sw 1/4 sw 1/4 SEC 13 T 31b R 16w FIELD: barker
FORMATION: menefee COAL THICKNESS: 9.7 DEPTH: 51.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365214 -1082900 MEMBER
ZONE

WELL NUMBER hz 40 COUNTY san juan
QUADRANGLE purgatory
nw 1/4 sw 1/4 ne 1/4 SEC 16 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 4.9 DEPTH: 225.0
ACRES: MEASURED 93.1 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365914 -1081856 MEMBER
ZONE

WELL NUMBER hz 38 COUNTY san juan
QUADRANGLE purgatory
sw 1/4 nw 1/4 se 1/4 SEC 16 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 3.3 DEPTH: 123.4
ACRES: MEASURED 71.3 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 365857 -1081852 MEMBER
ZONE

WELL NUMBER hz 38 COUNTY san juan
QUADRANGLE purgatory
sw 1/4 nw 1/4 se 1/4 SEC 16 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 1.2 DEPTH: 187.2
ACRES: MEASURED 73.1 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 365857 -1081852 MEMBER
ZONE

WELL NUMBER hz 38 COUNTY san juan
QUADRANGLE purgatory
sw 1/4 nw 1/4 se 1/4 SEC 16 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 11.9 DEPTH: 189.3
ACRES: MEASURED 73.1 INDICATED INFERRED
SOURCE: Conf
REC NUM: LAT-LONG 365857 -1081852 MEMBER
ZONE

WELL NUMBER hz 38 COUNTY san juan
QUADRANGLE purgatory
sw 1/4 nw 1/4 se 1/4 SEC 16 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 1.2 DEPTH: 325.0
ACRES: MEASURED 73.1 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365857 -1081852 MEMBER
ZONE

WELL NUMBER hz 37 COUNTY san juan
QUADRANGLE purgatory canyon
sw 1/4 se 1/4 sw 1/4 SEC 16 T R FIELD: barker
FORMATION: menefee COAL THICKNESS: 5.8 DEPTH: 180.0
ACRES: MEASURED 107.1 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365842 -1081904 MEMBER
ZONE

WELL NUMBER hz 37 COUNTY san juan
QUADRANGLE purgatory canyon
sw 1/4 se 1/4 sw 1/4 SEC 16 T R FIELD: barker
FORMATION: menefee COAL THICKNESS: 15.8 DEPTH: 240.0
ACRES: MEASURED 107.1 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365842 -1081904 MEMBER
ZONE

WELL NUMBER hz 37 COUNTY san juan
QUADRANGLE purgatory canyon
sw 1/4 se 1/4 sw 1/4 SEC 16 T R FIELD: barker
FORMATION: menefee COAL THICKNESS: 1.4 DEPTH: 309.2
ACRES: MEASURED 107.1 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365842 -1081904 MEMBER
ZONE

WELL NUMBER hz 28 COUNTY san juan
QUADRANGLE purgatory canyon
sw 1/4 nw 1/4 nw 1/4 SEC 21 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 6.3 DEPTH: 210.0
ACRES: MEASURED 125.7 INDICATED 369.0 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365826 -1081928 MEMBER
ZONE

WELL NUMBER hz 26 COUNTY san juan
QUADRANGLE purgatory canyon
se 1/4 se 1/4 se 1/4 SEC 16 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 10.1 DEPTH: 300.0
ACRES: MEASURED 112.4 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365819 -1081839 MEMBER
ZONE

WELL NUMBER hz 43 COUNTY san juan
QUADRANGLE purgatory canyon
ne 1/4 ne 1/4 sw 1/4 SEC 15 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 14.7 DEPTH: 280.0
ACRES: MEASURED 115.4 INDICATED INFERRED
SOURCE: hayes and zap Conf n
REC NUM: LAT-LONG 3658199 -1081839 MEMBER
ZONE

WELL NUMBER hz 45 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 se 1/4 nw 1/4 SEC 15 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 23.3 DEPTH: 280.0
ACRES: MEASURED 88.4 INDICATED 438.4 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365919 -1081757 MEMBER
ZONE

WELL NUMBER hz 45 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 se 1/4 nw 1/4 SEC 15 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 5.8 DEPTH: 305.6
ACRES: MEASURED 88.4 INDICATED 438.9 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365919 -1081757 MEMBER
ZONE

WELL NUMBER hz 45 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 se 1/4 nw 1/4 SEC 15 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 2.8 DEPTH: 312.0
ACRES: MEASURED 88.4 INDICATED 438.9 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365919 -1081757 MEMBER
ZONE

WELL NUMBER hz 44 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 ne 1/4 sw 1/4 SEC 15 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 25.0 DEPTH: 282.5
ACRES: MEASURED 122.1 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365907 -1081732 MEMBER
ZONE

WELL NUMBER hz 44 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 ne 1/4 sw 1/4 SEC 15 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 2.4 DEPTH: 310.0
ACRES: MEASURED 122.1 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365907 -1081732 MEMBER
ZONE

WELL NUMBER hz 47 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 sw 1/4 se 1/4 SEC 10 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 20.5 DEPTH: 304.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365948 -1081749 MEMBER
ZONE

WELL NUMBER hz 47 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 sw 1/4 se 1/4 SEC 10 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 1.2 DEPTH: 326.8
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365948 -1081749 MEMBER
ZONE

WELL NUMBER hz 47 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 sw 1/4 se 1/4 SEC 10 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 1.6 DEPTH: 328.8
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365948 -1081749 MEMBER
ZONE

WELL NUMBER hz 48 COUNTY san juan
QUADRANGLE purgatory canyon
ne 1/4 sw 1/4 sw 1/4 SEC 11 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 4.3 DEPTH: 330.0
ACRES: MEASURED 125.7 INDICATED 442.5 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365948 -1081705 MEMBER
ZONE

WELL NUMBER hz 25 COUNTY san juan
QUADRANGLE purgatory canyon
sw 1/4 sw 1/4 ne 1/4 SEC 35 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 6.5 DEPTH: 180.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365628 -1081646 MEMBER
ZONE

WELL NUMBER hz 24 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 nw 1/4 nw 1/4 SEC 36 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 4.0 DEPTH: 145.0
ACRES: MEASURED 105.3 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365647 -1081611 MEMBER
ZONE

WELL NUMBER hz 24 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 nw 1/4 nw 1/4 SEC 36 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 6.6 DEPTH: 169.0
ACRES: MEASURED 105.3 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365647 -1081611 MEMBER
ZONE

WELL NUMBER hz 23 COUNTY san juan
QUADRANGLE purgatory canyon
sw 1/4 sw 1/4 nw 1/4 SEC 36 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 6.3 DEPTH: 170.0
ACRES: MEASURED 87.6 INDICATED 585.0 INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365632 -1081609 MEMBER
ZONE

