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Acknowledgment

This report was originally prepared for the U.S. Senate Committee on Interior and Insular Affairs, at the request of the Honorable Clinton P. Anderson, U.S. Senator from New Mexico. The State Bureau of Mines and Mineral Resources division of New Mexico Institute of Mining and Technology expresses its appreciation to Senator Anderson for his cooperation and permission to issue this report as Bulletin 87.

Alvin J. Thompson, *Director*
New Mexico Bureau of Mines
and Mineral Resources division

June 1965
New Mexico Institute of Mining and Technology
Socorro, New Mexico

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BULLETIN 87

Mineral and Water Resources of New Mexico

Prepared by

UNITED STATES GEOLOGICAL SURVEY

for the

U.S. Senate Committee on Interior and Insular Affairs

in cooperation with

New Mexico Bureau of Mines and Mineral Resources,
New Mexico Oil Conservation Commission
New Mexico State Engineer, *and*
U.S. Bureau of Mines

1965

STATE BUREAU OF MINES AND MINERAL RESOURCES
NEW MEXICO INSTITUTE OF MINING & TECHNOLOGY
CAMPUS STATION SOCORRO, NEW MEXICO

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89th Congress
1st Session

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MINERAL AND WATER RESOURCES OF NEW MEXICO

REPORT

PREPARED BY THE

UNITED STATES GEOLOGICAL SURVEY

IN COLLABORATION WITH

NEW MEXICO BUREAU OF MINES AND MINERAL RESOURCES

THE

NEW MEXICO STATE ENGINEER OFFICE

AND THE

NEW MEXICO OIL CONSERVATION COMMISSION

AT THE REQUEST OF

SENATOR CLINTON P. ANDERSON
OF NEW MEXICO

OF THE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS
UNITED STATES SENATE

Printed for the use of the Committee on Interior and Insular Affairs

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MEMORANDUM FROM THE CHAIRMAN

To Members of the Senate Committee on Interior and Insular Affairs:

I am transmitting for your information a report entitled "Mineral and Water Resources of New Mexico," prepared by the U.S. Geological Survey at the request of our colleague, Senator Clinton P. Anderson.

This detailed survey will be particularly helpful to government and business leaders in New Mexico. It will also be valuable to the Congress and members of this committee as we consider legislation regarding mineral and water development.

HENRY M. JACKSON, *Chairman.*

FOREWORD

This report was prepared at my request by the U.S. Geological Survey in collaboration with the New Mexico Bureau of Mines and Mineral Resources, the New Mexico State Engineer Office and the New Mexico Oil Conservation Commission.

Its purpose is to make all significant data on New Mexico's important mineral and water resources available to interested citizens, to professional personnel in mining and water development, and to government, civic, and industrial leaders. I think that purpose has been well met.

I wish to thank all of those both in New Mexico and the Geological Survey who have contributed to the making of this report.

CLINTON P. ANDERSON.

MINERAL AND WATER RESOURCES OF NEW MEXICO

REPORT

OF THE

UNITED STATES GEOLOGICAL SURVEY

IN COLLABORATION WITH

NEW MEXICO BUREAU OF MINES AND MINERAL RESOURCES

THE

NEW MEXICO STATE ENGINEER OFFICE

AND THE

NEW MEXICO OIL CONSERVATION COMMISSION

AT THE REQUEST OF

SENATOR CLINTON P. ANDERSON
OF NEW MEXICO

OF THE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS
UNITED STATES SENATE

LETTER OF TRANSMITTAL

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., January 13, 1965.

Hon. CLINTON P. ANDERSON,
U.S. Senate,
Washington, D.C.

DEAR SENATOR ANDERSON: We have forwarded to your office a summary report on the mineral and water resources of New Mexico, which was prepared in response to your request of July 8, 1964, to the Geological Survey.

The report was prepared by the Geological Survey in collaboration with the New Mexico Bureau of Mines and Mineral Resources, the New Mexico Oil Conservation Commission, and the New Mexico Engineer Office. We enjoyed extremely close support from the different collaborating State agencies and are grateful for their assistance.

We hope the report will provide information of use to you and to the people of New Mexico in general.

Sincerely yours,

STEWART L. UDALL,
Secretary of the Interior.

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INTRODUCTION

(By G. O. Bachman, U.S. Geological Survey, Denver, Colo.)

This report summarizes the mineral and water resources of New Mexico. The use, manner of occurrence, distribution, and outlook for all known mineral commodities in the State are discussed in separate chapters. Where available, statistics on the production of mineral commodities are summarized. In an introductory section the mineral industry and the geology of the State are outlined briefly.

The purpose of this report is to present an objective appraisal of the resources of New Mexico based on information now available, although new discoveries and changes in economic conditions may alter some of the conclusions reached. Treatment of each commodity is necessarily brief but comprehensive bibliographies are included for the convenience of those who may wish to inquire further into the mineral and water resources of New Mexico.

In this report the term "resources" applies to materials in the ground that are known to be minable; materials that may come into demand and become minable in the future; and water. "Reserves" are materials that may or may not be completely explored but may be quantitatively estimated and are considered to be economically exploitable at the time of the estimate. Reserves fluctuate because they are dependent on economic conditions, technologic factors, and available information. A low reserve figure does not necessarily mean that the resource is near exhaustion. It may indicate exploration is lacking or that a depressed market has lowered the value of the commodity to the point where the material can no longer be considered economically exploitable. "Ore" is mineral material that may be mined at a profit. "Protore," used in some parts of this report, is a mineral material that may not be mined at a profit under present economic or technologic conditions.

This report was compiled by members of the U.S. Geological Survey in cooperation with other Federal and State agencies. Members of the staff of the New Mexico Institute of Mining and Technology, State Bureau of Mines and Mineral Resources, contributed chapters to the report and cooperated in the search for data. Staff members of the New Mexico Oil Conservation Commission contributed discussions and statistics on the petroleum industry in the State. The New Mexico State Engineer Office cooperated in preparation of the section on water resources. Some chapters in this report have been prepared by personnel of the U.S. Bureau of Mines. Mr. George O. Bachman, U.S. Geological Survey, assembled the various sections of the report and coordinated efforts of the individual authors. Unless otherwise stated, statistical data used in the report have been compiled by Margaret Dunbar of the Bureau of Mines and Ruth Wilson of the Geological Survey under the direction of D. H. Mullen, U.S. Bureau of Mines, Mineral Resources Office (Statistics).

41-737 O—65——2

MINERAL INDUSTRY IN NEW MEXICO

(By G. O. Bachman, U.S. Geological Survey, Denver, Colo.)

In 1962 New Mexico ranked seventh among all the States in annual production of mineral resources and first among the States of the Rocky Mountain region. During this year New Mexico contributed 3.58 percent of the total domestic minerals produced in the country. The mineral resources that contributed chiefly to this wealth are petroleum, natural gas and related products, uranium, potassium salts, and copper. New Mexico ranks sixth among the Nation's oil- and gas-producing States, first in production of uranium and potassium salts, and third in the production of copper.

The total value of mineral resources produced in New Mexico for the 58-year period 1905 through 1963, for which accurate records are available, is $9,083.8 million. To this total may be added an estimate of $26.7 million in mineral production from the earliest mining to 1904 (Jones, 1904, p. 345) thus making a grand total of $9,110.5 million for all known mineral production in New Mexico through 1963. About 88 percent of this amount, or $8,158.7 million, has been produced since 1940. Figure 1 shows the annual dollar value[1] of mineral production from 1905 to 1963 and illustrates the growth of the industry in the State. Figure 2 shows the percentages of the principal mineral commodities produced in New Mexico in 1963 whose value totaled $686.8 million.

Geographically, the greatest mineral wealth produced in New Mexico during 1963 came from the San Juan Basin in the northwestern part of the State and the Delaware basin in the southeastern part. The combined value of crude petroleum, natural gas, uranium, and coal from the San Juan Basin, and crude petroleum, natural gas, and potash salts from the Delaware basin was about $599 million. The next most significant production figure was that of the southwestern part of the State where the production of copper and associated minerals was valued at about $59 million. The value of other mineral commodities produced throughout the State during 1963 was over $28 million.

The search for minerals of economic value in the area that is now New Mexico began more than 400 years ago. Rumors of mineral wealth resulted in the first major exploratory expedition in New Mexico in 1540. That expedition, under the command of Francisco Vasquez de Coronado, returned disappointed to Mexico in 1542; but it was followed by other explorers, missionaries, adventurers, and finally by settlers in search of permanent homes.

Records of development of mineral resources during the colonial period from the late 16th to the early 19th centuries are meager. Twitchell (1916, vol. I, p. 1, 2) listed an archive pertaining to the registration of a mine "in the little mountain called Fray Cristobal"

[1] Dollar value is the amount in dollars reported for the year of production.

in 1685. Twitchell stated that this mine was "probably situated west of the present town of Engle, Sierra County, N. Mex." The mine was probably not worked as it was registered during the period of the Pueblo Revolt. Numerous registrations of other mines during the Colonial period are recorded. Vaguely worded registrations of

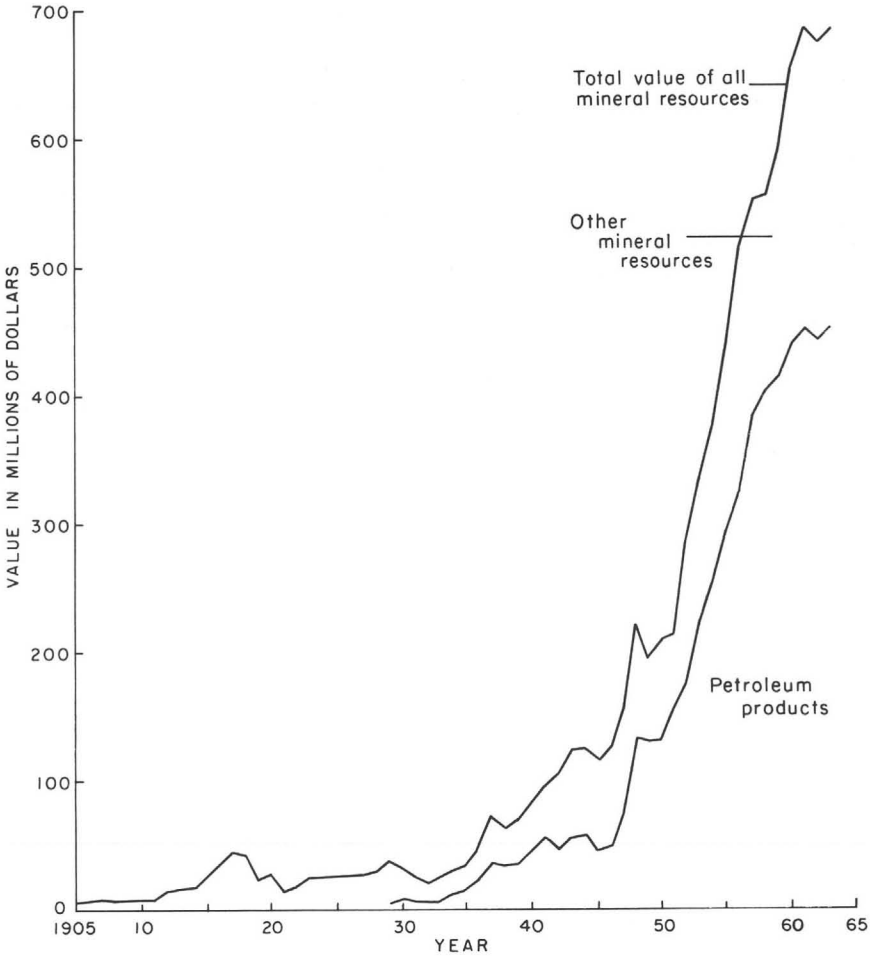


FIGURE 1.—Value of mineral resources produced in New Mexico, 1905–63.

mines as well as misinterpretations of some colonial reports have resulted in a colorful literature of rich, "lost" Spanish mines.

Some prospecting was reported done in the area that is now New Mexico in the 17th and 18th centuries, but there is little evidence of extensive mining in New Mexico during Spanish colonial time. The Spanish word *mina*, as used in colonial reports and documents, may be translated as "mineral occurrences" and "prospects" as well as

"mines." Northrup (1959, p. 12) has pointed out that the more optimistic translation of the term *mina* to mean "mines" may have stimulated the search for these "mines" and thus may have been responsible for the discovery of valuable mineral deposits by later prospectors.

Some small-scale mining in Santa Fe County was carried out in the 17th century. Salt deposits in the Estancia Valley, Torrance County, were developed in the 17th and 18th centuries. This salt was

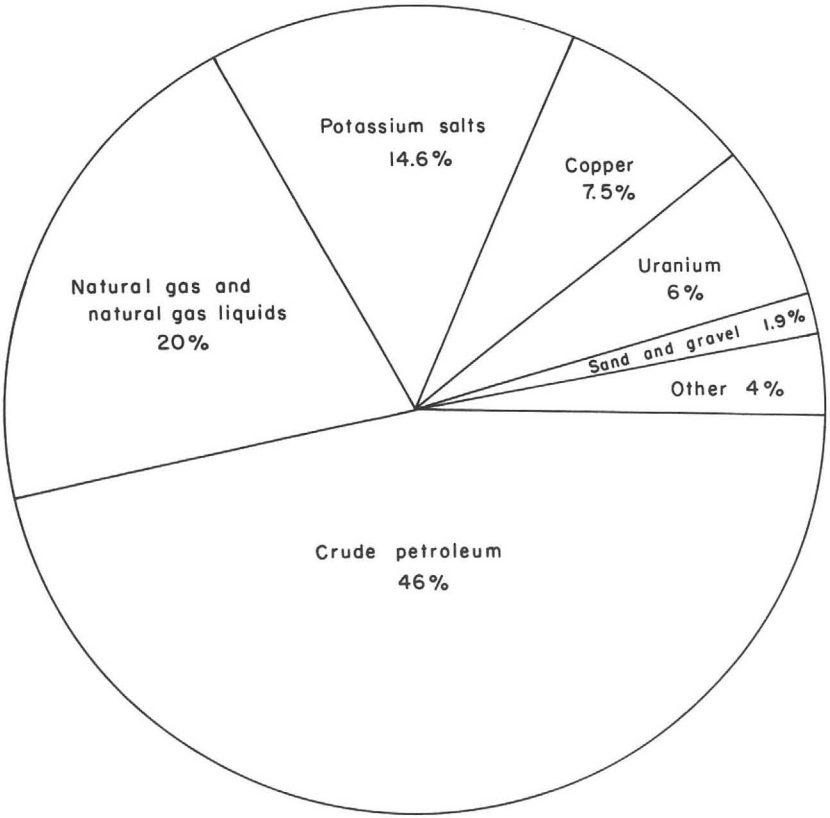


FIGURE 2.—Percentage of total mineral resource production in New Mexico, 1963.

carried by wagons and pack animals to the silver mines in Parral, Mexico, where it was used in the primitive "patio" metallurgical process for the extraction of silver from ore. Mica was used for window panes. The first major mine was opened in the area that is now New Mexico in about 1804 near the present Santa Rita mine, Grant County.

Extensive prospecting was conducted in the State in the late 19th century and it was during this period that most of the major min-

ing districts in New Mexico were discovered. Major deposits of uranium, however, were not discovered until after 1948 when the demand for uranium that developed during and after World War II was the incentive for prospecting for this metal.

Although the State was prospected extensively during the late 19th and early 20th centuries, new tools that are now available to the modern prospector have essentially reopened the field to further work that could lead to major new discoveries. The science of geophysics with its newly developed instruments for use in the air and on the ground has become much more sophisticated and highly specialized. Geochemical prospecting is a rapidly developing and practical field technique for the detection of small, but of anomalous amounts of metals in soil, water, and plants. Isotope chemistry and physics, X-ray and spectroscopic analysis, highly sensitive chemical techniques, and other refined laboratory methods make possible the more accurate identification and quantitative determination of trace amounts of elements that may give clues to the location of undiscovered ore deposits.

The future of mineral resources production is dependent on continuing demand, discovery, exploration, and development. As indicated in numerous chapters in this report, development of many of New Mexico's resources is increasing. With the increased use of coal in the production of electricity, the coal industry will probably continue to expand. On the other hand, the future of the uranium industry is less predictable at present. Uranium production will be regulated by government purchases through 1970. Beyond 1970 the production of uranium will depend on industrial demand or continued government purchase. The growing demand for silver and other metals, along with new uses for many minerals by modern technology, indicates that exploration for these resources will increase.

Of all the natural resources of a state or a nation, none is probably more important than water, but also, none is more difficult to evaluate in terms of dollars and cents. It is significant to note that New Mexico occupies a unique and pioneering position in the use of its water resources. As stated by McGuinness (1963, p. 558), New Mexico was among the earliest States "to be explored and settled, and hydrologically too it was among the pioneers. The U.S. Geological Survey learned how to measure streamflow at an experimental camp set up at Embudo, on the Rio Grande halfway between Santa Fe and the Colorado line, late in 1888 after the Congress appropriated money for an irrigation survey of the arid lands and thus added water resources investigations to the Survey's responsibilities (Dutton, 1890, pp. 78–79). Some of the classical work of Slichter (1905 a, b) on estimation of ground water flow was done in the Rio Grande valley in New Mexico and Texas, in the vicinity of El Paso. The Survey's investigation, in cooperation with the State Engineer and Chaves and Eddy Counties, of the ground water resources of the Roswell artesian basin (Fiedler and Nye, 1933) was one of the pioneer quantitative ground water studies. It led directly to enactment of the New Mexico ground water law of 1927 and 1931, which was the earliest of its kind and has served as a model for similar laws in several other States (National Resources Planning Board, 1943, pp. 76, 123, 133–134; Hutchins, 1955b, p. 47). The Rio Grande Joint Investigation * * * was the first interstate planning study of its type."

The study of the water resources of the State is a continuous process. Streamflow data are collected at 193 sites. Reservoirs are monitored at 16 sites. Daily chemical-quality records are maintained for 17 sites and daily suspended sediment samples are collected at 21 sites. In addition to this work, local and regional water resource studies are in progress.

TOPOGRAPHY AND GEOLOGY

(By C. H. Dane, U.S. Geological Survey, Washington, D.C., and G. O. Bachman, U.S. Geological Survey, Denver, Colo.)

TOPOGRAPHY

New Mexico is the fifth largest State in the Union, including an area of 121,666 square miles of extraordinary diverse terrain, both topographically and geologically. The total topographic relief within the State boundaries is more than 10,000 feet. The highest point, Wheeler Peak, 30 miles south of the Colorado border in the Sangre de Cristo Mountains, reaches an altitude of 13,160 feet; the lowest point, Red Bluff Reservoir on the Pecos River along the southern boundary of the State, lies somewhat less than 3,000 feet above sea level. By far the largest part of the area of the State, however, lies at altitudes of between 5,000 and 10,000 feet above sea level. Between one-quarter and one-third lies below 5,000 feet, principally east of a diagonal line extending irregularly northeastward from the vicinity of Carlsbad to the Oklahoma boundary in the northeast corner. Other large areas below 5,000 feet include the valley of the Rio Grande from the southern boundary north to a short distance north of Albuquerque, the Jornada del Muerto and Tularosa Valley, and some thousands of square miles of similarly aggraded plains in the southwestern part of the State.

About 1,000 square miles of area rise above the 10,000-foot contour. This includes chiefly peaks in the Southern Rocky Mountains in the north-central part of the State, particularly in the Sangre de Cristo, Cimarron, San Juan, Jemez, and San Pedro Mountains. Smaller areas of more than 10,000 feet altitude occur on Mount Taylor, the Sandia and Manzano Mountains in the central part of the State, and on the Magdalena, San Mateo, Capitan, and Mogollon Mountains and the Black Range and Sierra Blanca in the southern part (fig. 3).

Topographically the State can be divided into three principal divisions, the Great Plains province of about the eastern one-third, the Intermontane Plateaus comprising most of the remainder, and the Southern Rocky Mountains including a relatively small portion of the north-central part (fig. 4). The boundaries between these divisions and between the subdivisions of those to be described are transitional and in places necessarily somewhat arbitrary. They do, however, represent distinctive terrains that are related to the bedrock geology and to the geologic history of the State.

The Great Plains Province includes: (*a*) the High Plains, extensive, smooth, high level, fluviatile plains, only slightly dissected in any area within the State, (*b*) the Pecos Valley, late mature to old plains, somewhat younger and at lower levels than the High Plains, and (*c*) the Raton Section, a considerably more varied area than the others, but in general a trenched or deeply eroded peneplain surmounted by dissected lava-capped plateaus and buttes. The Intermontane Plateaus of the western part of the State have been divided

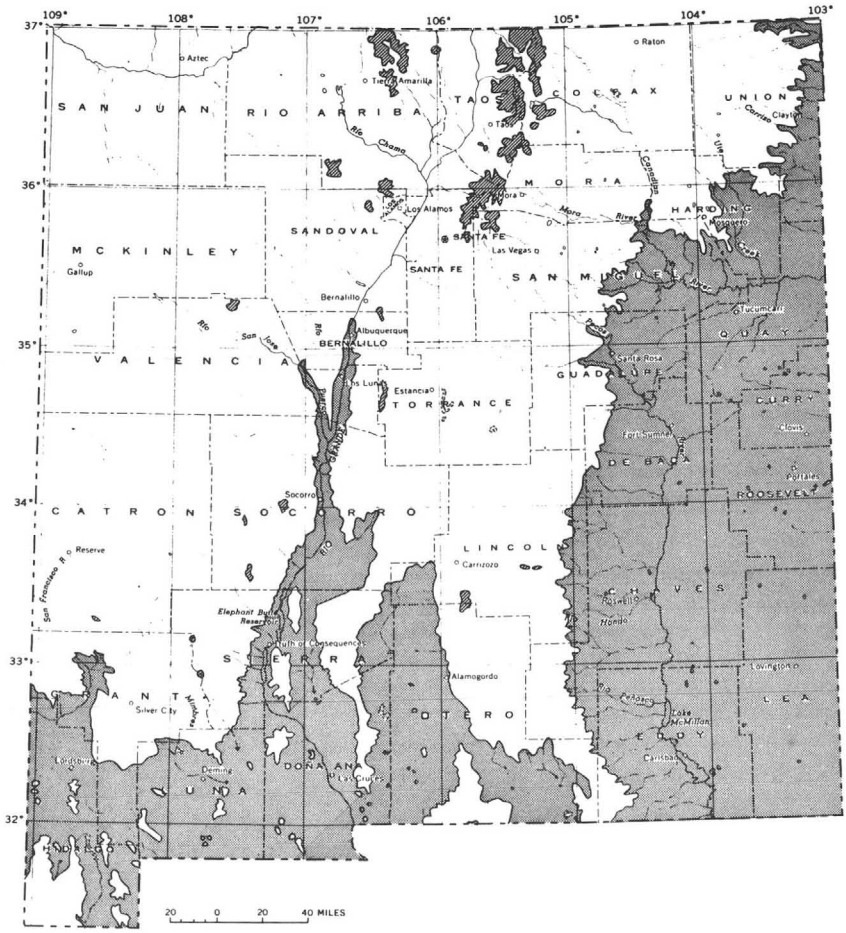


FIGURE 3.—Generalized relief map of New Mexico. Line pattern shows areas above 10,000 feet in altitude; gray, areas below 5,000 feet in altitude.

into two provinces, the Colorado Plateaus in the northwest and the Basin and Range Province in the southwest and central part of the State. The Colorado Plateaus include the Navajo section of the Canyon lands, chiefly young but canyoned plateaus of moderate relief and the Datil section to the south, including laval flows, complete or in extensive remnants, volcanic necks, and other extrusive and intrusive rock masses. The Basin and Range Province also includes two sections within New Mexico, the Mexican Highland, including isolated ranges (largely dissected block mountains) separated by aggraded desert plains and the Sacramento section, mature block mountains of gently tilted strata, block plateaus and bolsons.

The Southern Rocky Mountains Province includes only a relatively small part of the State along its northern border and is generally considered as terminating to the south at the southern end of the Sangre

de Cristo Range and the Nacimiento Mountains. Nevertheless, the generally meridional trend of these mountains is continued southward to the southern border by a succession of ranges of not greatly dissimilar geologic features. These ranges include the Sandia, Manzano, and Los Pinos Mountains; the Fra Cristobal and Caballo Mountains;

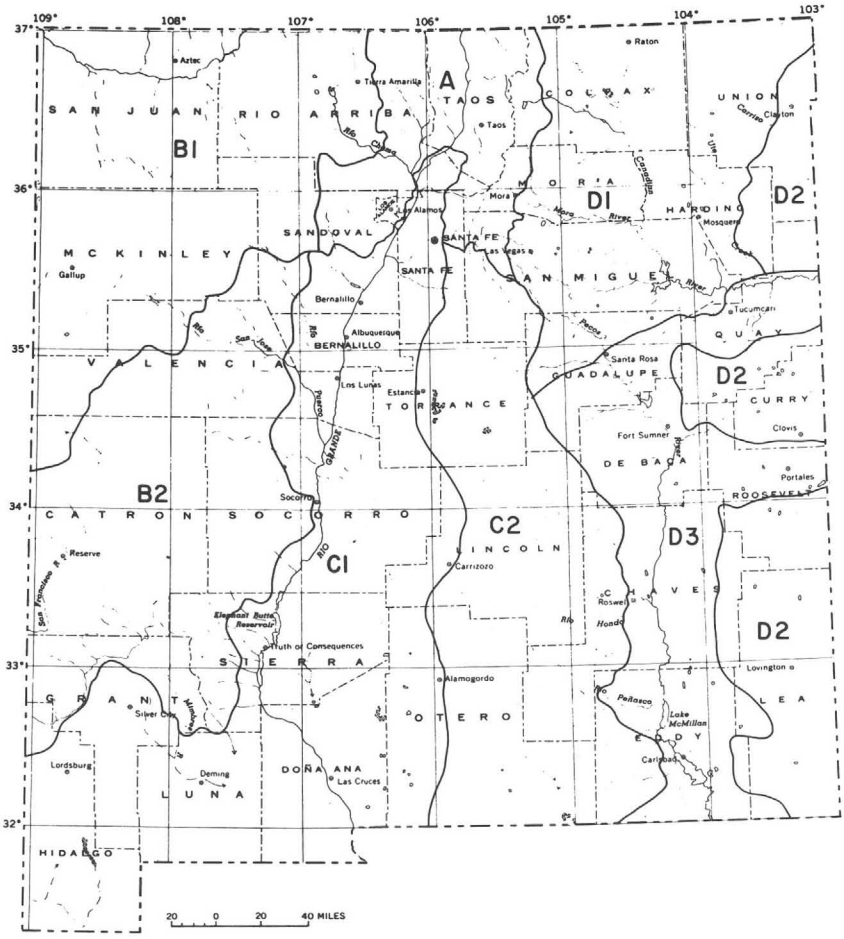


FIGURE 4.—Physical divisions of New Mexico. (A, Southern Rocky Mountains; B1, Colorado Plateaus, Navajo section; B2, Colorado Plateaus, Datil section; C1, Basin and Range province, Mexican highland; C2, Basin and Range province, Sacramento section; D1, Great Plains province, Raton section; D2, Great Plains province, High Plains; D3, Great Plains province, Pecos Valley. (Fenneman, 1962.)

the Oscura, San Andres, Organ, and Franklin Mountains; and Sierra Blanca and the Sacramento Mountains (fig. 5). These ranges, though separated by much wider deeply alluviated valleys, in the aggregate form a belt 50 to 100 miles wide from east to west that extends from the northern to the southern boundary of the State and in a broad

way divides the plateau, lava, and canyon lands in the western part of the State from the plains and areas of generally lower topographic relief of the eastern part.

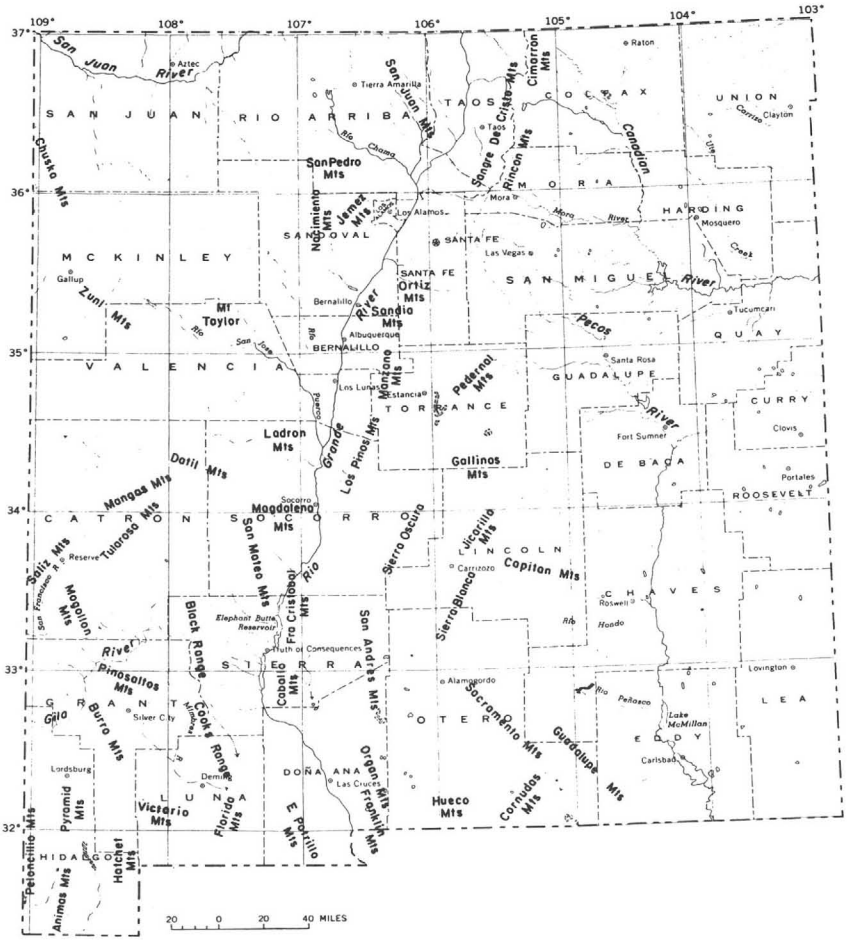
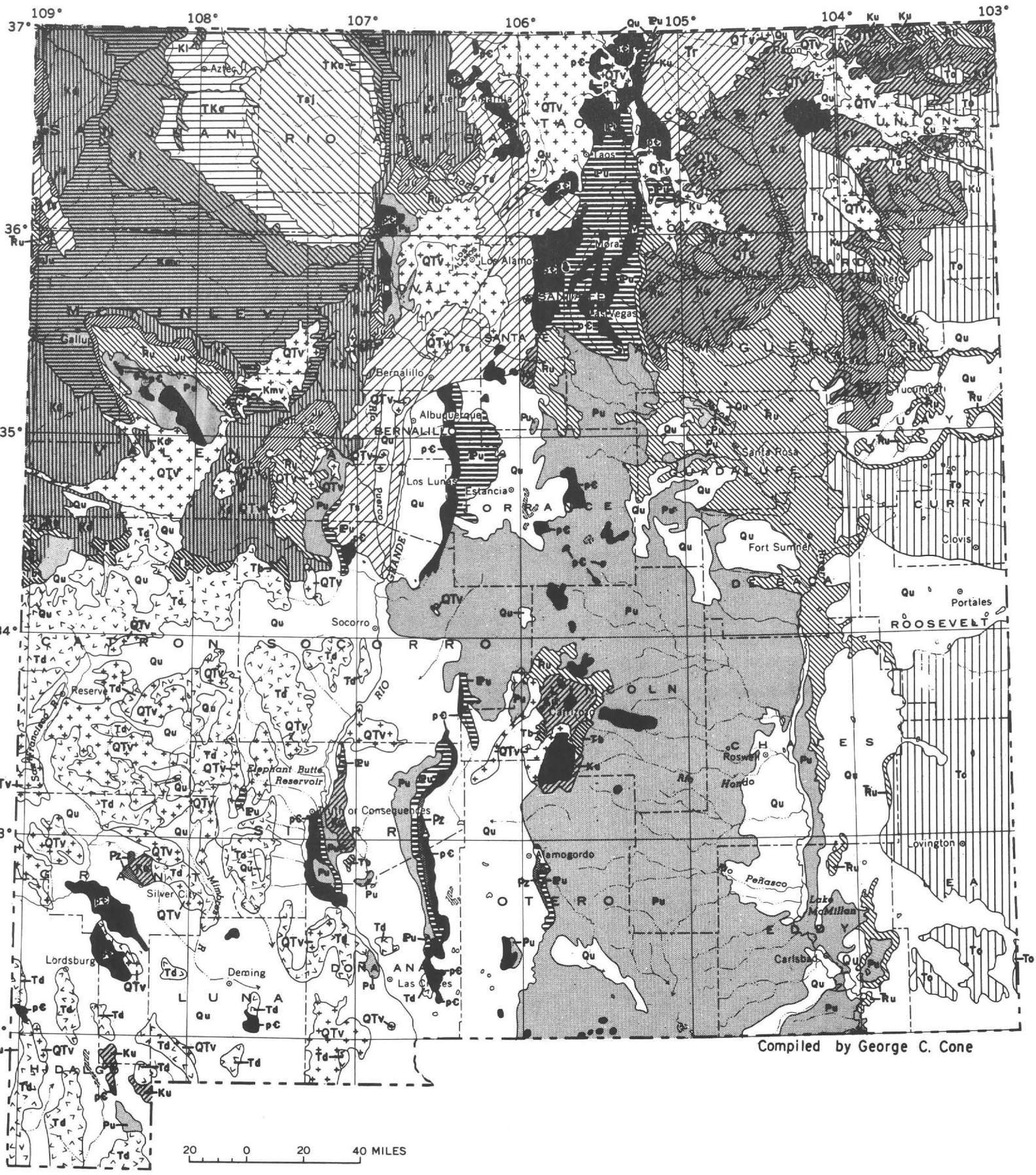


FIGURE 5.—Index map showing location of principal mountain ranges and rivers in New Mexico.

GEOLOGY

The rocks exposed in the ranges, mesas, and plateaus and concealed beneath the alluviated plains and desert basins record a long and infinitely varied geologic history. At times nearly all the State was submerged beneath shallow seas. At other times much of the State stood above the level of the sea and the previously formed rocks were eroded and transported to other areas. During some ages great deserts of wind-blown sand swept across the State; and, at other times, areas marginal to extensive seas were vast evaporting pans in which thick deposits of gypsum or other salts crystallized from the concentrated



EXPLANATION

Qu — Quaternary deposits
Includes some Tertiary rocks

QTv — Quaternary and Tertiary volcanic rocks

Ts — Santa Fe Group
Includes some lower Quaternary rocks

To — Ogalalla Formation

Td — Datil Formation
and related volcanics

Tsj — San Jose Formation

Tb — Baca Formation
and related units

TKa — Nacimiento and Animas Formations

Tr — Raton Formation

Ki — Upper Cretaceous sedimentary rocks
Post-Mesaverde formations

Kmv — Mesaverde Group

TERTIARY

CRETACEOUS

Kc — Mancos and Dakota Formations

Ku — Cretaceous rocks, undivided

Ju — Jurassic rocks, undivided

Ru — Triassic rocks, undivided

Pu — Permian rocks, undivided

IPu — Pennsylvanian rocks, undivided

Pz — Mississippian, Devonian, Silurian, Ordovician, and Cambrian rocks, undivided

pЄ — Precambrian rocks, undivided

INTRUSIVE ROCKS

Tertiary intrusive rocks
Includes some rocks of Cretaceous age

FIGURE 6.—Geologic map of New Mexico. (Generalized from geologic map of New Mexico by Carle H. Dane and George O. Bachman, U.S. Geological Survey, *in press*.)

brines. At still other times river and flood-plain deposits ranging from great boulders and coarse gravel, to fine sand, and to clay were strewn thickly over wide surfaces above the level of the sea, and extensive swamps bordering the seas accumulated thick beds of decaying plant detritus that subsequently were compressed and modified into coal. At times too, molten rock from the depths of the earth forced its way into the already consolidated sedimentary rocks, or burst through to the earth's surface as volcanos, which distributed wind-blown ash or emitted great sheets of lava. Many of these widely varied rocks contain mineral resources of economic value. The distribution and value of mineral resources are understood most adequately through a fuller understanding of the geologic processes that created them. The rocks that record the history of these processes are briefly described in the following pages. The generalized geologic map (fig. 6) shows the distribution of some of these rocks as they are exposed on the surface today.

Rocks of every geologic system into which strata have been classified in the United States crop out within New Mexico and are extensively distributed in the subsurface, where they have been encountered by the thousands of wells that have been drilled for oil or gas (tables 1–4). The rocks belonging to all but the oldest category are dominantly, though not exclusively, sedimentary rocks. That is, they were deposited as sediments by rivers, wind, or ocean currents and subsequently consolidated into bedded layers of rock. Much of this volume of sedimentary rock is distinguished by the presence, in greater or lesser amounts, of organisms of varied kinds, the fossil remains of past life, by means of which the containing rocks can be recognized, correlated from place to place, and placed in order of relative age by their superposition in orderly sequences.

Precambrian Rocks

The oldest rocks in New Mexico are classified simply as Precambrian. Fossils are not present in these rocks and they can be subdivided only on the basis of rock type or absolute age. In some areas these rocks have been studied in detail; but, as they have not been studied regionally over the State, only generalizations may be made about their age and relationships.

Precambrian rocks form the floor on which subsequent sequences of rocks were deposited. These foundation rocks are commonly referred to as "basement rocks" or simply as "the basement". Many of these very old rocks have been intensely deformed and altered. Some have been recrystallized into new combinations of minerals or metamorphosed in other ways. Precambrian rocks in New Mexico now consist of quartzite, schist, gneiss, granite, and many other rock types.

Precambrian rocks crop out only in a small fraction of the area of the State, most extensively in the higher parts of the Sangre de Cristo, Cimarron, San Juan, and Nacimiento Mountains in the north-central part of the State. They also are present in considerable areas of the uplifted cores of meridional ranges that transect the State from south to north, and in many smaller areas, some only a few acres in extent, scattered throughout the southwestern part of the State. Precambrian rocks do not crop out east of a diagonal line extending northeastward

TABLE 1.—*Nomenclature of principal formations in northwestern New Mexico*

Geologic time units			Formations	
Cenozoic (to 70 million years)	Quaternary	Recent	Alluvium	
		Pleistocene	Gravel, sand, clay and volcanic deposits	
	Tertiary	Pliocene	Santa Fe Group	Chuska Sandstone
		Miocene		
		Oligocene	May be present (?)	
		Eocene	Galisteo Formation (Eocene and questionably Oligocene); Baca Formation (questionably Eocene); San Jose Formation	
		Paleocene	Nacimiento Formation; Animas Formation (Upper Cretaceous and Paleocene)	
Mesozoic (70-225 million years /)	Cretaceous		Ojo Alamo Sandstone McDermott Formation Kirtland Shale and Fruitland Formation Pictured Cliffs Sandstone Lewis Shale	
			Cliff House Sandstone Menefee Formation Point Lookout Sandstone Crevasse Canyon Formation Gallup Sandstone	All of the Mesaverde Group
			Mancos Shale Dakota Sandstone	
	Jurassic		Morrison Formation Bluff Sandstone Summerville Formation Todilto Formation Entrada Sandstone San Rafael Group	Zuni Sandstone
	Triassic		Glen Canyon Group Wingate Sandstone Chinle Formation	
Paleozoic (225 to 600 million years /)	Permian		San Andres Limestone Glorleta Sandstone	
			Yeso Formation Abo Formation	Cutler Formation Rico Formation
	Carboniferous: Pennsylvanian		Madera Formation Sandia Formation	Hermosa Formation Paradox Member Molas Formation
	Carboniferous: Mississippian		Arroyo Penasco Formation	Present in subsurface (includes the Leadville Limestone)
	Devonian		Present in subsurface	Ouray Limestone Includes the Elbert Formation
	Silurian		Absent	
	Ordovician		Absent	
	Cambrian		Present in subsurface	Includes the Ignacio Quartzite
	Precambrian (3 billion years /.)		Granite, quartzite, pegmatites, etc.	

TABLE 2.—*Nomenclature of principal formations in northeastern New Mexico*

	Geologic time units		Formations	
Cenozoic (to 70 million years)	Quaternary	Recent	Alluvium, other surficial deposits, and some volcanic deposits	
		Pleistocene	Gravel, sand, caliche and some volcanic deposits	
	Tertiary	Pliocene	Santa Fe Group	Ogallala Formation
		Miocene		
		Oligocene (?)	Galisteo Formation and other local formations	
		Eocene		
		Paleocene	Poison Canyon Formation Raton Formation	
Mesozoic (70-225 million years /)	Cretaceous		Vermejo Formation Trinidad Sandstone Pierre Shale Niobrara Formation Carlile Shale Greenhorn Limestone Graneros Shale Dakota Sandstone Purgatoire Formation	
	Jurassic		Morrison Formation Summerville Formation Todilto Limestone Entrada Sandstone	
	Triassic		Dockum Group Chinle Formation Santa Rosa Sandstone	
(225 to 600 million years /)	Permian		Artesia Formation San Andres Limestone Glorieta Sandstone Yeso Formation	
	Permian and Pennsylvanian		Sangre de Cristo	
	Carboniferous	Pennsylvanian	Madera Limestone Sandia Formation	
		Mississippian	Tererro Formation	
	Devonian		Espiritu Santo Formation	
	Silurian		Absent	
	Ordovician		Absent	
	Cambrian		Absent	
Precambrian (3 billion years /). Granite, diorite, other plutonic rocks, schist, quartzite, and pegmatites.				

TABLE 3.—*Nomenclature of principal formations in southwestern New Mexico*

Geologic time units			Formations	
Cenozoic (to 70 million years)	Quaternary	Recent	Alluvium, other surficial deposits and volcanic rocks	
		Pleistocene	Gravel and volcanic rocks	
			Santa Fe Group	Gila Conglomerate
		Pliocene		Datil Formation and associated volcanic rocks
	Tertiary	Miocene		
		Oligocene	May be present (?)	
		Eocene	Baca Formation of questionable Eocene age	
		Paleocene	Not recognized (?)	
Mesozoic (70-225 million years_/)		Cretaceous	Mesaverde Group	Includes some volcanic rocks
			Mancos Shale Dakota Sandstone	Colorado Shale Sarten Sandstone & Beartooth Quartzite
			Bisbee Group: Includes a sequence of conglomerate, sandstone, volcanic rocks, etc. more than 10,000 feet thick in extreme southwestern New Mexico.	
		Jurassic	Absent	
		Triassic	Present in northern part of region	
Paleozoic (225 to 600 million years_/)		Permian	Concha Formation Scherrer Formation Colina Limestone Earp Formation	San Andres Limestone Glorieta Sandstone Yeso Formation Abo Formation Bursum Formation
	Carboniferous	Pennsylvanian	Horquilla Formation -- Magdalena Group	
		Mississippian	Lake Valley Limestone Kelly Limestone	Escabrosa Limestone
		Devonian	Percha Shale (and other local formations)	
		Silurian	Fusselman Dolomite	
		Ordovician	Montoya Dolomite El Paso Formation	
		Ordovician and Cambrian	Bliss Sandstone	

Precambrian (3 billion years_/). Granite and associated rocks.

TABLE 4.—Nomenclature of principal formations in southeastern New Mexico.