WELL NUMBER hz 22 COUNTY san juan
QUADRANGLE purgatory canyon
ne 1/4 sw 1/4 sw 1/4 SEC 36 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 6.1 DEPTH: 85.0
ACRES: MEASURED 105.3 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365618 -1081559 MEMBER
ZONE

WELL NUMBER hz 22 COUNTY san juan
QUADRANGLE purgatory
nw 1/4 sw 1/4 sw 1/4 SEC 36 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 6.5 DEPTH: 136.0
ACRES: MEASURED 105.3 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365618 -1081559 MEMBER
ZONE

WELL NUMBER hz 22 COUNTY san juan
QUADRANGLE purgatory canyon
ne 1/4 sw 1/4 sw 1/4 SEC 36 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 5.9 DEPTH: 172.6
ACRES: MEASURED 105.3 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 365618 - 1081559 MEMBER
ZONE

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WELL NUMBER hz 19 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 nw 1/4 nw 1/4 SEC 1 T 31n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 2.0 DEPTH: 140.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: hayes and zapp Conf n
REC NUM: LAT-LONG 3655559 -1081614 MEMBER
ZONE

WELL NUMBER cc-12 COUNTY san juan
QUADRANGLE pueblo bonito
ne 1/4 sw 1/4 sw 1/4 SEC 32 T 21n R 10w FIELD: chaco canyon
FORMATION: menefee COAL THICKNESS: 2.0 DEPTH: 1536.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: bendix Conf
REC NUM: LAT-LONG 355922 -1075545 MEMBER
ZONE

WELL NUMBER cc-8 COUNTY san juan
QUADRANGLE sargent ranch
ne 1/4 ne 1/4 ne 1/4 SEC 09 T 20n R 9w FIELD: chaco canyon
FORMATION: menefee COAL THICKNESS: 2.0 DEPTH: 1736.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: bendix Conf
REC NUM: LAT-LONG 355914 -1074721 MEMBER
ZONE

WELL NUMBER 25430 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 se 1/4 se 1/4 SEC 26 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 3.5 DEPTH: 326.0
ACRES: MEASURED INDICATED INFERRED
SOURCE: amoco; ute ind. a-19 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 25430 COUNTY san juan
QUADRANGLE purgatory canyon
nw 1/4 se 1/4 se 1/4 SEC 26 T 32n R 14w FIELD: barker
FORMATION: menefee COAL THICKNESS: 2.5 DEPTH: 358.0
ACRES: MEASURED INDICATED INFERRED
SOURCE: amoco ute ind. a-19 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 25770-217 COUNTY san juan
QUADRANGLE huerfano trading post
se 1/4 nw 1/4 se 1/4 SEC 21 T 25n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 1674.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: petr. corp. texas; fed 21 no.1-r Conf n
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25770-217 COUNTY san juan
QUADRANGLE huerfano trading post
se 1/4 nw 1/4 se 1/4 SEC 21 T 25n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 1747.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: petr. corp. texas Conf n
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25770-217 COUNTY san juan
QUADRANGLE huerfano trading post
se 1/4 nw 1/4 se 1/4 SEC 21 T 25n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 1820.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: petr. corp. texas; fed 21 no.1-r Conf n
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25770-217 COUNTY san juan
QUADRANGLE huerfano trading post
se 1/4 nw 1/4 se 1/4 SEC 21 T 25n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 1834.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: petr. corp. texas; fed. 21 no. 1-r Conf n
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 21342 COUNTY san juan
QUADRANGLE farmington north
nw 1/4 ne 1/4 se 1/4 SEC 30 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 1622.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amoco; fed e-1e Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 21342 COUNTY san juan
QUADRANGLE farmington north
nw 1/4 ne 1/4 se 1/4 SEC 30 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 1629.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amoco; fed e-1e Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25635 COUNTY san juan
QUADRANGLE farmington north
se 1/4 nw 1/4 nw 1/4 SEC 35 T 30n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 1570.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: supron energy; cith farmington 2-e Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25635 COUNTY san juan
QUADRANGLE farmington north
se 1/4 nw 1/4 nw 1/4 SEC 35 T 30n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 1639.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: supron energy; city farmington 2-e Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25635 COUNTY san juan
QUADRANGLE farmington north
se 1/4 nw 1/4 nw 1/4 SEC 35 T 30n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 1645.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: supron energy; city farmington Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25635 COUNTY san juan
QUADRANGLE farmington north
se 1/4 nw 1/4 nw 1/4 SEC 35 T 30n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 1650
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: supron energy; city farmington 2-e Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14382 COUNTY san juan
QUADRANGLE bancos mesa nw
se 1/4 nw 1/4 ne 1/4 SEC 16 T 32n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 15.0 DEPTH: 2529
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pacific nw pipeline sj 32-5, #4-16 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14388 COUNTY san juan
QUADRANGLE navajo dam
ne 1/4 sw 1/4 ne 1/4 SEC 13 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.5 DEPTH: 2920
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng allison u9 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14388 COUNTY san juan
QUADRANGLE navajo dam
ne 1/4 sw 1/4 ne 1/4 SEC 13 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 14.0 DEPTH: 2958.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, allison u9 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14403 COUNTY san juan
QUADRANGLE navajo dam
sw 1/4 ne 1/4 ne 1/4 SEC 14 T 32n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.5 DEPTH: 3502.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng sj 32-9 unit 11 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14403 COUNTY san juan
QUADRANGLE navajo dam
sw 1/4 ne 1/4 ne 1/4 SEC 14 T 32n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 3550.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng sj 32-9 unit 11 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14445 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 sw 1/4 SEC 10 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.0 DEPTH: 2370.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: white and mcmillan; wm# 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20385 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 se 1/4 SEC 4 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2497.0
ACRES: MEASURED 125.7 INDICATED 971.4 INFERRED
SOURCE: epng, neil no. 12 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20385 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 se 1/4 SEC 4 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2502.0
ACRES: MEASURED 125.7 INDICATED 971.4 INFERRED
SOURCE: epng neil no. 12 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20835 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 se 1/4 SEC 4 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2664.0
ACRES: MEASURED 125.7 INDICATED 971.4 INFERRED
SOURCE: epng neil no. 12 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20835 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 se 1/4 SEC 4 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 14.0 DEPTH: 2721.0
ACRES: MEASURED 125.7 INDICATED 971.4 INFERRED
SOURCE: epng neil no. 12 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20835 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 se 1/4 SEC 4 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2739.0
ACRES: MEASURED 125.7 INDICATED 971.4 INFERRED
SOURCE: epng, neil no. 12 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14228 COUNTY san juan
QUADRANGLE la plata
se 1/4 nw 1/4 ne 1/4 SEC 15 T 31n R 13w FIELD: san juan
FORMATION: menefee COAL THICKNESS: 2.0 DEPTH: 1704
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: consolidation oil and gas mccarty no. 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sm