Geologic time units			Formations	
Cenozoic (to 70 million years)	Quaternary	Recent	Alluvium and other surficial deposits	
		Pleistocene	Gravel and associated deposits	
		Pliocene	Ogallala Formation	
	Tertiary	Miocene	Probably present (?)	
		Oligocene	Not recognized	
		Eocene	Not recognized (?)	
		Paleocene	Not recognized (?)	
Mesozoic (70-225 million years)	Cretaceous		Mesaverde Group Mancos Shale Dakota Sandstone (?)	
	Jurassic		Absent	
	Triassic		Dockum Group	
Paleozoic (225 to 600 million years /)	Permian		Dewey Lake Redbeds Rustler Formation Salado Formation Castile Formation	
			All of the Artesia Group	Tansill Formation Yates Formation Seven Rivers Formation Queen Formation Grayburg Formation
			San Andres Limestone includes the Hondo Sandstone Member Glorieta Sandstone Yeso Formation Abo Formation Bursum Formation	Cutoff Shale Victorio Peak Limestone Bone Spring Limestone Hueco Limestone
	Carboniferous	Pennsylvanian	Includes many formations and informally named zones in the subsurface	
		Mississippian	Lake Valley Limestone and other local formations	"Mississippian Lime" of subsurface
	Devonian		Percha Shale	Woodford Shale of subsurface
	Silurian		Fusselman Dolomite	"Devonian" of subsurface
	Ordovician		Montoya Dolomite	
			Simpson Formation of subsurface	
			El Paso Formation	Ellenburger Formation of subsurface
	Ordovician and Cambrian		Bliss Sandstone	
Precambrian (3 billion years /.			Granite and associated rocks.	

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from El Paso, Tex., to Raton, nor in the San Juan Basin in the northwestern part, nor in the central part of the Datil volcanic area of the southwest part of the State.

The exposed Precambrian rocks do not show a distinctive general pattern of distribution. Somewhat more of a pattern is displayed by the distribution of these rocks where encountered in drilled wells. Although more than 500 wells have reached Precambrian rocks, more than 200 of these are in eastern Lea County. The distribution of the remainder is sparse in many parts of the State. Nevertheless, these wells show that granite underlies much of the northeastern part of the State, the southeastern part of the San Juan Basin, most of the south-central and southwestern parts of the State, and large areas in Lea and Eddy Counties in the southeastern part.

Although the relative ages of the Precambrian rocks of the State are not well understood, it appears that the most deeply metamorphosed rocks are the oldest (about 1,110 to 1,300 million years) and that they are followed in age successively by intrusive granite and granitoid rocks, by relatively unmetamorphosed sedimentary rocks associated with intrusive and extrusive rhyolites, and by a younger group of granitic intrusive rocks. The increased amount of radiometric dating of the Precambrian rocks that will become available in the future will greatly clarify our understanding of the correlations and history of these rocks.

Paleozoic Rocks

The Paleozoic Era is represented in New Mexico by a succession of sedimentary rocks which is divided into systems and local formations (tables 1–4). The older Paleozoic rocks are divided into Cambrian, Ordovician, and Silurian Systems. Rocks of these ages consist mainly of limestone and dolomite, and include some sandstone. They were deposited in shallow seas that oscillated across the land. Deposition was discontinuous and environments of deposition were variable. These factors have resulted in distinctive rock types in each system and the rock types may be divided into mappable formations.

During Late Cambrian and Early Ordovician time the Bliss Sandstone and El Paso Limestone were deposited in a sea that probably transgressed across the land from the west. Rocks correlated with the Middle Ordovician Simpson Group of Oklahoma are present in the subsurface in southeastern New Mexico and in Middle and Late Ordovician time the Montoya Dolomite was deposited in a continuous seaway across southern New Mexico. In Silurian time the Fusselman Dolomite was deposited in a sea that may have encroached on the land from the east. The seas were probably relatively warm and, during parts of early Paleozoic time, were hosts to many species of primitive corals, bivalves, crinoids, and other forms of animal life.

Rocks of the early part of the Paleozoic Era are preserved only in the southern and northwestern parts of New Mexico. Although these rocks may be as much as 2,500 feet thick in the south-central part of the State, they are eroded and generally absent north of the latitude of the Caballo and Fra Cristobal Mountains in Socorro County, and north of the Oscura Mountains in Lincoln County. They are well exposed in the Sacramento Mountains, Otero County, but are absent north of Alamagordo. They have been encountered in wells drilled

in the Delaware basin in southeastern New Mexico. The Ignacio Quartzite of Late Cambrian age has been encountered in wells in the northwestern part of New Mexico.

Younger Paleozoic rocks are included in the Devonian, Mississippian, Pennsylvanian, and Permian Systems. Rocks of these ages include limestone, dolomite, gypsum and anhydrite, salt, potash minerals, shale, sandstone, and conglomerate. They reflect changing environments of deposition.

The Devonian rocks, largely represented by the Percha Shale in southern New Mexico are relatively thin but form a widespread blanket of dark, calcareous to sandy shale. Devonian rocks have much the same distribution in New Mexico as the earlier Paleozoic rocks, but they are probably also present at places in the Sangre de Cristo Mountains.

Mississippian rocks consist mainly of limestone and are present over much of southern New Mexico as well as places in the Sangre de Cristo, Nacimiento, and Sandia Mountains. They are also present in the subsurface in northwestern part of the State. The Mississippian rocks, which have a maximum thickness exceeding 1,200 feet in southwestern New Mexico, have been assigned to a large number of locally recognized stratigraphic units.

Pennsylvanian and Permian rocks were deposited in widely variable environments including the flanks of mountains that rose out of the sea, shallow seas, enclosed basins, and salt pans. The rocks, therefore, are of great variety and have been assigned to numerous stratigraphic units. Pennsylvanian rocks include gypsum, limestone, sandstone, and conglomerate. Permian formations include those rock types as well as much dolomite and, in southeastern New Mexico, thick salt and potash deposits. In parts of southeastern New Mexico Pennsylvanian and Permian rocks may exceed 12,000 feet in thickness.

All the Paleozoic rocks are presently being studied intensively by geologists, for it is from these rocks that much of the petroleum is being produced in New Mexico. An understanding of regional variations in rock types, position of ancient shore lines and mountain uplifts, and environments of deposition are necessary to predict the occurrence of petroleum. In addition, the understanding of ancient uplifts and fracturing of rocks is important in the study of ore deposits. Because of this intensive study, numerous formation names have been proposed for rocks in New Mexico. These names are not listed here because of the complexity of nomenclature. The accompanying tables (tables 1–4) are intended to serve only as generalized outlines for reference.

Mesozoic Rocks

Deposits of Mesozoic age include rocks of the Triassic, Jurassic, and Cretaceous Systems. At the close of Paleozoic time seas withdrew from New Mexico and lower Mesozoic rocks are of continental origin. Triassic rocks in New Mexico are usually red to maroon and include shale and sandstone deposited on floodplains or in other subaerial environments. Triassic rocks are preserved in northern and eastern New Mexico. They are exposed in southeastern New Mexico along the Pecos River nearly to the State line. The maximum

thickness of Triassic rocks may exceed 2,000 feet along the eastern edge of the State.

Jurassic rocks include a complex sequence of nonmarine units, largely clastic, of eolian, stream, and lacustrine origin. They are exposed widely in northern New Mexico around the edges of the San Juan Basin where they locally exceed 1,000 feet in thickness, in mountain uplifts, and in deeply cut canyons including those of the Canadian and Cimarron Rivers. Jurassic rocks are not present in New Mexico south of an easterly line across the south-central part of the State.

During Cretaceous time seas again advanced over New Mexico and rocks were deposited in, or marginal to, a marine environment. The main body of the Cretaceous sea lay to the east of New Mexico and extended from the Arctic to the Gulf of Mexico. In southwestern New Mexico, however, the lowest Cretaceous rocks accumulated to thicknesses of more than 15,000 feet in a deep trough centered in the area of the Little Hatchet Mountains. Upper Cretaceous rocks were deposited over northern New Mexico in lagoons, along beaches, and in offshore and marine environments. Complex intertonguing relations record the oscillatory advance of the sea and differences in the rate of supply of sediment. The rocks consist of shale and sandstone with some beds of limestone and local coal beds.

The oldest formation in the Upper Cretaceous sequence is the widespread Dakota Sandstone. Overlying the Dakota in northwestern New Mexico is the Mancos Shale which was deposited as a marine mud. The Mesaverde Group consists of several formations that interfinger with the underlying Mancos Shale and record deposition of sand, silt, clay, and plant debris in streams and swamps. Almost the entire history of Upper Cretaceous deposition over much of New Mexico is marked by repeated advances of the sea with the drowning of rivers and swamps followed by retreat of seas and renewal of river systems and swamp environments. The well preserved record of these events in New Mexico has long intrigued geologists and the study of these rocks and their history has resulted in classic concepts of sedimentation, facies changes, and interfingering of strata.

Cenozoic Rocks

At the close of Cretaceous time, seas withdrew from the New Mexico region; and regional uplift of the land, accompanied by mountain building, began. Therefore, there are no known marine deposits in New Mexico that are younger than Cretaceous age. Tertiary rocks consist of clay, shale, sandstone, volcanic flows, and igneous intrusions. Some coal beds were deposited in the Raton Basin during early Tertiary time.

During the earliest part of Tertiary time, sediments were deposited in the San Juan and in the Raton Basins. The Tertiary rocks in the San Juan Basin include gray shale, variegated red, purple, and white shale, sandstone, and brown conglomerate. Rocks in the San Juan Basin were probably deposited on the surface of floodplains that contained some areas of a heavily wooded savanna environment. In the Raton basin lower Tertiary rocks consist of coal, gray shale, and interbedded conglomerate sandstone beds that interfinger and grade into the

overlying conglomerates. These rocks were deposited in a swamp and floodplain environment that was covered later by a piedmont terrane.

Other sedimentary formations were deposited in intermontane basins in Tertiary and early Quarternary time. These include the Galisteo Formation of Eocene and Oligocene(?) age in southern Santa Fe County, the Baca Formation of Eocene(?) age in central New Mexico, and the Santa Fe Group of Miocene to Pleistocene(?) age in the vicinity of the Rio Grande Valley. The Santa Fe Group consists of clay, sand, gravel, and some interbedded volcanic rocks. The Santa Fe Group is best exposed in northern Santa Fe County but it may be present along much of the course of the Rio Grande in New Mexico. The Pliocene and Pleistocene Gila Conglomerate in southwestern New Mexico is very similar lithologically to the Santa Fe Group.

In southwestern New Mexico there was extensive volcanic activity and local igneous intrusions during Tertiary time. The Datil Formation, chiefly of Tertiary age, formed a volcanic field that covers much of Catron, Grant, and western Socorro and Sierra Counties. Some volcanic rocks in Hidalgo, Luna, and Dona Ana Counties may be related to the Datil volcanic episode.

Rocks of Quaternary age in New Mexico include sedimentary and igneous deposits. The sedimentary deposits include caliche, alluvium and valley fill, clay, sand, and gravel. The igneous rocks include volcanic flows and ash falls of varied composition.

The sedimentary rocks are chiefly the result of weathering and breakdown of mountain masses. Products of weathering have been carried by streams into valleys where they are deposited. Most Quaternary sedimentary deposits are unconsolidated and friable but in some areas chemical processes in nature are operative and well-cemented spring deposits (travertine) are in the process of formation. In some enclosed basins, as in the Estancia Basin in eastern Valencia County and the Tularosa Basin in western Otero County, saline deposits have accumulated during relatively recent time. These deposits are the result of saline-bearing water that evaporates into the atmosphere leaving saline crystals as deposits on or near the surface of the ground. Dunes of the White Sands in Otero County are composed of small grains of gypsum that have been fragmented in the atmosphere and moved and rounded by wind action.

During Pleistocene time, commonly known as the "Ice Age," glaciers were not as widespread in New Mexico as in the northern part of the United States. Mountain glaciers formed in parts of the Sangre de Cristo Mountains and as far south as Sierra Blanca Peak in Lincoln County, but ice did not cover New Mexico in sheets. During the time of glaciation the climate in New Mexico was probably much wetter and colder than present climate. About 12,000 to 13,000 years ago man was hunting the mammoth and other large animals in the area that is now New Mexico. Average summer temperature in the Estancia Valley in Torrance County was 10° to 12° lower than at present and the annual precipitation was probably 8 inches more than present precipitation. During the past 6,000 years, climate has been variable with a tendency towards relatively warm and more arid conditions. The variable climate of recent time is reflected by several cycles of arroyo cutting and filling in the drainage systems of New Mexico.

Geologic Structure

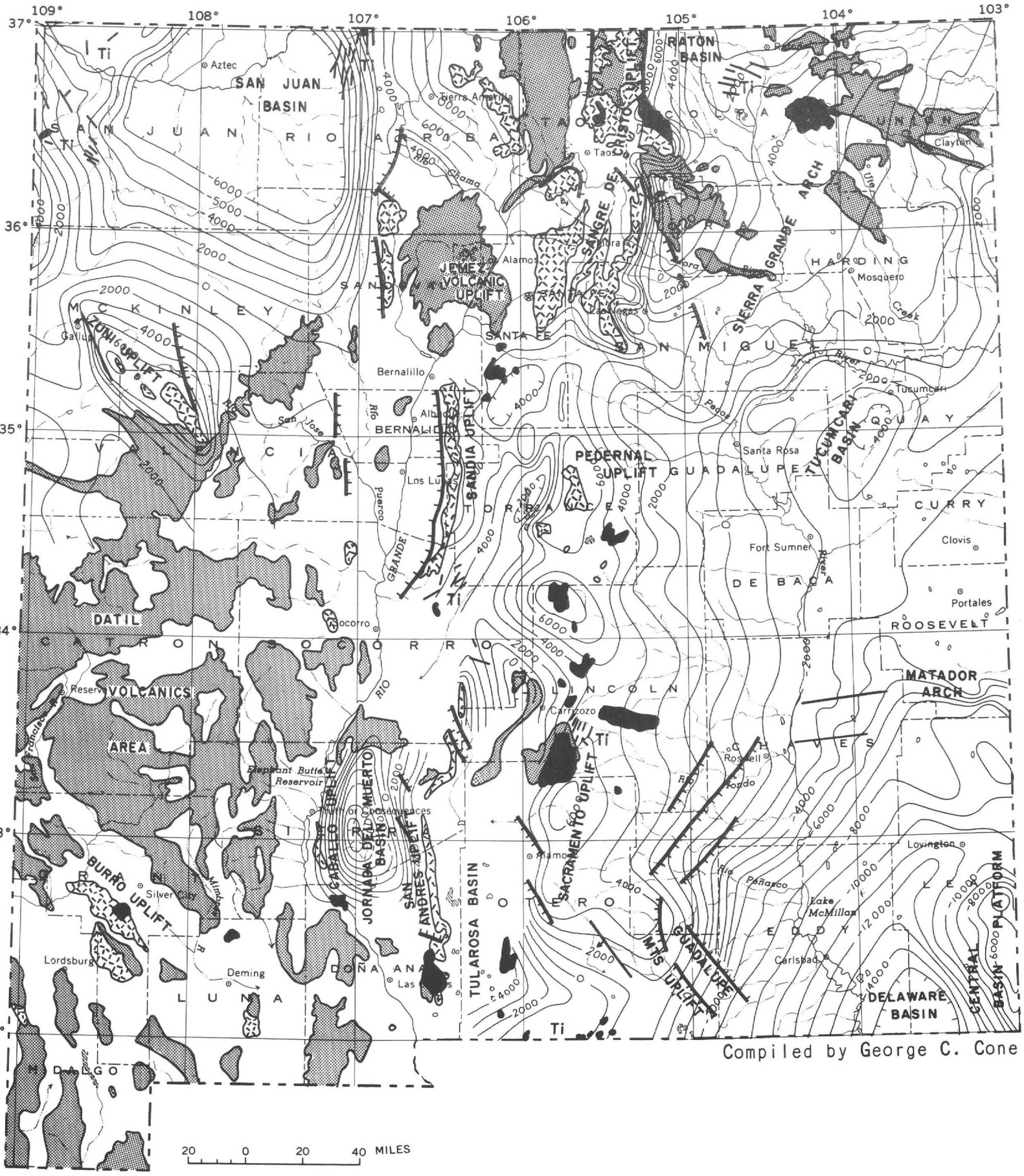
Deformation of the earth's crust is a long and continuing evolutionary process that results in the development of land forms and changing geologic environments. Mountains and basins present today in New Mexico reflect a relatively late episode in the structural history of the region (fig. 7). Some modern geologic structures may, however, be related to structural weakness in the earth's crust that first developed in Paleozoic, or Precambrian time, but continuing folding, faulting, and crumpling of rocks has masked much of the earlier structural history.

The relatively small exposures of Precambrian rocks limit the regional interpretation of the origin and history of these rocks. Seaways were present and sediments were deposited. Later these sediments were lithified, subjected to regional stresses, and intruded by igneous rocks. The lithified and metamorphosed sediments are preserved in the form of schist, quartzite, and gneiss. In the Sandia and Manzano uplifts, east and southeast of Albuquerque, and in parts of southeastern New Mexico there was some volcanic activity during Precambrian time.

During much of Paleozoic time the relief in New Mexico was low and intermittent encroachment of seas over the area was characteristic. Structural movements were probably confined to low regional warping of the earth's crust. During late Paleozoic (Pennsylvanian and Early Permian) time there was local mountain building and land masses were lifted above the surrounding sea. This uplift, and accompanying erosion of rocks, may account in part for the absence of lower Paleozoic rocks over much of north-central New Mexico. At this time the Sierra Grande arch, Pedernal arch, Matador arch, Central Basin platform, and the Zuni uplift were formed. These uplifts, sometimes called the Ancestral Rocky Mountains, contributed sediments to adjoining basins during Pennsylvanian and earliest Permian time. A remnant of the Pedernal arch forms the present Pedernal Hills in Torrance County. The Zuni uplift was rejuvenated during Tertiary time and is a prominent landmark in western New Mexico today. Other uplifts that were in existence in Early Permian time are now covered by strata deposited in Permian and later time. The cores of those uplifts have been found during drilling for petroleum.

During Mesozoic time tectonism was relatively mild in the New Mexico region. In Jurassic time the eastward trending Navajo highland—an area of low relief and nondeposition—existed in central New Mexico. Owing to the presence of this highland, strata of Jurassic age are not found, and may never have been deposited, in the southern half of the State. During Cretaceous time gentle crustal warping resulted in encroachment of seawavs and the oscillation of shorelines in the northwestern part of New Mexico, and possibly elsewhere. At this time highlands were present in western Arizona and, during Late Cretaceous time, in southwestern New Mexico. Volcanoes may have been active in southwestern New Mexico.

Regional uplift accompanied by folding and local thrust faulting was the dominant tectonic activity in latest Cretaceous and earliest Tertiary time. Regional tectonic forces were probably compressional as contrasted with tensional stress of later Tertiary time. At least



EXPLANATION

Thrust fault
Sawteeth on upper plate

Normal fault
Hachures on downthrown side

Monoclinal flexure

Ti
Intrusive bodies of probable Tertiary age

Volcanic rocks of Quaternary and Tertiary age

Rocks of Precambrian age

4000
Structure contours on Precambrian surface
Contour interval 1,000 feet. Datum is sea level. Modified from Foster and Stipp, 1961

FIGURE 7.—Generalized tectonic map of New Mexico.

as early as Oligocene time tensional stress resulted in normal faults and widespread volcanic activity. The Datil volcanic field, Mount Taylor, and local igneous intrusions were developed at this time. During late Tertiary time most of the mountains and basins that are part of the present landscape of New Mexico were formed.

Late Tertiary igneous activity has produced relatively high and well-known landmarks. Intrusion of igneous rock from magmas into the earth's crust formed the Organ Mountains near Las Cruces, parts of Sierra Blanca in southern Lincoln County, and the Ortiz Mountains in Santa Fe County. Explosive volcanism formed parts of the Jemez volcanic plateau and less violent volcanic activity resulted in the building of Mount Taylor in McKinley and Valencia Counties.

An understanding of the sequence of structural events is significant to the location of mineral resources. Magmatic differentiation of igneous rocks during igneous intrusion results in the formation of pegmatites and other concentrations of minerals. Contact metamorphic deposits are formed along the margins of igneous intrusions. The movement of mineral-bearing solutions and gases in faults and fissures results in the concentration of minerals. Tilting of strata results in the movement of mineralizing fluids, water, and petroleum, in the rocks. The relative position of shorelines to sea and land are at times the key to the location of coal and petroleum resources.

Economic Geology

The economic value of a mineral resource is determined by the cost of production, cost of transportation to market, and by the demand for the commodity. Costs and demand vary with fluctuations in local or national economy, advances in the technological fields of exploration and exploitation, and increases in requirements by industry and the expanding population. A resource that cannot be developed profitably today may become the basis for a profitable enterprise in the future because of these constantly changing sociologic, technologic, and economic factors.

Once a mineral resource is exhausted it cannot be replaced. This fact of depletion is a distinctive characteristic of mineral economics and creates problems both in concepts of conservation and execution of resource development. For this reason, efficient development, intelligent use, and continuing search for new or substitute mineral resources are of importance to economic growth. Advances in the techniques of exploration and processing of mineral resources have been successful in meeting the most fundamental needs of the nation's economy to date. However, with depletion of high-grade deposits it will become necessary to locate and develop deposits that are of lower grade, particularly those that give promise of yielding more than one mineral commodity, others that are deeply buried, and still others that are farther from markets.

The accumulation of a mineral or rock to form an economic deposit is the result of one or more specific geologic processes, and therefore each type of mineral resource is limited in distribution to certain geologic environments. In fact, environments conducive to the formation of mineral deposits are so restricted in nature that it has been estimated that during the past 50 years, 90 percent of the Nation's gold,

silver, copper, lead, and zinc has come from a total area of less than 1,000 square miles (Fowler and others, 1955, p. 7).

The geologic occurrence of all mineral deposits follows natural laws that allow basic predictions. Mineral fuels, such as petroleum, natural gas, and coal, are natural products of organic decay and recomposition in a sedimentary environment, and these resources are found in sedimentary rocks. In New Mexico these rocks are best preserved in the thick sedimentary deposits in the San Juan and Delaware basins. Petroleum and natural gas are found in these basins in rocks of Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, Permian, and Cretaceous ages.

Extensive deposits of coal occur in New Mexico in rocks of Cretaceous age in the San Juan Basin, and of Cretaceous and Paleocene ages in the Raton Basin. Rocks of Cretaceous age also contain coal deposits in the Carthage, Sierra Blanca, Hagen (Una del Gato), and Tijeras basins.