WELL NUMBER 14228 COUNTY san juan
QUADRANGLE la plata
se 1/4 nw 1/4 ne 1/4 SEC 15 T 31n R 13w FIELD: san juan
FORMATION: menefee COAL THICKNESS: 2.5 DEPTH: 1880.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: consolidation oil and gas mccarty no. 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sm

WELL NUMBER 14228 COUNTY san juan
QUADRANGLE la plata
se 1/4 nw 1/4 ne 1/4 SEC 15 T 31n R 13w FIELD: san juan
FORMATION: menefee COAL THICKNESS: 3.0 DEPTH: 1887.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: consolidation oil and gas mccarty no. 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sm

WELL NUMBER 21422 COUNTY san juan
QUADRANGLE la plata
se 1/4 nw 1/4 ne 1/4 SEC 27 T 31n R 13w FIELD: san juan
FORMATION: menefee COAL THICKNESS: 2.0 DEPTH: 1625
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: consol. oil and gas templeton le Conf
REC NUM: LAT-LONG - MEMBER
ZONE sm

WELL NUMBER 21422 COUNTY san juan
QUADRANGLE la plata
se 1/4 nw 1/4 ne 1/4 SEC 27 T 31n R 13w FIELD: san juan
FORMATION: menefee COAL THICKNESS: 2.5 DEPTH: 1630.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: consol. oil and gas templeton le Conf
REC NUM: LAT-LONG - MEMBER
ZONE sm

WELL NUMBER 20677 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 nw 1/4 SEC 32 T 31n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 3166.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng com. g-8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20677 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 nw 1/4 SEC 32 T 31n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 10.0 DEPTH: 3172.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng com. g-8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20677 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 nw 1/4 SEC 32 T 31n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 3187.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng com. g-8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20677 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 nw 1/4 SEC 32 T 31n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3255.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng com. g-8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20677 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 nw 1/4 SEC 32 T 31n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 3260.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng com. g-8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20677 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 nw 1/4 SEC 32 T 31n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 3308.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng com. g-8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20677 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 nw 1/4 SEC 32 T 31n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3322.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng com. g-8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20677 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 nw 1/4 SEC 32 T 31n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3330.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng com. g-8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25752 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 sw 1/4 SEC 12 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 3270.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: blackwood and nichols, nebu 208 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25753 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 sw 1/4 SEC 12 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.0 DEPTH: 3283.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: blackwood and nichols Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25753 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 sw 1/4 SEC 12 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 3236.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: blackwood and nichols, nebu 208 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25753 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 sw 1/4 SEC 12 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 3240.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: blackwood and nichols, nebu 208 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25753 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 sw 1/4 SEC 12 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3277.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: blackwood and nichols nebu 208 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14489-40 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 20 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 1983.0
ACRES: MEASURED 125.7 INDICATED 935.3 INFERRED
SOURCE: pan am. petroleum corp, fed gas unit #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14489-40 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 20 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 9.0 DEPTH: 2071.0
ACRES: MEASURED 125.7 INDICATED 935.3 INFERRED
SOURCE: pan am. petroleum corp, fed gas unit #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14489-40 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 20 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2178.0
ACRES: MEASURED 125.7 INDICATED 935.3 INFERRED
SOURCE: pan am. petroleum corp, fed gas unit #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14489-40 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 20 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2188.0
ACRES: MEASURED 125.7 INDICATED 935.3 INFERRED
SOURCE: pan am. petroleum corp, fed gas unit #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14489-40 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 20 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 2217.0
ACRES: MEASURED 125.7 INDICATED 935.3 INFERRED
SOURCE: pan am. petroleum corp, fed gas unit #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 12285-53 COUNTY rio arriba
QUADRANGLE bancos mesa
nw 1/4 se 1/4 nw 1/4 SEC 26 T 32n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3764.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: belco petrol. corp.; carracas mesa unit 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12285-53 COUNTY rio arriba
QUADRANGLE bancos mesa
nw 1/4 se 1/4 nw 1/4 SEC 26 T 32n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 3798.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: belco petrol. corp.; carracas mesa unit 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9289-54 COUNTY rio arriba
QUADRANGLE bancos mesa
sw 1/4 ne 1/4 sw 1/4 SEC 29 T 32n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 4004.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: phillips petrol. mesa unit 32-4 well i-29 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12281-56 COUNTY rio arriba
QUADRANGLE wirt canyon
se 1/4 nw 1/4 nw 1/4 SEC 23 T 32n R 3w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 1030.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pan am. pet. co.; pagosa-jicarilla #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 14238-61 COUNTY san juan
QUADRANGLE farmington north
nw 1/4 se 1/4 sw 1/4 SEC 34 T 31n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 1732.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: southern union prod. co. fed lea #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14238-61 COUNTY san juan
QUADRANGLE farmington north
nw 1/4 se 1/4 sw 1/4 SEC 34 T 31n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 1867.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: southern union prod. co. fed lea #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14238-61 COUNTY san juan
QUADRANGLE farmington north
nw 1/4 se 1/4 sw 1/4 SEC 34 T 31n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 1872.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: southern union prod. co. fed lea #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 12278-69 COUNTY rio arriba
QUADRANGLE navajo dam
sw 1/4 ne 1/4 sw 1/4 SEC 31 T 31n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2354.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeling; sj 31-6, mesa 5-31 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12278-69 COUNTY rio arriba
QUADRANGLE navajo dam
sw 1/4 ne 1/4 sw 1/4 SEC 31 T 31n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 2364.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline; sj-31-6, mesa 5-31 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12278-69 COUNTY rio arriba
QUADRANGLE navajo dam
sw 1/4 ne 1/4 sw 1/4 SEC 31 T 31n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2982.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline; sj 31-6 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gemez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3157.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline, rosa unit 15-29 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gemez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 3200.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline, rosa unit 15-29 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gemez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 3207.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline, rosa unit 15-29 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gemez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 3238.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline, rosa unit 15-29 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gemez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3247.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline, rosa unit 15-29 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9394-71 COUNTY rio arriba
QUADRANGLE gemez ranch
nw 1/4 se 1/4 ne 1/4 SEC 29 T 31n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 3264.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw pipeline, rosa unit 15-29 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9020-90 COUNTY rio arriba
QUADRANGLE gomez ranch
se 1/4 nw 1/4 sw 1/4 SEC 20 T 30n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 11.0 DEPTH: 3068.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: el paso natl gas Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 9020-90 COUNTY rio arriba
QUADRANGLE gomez ranch
se 1/4 nw 1/4 sw 1/4 SEC 20 T 30n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 3112.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: el paso nat'l gas; manning #1-a Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 13715-82 COUNTY san juan
QUADRANGLE flora vista
sw 1/4 ne 1/4 sw 1/4 SEC 36 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 1842.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pubco pet. state #30 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 13715-82 COUNTY san juan
QUADRANGLE flora vista
sw 1/4 ne 1/4 sw 1/4 SEC 36 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 1850.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pubco pet. state #30 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 13715-82 COUNTY san juan
QUADRANGLE flora vista
sw 1/4 ne 1/4 sw 1/4 SEC 36 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 1913.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pubco pet. state #30 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 13715-82 COUNTY san juan
QUADRANGLE flora vista
sw 1/4 ne 1/4 sw 1/4 SEC 36 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 1921.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pubco pet. state #30 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 8877-107 COUNTY san juan
QUADRANGLE bloomfield
nw 1/4 sw 1/4 sw 1/4 SEC 33 T 29n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2412.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: hdh drilling, s.j. no. 2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 8877-107 COUNTY san juan
QUADRANGLE bloomfield
nw 1/4 sw 1/4 sw 1/4 SEC 33 T 29n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 10.0 DEPTH: 2503.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: hdh drilling, s.j. no. 2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 8815-108 COUNTY san juan
QUADRANGLE gould pass
nw 1/4 se 1/4 nw 1/4 SEC 21 T 29n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 2986.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: el paso nat'l gas; #3mv strat test Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 8815-108 COUNTY san juan
QUADRANGLE gould pass
nw 1/4 se 1/4 nw 1/4 SEC 21 T 29n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 18.0 DEPTH: 3062.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: el paso nat'l gas; #3mv strat test Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14581-111 COUNTY rio arriba
QUADRANGLE gobernador
sw 1/4 se 1/4 ne 1/4 SEC 30 T 29n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.0 DEPTH: 3573.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw, san juan 29-5, 13-30 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 14581-111 COUNTY rio arriba
QUADRANGLE gobernador
sw 1/4 se 1/4 ne 1/4 SEC 30 T 29n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 3537.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: pacific nw, san juan 29-5, 13-30 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12120-116 COUNTY rio arriba
QUADRANGLE leandro canyon
sw 1/4 nw 1/4 se 1/4 SEC 30 T 29n R 3w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 3533.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pacific nw, jicarilla indian a-2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12120-116 COUNTY rio arriba
QUADRANGLE leandro canyon
sw 1/4 nw 1/4 se 1/4 SEC 30 T 29n R 3w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3591.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pacific nw, jicarilla indian a-2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 12120-116 COUNTY rio arriba
QUADRANGLE leandro canyon
sw 1/4 nw 1/4 se 1/4 SEC 30 T 29n R 3w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 3540.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pacific nw, jicarilla indian a-2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8960-100 COUNTY san juan
QUADRANGLE farmington south
se 1/4 ne 1/4 ne 1/4 SEC 33 T 29n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 1151.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: tennessee gas and oil; callow #13 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 8960-100 COUNTY san juan
QUADRANGLE farmington south
se 1/4 ne 1/4 ne 1/4 SEC 33 T 29n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 1140.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: tennesse gas and oil; callow #13 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 8960-100 COUNTY san juan
QUADRANGLE farmington south
se 1/4 ne 1/4 ne 1/4 SEC 33 T 29n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 1147.0
ACRES: MEASURED 125.7 INDICATED 994.3 INFERRED
SOURCE: tennesse gas and oil; callow #13 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 17877-194 COUNTY rio arriba
QUADRANGLE gonzales mesa
ne 1/4 sw 1/4 sw 1/4 SEC 7 T 26n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2946.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: nw production; w#1-7 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 17877-194 COUNTY rio arriba
QUADRANGLE gonzales mesa
ne 1/4 sw 1/4 sw 1/4 SEC 7 T 26n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2960.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: nw production; w#1-7 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 17877-194 COUNTY rio arriba
QUADRANGLE gonzales mesa