Other minerals are concentrated in deposits by solutions or gases emanating from deep-seated bodies of magma. These deposits are usually found in association with igneous and metamorphic rocks and occur within, or adjacent to, mountain uplifts. Some occur as veins along fractures, some as bodies that have replaced favorable rocks, and some as disseminated mineral grains in large masses of igneous rock.

Veins occur in New Mexico in the Lordsburg, Silver City, Mogollon, Lake Valley, and Magdalena districts. They have produced gold, silver, copper, and nonmetallic minerals. Replacement bodies of ore occur in wall rocks near veins or in the vicinity of igneous intrusions. Such deposits have produced lead in the Kingston, Hillsboro, Lake Valley, and other districts in New Mexico. Disseminated copper deposits are mined in the Silver City region.

Some minerals of economic importance are concentrated by processes of weathering and erosion of uplifted areas, and occur as products of deposition. These deposits include vast accumulations of sand and gravel in New Mexico, placer gold, and some clay deposits. Other deposits are enriched by weathering and oxidation.

Some rocks are of direct economic value. These include potash, salt, gypsum, perlite, pumice, granite, and travertine. Some of these have multiple uses in the construction industry either as aggregate or as building stone. Some sandstone is useful as building stone or, where composed of relatively pure silica, in the manufacture of glass. Limestone may likewise be quarried and used as building stone or processed and used in the manufacture of cement.

Many maps in this report show a trend of mineral occurrences in a broad belt across the State from the north-central part southwestward to the southwest corner. The presence of this belt of mineral occurrences has long been recognized (Lindgren and others, 1910). The interpretation of the belt is, at present, conjectural. It may be related to deep-seated geologic processes or it may be the fortuitous exposure of mineral deposits by erosion. However, trends of this type are a subject of serious study by geologists and the gathering of data, plotting of related data on maps, and the regional interpretation of such maps may lead to finding of other mineral occurrences.

TOPOGRAPHIC AND GEOLOGIC MAPPING

A map showing the topography of New Mexico has been published by the U.S. Geological Survey at a scale of 1:500,000. Topographic maps showing drainage, culture, and contours drawn on lines of equal elevation have been published for many individual areas in the State (fig. 8).

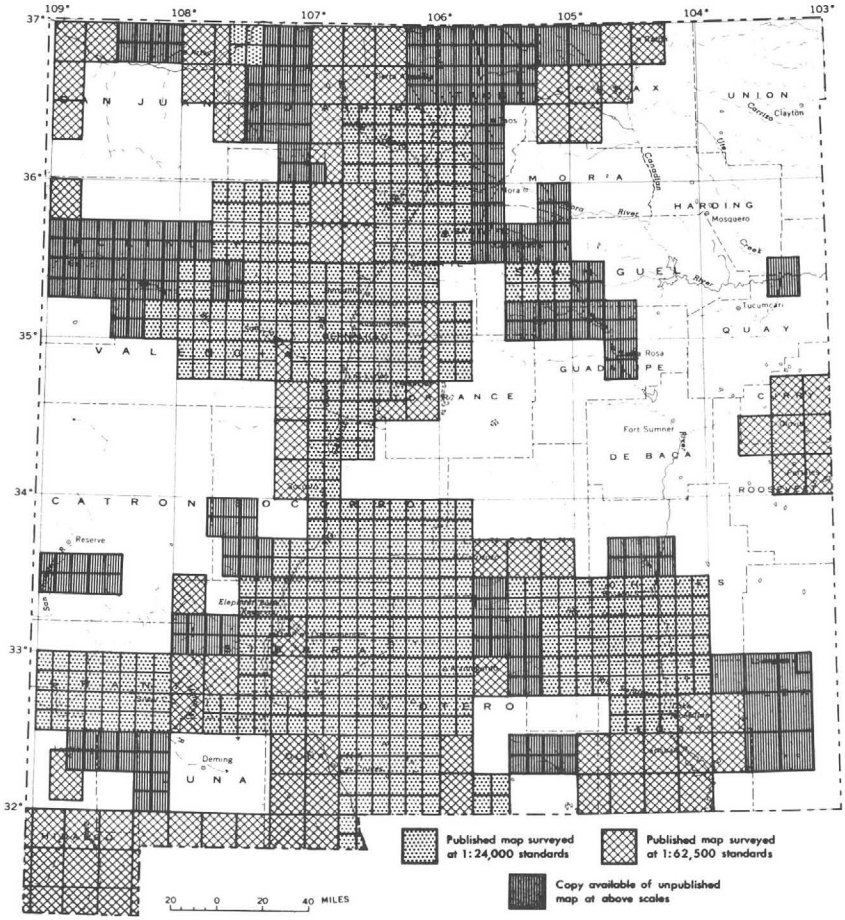
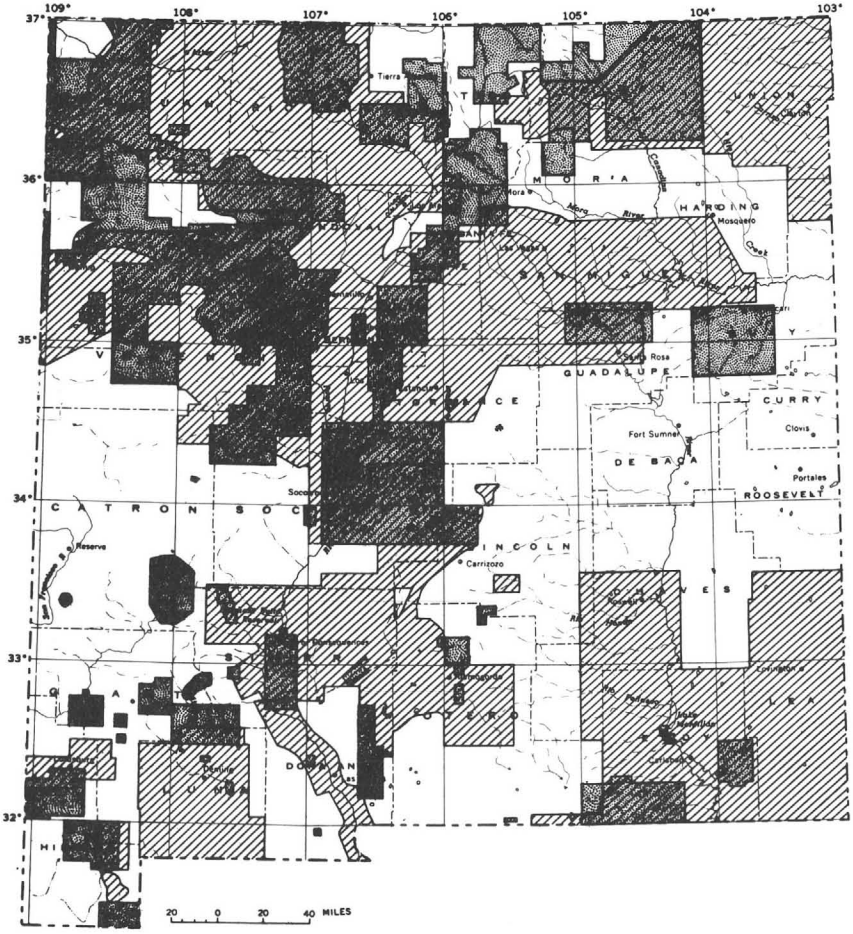


FIGURE 8.—Published and unpublished topographic maps in New Mexico, September 1964

Geologic maps show rock units exposed at the surface. Geologic maps have been published that cover a little more than one half the State (fig. 9). These maps are published either individually or as parts of geologic reports. They have been published mainly by the U.S. Geological Survey, the New Mexico Bureau of Mines and Mineral Resources, and the University of New Mexico. A geologic map of the



EXPLANATION

Areas covered by published geologic maps at scales 1:63,360 and larger. Photogeologic and incomplete maps are not included

Areas covered by published geologic maps at scales smaller than 1:63,360 to and including 1:250,000. Incomplete maps are not included

FIGURE 9.—Published geologic maps in New Mexico, September 1964.

State at a scale of 1:500,000 has been prepared by the Geological Survey in cooperation with the New Mexico Bureau of Mines and Mineral Resources and the University of New Mexico and is now in press.

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MINERAL FUELS AND ASSOCIATED RESOURCES

OIL AND GAS DEVELOPMENT IN NEW MEXICO

(By D. S. Nutter, New Mexico Oil Conservation Commission, Santa Fe, N. Mex.)

In the United States today, New Mexico ranks fifth in the production of natural gas and seventh in the production of crude oil. This has not always been the case, however, as indicated in the following quotation from a summary of oil and gas operations in New Mexico by the New Mexico Oil and Gas Association on the occasion of the State's 50th anniversary in 1962.

In 1882, an official report of the U.S. Geological Survey reported that, "In April the New Mexico Bitumen and Oil Co., while prospecting within 6 miles of the eastern border of the Navajo reservation, and in the extreme western portion of New Mexico, discovered a flowing oil spring; but the workmen were driven away by Navajos before they could determine the quantity of oil obtainable."

Another report, dated 1890, tells of a natural oil flow from rocks in McKinley County. About a barrel a day was collected and sold to consumers in the vicinity at a rate of $10 per barrel. The report also notes that there are several places where petroleum exudes in a similar manner from the crevices in bituminous sandstone. Several localities of the State were bothered with small quantities of oil in their water wells.

Gov. M. A. Otero, in his annual report of 1902, calls specific attention to possible discoveries in several counties of New Mexico, and had this to say in regard to the southeast corner of the State: "From the Texas boundary to within a few miles of Carlsbad are fine indications of oil."

There were several test wells drilled during the first decade of the century. The most productive was in 1909 in the Pecos Valley near Artesia. This was the "Hammond," and later the "Brown" well which penetrated an oil-bearing formation between 911 and 926 feet. However, the well produced mostly water. Intermittent attempts to produce oil from the well were made. In 1911, a yield of 6 to 10 barrels a day for several months was reported. In 1919, a report of the same well indicated production of 25 barrels of oil a day, along with several hundred barrels of water. The oil was separated from the water by a series of settling tanks and sold for fuel and for smudging orchards.

"During the period of 1911–1912 there was a big rush of activity in the Seven Lakes area of McKinley County. Mr. Henry F. Brock was sinking a water well and found considerable amounts of gas and oil. As a result, some 3,000 claims were located in twenty townships nearby, and drilling began. Six wells yielded some oil and gas, but nothing in commercial quantities. By 1913, the field was practically abandoned.

Newspapers of the period between 1880 and 1920 contain many references to oil shows and many short-lived oil rushes in New Mexico. One newspaper account of 1913 told of a productive well 14 miles from Farmington, and that "The oil fever sent hundreds of people storming into the oil patch and living in tents."

Finally, in 1922, the Hogback Oil Pool in San Juan County was discovered and then, in 1924, the famous Artesia Pool of Eddy County was discovered. These were the first major discoveries of oil in the State.

Figure 10 shows an almost yearly increase in the number of wells drilled in the State. Early records indicate that 13 wells were drilled in 1924 and 180 wells were drilled the following year. With the excep-

tion of the depression years, when money was not available, and the war years, when steel was not available, there was an increase in the number of wells drilled each year to a high of 2,127 drilled in 1957. The number of wells drilled each year since 1957 has decreased due in part to a general decline in oil activity throughout the country, and in part to the fact that the recent trend toward multiple completions has reduced the number of holes required.

Figure 11 shows a steady increase from 140 producing oil wells in 1925 to 16,112 in 1962. The volume of oil produced by these wells is shown in figure 12. This production has increased in the State from 98,000 barrels in 1924 to over 111 million barrels in 1962. The value of this oil is shown by figure 13. Although there have been wide fluctuations over the years in the price paid for each barrel of oil (fig. 14), the total value of the crude oil produced has risen steadily. The 1963 edition of The Independent Petroleum Association of America publication, "The Oil Producing Industry in Your State," reports a total value of oil produced in New Mexico in 1962 of $313,079,000. The value of natural gas produced in 1962 is reported at $91,064,000. In addition, natural gas liquids valued at $43,462,000 were produced, for a total value of hydrocarbons produced in New Mexico in 1962 of $447,605,000. The IPAA further reports that 9,306 employees were engaged in the production of crude oil and natural gas in New Mexico during 1962. It estimates that the total value of all oil produced in New Mexico through 1962 is $3,828,563,000. The production has come from 8 of the 32 counties in the State. Four of these counties, San Juan, Rio Arriba, McKinley, and Sandoval, are located in the extreme northwest corner of the State, and four, Roosevelt, Chaves, Eddy, and Lea Counties, are in the extreme southeast corner of the State. Lea County, with 62 percent of the total 1962 value of oil and gas sales in New Mexico, ranks first among all counties in the United States in value of oil and gas production.

Table 5 lists the oil, gas, and gas condensate fields in New Mexico. Production information may be obtained in summary form from the annual yearbooks of Oil and Gas Development of the International Oil Scouts Association. Details of annual oil, gas, gas condensate, and water production by fields and by individual leases are contained in the Annual Reports of the New Mexico Oil and Gas Engineering Committee (Vol. I, Southeast New Mexico; Vol. II, Northwest New Mexico).

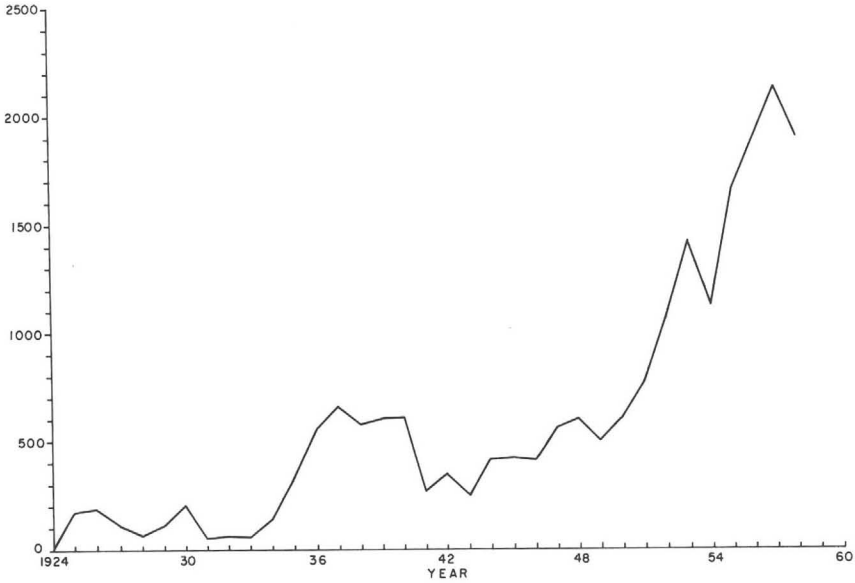

FIGURE 10.—Total oil and gas wells drilled per year in New Mexico. (Source of data: American Petroleum Institute.)

41-737 O—65——4

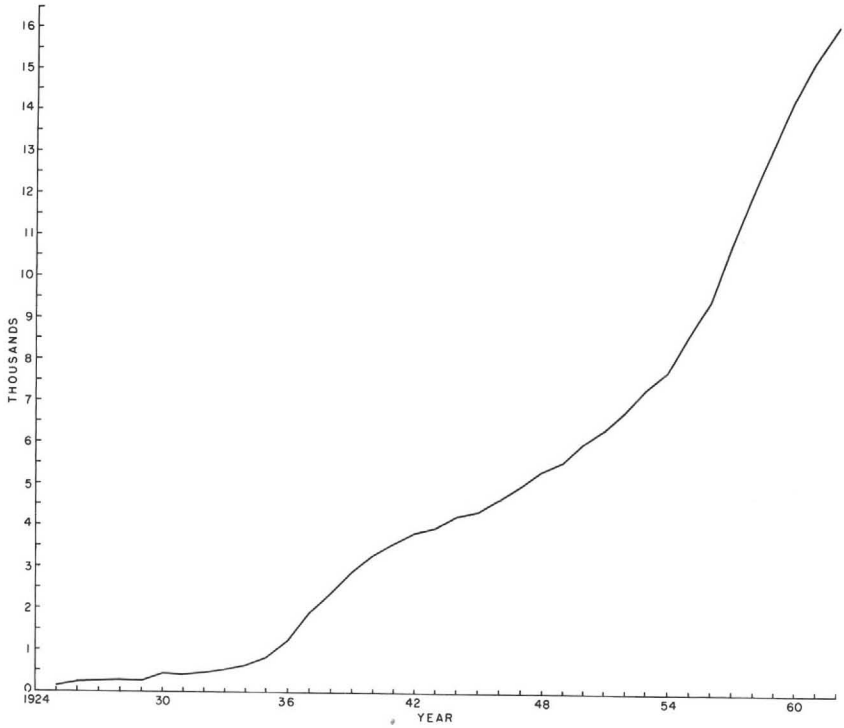

FIGURE 11.—Number of producing oil wells, in New Mexico. (Source of data: 1925–58, U.S. Bureau of Mines; 1959–62, New Mexico Oil Conservation Commission.)

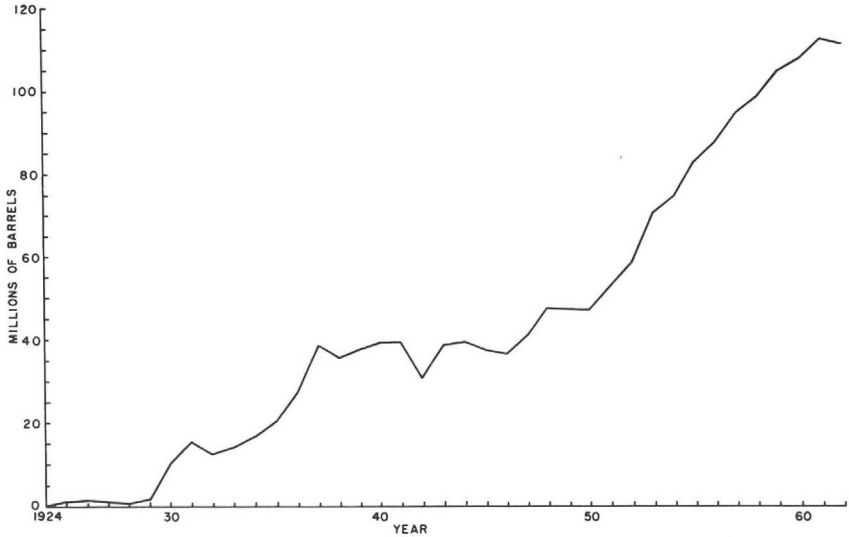

FIGURE 12.—Annual production of crude oil in New Mexico. (Source of data: American Petroleum Institute, U.S. Bureau of Mines, and New Mexico Oil Conservation Commission.)

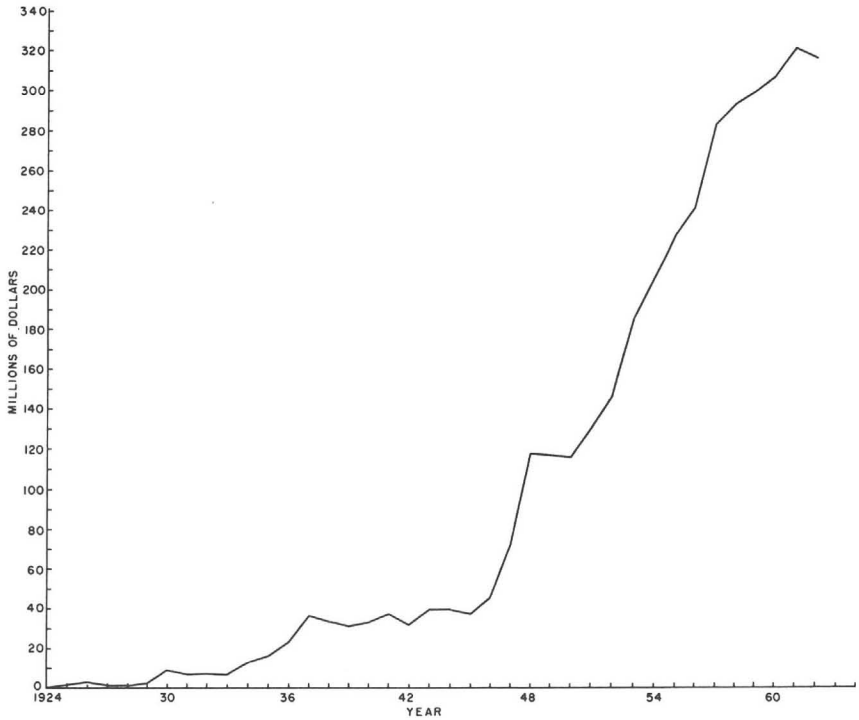

FIGURE 13.—Value of crude oil (at wellhead) produced in New Mexico. (Sources of data: 1924–58, U.S. Bureau of Mines; 1959–62, New Mexico Oil & Gas Association.)

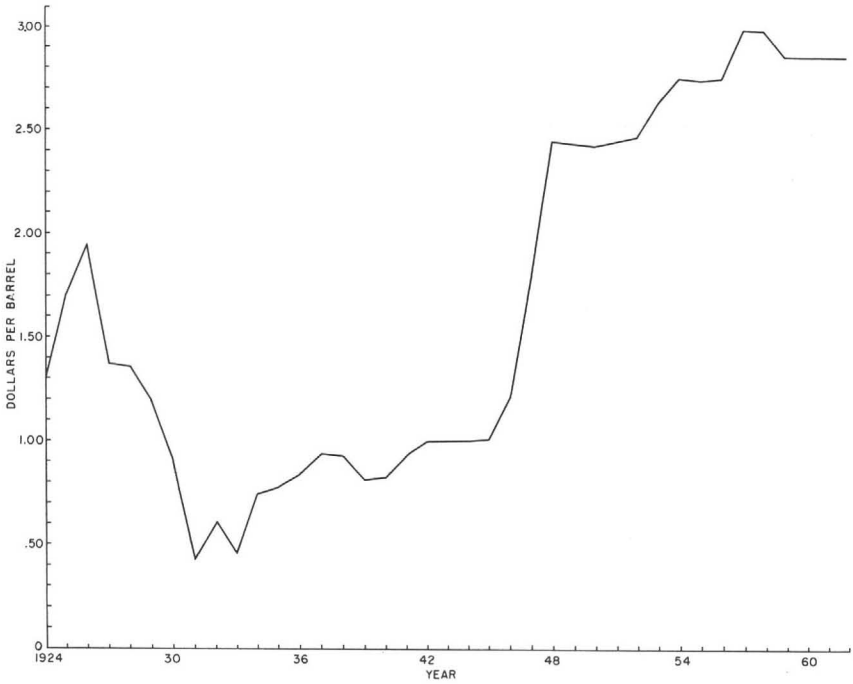

FIGURE 14.—Average price of crude oil per barrel in New Mexico. (Source of data: 1924–58, U.S. Bureau of Mines; 1959–62, New Mexico Oil & Gas Association.)