ne 1/4 sw 1/4 sw 1/4 SEC 7 T 26n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3044.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: nw production; w#1-7 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 11463-199 COUNTY rio arriba
QUADRANGLE ojito
sw 1/4 ne 1/4 ne 1/4 SEC 14 T 26n R 3w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3555.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: magnolia pet., jicarilla d#2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 11463-199 COUNTY rio arriba
QUADRANGLE ojito
sw 1/4 ne 1/4 ne 1/4 SEC 14 T 26n R 3w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 3595.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: magnolia pet., jicarilla d#2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 11463-199 COUNTY san juan
QUADRANGLE ojito
sw 1/4 ne 1/4 ne 1/4 SEC 14 T 26n R 3w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 3648.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: magnolia pet., jicarilla d#2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 22663-161 COUNTY san juan
QUADRANGLE gould pass
nw 1/4 se 1/4 ne 1/4 SEC 31 T 27n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 1920.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, bolack 9-c (pm) Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 22663-161 COUNTY san juan
QUADRANGLE gould pass
nw 1/4 se 1/4 ne 1/4 SEC 31 T 27n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 1990.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, bolack 9-c (pm) Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 22382-163 COUNTY rio arriba
QUADRANGLE gould pass
nw 1/4 se 1/4 sw 1/4 SEC 9 T 27n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2356.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, sj28-7 #93 (pm) Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22382-163 COUNTY rio arriba
QUADRANGLE gould pass
nw 1/4 se 1/4 sw 1/4 SEC 9 T 27n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2380.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, sj28-7 #93 (pm) Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22382-163 COUNTY rio arriba
QUADRANGLE gould pass
nw 1/4 se 1/4 sw 1/4 SEC 9 T 27n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3055.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, sj28-7 #93 (pm) Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22480-165 COUNTY rio arriba
QUADRANGLE gould pass
se 1/4 nw 1/4 sw 1/4 SEC 18 T 27n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 3066.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, rincon #97 pm Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22480-165 COUNTY rio arriba
QUADRANGLE gould pass
se 1/4 nw 1/4 sw 1/4 SEC 18 T 27n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 3137.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, rincon #97 pm Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22480-165 COUNTY rio arriba
QUADRANGLE gould pass
se 1/4 nw 1/4 sw 1/4 SEC 18 T 27n R 6w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 3158.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, rincon #97 pm Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8151-167 COUNTY rio arriba
QUADRANGLE santos peak
nw 1/4 se 1/4 sw 1/4 SEC 20 T 27n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 1.5 DEPTH: 3273.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, sj 27-5 #19 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8151-167 COUNTY rio arriba
QUADRANGLE santos peak
nw 1/4 se 1/4 sw 1/4 SEC 20 T 27n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3278.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, sj 27-5 #19 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8151-167 COUNTY rio arriba
QUADRANGLE santos peak
nw 1/4 se 1/4 sw 1/4 SEC 20 T 27n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3296.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, sj 27-5 #19 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8151-167 COUNTY rio arriba
QUADRANGLE santos peak
nw 1/4 se 1/4 sw 1/4 SEC 20 T 27n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3346.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, sj 27-5 #19 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 6490-282 COUNTY sandoval
QUADRANGLE tancosa windmill
sw 1/4 ne 1/4 sw 1/4 SEC 23 T 23n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2104.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pubco petroleum, jicarilla 23-5, #23-11 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 20419 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 se 1/4 SEC 25 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.5 DEPTH: 2370.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, heaton #26 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20419 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 se 1/4 SEC 25 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2415.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng; heaton #26 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20419 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 se 1/4 SEC 25 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 18.5 DEPTH: 2538.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng; heaton #26 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 19300 COUNTY rio arriba
QUADRANGLE navajo dam
ne 1/4 sw 1/4 ne 1/4 SEC 36 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 3080.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: blackwood and nichols, nebu 22-a Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 19300 COUNTY rio arriba
QUADRANGLE navajo dam
ne 1/4 sw 1/4 ne 1/4 SEC 36 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 3152.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: blackwood and nichols, nebu 22-a Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 19300 COUNTY rio arriba
QUADRANGLE navajo dam
ne 1/4 sw 1/4 ne 1/4 SEC 36 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.5 DEPTH: 3236.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: blackwood and nichols, nebu 22-a Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 19300 COUNTY rio arriba
QUADRANGLE navajo dam
ne 1/4 sw 1/4 ne 1/4 SEC 36 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 3254.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: blackwood and nichols, nebu 22-a Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 19300 COUNTY rio arriba
QUADRANGLE navajo dam
ne 1/4 sw 1/4 ne 1/4 SEC 36 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 3271.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: blackwood and nichols, nebu 22-a Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 19300 COUNTY rio arriba
QUADRANGLE navajo dam
ne 1/4 sw 1/4 ne 1/4 SEC 36 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3289.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: blackwood and nichols, nebu 22-a Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 19300 COUNTY rio arriba
QUADRANGLE navajo dam
ne 1/4 sw 1/4 ne 1/4 SEC 36 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3355.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: blackwood and nichols, nebu 22-a Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 19300 COUNTY rio arriba
QUADRANGLE navajo dam
ne 1/4 sw 1/4 ne 1/4 SEC 36 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.0 DEPTH: 3373.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: blackwood and nichols, nebu 22-a Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 11327 COUNTY san juan
QUADRANGLE navajo dam
ne 1/4 sw 1/4 sw 1/4 SEC 24 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2716.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: souther union gas; seymour #2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 11327 COUNTY san juan
QUADRANGLE navajo dam
ne 1/4 sw 1/4 sw 1/4 SEC 24 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 2355.0
ACRES: MEASURED 125.7 INDICATED INFERRED
SOURCE: southern union gas; seymour #2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14207 COUNTY san juan
QUADRANGLE adobe downs
ne 1/4 ne 1/4 ne 1/4 SEC 29 T 31n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2238.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pan american; stanolind al Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 9469 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 sw 1/4 SEC 6 T 31n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2538.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pubco development; primo fed #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 9469 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 sw 1/4 SEC 6 T 31n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2553.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pubco development; primo fed #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 9469 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 sw 1/4 SEC 6 T 31n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 2564.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pubco development;primo fed #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 19493 COUNTY san juan
QUADRANGLE adobe downs
ne 1/4 sw 1/4 sw 1/4 SEC 9 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2566.0
ACRES: MEASURED 125.7 INDICATED 971.1 INFERRED
SOURCE: delhi oil mudge no.3 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 19493 COUNTY san juan
QUADRANGLE adobe downs
ne 1/4 sw 1/4 sw 1/4 SEC 9 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2573.0
ACRES: MEASURED 125.7 INDICATED 971.1 INFERRED
SOURCE: delhi oil mudge no.3 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 19493 COUNTY san juan
QUADRANGLE adobe downs
ne 1/4 sw 1/4 sw 1/4 SEC 9 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2583.0
ACRES: MEASURED 125.7 INDICATED 971.1 INFERRED
SOURCE: delhi oil mudge no.3 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 19493 COUNTY san juan
QUADRANGLE adobe downs
ne 1/4 sw 1/4 sw 1/4 SEC 9 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 2590.0
ACRES: MEASURED 125.7 INDICATED 971.1 INFERRED
SOURCE: delhi oil mudge no.3 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 15796 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 se 1/4 SEC 13 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 2396.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amoco caneple bl Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 15796 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 se 1/4 SEC 13 T 31n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2409.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amoco; caneple bl Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 13876 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 27 T 31n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.5 DEPTH: 2310.
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: delhi oil atlantic 1-7 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 13876 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 27 T 31n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2362.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: delhi oil atlantic 1-7 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 13876 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 27 T 31n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2356.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: delhi oil atlantic 1-7 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 11564 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 sw 1/4 SEC 35 T 31n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 2395.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pacific nw pipeline, blanco dv #1-35 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 11564 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 sw 1/4 SEC 35 T 31n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3053.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pacific nw pipeline, blanco dv #1-35 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 11564 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 sw 1/4 SEC 35 T 31n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.0 DEPTH: 3068.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pacific nw pipeline, blanco dv #1-35 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 9460 COUNTY san juan
QUADRANGLE aztec
ne 1/4 sw 1/4 ne 1/4 SEC 32 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2990.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pubco; state #4 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 9460 COUNTY san juan
QUADRANGLE aztec
ne 1/4 sw 1/4 ne 1/4 SEC 32 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3071.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pubco; state #4 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 9460 COUNTY san juan
QUADRANGLE aztec
ne 1/4 sw 1/4 ne 1/4 SEC 32 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3102.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pubco; state #4 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 9460 COUNTY san juan
QUADRANGLE aztec
ne 1/4 sw 1/4 ne 1/4 SEC 32 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3113.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: pubco; state #4 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 22397-168 COUNTY rio arriba
QUADRANGLE vigas canyon
se 1/4 nw 1/4 ne 1/4 SEC 3 T 27n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 3361.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, sj 27-5 #21 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22397-168 COUNTY rio arriba
QUADRANGLE vigas canyon
se 1/4 nw 1/4 ne 1/4 SEC 3 T 27n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 3368.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, sj 27-5 #21 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22397-168 COUNTY rio arriba
QUADRANGLE vigas canyon
se 1/4 nw 1/4 ne 1/4 SEC 3 T 27n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 3374.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, sj 27-5 #21 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22397-168 COUNTY rio arriba
QUADRANGLE vigas canyon
se 1/4 nw 1/4 ne 1/4 SEC 3 T 27n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 3383.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, sj 27-5 #21 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 22397-168 COUNTY rio arriba
QUADRANGLE vigas canyon
se 1/4 nw 1/4 ne 1/4 SEC 3 T 27n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 3431.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, sj 27-5 #21 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 8156-169 COUNTY rio arriba
QUADRANGLE vigas canyon
nw 1/4 se 1/4 ne 1/4 SEC 26 T 27n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3236.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng; sj 27-5 #33 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 11901-173 COUNTY rio arriba
QUADRANGLE leavry canyon
sw 1/4 ne 1/4 ne 1/4 SEC 25 T 27n R 3w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3687.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: magnolia pet, jicarilla g 2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 11901-173 COUNTY rio arriba
QUADRANGLE leavry canyon
sw 1/4 ne 1/4 ne 1/4 SEC 25 T 27n R 3w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3869.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: magnolia pet. jicarilla g 2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 18775 COUNTY san juan
QUADRANGLE flora vista
se 1/4 nw 1/4 nw 1/4 SEC 23 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 1723.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: manana gas mw 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 18775 COUNTY san juan
QUADRANGLE flora vista
se 1/4 nw 1/4 nw 1/4 SEC 23 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 1728.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: manana gas mw 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 18775 COUNTY san juan
QUADRANGLE flora vista
se 1/4 nw 1/4 nw 1/4 SEC 23 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 1732.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: manana gas mw 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 18775 COUNTY san juan
QUADRANGLE flora vista
se 1/4 nw 1/4 nw 1/4 SEC 23 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 1740.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: manana gas mw 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20501 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 se 1/4 SEC 31 T 30n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2152.0
ACRES: MEASURED 125.7 INDICATED 2152.0 INFERRED
SOURCE: epng; ludwick 26 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20501 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 se 1/4 SEC 31 T 30n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2205.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng; ludwick 26 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20501 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 se 1/4 SEC 31 T 30n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2387.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng; ludwick 26 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20501 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 se 1/4 SEC 31 T 30n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.5 DEPTH: 2348.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng ludwick 26 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20504 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 sw 1/4 SEC 25 T 30n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 2373.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, florence f2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20504 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 sw 1/4 SEC 25 T 30n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2383.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, florence f2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20504 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 sw 1/4 SEC 25 T 30n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2463.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, florence f2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20504 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 sw 1/4 SEC 25 T 30n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 2471.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, florence f2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20504 COUNTY san juan
QUADRANGLE aztec
sw 1/4 ne 1/4 sw 1/4 SEC 25 T 30n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 2493.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng, florence f2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 13494 COUNTY san juan
QUADRANGLE aztec
sw 1/4 nw 1/4 sw 1/4 SEC 18 T 30n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2396.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: delhi oil turner no. 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 13494 COUNTY san juan
QUADRANGLE aztec
sw 1/4 nw 1/4 sw 1/4 SEC 18 T 30n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.5 DEPTH: 2327.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: delhi oil turner no. 1 Conf n
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 13494 COUNTY san juan
QUADRANGLE aztec
sw 1/4 nw 1/4 sw 1/4 SEC 18 T 30n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2978.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: delhi oil turner no. 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 13494 COUNTY san juan
QUADRANGLE aztec
sw 1/4 nw 1/4 sw 1/4 SEC 18 T 30n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3020.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: delhi oil; turner no 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 11781-225 COUNTY rio arriba
QUADRANGLE gonzales mesa
nw 1/4 se 1/4 se 1/4 SEC 6 T 25n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2719.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: humble oil jicarilla j4 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 11781-225 COUNTY rio arriba
QUADRANGLE gonzales mesa
nw 1/4 se 1/4 se 1/4 SEC 6 T 25n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 2767.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: humble oil jicarilla j4 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 11781-225 COUNTY rio arriba
QUADRANGLE gonzales mesa
nw 1/4 se 1/4 se 1/4 SEC 6 T 25n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 2788.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: humble oil jicarilla j4 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 11781-225 COUNTY rio arriba
QUADRANGLE gonzales mesa
nw 1/4 se 1/4 se 1/4 SEC 6 T 25n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2314.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: humble oil jicarilla j4 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 19851-228 COUNTY rio arriba
QUADRANGLE otero sttore
nw 1/4 se 1/4 se 1/4 SEC 25 T 25n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 3076.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amerada pet, jicarilla apache a5 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 19851-228 COUNTY rio arriba
QUADRANGLE otero store
nw 1/4 se 1/4 se 1/4 SEC 25 T 25n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 3110.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amerada pet. jicarilla apache Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 19851-228 COUNTY rio arriba
QUADRANGLE otero store
nw 1/4 se 1/4 se 1/4 SEC 25 T 25n R 5w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 3118.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amerada pet. jicarilla apache a5 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23254 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 se 1/4 SEC 24 T 32n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 1865.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: j. hill usa no. 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 23254 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 se 1/4 SEC 24 T 32n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 1976.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: j. hill usa no. 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 23254 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 se 1/4 SEC 24 T 32n R 13w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 31.0 DEPTH: 2082.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: j. hill; usa no 1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 24183 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 nw 1/4 SEC 31 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 1905.0
ACRES: MEASURED 125.7 INDICATED 790.3 INFERRED
SOURCE: union texas petroleum c-m 5-m Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 24183 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 sw 1/4 SEC 31 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 1993.0
ACRES: MEASURED 125.7 INDICATED 790.3 INFERRED
SOURCE: union texas petroleum c-m 5-m Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 24183 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 sw 1/4 SEC 31 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 27.0 DEPTH: 2105.0
ACRES: MEASURED 125.7 INDICATED 790.3 INFERRED
SOURCE: union texas petroleum c-m 5-m Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 26014 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 14 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2968.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mesa petl, suter #8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 26014 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 14 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2968.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mesa petl, suter #8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 26014 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 14 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 11.0 DEPTH: 3074.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mesa petl, suter #8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 26014 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 14 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 3102.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mesa petl, suter #8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 26014 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 14 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 3192.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mesa petl, suter #8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 26014 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 ne 1/4 SEC 14 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3205.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mesa petl, suter #8 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25502 COUNTY san juan
QUADRANGLE adobe downs ranch
sw 1/4 ne 1/4 ne 1/4 SEC 18 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.5 DEPTH: 3018.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mesa petl, johns fed 3 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25502 COUNTY san juan
QUADRANGLE adobe downs ranch
sw 1/4 ne 1/4 ne 1/4 SEC 18 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3035.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mesa petl, johns fed 3 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25502 COUNTY san juan
QUADRANGLE adobe downs ranch
sw 1/4 ne 1/4 ne 1/4 SEC 18 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 3053.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mesa petl, johns fed 3 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25502 COUNTY san juan
QUADRANGLE adobe downs ranch
sw 1/4 ne 1/4 ne 1/4 SEC 18 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.5 DEPTH: 3137.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mesa petl, johns fed 3 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25502 COUNTY san juan
QUADRANGLE adobe downs ranch
sw 1/4 ne 1/4 ne 1/4 SEC 18 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 6.0 DEPTH: 3180.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mesa petl, johns fed 3 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25502 COUNTY san juan
QUADRANGLE adobe downs ranch
sw 1/4 ne 1/4 ne 1/4 SEC 18 T 32n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.5 DEPTH: 3243.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mesa petl, johns fed 3 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25478 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 nw 1/4 SEC 27 T 32n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2734.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amoco; keys gas com a-2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25478 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 nw 1/4 SEC 27 T 32n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 2741.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amoco; keys gas com a-2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25478 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 nw 1/4 SEC 27 T 32n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2750.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amoco; keys gas com a-2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25478 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 nw 1/4 SEC 27 T 32n R 10w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2757.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amoco; keys gas com a-2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25875 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 ne 1/4 SEC 31 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 1945.0
ACRES: MEASURED 125.7 INDICATED 656.3 INFERRED
SOURCE: union texas petrol. c-m la Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25875 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 ne 1/4 SEC 31 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.5 DEPTH: 1955.0
ACRES: MEASURED 125.7 INDICATED 656.3 INFERRED
SOURCE: union texas petrol. c-m la Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25875 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 ne 1/4 SEC 31 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 8.5 DEPTH: 2027.0
ACRES: MEASURED 125.7 INDICATED 656.3 INFERRED
SOURCE: union texas petrol. c-m la Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25875 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 ne 1/4 SEC 31 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 30.0 DEPTH: 2137.0
ACRES: MEASURED 125.7 INDICATED 656.3 INFERRED
SOURCE: union texas petrol. c-m la Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25875 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 ne 1/4 SEC 31 T 32n R 12w FIELD: san juan
FORMATION: menefee COAL THICKNESS: 2.0 DEPTH: 4021.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: union tex petrol. c-m la Conf
REC NUM: LAT-LONG - MEMBER
ZONE sm