Explanation for Table 5

(The following abbreviations are used in oil and gas field production tables in columns under "Reservoir Characteristics")

RESERVOIR CHARACTERISTICS

Column: Structure:

- AC — Anticlinal.
- AC/F — Anticlinal with faulting as an important factor.
- AC/f — Anticlinal with faulting as a minor factor.
- AM — Accumulation due to both anticlinal and monoclinal structure.
- D — Dome.
- Ds — Salt Dome.
- H — Strata horizontal or nearly horizontal.
- MC — Monoclinal with accumulation due to change in character of stratum.
- MF — Monocline with fault.
- MI — Monocline with accumulation against igneous barrier.
- ML — Monocline lens.
- MU — Monocline unconformity.
- MP — Monocline with accumulation due to sealing at outcrop by asphalt.
- Nose — Nose or Nosing.
- Sync — Syncline.
- SP — Serpentine plug.
- SL — Shore line.
- Terr — Terrace.
- TF — Terrace with faulting as an important factor.

Column: Character of producing formation:

- An — Anhydrite.
- Chk — Chalk.
- Cg — Conglomerate.
- Cht — Chert.
- CR — Caprock.
- Do — Dolomite.
- DA — Arkosic dolomite.
- GW — Granite Wash.
- Sh — Shale.
- Lm — Limestone.
- Ls — Limestone, sandy.
- Li — Lime.
- OL — Oolitic Limestone.
- SS — Sandstone.
- Sd — Sand.
- Sdy — Sandy.

Column: Permeability:

- P — Poor or pressure.
- M — Middle or medium.
- Ex — Excellent.
- Frc — Fracture.
- C — Cavernous.

Column: Porosity:

- por — Reservoir rock is of porous type but ratio not known by author.
- c — Indicates reservoir rock is of cavernous type.
- f — Fissure type porosity.

Column: Producing mechanism:

- SGD — Solution gas drive.
- WD — Water drive.
- GCD — Gas cap drive.
- GS — Gravity suggestion.
- PM — Pressure maintenance.
- GI — Gas injection.
- WI — Water injection.
- WF — Water flood.
- LPG — Miscible drive.
- IC — In situ combustion.

TABLE 5.—*Oil and gas fields in New Mexico*

FIELD; COUNTY	DISCOVERY MO - YR	GEOLOGY: PRODUCING FORMATIONS: AVG. TOP FT.	AVG. THK *AVG. PERFS IN FT.	GEOLOGICAL FORMATION	AVERAGE API GRAV	RESERVOIR CHARACTERISTICS: STRUCTURE	CHARACTER	PERMEABILITY MILLIDARCIES	% POROSITY ESTIMATED	PRODUCTION MECHANISM	DEEPEST TEST: TOTAL DEPTH	GEOLOGICAL FORMATION	TOTAL PROVED ACRES
Abbey; Chaves	Nov 50	1975	5	San Andres	24-		Do	P	7	SGD	1998	San Andres	360
Aid; Eddy	Apr 41	850	5	Yates-Sev Riv	39	H	Do	P	por	SGD	2840	San Andres	560
Allison Abo; Lea	Feb 51	8970	20*	Abo							9703	Penn	40
Allison Penn; Lea-Roosevelt	Feb 54	9670	30	Bough	49	ML	Do	280	7	WD	12125	Devonian	9200
Allison East Penn; Lea	Feb 61	9659	11*	Bough C	40						9731	Penn	240
Allison North Penn; Roosevelt	Sep 57	9652	12	Penn	49	ML	Do	280	7	WD	9750	Penn	200
Allison West; Roosevelt	Jan 62	9793	4*	Bough C	48						9840	Bough C	80
Amanda; Lea	Aug 47	7065	20	Wolfcamp			Lm	P	8	SGD	7335	Pre-Cambrian	160
Anderson; Eddy	Feb 40	2520	15	Grayburg-San And	36	MC	SS	P	5	SGD	3689	San Andres	2680
Anderson Penn; Eddy	Oct 54	11039	40	Bend		AC	Lm	P	8	SGD	12211	Devonian	320
Anderson Wolfcamp; Lea	Oct 62	9660	6*	Wolfcamp	39						13523	Devonian	80
Anderson Ranch Dev; Lea	Apr 53	13374	64	Devonian	54	AC	Do	61	5	WD	13775	Devonian	960
Anderson Ranch Penn; Lea	Jan 54	12362	10	Penn		AC	Lm				13689	Devonian	40
Anderson Ranch Wlfcp; Lea	Jul 53	9664	47	Wolfcamp	42	AC	Lm	80	10	SGD	13775	Devonian	520
Anderson Ranch East Penn; Lea	Feb 57	10960	24	Penn		AC	Lm				13642	Miss	400
Anderson Ranch North Wlfcp; Lea Created 1962 (Created out of Anderson Ranch Wolfcamp)				Wolfcamp									640
Anderson Ranch West Grayburg; Lea	Feb 62	4044	10*	Premier	36								40
Anderson Ranch West Penn; Lea	Jan 55	12512	26	Bend		AC	Lm	P	por	SGD	14015	Devonian	360
Angell Seven Rivers; Eddy	Feb 54	1114	11	Seven Rivers	30	ML	OL	P	10	SGD	4081	Delaware Mtn	440
Apache Spring Wlfcp; Chaves	Mar 55	7929	7	Wolfcamp	42		Lm	P	por	SGD	10775	Devonian	40
Arkansas Junction Dev; Lea	Jul 58	12140	24	Devonian	42	AC	Do	P	4	WD	12245	Devonian	40
Arkansas Junction Queen; Lea	Jun 60	4452	14	Queen							5230	Queen	2240
Arrow; Lea	Oct 29	2910 -3580		Queen-Yates-Seven Rivers							4350	San Andres	1120
Arrowhead Drinkard; Lea	Jun 57	6555	33	Drinkard	35	AC	Do	P	8	SGD	9930	Ellen	40
Arrowhead Grayburg; Lea	Jun 38	3650	50	Grayburg	34	AC	SS-Do	P	12	SGD	4350	San Andres	5440
Artesia; Eddy	Aug 23	1875	25	Grayburg	36	MC	SS	90	21	SGD	13260	Ellen	20360
		2500	10	San Andres		MC	Do			SGD			
	May 54	11060		Morrow (Gas)									
Atoka Grayburg; Eddy	Jul 56	950	5	Grayburg	40		SS	P	8	WD	10546	Montoya	360*
Atoka Penn; Eddy	Oct 57	9079	31	Penn	54	SL	Lm	P	por	SGD	10546	Montoya	1760
Atoka San Andres; Eddy	Mar 41	1485	10	San Andres	37	MC	Do	1	9	SGD	10546	Montoya	2880
		1710	10	San Andres									
Austin Miss; Lea	Jul 57	13194	60	Miss	52		Lm	P	por		14796	Devonian	160
Bagley Penn; Lea	Aug 49	9001	25	Penn	46	AC	Ls	P	6	SGD	11766	Pre-Cambrian	1000
Bagley Lower Penn; Lea	Oct 51	9805	10	Penn	56	AC	Ls	P	6	GCD	11075	Devonian	640
Bagley Upper Penn; Lea	Nov 55	8600		Penn	56	AC	Ls	P	5	GCD	9987	Penn	1600
Bagley Siluro-Dev; Lea	Jul 49	10790	175	Siluro-Devonian	44	AC	Do	3	4	WD	11766	Pre-Cambrian	920
Bagley East Wolfcamp; Lea	Jul 55	9994	12	Wolfcamp	43	AC	Ls	P	8	SGD	13150	Devonian	40
Bagley North Lower Penn; Lea (Formerly Bagley Lower Penn)	Jul 57	10058	18	Penn	52	AC	Lm	P	5	SGD	11750	Devonian	240*
Bagley North Upper Penn; Lea	Jun 62	9470	9*	Penn	46						11263	Devonian	160
Bagley North Wolfcamp; Lea	Sep 62	8668	16*	Wolfcamp	51						9535	Penn	40
Baish; Lea	Dec 35	2362	6	Yates		MC	SS	60	23	SGD	13573	Devonian	400
Baish Wolfcamp; Lea	May 62	9808		Wolfcamp							13657	Devonian	40
Bandana Point Penn; Eddy	Oct 59	9782	14	Morrow							12262	Ellen	160
Barber; Eddy	Feb 37	1400	5	Yates	20	AC	Do	M	15	WD	1860	Queen	600
Baum Wolfcamp; Lea	Mar 55	9940	11	Wolfcamp	42	Nose	Ls	P	8	SGD	9951	Wolfcamp	80
Bear Draw Queen-Grayburg-San Andres; Eddy	Feb 61	1917		Queen-Grayburg-San Andres									80
Bell Lake Bone Spring; Lea	Oct 55	8670	24	Bone Spring	43	MC	Ls	M	por	SGD	15566	Devonian	40
Bell Lake Devonian; Lea	Apr 55	14942	25	Devonian		AC	Do	M	por	WD	16506	Montoya	320
Bell Lake Penn; Lea	Oct 54	12635	25	Atoka		AC		P	por	WD	12044	Penn	320
Bell Lake North Dev; Lea	Jun 60	14568	156	Devonian	58						16506	Montoya	320
Benson; Eddy	Jul 43	1725	8	Yates	26	MC	Ls	M	17	SGD	2980	San Andres	520
Benson East Yates; Eddy	Jun 60	2098	24	Yates	34						2136	Yates	160
Benson North Queen; Eddy	Sep 54	2844	10	Queen	34	MC	SS	P	15	SGD	3556	Grayburg	320
Benson South Yates; Eddy	Dec 60	1742	27	Yates	41						3706	San Andres	520
Big Eddy Wolfcamp; Eddy	Jun 62	10690	20*	Wolfcamp							14205	Devonian	160
Bishop Canyon Queen; Lea	Dec 56	4108	8	Queen	26		SS	M	15	SGD	6480	Glorieta	40
Bishop Canyon San And; Lea	Jan 59	4884	6	San Andres	27						5112	San Andres	200
Bitter Lake; Chaves	Dec 46	1247	5	San Andres							5650	Pre-Cambrian	40
Bitter Lake South San Andres; Chaves	Mar 60	880	12	San Andres	26						906	San Andres	880
Bitter Lake West San Andres; Chaves	Jul 60	760	40	San Andres	27						801	San Andres	120
Black River; Eddy	Oct 37	1943	10	Delaware	42	Terr	SS	M	24	SGD	2235	Delaware	400
Black River Penn; Eddy	Sep 58	11566	32	Penn							11920	Penn	160
Blinebry; Lea	Dec 45	5560	60	Yeso	41	AC	Ls-Do	5	8	GCD	7597	Pre-Cambrian	1920
Blinebry Gas; Lea	Nov 45	5470	50	Yeso	55	AC	Ls-Do	5	8	SGD	7597	Pre-Cambrian	23800
Blinebry West; Lea	Jul 59	5553		Blinebry									40
Bluit Penn; Roosevelt	Jan 59	9490	20	Bough C	50						12125	Devonian	1200
Bluit San Andres; Roosevelt	Feb 52	4510	50	San Andres	24	AC	Do	P	8	SGD	4867	San Andres	40
Bluit Wolfcamp; Roosevelt	Oct 59	8022	36	Wolfcamp	76	AC	Ls	76	13	WD	8762	Granite	160
Bough; Lea	May 49	9615	20	Permo-Penn	50	AC	Ls	76	13	WD	12574	Devonian	880
Bough East; Lea	Jan 50	9715	14	Permo-Penn	50	AC	Ls	76	13	WD	9729	Permo-Penn	40
Bowers; Lea	Oct 46	3150	20	Seven Rivers	42	AC	SS	30	10	SGD	8160	Pre-Cambrian	3440
Bradley; Lea	Dec 58	5302	6	Delaware Sd	39	MC	SS	M	24	SGD	5370	Delaware Sd	40
Bronco Miss; Lea	May 59	10939		Miss									240
Bronco Siluro-Dev; Lea	Nov 52	11592	103	Siluro-Devonian	44	AC	Do	P	4	WD	12548	Pre-Cambrian	480

TABLE 5.—*Oil and gas fields in New Mexico*—Continued

WELL DATA 1962								OIL AND GAS CONDENSATE PRODUCTION				GAS PRODUCTION			
		WELLS PRODUCING			WELLS ABD.			CRUDE OIL		CONDENSATE		DRY GAS		CASINGHEAD GAS	
TOTAL OIL, GAS, CONDENSATE WELLS DRILLED ALL YRS	OIL, GAS, CONDENSATE WELLS DRLD	FLOWING	ARTIF. LIFT	GAS	DRLD. DRY	ABD. PROD. UCERS		BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63
9	0	2	-4	0				9,211	45,040						
14	1	0	11	0				6,042	105,587						
1	0	0	1	0				19,306	38,514						
125	20	85	32	0	2			4,648,772	10,844,593						
3	Comb w/Allison Penn 1961								20,766						
5	Comb w/Allison Penn 1960								116,038						
1	1	0	1	0				2,350	2,350						
1	Abd Apr 1954														
67	Comb w/Square Lake Feb 1958								1,269,659						
1	0	0	0	1						4,806	165,149	569,534	7,462,991		
1	1	1	0	0				4,979	4,979						
13	0	3	8	0				409,854	6,599,070						
1	Abd Dec 1954							0	167						
13(a)	2	2	11	0	0			297,568	2,894,060						
2	Abd Nov 1957							0	10,314						
14	2	13	1	0	2			490,718	490,718						
1	1	0	1	0				2,234	2,234						
1	Abd May 1957														
11	Comb w/Millman-East-Seven Rivers 1962								16,824						
1	Abd May 1956							0	4,815						
1	0	0	1	0				204	18,551(Produced only in April & May)						
14	5	0	0	11						392	908	1,412,720	2,644,629		
8	Comb w/Eumont Gas 1956								38,964						
1	0	0	1	0				6,622	53,622						
136	0	19	68	0				368,737	23,833,348						
509	18	85	353	0	1			930,669	13,945,196						
9	0	2	6					9,192	164,003						
11	1	0	0	14						42,538	98,104	4,218,321	9,292,840		
73	0	12	55	0				205,723	1,704,990						
1	0	0	0	1						5,010	5,010	173,199	173,199		
25	0	6	5	0				64,190	3,598,479						
4	0	0	0	4						14,598	397,218	854,861	9,189,249		
5	0	0	0	4						2,900	80,814	569,002	13,701,560		
23	0	4	16	0				924,510	16,267,373						
1	Abd 1959							0	18,760						
3	0	1	1	0				3,652	58,368						
2	2	2	0	0				18,311	18,311						
1	1	1	0	0				7,382	7,382						
10	0	0	5	0				6,814	483,921						
1	1	1	0	0				7,530	7,530						
1	0	0	0	1								NR			
15	0	0	8	0				35,160	1,098,605						
2	0	0	1	0				8,888	107,392						
2	0	0	0	0	0	1		40	554						
1	0	1	0	0				12,672	77,414						
2	0	0	0	1								935,010	1,597,200		
1	0	0	0	1				0	13,253			178,151	483,138		
1	0	0	0	1						1,106	1,106	435,553	435,553		
13	4	0	2	0	2			60	245,431						
4	0	0	4	0				6,348	17,589						
8	2	8	4	0	0	0		73,483	111,862						
13	2	5	7	0	2			151,138	211,078						
1	1	0	0	1	0	0				2,195	2,195	31,029	31,029		
1	0	1	0	0				8,552	63,710						
5	1	0	3	0				16,416	59,453						
1	Abd 1951							0	90						
22	0	0	15	0	1			7,934	28,858						
3	0	0	3	0				1,507	3,368						
10	0	0	4	0				1,315	57,320						
1	0	0	0	1(SI)								11,586	100,076		
84	9	86	16	0	0	0		730,446	2,115,274						
153	3	0	0	153						286,208	3,171,773	17,848,958	179,145,166		
1	0	1	0	0				1,085	3,450						
30	Comb w/Allison-Penn 1961								2,224,155						
1	Abd Feb 1954							0	8,171						
1	0	0	0	1						2,477	3,455	62,594	86,097		
22	0	0	0	0				5,328	4,504,990						
1	Comb w/Bough 1951								57,478						
86	0	1	46	0				78,621	3,318,325						
1	Abd Jan 1962							0	8,396						
3	0	2	1					37,238	202,210						
12	0	6	6	0				700,082	6,342,631						

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TABLE 5.—*Oil and gas fields in New Mexico*—Continued