WELL NUMBER 25875 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 ne 1/4 SEC 31 T 32n R 12w FIELD: san juan
FORMATION: menefee COAL THICKNESS: 3.0 DEPTH: 4105.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: union tex petrol. c-mla Conf
REC NUM: LAT-LONG - MEMBER
ZONE sm

WELL NUMBER 25435 COUNTY san juan
QUADRANGLE adobe downs ranch
sw 1/4 ne 1/4 ne 1/4 SEC 14 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2598.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: southeland;chamberlin no. 2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25435 COUNTY san juan
QUADRANGLE adobe downs ranch
sw 1/4 ne 1/4 ne 1/4 SEC 14 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 2503.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: southeland;chamberlin no. 2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25435 COUNTY san juan
QUADRANGLE adobe downs ranch
sw 1/4 ne 1/4 ne 1/4 SEC 14 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2508.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: southeland;chamberlin no. 2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25435 COUNTY san juan
QUADRANGLE adobe downs ranch
sw 1/4 ne 1/4 ne 1/4 SEC 14 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 9.0 DEPTH: 2556.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: southeland;chamberlin no. 2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25435 COUNTY san juan
QUADRANGLE adobe downs ranch
sw 1/4 ne 1/4 ne 1/4 SEC 14 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 2580.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: southeland;chamberlin no. 2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25435 COUNTY san juan
QUADRANGLE adobe downs ranch
sw 1/4 ne 1/4 ne 1/4 SEC 14 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 9.0 DEPTH: 2585.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: southeland;chamberlin no. 2 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25480 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 ne 1/4 SEC 33 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3277.0
ACRES: MEASURED 125.7 INDICATED 894.3 INFERRED
SOURCE: nmbm #25480 nw pipeline corp Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25480 COUNTY san juan
QUADRANGLE navajo dam
ns 1/4 se 1/4 ne 1/4 SEC 33 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3298.0
ACRES: MEASURED 125.7 INDICATED 894.3 INFERRED
SOURCE: nw pipeline corp. Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25480 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 ne 1/4 SEC 33 T 32n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 3308.0
ACRES: MEASURED 125.7 INDICATED 894.3 INFERRED
SOURCE: nw pipeline corp Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25467 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 nw 1/4 SEC 23 T 32n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 3319.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mw pipeline corp. Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25467 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 nw 1/4 SEC 23 T 32n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 3344.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: nw pipeline corp Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20580 COUNTY san juan
QUADRANGLE navajo dam
sw 1/4 ne 1/4 sw 1/4 SEC 32 T 32n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 3363.0
ACRES: MEASURED 125.7 INDICATED 674.3 INFERRED
SOURCE: aztec oil and gas Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20580 COUNTY san juan
QUADRANGLE navajo dam
sw 1/4 ne 1/4 sw 1/4 SEC 32 T 32n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3376.0
ACRES: MEASURED 125.7 INDICATED 674.3 INFERRED
SOURCE: aztec oil and gas Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 20580 COUNTY san juan
QUADRANGLE navajo dam
sw 1/4 ne 1/4 sw 1/4 SEC 32 T 32n R 8w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 8.0 DEPTH: 3434.0
ACRES: MEASURED 125.7 INDICATED 674.3 INFERRED
SOURCE: aztec oil and gas Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14501 COUNTY san juan
QUADRANGLE adobe downs ranch
se 1/4 nw 1/4 ne 1/4 SEC 28 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2269.0
ACRES: MEASURED 125.7 INDICATED 899.3 INFERRED
SOURCE: aztec oil and gas; cul. mar. 7 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14501 COUNTY san juan
QUADRANGLE adobe downs ranch
se 1/4 nw 1/4 ne 1/4 SEC 28 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 2275.0
ACRES: MEASURED 125.7 INDICATED 899.3 INFERRED
SOURCE: aztec oil and gas; cul. mar. 7 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14501 COUNTY san juan
QUADRANGLE adobe downs ranch
se 1/4 nw 1/4 ne 1/4 SEC 28 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.0 DEPTH: 2279.0
ACRES: MEASURED 125.7 INDICATED 899.3 INFERRED
SOURCE: aztec oil and gas; cul. mar. 7 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14501 COUNTY san juan
QUADRANGLE adobe downs ranch
se 1/4 nw 1/4 ne 1/4 SEC 28 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 2403.0
ACRES: MEASURED 125.7 INDICATED 899.3 INFERRED
SOURCE: aztec oil and gas; cul. mar. 7 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 14501 COUNTY san juan
QUADRANGLE adobe downs ranch
se 1/4 nw 1/4 ne 1/4 SEC 28 T 32n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2448.0
ACRES: MEASURED 125.7 INDICATED 899.3 INFERRED
SOURCE: aztec oil and gas; cul. mar. 7 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 21163 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 sw 1/4 SEC 29 T 32n R 8ws FIELD: an juan
FORMATION: fruitland COAL THICKNESS: 11.0 DEPTH: 3019.0
ACRES: MEASURED 125.7 INDICATED 874.3 INFERRED
SOURCE: phillips pet mesa unit 32-8,well 2-29 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 21163 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 sw 1/4 SEC 29 T 32n R 8ws FIELD: an juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 3103.0
ACRES: MEASURED 125.7 INDICATED 874.3 INFERRED
SOURCE: phillips pet mesa unit 32-8,well 2-29 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 24811 COUNTY rio arriba
QUADRANGLE bancos mesa
sw 1/4 ne 1/4 ne 1/4 SEC 7 T 31n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 3209.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mitchell energy rosa unit 81 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 24811 COUNTY rio arriba
QUADRANGLE bancos mesa
sw 1/4 ne 1/4 ne 1/4 SEC 7 T 31n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 9.0 DEPTH: 3314.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mitchell energy rosa unit 81 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 23250 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 nw 1/4 SEC 1 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 3092.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: supron energy Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 23250 COUNTY san juan
QUADRANGLE navajo dam
se 1/4 nw 1/4 nw 1/4 SEC 1 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3110.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: supron energy nordhaus 6-a Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 23149 COUNTY rio arriba
QUADRANGLE carracus canyon
sw 1/4 ne 1/4 nw 1/4 SEC 15 T 31n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 13.0 DEPTH: 3535.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: mitchell energy rosa unit 83 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 24183 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 sw 1/4 SEC 31 T 32n R 12w FIELD: san juan
FORMATION: menefee COAL THICKNESS: 6.5 DEPTH: 3985.0
ACRES: MEASURED 125.7 INDICATED 790.3 INFERRED
SOURCE: union texas petroleum c-m 5-m Conf
REC NUM: LAT-LONG - MEMBER
ZONE sm

WELL NUMBER 24183 COUNTY san juan
QUADRANGLE la plata
nw 1/4 se 1/4 sw 1/4 SEC 31 T 32n R 12w FIELD: san juan
FORMATION: menefee COAL THICKNESS: 3.0 DEPTH: 4052.0
ACRES: MEASURED 125.7 INDICATED 790.3 INFERRED
SOURCE: union texas petroleum c-m 5-m Conf
REC NUM: LAT-LONG - MEMBER
ZONE sm

WELL NUMBER 22167 COUNTY san juan
QUADRANGLE aztec
ne 1/4 sw 1/4 ne 1/4 SEC 4 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 3256.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng sj 32-9 #16 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 22167 COUNTY san juan
QUADRANGLE aztec
ne 1/4 sw 1/4 ne 1/4 SEC 4 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 3266.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng sj 32-9 #16 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 22167 COUNTY san juan
QUADRANGLE aztec
ne 1/4 sw 1/4 ne 1/4 SEC 4 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 9.0 DEPTH: 3345.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng sj 32-9 #16 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 22167 COUNTY san juan
QUADRANGLE aztec
ne 1/4 sw 1/4 ne 1/4 SEC 4 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 3360.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng sj 32-9 #16 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 22167 COUNTY san juan
QUADRANGLE aztec
ne 1/4 sw 1/4 ne 1/4 SEC 4 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 9.0 DEPTH: 3414.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: epng sj 32-9 #16 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25741 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 nw 1/4 SEC 35 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 2548.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: union texas petrol. john fed 15 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25741 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 nw 1/4 SEC 35 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 2583.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: union texas petrol. john fed 15 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25741 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 nw 1/4 SEC 35 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.5 DEPTH: 2723.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: union texas petrol. john fed 15 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25741 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 nw 1/4 SEC 35 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 2791.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: union texas petrol. john fed 15 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25741 COUNTY san juan
QUADRANGLE aztec
nw 1/4 se 1/4 nw 1/4 SEC 35 T 31n R 9w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.5 DEPTH: 2800.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: union texas petrol. john fed 15 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25729 COUNTY rio arriba
QUADRANGLE espinosa ranch
nw 1/4 se 1/4 ne 1/4 SEC 28 T 31n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 13.0 DEPTH: 3752.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amoco rosa unit 86 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 25729 COUNTY rio arriba
QUADRANGLE espinosa ranch
nw 1/4 se 1/4 ne 1/4 SEC 28 T 31n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 5.0 DEPTH: 3770.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amoco rosa unit 86 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 26001 COUNTY rio arriba
QUADRANGLE carracus canyon
se 1/4 nw 1/4 nw 1/4 SEC 12 T 31n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 3392.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amoco rosa unit 87 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 26001 COUNTY rio arriba
QUADRANGLE carracus canyon
se 1/4 nw 1/4 nw 1/4 SEC 12 T 31n R 4w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 18.0 DEPTH: 3912.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: amoco rosa unit 87 Conf
REC NUM: LAT-LONG - MEMBER
ZONE

WELL NUMBER 21843 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 se 1/4 SEC 4 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 3259.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: nw pipeline sj 32-7 #53 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 21843 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 se 1/4 SEC 4 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.0 DEPTH: 3273.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: nw pipeline sj 32-7 #53 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 21843 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 se 1/4 SEC 4 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.0 DEPTH: 3303.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: nw pipeline sj 32-7 #53 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 21843 COUNTY san juan
QUADRANGLE navajo dam
nw 1/4 se 1/4 se 1/4 SEC 4 T 31n R 7w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.0 DEPTH: 3348.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: nw pipeline sj 32-7 #53 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25684 COUNTY san juan
QUADRANGLE flora vista
ne 1/4 sw 1/4 sw 1/4 SEC 1 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 4.0 DEPTH: 2001.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: tom bolack co; tb #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25684 COUNTY san juan
QUADRANGLE flora vista
ne 1/4 sw 1/4 sw 1/4 SEC 1 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 2023.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: tom bolack co; tb #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25684 COUNTY san juan
QUADRANGLE flora vista
ne 1/4 sw 1/4 sw 1/4 SEC 1 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 3.5 DEPTH: 2069.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: tom bolack co; tb #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25684 COUNTY san juan
QUADRANGLE flora vista
ne 1/4 sw 1/4 sw 1/4 SEC 1 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.5 DEPTH: 2076.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: tom bolack co; tb #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25684 COUNTY san juan
QUADRANGLE flora vista
ne 1/4 sw 1/4 sw 1/4 SEC 1 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 2.5 DEPTH: 2093.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: tom bolack co; tb #1 Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 24851 COUNTY san juan
QUADRANGLE flora vista
ne 1/4 nw 1/4 nw 1/4 SEC 9 T 30n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 7.5 DEPTH: 2030.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: c & e operations fee no 9y Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 24851 COUNTY san juan
QUADRANGLE flora vista
ne 1/4 nw 1/4 nw 1/4 SEC 9 T 30n R 11w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 12.0 DEPTH: 2043.0
ACRES: MEASURED 125.7 INDICATED 1005.3 INFERRED
SOURCE: c & e operations fee no 9y Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf

WELL NUMBER 25683 COUNTY san juan
QUADRANGLE farmington north
nw 1/4 se 1/4 se 1/4 SEC 6 T 30n R 12w FIELD: san juan
FORMATION: fruitland COAL THICKNESS: 15.0 DEPTH: 2207.0
ACRES: MEASURED 125.7 INDICATED 954.3 INFERRED
SOURCE: sun gas co. nm fed n6-e Conf
REC NUM: LAT-LONG - MEMBER
ZONE sf