FIELD; COUNTY	DISCOVERY MO. - YR.	GEOLOGY: PRODUCING FORMATIONS: AVG. TOP FT.	AVG. THK. *AVG. PERFS IN FT.	GEOLOGICAL FORMATION	AVERAGE API GRAV	RESERVOIR CHARACTERISTICS: STRUCTURE	CHARACTER	PERMEABILITY MILLIDARCIES	% POROSITY ESTIMATED	PRODUCTION MECHANISM	DEEPEST TEST: TOTAL DEPTH	GEOLOGICAL FORMATION	TOTAL PROVED ACRES
Bronco Wolfcamp; Lea	Dec 54	9600	35	Wolfcamp	44	AC	Ls	45	13	WD	12548	Pre-Cambrian	360
Brown; Chaves	May 42	765	5	Queen	37	MC	SS	P	15		1700	San Andres	440
Brunson; Lea	Sep 45	8059	70	Ellen	42	MU	Do	P	3	SGD	8370	Pre-Cambrian	6160
Brunson North; Lea	Sep 50	7760	75	Ellen	42	MU	Do	P	3	SGD	7906	Pre-Cambrian	160
Brushy Draw; Eddy	Dec 58	3210	6	Delaware Sd	38		SS	M	24	SGD	3266	Delaware Sd	360
Buffalo Morrow; Lea	Dec 62	13110	27*	Morrow							15041	Granite	640
Buffalo Penn; Lea	May 58	13270	35	Penn	54						14891	Devonian	160
Buffalo Wolfcamp; Lea	Oct 54	10597	12	Wolfcamp	38	AC	Lm	P	8	SGD	14916	Devonian	40
Buffalo Valley Penn; Chaves	Mar 62	8182	26	Penn							9983		640
Buffalo Valley San Andres; Chaves	Dec 59	2030	120	San Andres	34						9870	Granite	40
Burton; Eddy	Jul 34	1160	15	Yates							1597	Yates	40
Burton Penn North; Eddy	Mar 60	10886	19	Atoka							12429	Devonian	320
(Formerly Burton Atoka North)													
Button Mesa San And; Chaves	Jan 60	4032	10	San Andres	25						4085	San Andres	40
Byers Queen; Lea		3630		Queen		AC	SS	M	15	SGD	8160	Pre-Cambrian	800
C L R San Andres; Roosevelt	Mar 62	4600	12*	San Andres	31						9707	Bough C	80
Canyon Wolfcamp; Eddy	Jul 59	5741	12	Wolfcamp	45	MC	Do	P	por	SGD	6100	Wolfcamp	40
Caprock Queen; Chaves-Lea	Nov 40	2871 -3025	12	Queen	38	MC	SS	250	21	SGD	4385	San Andres	29240
Caprock East Devonian; Lea	Aug 51	11240	30	Devonian	43	AC	Do	M	4	WD	11336	Devonian	960
Caprock East Penn; Lea	Sep 52	10000	25	Penn	48	AC	Lm	P	8	SGD	10690	Penn	40
Caprock East Wolfcamp; Lea	Feb 53	8400	18	Wolfcamp	44	AC	Lm	P	8	SGD	11385	Devonian	200
Caprock North Queen; Lea	Jun 54	3000	30	Queen	38	MC	SS	250	21	SGD	3080	Queen	280
Carlsbad Delaware; Eddy	Feb 55	2634	8	Delaware Mtn	34	MC	SS	M	24	SGD	3206	Delaware Mtn	80
Carter San Andres; Lea	Sep 53	5815	15	San Andres	31	Nose	Lm	2	7	SGD	6628	Glorieta	40
Carter South San And; Lea	Feb 55	5020	10	San Andres	31	Nose	Do	32	6	SGD	6628	Glorieta	520
Cary; Lea	Jun 48	7140	40	Montoya	40	MU	Do	P	por	SGD	8110	Ellen	120
Cass; Lea	Dec 44	7700	25	Penn	40	AC	Do	P	10	WD	10465	Pre-Cambrian	240
Cass Draw Delaware; Eddy	Mar 60	2349	3	Delaware Sd	41						2387	Delaware Sd	40
Caudill Devonian; Lea	Sep 54	13450	25	Devonian	57	AC/F	Do	10	4	WD	14603	Devonian	680
Caudill Penn; Lea	Oct 51	11440	62	Penn		AC	Lm	P	8	SGD	11503	Penn	40
Caudill Permo-Penn; Lea	Jun 56	10292	22	Wolfcamp	42	AC	Lm	P	8	SGD	13763	Devonian	240
Cave; Eddy	May 41	2400	5	Grayburg	38	ML	SS	P	10	SGD	3080	San Andres	2800
Cave West San Andres; Eddy	Aug 55	2435	10	San Andres	34		Do	P	8	SGD	2503	San Andres	80
Cedar Hills Yates; Eddy	Apr 51	542	3	Yates	21	A.C-Terr	SS	M	15	SGD	600	Yates	360
Cedar Lake Abo; Eddy	May 60	7120	24	Abo Reef	43						7497	Abo	560
Cedar Lake Atoka; Eddy	Jun 61	10919	8*	Atoka	42						11861	Morrow	40
Cedar Lake Morrow; Eddy	Feb 61	11357	26	Morrow	59						11861	Morrow	160
Cedar Point Queen; Chaves	Apr 56	2770	7	Queen	29		SS	P	15	SGD	4190	San Andres	40
Chambers Wolfcamp; Lea	Nov 55	10581	15	Wolfcamp	44	AC	Lm	36	4	SGD	14015	Devonian	80
Chisum; Chaves	Apr 50	6490	35	Siluro-Devonian	40	AC	Do	150	8	WD	6933	Pre-Cambrian	80
Chisum San Andres; Chaves	Jul 51	2028	5	San Andres	20	AC	Do	3	7	SGD	7315	Pre-Cambrian	80
Chisum Yates; Chaves	Nov 49	241	84	Yates							335	Yates	160
Cline Devonian; Lea	Dec 55	7963		Devonian		AC	Do	P	4	WD	10325	Simpson	40
Comanche; Chaves	Aug 36	1254	10	San Andres			Do	P	8	SGD	6630	Pre-Cambrian	160
Cooper Jal; Lea	27	3300 -3550	40	Yates-Sev Riv							7171	Leonard	11720
Cooper Jal Gas; Lea	May 29	3300 -3550	40	Yates-Sev Riv							7171	Leonard	2560
Corbin; Lea	Jun 38	3745 4225	29 12	Queen Queen	36	MC	SS	P	15	SGD	10015	Wolfcamp	1240
Corbin Gas; Lea	Jun 38	3745 4225	20 12	Queen Queen		MC	SS	P	15	SGD	10015	Wolfcamp	160
Corbin Abo; Lea	Dec 59	8582	70	Abo	37						10015	Wolfcamp	1280
Corbin Delaware; Lea	Mar 60	4720	40	Delaware	37						10015	Wolfcamp	40
Corbin Yates; Lea	Apr 52	3443	10	Yates	36	MC	SS	P	15	SGD	10015	Wolfcamp	120
Corbin South Queen; Lea	Sep 56	4379	120	Queen	36	MC	SS	P	15	SGD	4499	Queen	80
Corral Canyon Delaware; Eddy	Mar 60	3463	6	Delaware	42						3666	Delaware	200
Cotton Draw Brushy Canyon; Eddy	Jun 59	7184	16	Brushy Canyon	35						8545	Brushy Canyon	40
Coyote Queen; Chaves	Jan 58	835	25	Queen	35	SL	SS	24	15	SGD	943	Penrose	1680
Crawford Penn; Eddy	Jan 58	11060	39	Penn			Lm	P	por	SGD	11522	Penn	320
Crosby Devonian; Lea	Jan 55	8270	95	Devonian	33	AC/F	Do	36	4	WD	10830	Ellen	1716
Crossroads Devonian; Lea	May 48	12106	100	Devonian	42	AC/F	Do	M	5	WD	12750	Devonian	1840
Crossroads Miss; Lea	Mar 49	12384	16	Miss	46		Lm	P	por	SGD	12750	Miss	40
(Abd 1949 Rev Jun 60)	Jun 60	11834	72	Miss	42								
Crossroads Penn; Lea	Aug 49	9750	15	Penn	49	AC	Lm	P	7	SGD	12657	Devonian	600
Crossroads Slaughter; Lea	Aug 48	4863	10	San Andres			Do	P	por	SGD	9790	Penn	160
Crossroads East Dev; Lea	Dec 56	12173	10	Devonian	42	MC	Do	M	5	WD	12574	Devonian	280
Crossroads South Dev; Lea	Nov 54	12433	18	Devonian	42	MC	Do	21	6	WD	12514	Devonian	560
Crossroads West Dev; Lea	Nov 59	12003	20	Devonian	43						12031	Devonian	200
Crossroads West San Andres; Lea	Mar 58	4804	44	San Andres	32	AC	Do	P	por		4948	San Andres	80
Cruz Delaware; Lea	Sep 61	5095	4*	Delaware Sd	40						5237	Delaware Sd	200
Culwin; Eddy	Jul 42	3325	10	Queen	36	MF	SS	P	por	SGD	3573	Queen	1200
Culwin Yates; Eddy	Oct 59	2582	80	Yates									40
Custer Ellen; Lea	Jul 60	12730	100	Ellen	57						12966	Ellen	40
Custer Tansill; Lea	Jan 59	3608	18	Yates	33						4050	Yates	80
D-K Abo; Lea	Aug 54	7248	25	Abo	39	AC	Lm-Do	P	8	SGD	9680	Pre-Cambrian	160
D-K Drinkard; Lea	Oct 55	6990	104	Drinkard	37	AC	Do	P	8	SGD	9681	Pre-Cambrian	160
Dark Canyon; Eddy	Aug 52	1876	5	Delaware Mtn	38	ML	SS	M		SGD	1912	Delaware Mtn	40
Daugherity; Eddy	Nov 38	1800	10	Grayburg	29	AC	SS	P	10	SGD	3030	Glorieta	120
		2014	10	San Andres	33	AC	Lm-Do	P	por	SGD			
Dayton Abo; Eddy	Sep 58	5280	346	Abo	40		Lm	P	8	SGD	5637	Abo	280
Dayton Grayburg; Eddy	Jul 40	1000	20	Grayburg	36	MC	SS-Do	4	9	SGD	2545	San Andres	840
Dayton San Andres; Eddy	Jul 56	1786	20	San Andres	36	MC	Do	P	9	SGD	1981	San Andres	80
Dayton East; Eddy	Nov 44	1395	5	Grayburg	37	MF	SS	P	por	SGD	3659	Glorieta	40
Dayton East Grayburg; Eddy	Feb 60	1606	19	Grayburg	34						1625	Grayburg	320

TABLE 5.—*Oil and gas fields in New Mexico*—Continued

WELL DATA 1962							OIL AND GAS CONDENSATE PRODUCTION				GAS PRODUCTION			
TOTAL OIL, GAS, GAS COND WELLS DRILLED ALL YRS	OIL, GAS, GAS COND WELLS DRLD	WELLS PRODUCING			WELLS ABD		CRUDE OIL		CONDENSATE		DRY GAS		CASINGHEAD GAS	
		FLOWING	ARTIF LIFT	GAS	WELD IN	ABD PROD. OVER	BBLS IN 1962	CUMULATIVE BBLS TO 1/1/63	BBLS IN 1962	CUMULATIVE BBLS TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63
9	3	0	6	0			81,640	602,764						
11	0	0	9	0			2,959	20,987						
154	0	11	40	0			232,696	26,845,459						
4	Comb w/Brunson 1951							18,139						
9	3	5	2	0			31,557	70,687						
1	1	0	0	1	0						NR			
2	0	0	0	1					4,045	62,173	306,938	1,581,223		
1	0	0	1	0			1,531	46,289						
1	1	0	0	1	0				330	330	26,817	26,817		
1	0	0	SI	0			0	0						
1	Temp Abd						0	2,014						
1	0	0	0	1					98	107	24,230	37,472		
1	Abd 1961						0	297						
6	0	0	0	6							184,686	8,969,677		
2	2	1	0	0	1		4,397	4,397						
1	0	0	1	0			4,864	20,221						
37	2	6	474	0	1		4,697,761	41,399,914						
24	0	8	11	0			1,131,199	15,352,808						
1	Abd 1956						0	22,818						
5	0	1	1	0			5,701	256,255						
7	Comb w/Caprock Queen Jul 1955							21,128						
2	0	0	1*	0	1		867	18,307*(No Prod Jun,Aug,Sep,Oct,Nov,Dec)						
1	Comb w/Carter South San Andres							1,123						
13	0	0	1	0			99,055	724,139						
3	0	2*	0	0			31	245,388*(Produced only in Jan)						
6	0	0	5	0			63,710	1,851,816						
1	0	0	1	0			2,261	7,487						
17	0	0	7	0			105,850	5,247,019						
1	Abd Jul 1952						0	1,651						
13	1	6	7	0			267,546	857,817						
70	0	13	31	0	1		14,379	831,691						
2	0	1	0	0			524	7,393						
9	0	0	3	0			8,613	205,143						
14	5	6	7	0	1		190,193	309,416						
1	0	0	1	0			2,167	4,447						
1	0	0	0	1							6,266	6,266		
1	0	0	1	0			230	6,982						
2	0	1	1	0			15,253	140,796						
2	0	0	1	0			16,235	431,024						
2	0	0	2*	0			1,580	37,039*(No Prod Oct,Nov,Dec)						
1	0	0	0	1							Unreported, gas used on lease only			
1	Abd Mar 1956						0	181						
4	Abd 1948						0	15,077						
293	Comb w/Jalmat 1955							31,592,995						
16	Comb w/Jalmat 1955													
31	1	0	25	0			67,082	1,021,450						
2	0	0	0	SI			0	280,116						
32	9	26	0	0			881,069	1,658,463						
1	0	1	0	0			135	135						
3	0	0	2	0			1,536	32,387						
2	0	0	2	0			1,576	28,217						
5	2	0	3	0			15.228	49,682						
1	0	0	1	0			4,292	15,392						
42	0	0	31	0	2		21,650	105,798						
2	1	0	0	2							164,964	900,574		
11	0			11	1		6	52	31,245	342,267	7,516,455	49,280,926		
28	0	11	10	0			1,368,857	13,989,593						
1	0	1	0	0			7,219	16,293						
15	0	0	1	0			21,706	1,992,172						
4	0	0	1	0			735	21,300(No prod last 6 months)						
5	0	2	1	0	2		180,783	1,217,921						
7	4	5	0	0			281,700	797,767						
5	0	1	3	0			207,086	559,743						
2	0	0	1	0			6,825	12,309						
5	3	3	2	0			56,150	66,101						
30	0	Comb w/Shugart Dec 1961						192,459						
1		Comb w/Shugart Dec 1961						91,622						
1	0	0	0	1					1,892	5,444	194,611	763,543		
2	0	1	[illegible]	0			810	5,814						
4	0	2	[illegible]	0			7,649	103,402						
4	0	3	1	0			11,297	90,393						
1	0	0	1	0	1		2,518	60,916						
3	0	0	1	0			279	36,834(No prod last 6 months)						
7	0	4	1	0			12,921	64,324						
21	1	0	10	0	0	0	2,448	180,250						
2	0	0	1	0			11	1,310(Produced only in March)						
1	Abd Nov 1945						0	242						
8	0	1	6	0			7,661	38,584						

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TABLE 5.—*Oil and gas fields in New Mexico*—Continued

FIELD; COUNTY	DISCOVERY MO - YR	GEOLOGY: PRODUCING FORMATIONS: AVG TOP FT.	AVG. THK. *AVG. PERFS IN FT.	GEOLOGICAL FORMATION	AVERAGE API GRAV	RESERVOIR CHARACTERISTICS: STRUCTURE	CHARACTER	PERMEABILITY MILLIDARCIES	% POROSITY ESTIMATED	PRODUCTION MECHANISM	DEEPEST TEST: TOTAL DEPTH	GEOLOGICAL FORMATION	TOTAL PROVED ACRES
Dean Devonian; Lea	Aug 55	13600	84	Devonian	45	AC	Do	100	7	WD	13910	Devonian	320
Dean Penn; Lea	Dec 55	11560	20	Strawn	45	AC	Lm	3	5	SGD	13868	Devonian	960
Denton; Lea	Oct 49	11267	200	Devonian	45	AC/F	Do	10	8	WD	13983	Pre-Cambrian	4560
	51	12582	188	Devonian									
Denton Miss; Lea	Dec 49	11240	35	Miss		AC	Lm	P	por	SGD	11325	Miss	40
Denton Wolfcamp; Lea	Feb 50	9395	20	Wolfcamp	45	AC	Lm	13	10	SGD	13983	Pre-Cambrian	4140
Denton North; Lea	Dec 50	12250	75	Devonian	45	AC	Do	10	8	WD	12385	Devonian	40
Denton South Devonian; Lea	Nov 55	13034	99	Devonian	50	AC	Do	P	8	WD	13254	Devonian	280
Denton South Wolfcamp; Lea	Nov 60	9488		Wolfcamp									40
Dexter San Andres; Chaves	Dec 55	1338	10	San Andres	34		Do	P	9	SGD	6811	Ellen	40
Diablo; Chaves	Aug 62	2060	32	San Andres	30						7215	Granite	40
Dickinson Devonian; Lea	May 58	12315	8	Devonian	50	AC	Do	P	4	WD	13348	Granite Wash	40
Dickinson Penn; Lea	Jan 57	11504	40	Penn			Lm	P	7	SGD	12690	Devonian	40
Dog Canyon Grayburg; Eddy	Apr 60	1353	8	Grayburg							1490	San Andres	360
Dollarhide Devonian; Lea	Apr 52	8177	33	Devonian	40	AC	Do	10	9	WD	10615	Ellen	800
Dollarhide Drinkard; Lea	Dec 51	6616	30	L Leonard	40	AC	Do	10	8	SGD	10615	Ellen	3480
Dollarhide Ellen; Lea	Aug 51	10135	75	Ellen	42	AC	Do	P	3	WD	10615	Ellen	320
Dollarhide Fusselman; Lea	Feb 52	8710	31	Fusselman	38	AC	Do	P	4	WD	10615	Ellen	400
Dollarhide Queen; Lea	Apr 52	3670	29	Queen	34	AC	SS	P	18	SGD	10615	Ellen	2760
Dos Hermanos Yates-Seven Rivers; Eddy	Jul 55	1631	5	Yates-Sev Riv	27	AC	Do	P	10	SGD	1802	Seven Rivers	1520
Double A; Abo	Dec 60	9002	47	Abo	36						9311	Abo	120
Double X; Lea	Jan 61	4914	5*	Delaware	40						5064	Delaware	600
Double X Gas; Lea	Jun 61	4871	4*	Delaware							5296	Delaware	40
Double X North; Lea	Apr 62	4974	50	Delaware	40						5064	Delaware	160
Drickey Queen; Chaves	Jun 53	2871	19	Queen							4139	San Andres	2800
Drickey South; Chaves	Nov 54	3132		Queen									
Drinkard; Lea	Oct 44	6375	50	Yeso	40	AC	Do	6	11	SGD	8590	Pre-Cambrian	22360
		6950	50	L Leonard									
Drinkard Gas; Lea	Nov 44	6750		Drinkard		AC	Do	6	11	GCD	8370	Pre-Cambrian	640
Drinkard North; Lea	Mar 48	6625	50	Leonard		AC	Do	P	11	SGD	8590	Pre-Cambrian	600
Drinkard South; Lea	Aug 48	6420	35	Leonard	40	AC	Do	P	por	SGD	10204	Ellen	120
Dublin Devonian; Lea	Sep 49	9410	5	Devonian	36	AC	Do	P	6	WD	12335	Ellen	160
Dublin Ellen; Lea	Nov 44	11880	25	Ellen	42	AC	Do	P	3	WD	12535	Ellen	40
Duffield Penn; Eddy	May 52	8616	8	Bend	62	AC/F	Lm	P	por	SGD	10188	Ellen	320
E-K Queen; Lea	Dec 54	4387	15	Queen	36	MC	SS	31	12	SGD	5513	San Andres	2760
E-K San Andres; Lea	Oct 55	5062	22	San Andres	33	MC	SS	6	13	SGD	5513	San Andres	40
		5378	12	San Andres									
E-K East Queen; Lea	Nov 57	4838	8	Queen	38	MC	SS	30	12	SGD	4876	Queen	280
Eagle Creek San And; Eddy	May 59	1284	31	San Andres	35						1326	San Andres	160
Eaves; Lea	Oct 29	3150	60	Yates-Sev Riv			SS	M	15	SGD	3542	SevRivers	1520
Eaves Gas; Lea	Jun 28	2840											
		-3250		Yates-Sev Riv							3305	Seven Rivers	1280
Echol Devonian; Lea	Aug 51	11500	50	Devonian	42	AC	Do	34	4	WD	11875	Devonian	320
Echol Wolfcamp; Lea	Mar 60	9446	16	Wolfcamp							12084	Devonian	40
Echol East Devonian; Lea	Jun 57	12021	75	Devonian	40	AC	Do	P	4	WD	12326	Devonian	240
Echol North Devonian; Lea	May 52	12057	20	Devonian	40	AC/F	Do	P	4	WD	12140	Devonian	160
		11885		Devonian									
Eidson Penn; Lea	Jan 53	10705	18	Penn	41	MC	Lm	20	9	SGD	11450	Penn	560
El Mar Delaware; Lea	Mar 59	4609	8	Delaware Sd	41	MC	SS	26	23	SGD	4689	Delaware	2360
Elliott; Lea	Mar 49	7412	20	Leonard				P	por	SGD	9954	Pre-Cambrian	40
Elliott Abo; Lea	Sep 55	7320	70	Abo	38	AM	Do	P	8	SGD	7466	Abo	120
Empire; Eddy	24	350	10	Yates-Sev Riv	32	MC	Do	M	15	SGD	12431	Ellen	7280
Empire Abo; Eddy	Nov 57	6014	16	Abo	44	AC	Do	M	8	SGD	6315	Abo	9720
Empire Atoka; Eddy	Oct 62	9742	24*	Atoka	58						10100	Miss	80
Empire Bend; Eddy	May 62	9154	44	Bend							10427	Devonian	160
Empire Paddock; Eddy	Nov 60	3075	11	Paddock	35						6315	Abo	80
Empire Penn; Eddy	Aug 53	10102	30	Penn			Lm				12431	Devonian	320
Empire Wolfcamp; Eddy	May 54	7390	40	Wolfcamp	41	Nose	Lm	P	8	SGD	10983	Devonian	120
Empire Yates-Sev Riv East; Eddy	Jun 61	786		Yates-Sev Riv									80
Empire Yeso; Eddy	Dec 61	2871	29*	Yeso	37						5620	Abo Reef	40
Eumont; Lea (Formerly incl in Eunice-Monument)		2710		Yates	34	AC	SS	30	12	GCD	11019	Pre-Cambrian	28200
		3070		Seven Rivers	34	AC	SS			GCD			
		3530		Queen	34	AC	SS			GCD			
		3710	25	Grayburg	35								
Eumont Gas; Lea (Created by Commission order)		2710		Queen-Yates-Seven Rivers		AC	SS	30	12	GCD	11019	Pre-Cambrian	64480
Eunice-Monument; Lea	Mar 29	3650	50	Grayburg	32	AC	SS-Do	M	10	SGD	11019	Pre-Cambrian	44600
		3760											
		-3882	50	Grayburg-San And	32	AC	Do			WD			
Eunice Gas; Lea	Mar 29	3675											
		-4155		Grayburg-San And		AC	Do	P	9	GCD	9953	Pre-Cambrian	960
Eunice San Andres; Lea	Feb 61	4100		San Andres									40
Eunice South; Lea	May 30	3720	50	Seven Rivers	32	AC	SS-Do	M	10	WD	11030	Miss	11520
Eunice South Gas; Lea	May 30	3605											
		-3960		Seven Rivers		AC	SS	M	10	SGD	6202	Yegua	480
Eunice West; Lea	Aug 28	(Renamed Wilson 1948)											
Fenton; Eddy	Sep 43	2638	6	Delaware Mtn			SS	M	24	SGD	3525	Delaware Mtn	40
Field Ranch Wolfcamp; Lea	Apr 56	9466	14	Penn	43		Lm	P	7	SGD	12218	Devonian	40
Forest; Eddy	Dec 45	2632	27	San Andres	34	MC	Do	P	8	SGD	3243	San Andres	960
Foster San Andres; Lea	Jul 57	4460	11	San Andres	31		Do	P	8	SGD	4615	San Andres	40
Four Lakes Devonian; Lea	Oct 56	12505	300	Devonian	54	AC	Do	P	6	WD	13010	Devonian	240
Four Lakes Penn; Lea	May 56	10277	40	Penn	43	AC	Lm	P	14	SGD	13010	Devonian	480
Four-Mile Draw San Andres; Eddy	Mar 57	1214	16	San Andres	29						2617	Glorieta	80
Fowler; Lea	May 49	9505	175	Ellen	45	AC	Do	P	3	SGD	11198	Ellen	1120
Fowler Blinebry; Lea	Aug 50	5705	15	Clear Fork	38	AC	Do	P	8	SGD	10650	Ellen	120
	Feb 54	5692		Blinebry	38	AC	Do			SGD			
Fowler Connell; Lea	Jan 57	9711	10	Connell	40	AC/F	Do	M	10	SGD	11198	Ellen	40

TABLE 5.—*Oil and gas fields in New Mexico*—Continued

WELL DATA							OIL AND GAS CONDENSATE PRODUCTION				GAS PRODUCTION			
	1962						CRUDE OIL		CONDENSATE		DRY GAS		CASINGHEAD GAS	
TOTAL OIL, GAS, CONDENSATE WELLS DRILLED ALL YRS	OIL, GAS, GAS CONDENSATE WELLS DRLD	WELLS PRODUCING: FLOWING	WELLS PRODUCING: ARTIF. LIFT	WELLS PRODUCING: GAS	WELLS ABD.: DRLD. ABD.	WELLS ABD.: ABD. PROD. WELLS	BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63
8	0	0	6	0			113,490	1,984,901						
24	0	2	18	0			260,785	4,490,865						
114	0	20	80	0			4,065,147	64,921,445						
1	Abd 1951						0	5,371						
104	0	0	97	0			1,073,670	21,775,459						
1	Comb w/Denton 1951													
7	0	2	2	0			162,540	2,470,273						
1	0	1	0	0			28,867	68,430						
1	0	0	0	0			0	3,029						
1	1	0	1	0	0		4,189	4,189						
1	0	0	1	0	1		14,750	136,803						
1	0	0	1*	0			1	27,004 (Produced only in Jan)						
9	0	4	2	0			17,405	42,819						
20	0	9	8	0			69,186	2,650,494						
87	0	10	6	0			487,959	11,186,399						
8	0	0	5	0			115,091	3,586,740						
10	0	0	8	0			192,052	2,645,223						
69	2	8	61	0			98,997	3,129,326						
25	0	0	13	0			79,411	824,026						
3	2	3	0	0	1		95,209	167,041						
15	13	3	11	0			38,495	53,051						
1	0	0	0	SI							SI			
4	4	0	4	0	0		4,300	4,300						
70	Comb w/Caprock Queen 1955							322,022						
	Comb w/Caprock Queen 1955													
559	29	364	84	0			1,528,915	52,427,041						
4	0	0	0	SI										
15	Comb w/Drinkard 1951							279,600						
3	Abd Oct 1952						0	12,012						
2	0	1	1	0			7,101	39,050						
1	Abd 1947						0	39,460						
1	0	0	0	1					2	15,537	3,510	3,976,595		
69	0	6	54	0			90,939	2,044,740						
1	Abd Nov 1956						0	2,870						
7	0	4	3	0	1		61,849	145,712						
4	0	0	2	0			1,719	9,523						
38	Comb w/Jalmat & Langlie-Mattrix							6,706,253						
8	Comb w/Jalmat Gas													
8	0	1	2	0			147,943	3,788,368						
1	0	0	1	0			1,189	9,222						
6	0	1	3	0			17,159	505,298						
4	0	0	3	0			48,599	1,162,827						
14	0	3	7	0			30,003	2,204,096						
59	0	15	12	0			652,543	1,989,872						
1	Abd Nov 1951						0	8,274						
3	1	0	2	0	0	0	13,347	114,620						
182	0	0	111	0			13,945	926,798						
243	8	217	17	0	2		5,367,071	14,322,709						
1	1	1	0	0	0									
1	1	0	0	SI										
2	0	0	1	0			3,346	8,428						
1	0	0	0	1					16,024	159,611	1,308,267	10,354,330		
3	0	0	0	0			0	855,756						
2	0	1	1	0			12,774	21,361						
1	0													
705	0	227	335	0			1,616,097	52,407,142						
403	7	0	0	403					13,680	281,007	37,613,482	446,121,943		
1115	2	34	225	0			5,006,630	289,635,344						
6	0	0	0	SI			0	7,226,550						
1	0	1	0	0			2,808	5,653						
288	3	133	119	0			950,122	18,115,235						
3	0	0	0	SI									0	9,705,502
	Renamed Wilson 1948													
1	Abd Oct 1945						0	1,020						
1	0	0	1	0			4,187	61,398						
24	0	14	4	0			9,909	480,972						
1	0	0	1	0			3,599	22,286						
3	0	0	0	3					178,170	662,188	687,491	2,706,952		
5	2	6	0	0			368,875	1,416,808						
2	0	5	1	0			269	3,042						
14	0	4	8	0			563,583	7,832,941						
3	1	1	1	0			9,644	34,592						
1	Recomp in Fowler Fusselman 1957							1,617						

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TABLE 5.—*Oil and gas fields in New Mexico*—Continued

FIELD COUNTY	DISCOVERY MO - YR.	GEOLOGY: PRODUCING FORMATIONS: AVG TOP FT.	AVG THK *AVG PERFS IN FT.	GEOLOGICAL FORMATION	AVERAGE API GRAV	RESERVOIR CHARACTERISTICS: STRUCTURE	CHARACTER	PERMEABILITY MILLIDARCIES	% POROSITY ESTIMATED	PRODUCTION MECHANISM	DEEPEST TEST: TOTAL DEPTH	GEOLOGICAL FORMATION	TOTAL PROVED ACRES
Fowler Devonian; Lea	Jun 55	7580	22	Devonian	45	MC	Do	P	5	SGD	10568	Ellen	240*
Fowler Drinkard; Lea	Nov 53	6210	35	Leonard	42	AC	Do	P	8	SGD	8391	Fusselman	40
Fowler Fusselman; Lea	Sep 53	7410	85	Silurian	40	AC/F	Do	P	6	SGD	11198	Ellen	200
Fowler Paddock; Lea	Feb 60	4878	16	Paddock							10525		640
Fowler Upper Silurian	Feb 59	7180		Silurian									80
Fren; Eddy	36	1925	10	Seven Rivers	36	Nose	Do	P	15	SGD	4383	San Andres	5160
Fren Paddock; Eddy	May 62	4864	12*	Glorieta	37						5001	Glorieta	40
Fren Penn; Eddy	Jan 54	11962	15	Bend			Lm	P	7	SGD	13196	Devonian	480
Garrett; Lea	Apr 47	5541	20	San Andres	21	AC	Do	P	por	SGD	10085	Abo	120
Garrett Glorieta East; Lea	Nov 60	6416	14	Glorieta	26						8382	Abo	40
Garrett West San And; Lea	Nov 60	5089	268	San Andres	28						9100	Abo	40
Gem Yates; Lea	Jul 54	3243	13	Yates	31	AC	Do	30	12	WD	3523	Seven Rivers	40
Getty; Eddy	Nov 27	1365	10	Yates	24	AC	Do	P	por	WD	6683	Bone Spring	520
Gladiola; Lea	Nov 50	11790	50	Devonian	47	AC	Do	76	4	WD	12192	Devonian	3920
Gladiola Wolfcamp; Lea	Feb 51	9555	20	Wolfcamp	42	AC	Lm	P	8	SGD	12288	Devonian	960
Gladiola East Dev; Lea	Nov 60	12080	8	Devonian	47						12135	Devonian	80
Gladiola North Dev; Lea	Mar 56	12010	100	Devonian	47	AC	Do	76	4	WD	12116	Devonian	440
Gladiola South Wlfcp; Lea	Jul 55	9688	18	Wolfcamp	38	AC	Lm	P	8	SGD	12320	Devonian	40
Gladiola SW Atoka; Lea	Dec 60	11119	5	Penn	54						12228	Devonian	120
Gladiola SW Devonian; Lea	Mar 60	12212	8	Devonian	49						12227	Devonian	240
Glenn Castile; Eddy	Aug 52	878	5	Castile	22	ML	Do	P	por	SGD	2066	Delaware Mtn	40
Goodwin Abo; Lea	Aug 62	7477	13*	Abo Reef	41						7732	Abo Reef	80
Goodwin Drinkard; Lea	Mar 62	7347	32	L Permian	39						8200	Abo Reef	40
Grayburg Atoka; Eddy	Nov 57	10680	80	Penn			Lm	P	8	SGD	11441	Miss	160
Grayburg Paddock; Eddy	May 57	4223	17	Paddock	33	ML	SS	P	8	SGD	11422	Penn	80
Grayburg-Jackson; Eddy	Feb 29	2000 -3800		Sev Riv-Queen-Grayburg-San And	36	ML	SS	P	12	SGD	13341	Ellen	39520
Grayburg-Jackson Gas; Eddy	Mar 29	2350 -3975		San Andres							13341	Ellen	800
	Jan 54	12408		Penn									
Grayburg-Keely; Eddy	Mar 48	3288	20	San Andres	37	MC	Do	5	6	SGD	3407	San Andres	1560
Greenwood Bone Spring; Eddy	Apr 61	(See Shugart Bone Spring)											
Greenwood Wolfcamp; Eddy	Mar 61	(See Shugart Wolfcamp)											
Gross Devonian; Lea	Jun 56	12338	6	Devonian	48	AC	Do	P	por	WD	12359	Devonian	40
Hackberry Yates; Eddy	Oct 53	2047	6	Yates	22	Terr	Do	P	por	SGD	2110	Yates	200
Hackberry Sev Riv; Eddy	Oct 61	2050		Seven Rivers									120
Hackberry North Yates; Eddy	Nov 59	2123	42	Yates	33						3581	Penrose	960
Halfway; Lea	Oct 39	2495	3	Yates	26	AC	Do		15	SGD	3763	Queen	640
Hardy; Lea	Mar 36	3710	25	Grayburg	35	ML	SS	M		SGD	10018	Simpson	2040
Hare; Lea	Jul 47	7780	50	Simpson	40	MU	SS	M	13	SGD	8700	Simpson	3600
Hare South; Lea	Sep 47	7360	90	Simpson	40	MU	SS	M	13	SGD	7651	Pre-Cambrian	120
Harkey; Eddy	Jan 58	10917	93	Penn			Lm	P	por		12654	Devonian	320
Harrison; Lea	Jul 49	5015	25	Yeso							5075	Glorieta	40
Henshaw; Eddy	Feb 40	3150	10	Grayburg-San And	36	Nose	Do	P	10	SGD	3850	San Andres	160
Henshaw Devonian; Eddy	Jul 60	11680	12	Devonian	54						13072	Granite	160
Henshaw Wolfcamp; Eddy	Jun 61	8753	10*	Wolfcamp	40						10000	Penn	200
Henshaw West Grayburg; Eddy	Sep 56	2745	189	Premier	36	Nose	SS	P	por	SGD	3623	San Andres	2400
High Lonesome; Eddy	Nov 39	1775	10	Queen	34	ML	SS	14	12	SGD	3105	San Andres	2440
High Lonesome Sev Riv; Eddy	Apr 56	1219	31	Seven Rivers		ML	SS	P	10	SGD	1904	Seven Rivers	40
High Lonesome South; Eddy	Feb 40	2120	10	Grayburg			Do	P	por	SGD	2845	San Andres	160
Hightower; Lea	Aug 49	10100	75	Siluro-Devonian	59	AC	Do	M	4	WD	11199	Pre-Cambrian	80
Hightower Permo-Penn; Lea	Jan 50	8660	30	Permo-Penn	64	AC	Lm	P	por	SGD	10620	Devonian	520
Hightower East Dev; Lea	Feb 59	12899	25	Devonian	58						13103	Devonian	160
Hightower East Penn; Lea	Feb 59	10218	26	Permo-Penn	41						13103	Devonian	40
Hills; Eddy	Jan 58	2460	5	San Andres	25		Do	P	por	SGD	3000	Bone Spring	40
Hobbs; Lea	Dec 28	4050	100	San Andres	34	AC	Lm-Do	50	15	WD	11211	Pre-Cambrian	14560
Hobbs Gas; Lea	Jun 28	3950 -4275		Grayburg-San And		AC	Lm	50	15		8010		640
Hobbs Drinkard; Lea	Apr 52	6430	10	Leonard	35	AC	Do	P	8	SGD	8160	Pre-Cambrian	40
Hobbs East Blinebry; Lea	Dec 51	6405	14	L Leonard	39	AC	SS	P	por	SGD	6433	Leonard	40
Hobbs East San Andres; Lea	Oct 51	4449	15	San Andres	34	AC	Do	300	25	WD	6433	Leonard	1040
Hobbs East Sev Riv; Lea	Aug 53	3852	14	Seven Rivers	32	MC	SS	P	por	SGD	4505	San Andres	40
House; Lea	Feb 49	7010	50	Leonard	39	ML	Do	P	por	SGD	10014	Pre-Cambrian	560
House Gas; Lea		7025		Drinkard		ML	Do	P	por	SGD	8112	Devonian	160
House San Andres; Lea	Jan 50	4276	20	San Andres	34	MC	Do	P	por	SGD	10014	Pre-Cambrian	440
House Tubb; Lea	Sep 51	6760	20	Yeso		MC	SS	P	por	SGD	7170	Leonard	320
Hume Queen; Lea	Dec 56	3950	21	Queen	35	MC	SS	P	15	SGD	14093	Devonian	800
Hume West Queen; Lea	Jun 62	3927	18*	Queen	33						3972	Queen	120
Inbe Penn; Lea	Aug 62	9862	8*	Bough C	44						10500	Penn	240
Jackson Abo; Eddy	Mar 61	6650	35*	Abo Reef	44						7050	Abo Reef	400
Jalco; Lea		2985 3200		Yates Seven Rivers	29						7171	Leonard	27360
Jalmat; Lea (Created by Commission order)		2985 -3300 3300 -3550		Yates Seven Rivers	29	MC MC	SS-Do SS-Do	2 49	17 17	SGD SGD	7171	Leonard	24120
Jalmat Gas; Lea (Created by Commission order)		2900 -3600		Yates-Sev Riv		MC	SS-Do	P	por	SGD	7171	Leonard	66720
Jalmat-Rhodes West; Lea (Created by Comm order 1957)		2900 -3600		Yates-Sev Riv		MC	SS-Do	P	por	SGD	7171	Leonard	3200
Jenkins San Andres; Lea	May 59	4846	20	San Andres	19						10025	Penn	80
Jenkins Wolfcamp; Lea	Apr 60	9604	10	Wolfcamp	48						9633	Wolfcamp	240
Jennings Delaware; Lea	May 56	4621	3	Delaware Sd	41	ML	SS	M	24	SGD	4658	Delaware Sd	40
Justis Blinebry; Lea	Mar 58	5158	16	Blinebry	38	AC	Lm-Do	P	4	SGD	7600	McKee	3040
Justis Drinkard; Lea	Dec 57	5930	20	Drinkard	38	AC	Do	P	8	SGD	7520	McKee	1000
Justis Ellen; Lea	Jun 57	8115	41	Ellen	41	AC	Do	P	4	WD	8235	Ellen	1000
Justis Fusselman; Lea	Jan 58	7004	44	Fusselman	38	AC	Do	M	4	WD	8635	Ellen	1200
Justis Glorieta; Lea	Feb 46	4744	79	Glorieta		AC	SS	P	8	SGD	9594	Pre-Cambrian	600
Justis McKee; Lea	Oct 57	7325	47	McKee	42	AC	SS	M	15	SGD	7520	McKee	600
Justis Montoya; Lea	Jun 58	7002	15	Montoya	38	AC		M	4	WD	8210	Ellen	320

TABLE 5.—*Oil and gas fields in New Mexico*—Continued

WELL DATA							OIL AND GAS CONDENSATE PRODUCTION				GAS PRODUCTION			
	1962						CRUDE OIL		CONDENSATE		DRY GAS		CASINGHEAD GAS	
TOTAL OIL, GAS, & CONDENSATE WELLS DRILLED ALL YRS	OIL, GAS, GAS CONDENSATE WELLS COMPLD	WELLS PRODUCING: FLOWING	WELLS PRODUCING: ARTIF. LIFT	WELLS PRODUCING: GAS	WELLS ABD: DRLD DRY	WELLS ABD: ABD PROD. WELLS	BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	BBLS IN 1962	CUMULATIVE BBLS TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63
6	0	3	1	0			40,696	312,689						
1	0	0	1	0			3,701	45,870						
5	0	0	1	0			12,745	566,872						
4	2	0	0	2							291,209	663,838		
2	0	0	2	0			6,854	41,685						
127	1	16	91	0			88,800	3,502,196						
1	1	0	1	0	0		2,781	2,781						
3	0	0	0	3					2,016	134,273	434,460	5,270,162		
3	0	0	1	0			1,353	30,591						
1	0	0	1	0			80	783(Abd Jul 1962)						
1	0						NR							
1	0	0	0	0			0	19,728						
13	1	0	10	0			34,851	1,818,424						
98	1	9	73	0	1		4,173,903	38,521,422						
24	1	0	13	0	0		72,914	3,060,677						
1	0	0	1	0	1		25,209	53,852						
11	Comb w/Gladiola Dec 1957							249,597						
1	0	0	1	0			6,410	116,754						
3	0	2	0	0			40,099	123,181						
6	0	5	1	0	1		447,017	949,503						
1	Abd 1956						0	1,716						
1	1	1	0	0	0		2,718	2,718						
1	1	1	0	0			2,142	2,142						
1	0	0	0	1					19,815	112,206	621,791	3,386,523		
2	0		SI				0	10,172						
669	4	113	520				1,426,306	44,761,037						
5	0	0	0	3					58	2,028	104,148	739,799		
39	Comb w/Grayburg-Jackson Oct 1959							992,316						
1	Abd Aug 1956						0	3,672						
5	1	0	2	0	1		2,928	23,569						
3	0	0	3				16,484	18,416						
24	10	3	21	0			70,291	144,531						
16	0	0	5	0			9,147	822,252						
51	Comb w/Eumont 1957							2,621,502						
89	0	14	46	0			256,468	13,798,494						
3	0	0	1	0			1,813	190,115						
2	0	0	0	SI								0	78,544	
1	Abd Jul 1949						0	10,334						
4	1	1	3	0			5,249	45,139						
1	0			SI						12		0	7,590	
5	4	5	0	0	1		122,101	122,101						
73	0	46	28	0	1		258,843	1,932,871						
61	1	12	48	0	0		221,505	1,663,788						
1	0	0	0	0	0	0	0	592						
4	Abd Apr 1949						0	12,274						
2	0	0	1	0			18,104	888,067						
7	0	3	2	0			32,809	438,745	0	60,688		0	1,207,342	
1	0	0	0	SI					0	6,613		0	91,293	
1	0	0	1	0			8,115	44,387						
2	0	0	0	0			0	351						
364	4	164	174	0	1		3,267,835	173,325,761						
4	0	0	0	SI					0	2,231		0	121,371	
1	0	0	1	0			4,598	44,538						
1	0	0	1	0			6,818	81,353						
26	0	1	21	0			211,796	2,586,365						
1	0						NR							
14	0	4	8	0			58,140	1,256,701						
1	0	0	0	SI										
10	0	2	4	0			13,706	266,102						
2	0	0	0	2					944	13,175	56,103	720,809		
20	0	1	16	0			78,605	463,869						
3	3	0	2	0			2,545	2,545						
3	3	0	1	0			8,454	8,454						
10	8	11	0	0	0		134,411	147,863						
	Comb w/Jalmat 1955													
603	4	163	251	0			1,390,346	56,230,838						
418	0	0	0	417					15,316	317,741	56,856,465	1,086,174,860		
20	0								0	377	4,041,268	148,284,832		
2	0	1	0	0	1		1,653	9,057						
3	0	2	0	0			62,886	152,186						
1	0	0	0	0			0	1,575						
76	14	66	8	0	0		848,644	2,213,973						
27	Comb w Justis Tubb-Drinkard Nov 1960							874,182						
25	0	15	1	0			569,544	2,925,716						
30	1	24	6	0			683,354	2,730,634						
15	4	0	0	14			6,758	59,107			3,000,583	27,867,563		
15	0	12	1	0			131,869	1,014,448						
13	0	10	2	0			291,375	1,184,502						

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TABLE 5.—*Oil and gas fields in New Mexico*—Continued

FIELD; COUNTY	DISCOVERY MO. - YR.	GEOLOGY: PRODUCING FORMATIONS: AVG. TOP FT.	AVG. THK. *AVG. PERFS IN FT.	GEOLOGICAL FORMATION	AVERAGE API GRAV	RESERVOIR CHARACTERISTICS: STRUCTURE	CHARACTER	PERMEABILITY MILLIDARCIES	% POROSITY ESTIMATED	PRODUCTION MECHANISM	DEEPEST TEST: TOTAL DEPTH	GEOLOGICAL FORMATION	TOTAL PROVED ACRES
Justis Paddock; Lea	May 58	4960	35	Paddock	39						8870	Ellen	160
Justis Tubb-Drinkard; Lea (Created by Comm order Nov 60)				Tubb-Drinkard									3080
Justis North Blinebry; Lea	Oct 61	5270	124*	Blinebry	37						6050	Drinkard	440
Justis North Devonian; Lea	Dec 61	7064	20*	Devonian	38						8951	Ellen	520
Justis North Drinkard; Lea	Aug 61	5958	38*	Drinkard	38						8565	Ellen	560
Justis North Ellen; Lea	Aug 61	8458	24*	Ellen	47						8565	Ellen	280
Justis North Fusselman; Lea	Jun 61	7000	40*	Fusselman	42						8700	Ellen	480
Justis North McKee; Lea	Aug 61	7928	44*	McKee	47						8565	Ellen	400
Justis North Montoya; Lea	Apr 62	7070	50*	Montoya	36						8550	Ellen	80
Justis North Waddell; Lea	Sep 61			Waddell									80
Kemnitz Cisco; Lea	Oct 57	11446	30	Cisco	44	AC	Lm	P	8	SGD	11596	Penn	160
Kemnitz Penn; Lea	Oct 56	11219	46	Penn	43	AC	Lm	P	8	SGD	14797	Devonian	80
Kemnitz Wolfcamp; Lea	Dec 56	10742	38	Wolfcamp	39	AC	Lm	P	8	SGD	13000	Penn	1480
King Devonian; Lea	Mar 56	12439	300	Devonian	46	AC	Do	M	4	WD	12850	Devonian	560
King Penn; Lea	Apr 60	10708	25	Penn	38						13145	Devonian	40
King Wolfcamp; Lea	Nov 51	10126	30	Wolfcamp	38	AC	Lm	P	8	SGD	13145	Devonian	240
King Camp Devonian; Chaves	Jul 59	10222	20	Devonian	55						10360	Devonian	40
Knowles; Lea	May 49	12446	150	Devonian	47	AC/F	Do	23	6	WD	12656	Devonian	280
Knowles South Devonian; Lea	May 54	12140	40	Devonian	47	AC	Do	26	4	WD	12656	Devonian	1120
Laguna Seven Rivers; Lea	May 58	4104	23	Seven Rivers		AC	SS	P	10	SGD	4360	Queen	160
Lakewood San Andres; Eddy	Sep 56	1376	24	San Andres			Do	P	por	SGD	2478	Glorieta	40
Lane Penn; Lea	Jul 56	9802	8	Penn	49	AC	Lm	P	5	SGD	9865	Penn	120
Lane Wolfcamp; Lea	Dec 55	9648	14	Wolfcamp	46	AC	Lm	100	10	SGD	12637	Devonian	360
Lane Middle Penn; Lea	Oct 62	9650	4*	Bough C	45						9835	Devonian	40
Lane South Penn; Lea	Mar 62	9668	11*	Bough C	40						9846	Bough C	320
Langlie-Mattix; Lea	Jul 35	3350 -3500		Sev Riv-Queen	35	AC	SS	M	15	SGD	11198	Ellen	48280
Langlie-Mattix Gas; Lea	Jan 29	2870 -3680		Queen-Yates-Seven Rivers		AC	SS	M	15	SGD	11014	Pre-Cambrian	9920
Langmat; Lea		2880 3155		Yates Seven Rivers							11198	Ellen	29120
Lazy J; Lea	Oct 52	9580	20	Wolfcamp-Penn	43	Nose	Lm	8	6	SGD	13440	Devonian	1600
Lea Bone Spring; Lea	Oct 60	9480	70	Bone Spring	42						14735	Devonian	480
Lea Devonian; Lea	Jul 60	14347	124	Devonian	36						14735	Devonian	480
Lea Penn; Lea	Apr 61	13034	20	Penn							14 19	Devonian	480
Lea Yates; Lea (Abd 1947, Rev Jan 57)	29	3570	15	Yates	29	ML	Sd	P	por	SGD	3768	Seven Rivers	80
Leamex Penn; Lea	Nov 56	11316 10662	36 54	Penn Wolfcamp	37 40	AC	Lm	P	por	SGD	16842	Granite	240
Leamex Wolfcamp; Lea	Feb 61	10622	100*	Wolfcamp	40						15390	Devonian	160
Leo; Eddy	Aug 39	3250	10	Grayburg	35	ML	SS	P	12	SGD	3860	San Andres	480
Leo East Grayburg; Eddy	May 58	3666	24	Grayburg	32	ML	SS	P	12	SGD	3750	Grayburg	40
Leo South Grayburg; Eddy	Jan 58	2846	14	Grayburg	35	ML	SS	P	12	SGD	4497	Delaware Sd	160
Leonard; Lea	Jun 48	3430	10	Seven Rivers	40	AC	SS	P	15	SGD	3511	Queen	80
Leonard South; Lea	Feb 50	3438	2	Queen	40	AC	SS	P	por	SGD	3500	Queen	600
Lightcap; Chaves	May 50	7955	20	Siluro-Devonian	52	AC	Do	37	10	WD	8326	Pre-Cambrian	80
Little Lucky Lake Devonian; Chaves	Oct 58	11050	84	Devonian	55	AC	Do	M	6	WD	12298	Ellen	200
Little Lucky Lake Ellen; Chaves	Oct 58	12068	38	Ellen	59						12298	Ellen	160
Littman San Andres; Lea	Jul 51	4321	20	San Andres	31	Nose	Do	P	8	SGD	4394	San Andres	360
Loco Hills; Eddy	Jan 39	2430 2925	20 30	Grayburg San Andres	36	ML	SS	50	20	SGD	3750	San Andres	13320
Loco Hills Abo; Eddy	Aug 60	6570	60	Abo Reef	44						6945	Abo	320
Loco Hills Queen; Eddy	Apr 49	2200	15	Queen	36	ML	SS	P	por	SGD	3100	Grayburg	120
Loco Hills South San Andres; Eddy	Nov 58	3834	36	San Andres	36	ML	Do	P	8	SGD	4520	Delaware Sd	40
Logan Draw; Eddy	Mar 47	1709	20	San Andres	41		Do	P	por	SGD	2056	San Andres	80
Lone Wolfcamp; Chaves	Aug 53	7774	38	Wolfcamp	42	MC	Lm	P	por	SGD	9296	Pre-Cambrian	40
Los Medanos Atoka; Eddy	May 58	12920	9	Penn	56	AC	SS	M	por	GCD	17555	Ellen	160
Loving Delaware; Eddy	Mar 58	2444	10	Delaware Sd	43						2455	Delaware Sd	80
Lovington; Lea	Jan 38	4600	50	San Andres	33	AC	Do	P	4	SGD	14153	Pre-Cambrian	2360
Lovington Abo; Lea	Dec 51	8117	125	Abo	39	AC	Do	M	8	WD	14153	Pre-Cambrian	1880
Lovington Paddock; Lea	Jun 52	6156	25	Glorieta	33	AC	Do	P	8	SGD	14153	Pre-Cambrian	3760
Lovington San Andres; Lea	Jan 39	3200 -3900		San Andres	33	AC	Do	P	4	SGD	4980	San Andres	320
Lovington Tubb; Lea	Dec 52	7840	15	Leonard	40	AC	Do	P	por	SGD	11254	Penn	40
Lovington Wolfcamp; Lea	Dec 52	10148	15	Wolfcamp	40	AC	Lm	P	por	SGD	12751	Devonian	40
Lovington East Penn; Lea	Mar 51	11080	60	Strawn	43	AC	Lm	P	por	SGD	12871	Devonian	280
Lovington West; Lea	Jun 44	4700	50	San Andres	36	AC	Do	P	4	SGD	5175	San Andres	2320
Lovington West Penn; Lea	Mar 53	11438	15	Strawn		AC	Lm	P	por	SGD	11984	Penn	40
Lovington West Plains; Lea	May 52	12880	30	Penn			Lm	P	por	SGD	14763	Devonian	40
Lucky Lake Queen; Chaves	Jun 56	1894	11	Queen			SS	M	15	SGD	1973	Queen	40
Lusk; Eddy-Lea	Nov 41	2540	10	Yates	25	MC	SS-Do	P	por	SGD	4016	Queen	520
Lusk Bone Spring; Lea	Oct 60	8759	18	Bone Spring	39						11232	Strawn	80
Lusk Penn; Lea	Apr 61	12380	18*	Morrow							13974	Devonian	640
Lusk Strawn; Lea	Oct 60	11168	25	Strawn	50						11232	Strawn	240
Lusk East; Lea	Jan 42	2620	13	Yates	25	MC	SS	P	por	SGD	4016	Queen	240
Lusk South Yates; Lea	Sep 57	2495	20	Yates	27	MC	SS	P	por	SGD	2770	Yates	40
Lusk West; Eddy	Dec 41	2460	10	Yates	27	AC	SS	P	por	SGD	2769	Seven Rivers	200
Lynch; Lea	May 29	3675	17	Yates-Sev Riv	31	MC	Do	M	c	WD	4046	Seven Rivers	2320
Lynch Middle Yates; Lea	May 57	3513	15	Yates	30	MC	Do	P	c	SGD	3691	Seven Rivers	160
Lynch North; Lea	Aug 29	3660	15	Yates	30	MC	Do	M	c	WD	4769	Grayburg	120
Magruder Yates; Eddy	Feb 53	570	2	Yates	16	AC	SS	P	por	WD	626	Yates	360
Malaga; Eddy	Jun 51	2774	14	Delaware Mtn	42	AC	SS	55	24	SGD	2914	Delaware Mtn	960
Malaga Delaware North; Eddy	Aug 54	4678	6	Delaware Mtn	34						8153	Bone Spring	40
Malaga West; Eddy	Aug 52	2300	5	Delaware Mtn	42	AC	SS	M	24	SGD	2311	Delaware Mtn	40
Maljamar; Eddy-Lea	Jun 26	3600 -4050	50	Grayburg-San And	37	AC	SS-Do	47	11	SGD	13573	Devonian	21760

TABLE 5.—*Oil and gas fields in New Mexico*—Continued

WELL DATA 1962							OIL AND GAS CONDENSATE PRODUCTION				GAS PRODUCTION			
TOTAL OIL, GAS, COND. WELLS DRILLED	OIL, GAS, GAS COND. WELLS	WELLS PRODUCING			WELLS ABD.		CRUDE OIL		CONDENSATE		DRY GAS		CASINGHEAD GAS	
		FLOWING	ARTIF. LIFT	GAS	DRLD. DRY	ABD. PRODUCERS	BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	BBLS IN 1962	CUMULATIVE BBLS TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63
4	0	4	0	0			25,171	75,344						
77	9	60	14	0	0		709,974	2,564,987						
11	10	11	0	0			54,066	54,066						
13	12	6	2	0	1		77,559	77,559						
14	13	13	2	0			70,493	70,493						
7	6	5	2	0			149,937	155,874						
12	11	12	2	0	1		276,901	281,790						
10	9	10	0	0			183,934	183,934						
2	2	1	1	0	0		12,204	12,204						
2	2	2	0	0			10,486	10,486						
2	0	2	0	0			19,818	309,720						
2	0	SI	0	0			0	135,309						
37	0	9	21	0			1,536,125	8,987,577						
14	0	8	2	0			380,066	3,467,565						
1	0	SI	0	0			0	5,238						
6	0	0	6	0			18,805	465,170						
1	0	0	0	0	0	1	0	21,365						
7	0	0	7	0			113,645	3,362,017						
14	0	4	10	0			390,619	4,054,132						
1	Abd 1960						0	142,200						
1	0	0	SI	0			0	732						
3	0	0	2	0	0	1	22,783	417,484						
9	0	0	1	0	0	0	9,784	1,048,164						
1	1	1	0	0	0	0	1,317	1,317						
8	8	8	0	0	0	0	88,773	88,773						
1207	17	382	592	0	4	0	2,120,545	58,603,866						
62	Comb w/Jalmat Gas 1959 Comb w/Jalmat Gas 1955									6,164		74,469,493		
40	1	2	17	0	0	0	146,714	3,164,846						
6	1	6	0	0	0	0	251,820	430,274						
6	1	6	0	0	0	0	701,201	1,113,366						
3	2	0	0	3					47,037	47,037	1,254,213	1,254,213		
2	0	0	1	0	0	0	861	75,505						
6	0	1	2	0	0	0	47,804	461,104						
2	0	1	1	0	0	0	30,729	51,562						
12	1	0	10	0	2		7,031	263,851						
1	Comb w/Shugart N Queen Grayburg Apr 1959							2,368						
4	0	1	2	0	0	0	2,998	24,486						
2	0	0	2	0	0	0	1,455	42,409						
15	0	5	6	0	0	0	18,431	499,013						
2	0	2	0	0	0	0	8,447	111,599						
5	0	4	0	0	1	0	244,034	856,116						
1	0	0	0	SI	0	0			0	11,177				
9	0	1	7	0	0	0	18,660	289,540						
333	22	35	198	0	1	0	1,609,522	20,781,148						
8	2	6	0	0	1	0	107,412	180,954						
2	0	0	1	0	0	0	827	21,123						
1	0	0	1	0	0	0	818	5,069						
2	0	0	2	0	1	0	1,889	8,041						
1	0	0	1	0	0	0	2,972	112,569						
1	0	0	0	1	0	0			1,033	3,235	48,216	251,161		
2	Abd 1960						0	125						
59	0	0	48	0	0	0	115,100	8,442,299						
47	0	20	20	0	0	0	1,272,889	14,965,296						
93	0	2	89	0	0	0	350,425	7,305,702						
2	0	0	0	0	0	0						0	1,896,809	
1	Abd Feb 1953						0	2,231						
1	Abd 1961						0	80,631						
7	0	1	2	0	0		59,905	1,490,331						
59	0	5	51	0	0	1	113,917	7,057,181						
1	Abd Apr 1953						0	4,200						
1	Abd Jul 1953								0	4,012	0	82,565		
1	0	0	0	0			0	200						
13	1	1	6	0	0	1	12,736	283,929						
1	0	SI	0	0			0	14,069*						
1	0	0	0	SI							SI			
3	0	3	0	0	0	0	297,283	436,149						
6	Abd Jan 1947						0	89,501						
1	0	0	1	0	0	0	803	5,947						
5	0	0	1	0	0	0	1,052	24,468						
58	4	6	43	0	1		359,438	10,921,834						
4	0	0	1	0	0	0	2,704	28,281						
3	1	0	2	0	0	0	8,549	231,467						
9	0	Shut In		0	0	0	0	11,091						
24	0	0	20	0	0	0	18,972	582,292						
1	0	0	1	0			1,007	14,465*						
1	Abd 1953						0	363						
544	22	243	296	0	1		2,741,533	45,308,613						

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TABLE 5.—*Oil and gas fields in New Mexico*—Continued

FIELD; COUNTY	DISCOVERY MO. - YR.	GEOLOGY: PRODUCING FORMATIONS: AVG. TOP FT.	AVG. THK. *AVG. PERFS IN FT.	GEOLOGICAL FORMATION	AVERAGE API GRAV	RESERVOIR CHARACTERISTICS: STRUCTURE	CHARACTER	PERMEABILITY MILLIDARCIES	% POROSITY ESTIMATED	PRODUCTION MECHANISM	DEEPEST TEST: TOTAL DEPTH	GEOLOGICAL FORMATION	TOTAL PROVED ACRES
Maljamar Abo; Lea	Sep 54	8980	8	Abo	40	AC	Do	M	8	WD	13936	Devonian	40
(Abd 1954, Rev 1960)	Nov 61	8840	46	Abo Reef	42								
Maljamar Devonian; Lea	Jan 52	13548	25	Devonian	48	AC	Do	P	por	WD	13936	Devonian	80
Maljamar Paddock; Lea	May 50	5271	15	Leonard	39	AC	Do	13	11	SGD	5441	Leonard	280
Maljamar Queen; Lea	Jan 39	3135	20	Queen		AC	SS	P	por	SGD	4216	San Andres	480
Maljamar Strawn; Lea (Abd Jul 54 Rev 1962)	May 54	11616	6	Strawn				P	por	SGD	13936	Devonian	40
Maljamar Wolfcamp; Lea	Apr 61	10390	10*	Wolfcamp	40						12510	Strawn	40
Maljamar East; Lea	Apr 49	4340	30	Grayburg-San And	37	AC	SS-Do	M	10	SGD	4574	San Andres	40
Maljamar North; Lea	Jun 39	3880	10	Grayburg	35	MC	SS-Do	P	por	SGD	4097	Grayburg	200
Maljamar South; Lea	Dec 39	4645	10	Grayburg	32	MC	SS-Do	P	por	SGD	4840	Grayburg	80
Maljamar South Yates; Lea	Apr 57	3212	17	Yates		MC	SS	P	por	SGD	4848	Queen	40
Maroon Cliffs Bone Spring; Eddy	May 59	6786	50	Bone Spring	20						7356	Bone Spring	40
Maroon Cliffs Tansill; Eddy	Jun 59	2179	20	Tansill	20						7356	Bone Spring	40
Mason East Delaware; Lea	Dec 61	4443		Delaware	39						4588	Delaware	40
Mason North Delaware; Eddy-Lea	Sep 54	4115	10	Delaware	42	MC	SS	24	25	SGD	4403	Delaware Sd	1640
McCormack; Lea	Nov 47	7146	15	Silurian	43	MU	Do	P	por	WD	8318	Pre-Cambrian	120
McMillan; Eddy	Dec 38	826	5	Queen	29						3305	San Andres	640
	Sep 49	651	5	Seven Rivers		MC	SS	P	por	SGD			
McMillan Seven Rivers; Eddy	Dec 50	350	7	Seven Rivers	34	MC	Do	P	por	SGD	361	Seven Rivers	160
McMillan West Queen; Eddy	Sep 61	1836	12*	Queen	25						1836	San Andres	40
Medicine Rock Devonian; Lea	Jul 61	12740	12*	Devonian	46						12848	Devonian	320
Mesa Queen; Lea	Aug 62	3408	5	Queen	32						3455	Queen	160
Mescalero Devonian; Lea	Oct 52	9808	30	Devonian	44	AC	Do	36	8	WD	10491	Devonian	240
Mescalero Permo-Penn; Lea (Formerly Mescalero Penn)	Mar 52	8390 -10178	15	Permo-Penn	46	AC	Lm	18	8	SGD	11334	Devonian	240
Mescalero San Andres; Lea	May 62	4063	67	San Andres	16						10631	Devonian	80
Mescalero North Bend; Lea	May 56	10180	11	Bend		AC	Lm	P	por	SGD	10777	Devonian	160
Mescalero North Wlfcp; Lea	Jul 60	8350	71	Wolfcamp	43						10800	Devonian	80
Midway Abo; Lea	Oct 62	8861	32	Abo	38						9014	Abo	
Millman; Eddy	Aug 51	1883	6	Grayburg	29	MC	SS-Do	P	por	SGD	2733	San Andres	480
Millman East Queen-Grayburg; Eddy	Apr 58	1760	5	Queen-Grayburg	36	MC	SS	P	por	SGD	2663	San Andres	2600
Millman East San And; Eddy	Jul 59	2413	17	San Andres	36						2663	San Andres	40
Millman East Sev Riv; Eddy	Sep 59	1038		Seven Rivers									880
Milnesand Penn; Roosevelt	Oct 56	9202	8	Penn	46	AC	Lm	P	4	SGD	11907	Granite	520
Milnesand San Andres; Roosevelt	Apr 58	4554	48	San Andres	28	AC	Do	P	8	WD	11907	Granite	1720
Milnesand East Penn; Roosevelt	Sep 58	9282	76	Penn	42	AC	Lm	P	4	SGD	9809	Penn	40
Monument Gas; Lea	Mar 29	3675 -4155		Grayburg-San And							9953	Pre-Cambrian	1440
Monument Abo; Lea	Sep 48	7160	30	L Leonard	41	AC	Do	P	por	SGD	9953	Pre-Cambrian	200
Monument Blinebry; Lea	May 48	5695	20	Yeso	39	AC	Do	M	8	WD	9953	Pre-Cambrian	2120
Monument Ellen; Lea	Aug 54	9780	15	Ellen		AC	Do	P	3	SGD	9953	Pre-Cambrian	640
Monument Grayburg; Lea	Jun 59	3750	20	Grayburg	36						10235	Pre-Cambrian	40
Monument McKee; Lea	Nov 48	9890	40	Simpson	67	AC	SS	M	15	SGD	10235	Pre-Cambrian	800
Monument Paddock; Lea	Jan 48	5180	20	Leonard	40	AC	Do	P	8	SGD	9953	Pre-Cambrian	1440
Monument Tubb; Lea	Jun 59	6455	34	Tubb	38	AC	SS-Do	P	6	SGD	6938	Drinkard	320
Monument Draw; Lea	Apr 62	8226	32*	Devonian	38						10014	Montoya	40
Moore Devonian; Lea	Apr 52	10375	73	Devonian	45	AC	Do	M	4	WD	10946	Devonian	760
Moore Penn; Lea	Aug 52	9654	15	Penn	48	AC	Lm	P	7	SGD	10232	Miss	120
Moore Wolfcamp; Lea	Jul 52	8198	40	Wolfcamp	60	AC	Lm	P	8	SGD	13950	Devonian	160
Nadine; Lea	Feb 50	7363	15	L Leonard	34	H	Do	P	por	SGD	8021	Devonian	120
New Hope; Roosevelt	Jun 51	8131	11	Penn			Lm	P	por	SGD	9067	Pre-Cambrian	40
Nichols; Eddy	Jul 48	2919	19	San Andres			SS-Do	P	9	SGD	3049	San Andres	520
Oil Center Blinebry; Lea	Feb 62	5907	23*	Blinebry	44						12010	Ellen	360
P C A; Eddy	Dec 39	1500	10	Yates	20	AC	Lm	P	por	WD	1956	Yates	480
Paddock; Lea	Apr 45	5170	50	Glorieta	37	MC	Do	4	11	SGD	8370	Pre-Cambrian	5240
Paddock North; Lea	Jun 59	5620		Paddock									40
Paddock South Glorieta; Lea	Jan 58	5164	52	Glorieta	36	MC	Do	P	8	SGD	7100	Drinkard	360
Paduca Delaware; Lea	Sep 60	4670	16	Delaware	41						4805	Delaware	2080
Palmillo; Eddy (Abd 1948, Rev 1961)		1495	10	Seven Rivers			SS	P	por		2561	Grayburg	80
Parallel Delaware; Eddy	Jun 53	7003	30	Delaware Mtn							16459	Pre-Cambrian	80
Parallel Tansill; Eddy	Apr 59	2358	3	Tansill	21	AM	Do	P	por	SGD	7605	Bone Spring	40
Pearl Bone Spring; Lea	Sep 55	8198	30	Bone Spring	49	AC	Lm	P	por	SGD	13950	Devonian	40
Pearl Penn; Lea	Dec 59	12640	24	Penn	43						14100	Devonian	80
Pearl Queen; Lea	Dec 56	4806 -5024	28	Queen	36	AC	SS	M	12	SGD	13950	Devonian	5880
Pearl Seven Rivers; Lea	Nov 58	4084	13	Seven Rivers	40	AC	SS	M	12	SGD	13950	Devonian	40
Pearl East Queen; Lea	Jun 61	4832	3*	Penrose	35						5357	Grayburg	40
Pearl East Sev Riv; Lea	Jun 59	4048		Seven Rivers									160
Pearl West Queen; Lea	Oct 59	4912	10	Queen Sd	34						13950	Devonian	160
Pearsall; Lea	Jan 40	3320	10	Yates	37	MC	SS	21	25	SGD	4274	San Andres	1200
		3800	10	Queen	37								
Peços San Andres; Chaves	Nov 61	1128	18	San Andres	25						1170	San Andres	120
Pecos Delaware; Lea (Extended from Texas 1962)				Delaware									40
Penasco San Andres; Eddy	Dec 62	1382	5	San Andres	34						2323	Glorieta	40
Penasco Wolfcamp; Eddy	May 60	5740	10	Wolfcamp	45						6100	Wolfcamp	40
Penrose-Skelly; Lea	Jan 36	3500 -3700	50	Queen-Grayburg	36	AC	SS-Do	P	6	SGD	8370	Pre-Cambrian	9600
Prairie San And; Roosevelt	Mar 59	4858	32	San Andres	33						10000	Penn	40
Prairie East Penn; Roosevelt	Aug 61	9698	4*	Bough C	47						9730	Bough C	120
Prairie South Penn; Roosevelt	Sep 60	9653	19	Penn	47						9900	Penn	720
Premier; Eddy	36	3090	20	Grayburg	36	MC	SS	P	por	SGD	3500	San Andres	3120

TABLE 5.—*Oil and gas fields in New Mexico*—Continued

WELL DATA							OIL AND GAS CONDENSATE PRODUCTION				GAS PRODUCTION			
	1962						CRUDE OIL		CONDENSATE		DRY GAS		CASINGHEAD GAS	
TOTAL OIL, GAS, GAS CONDENSATE WELLS	OIL, GAS, GAS CONDENSATE WELLS DRILLED	WELLS PRODUCING: FLOWING	WELLS PRODUCING: ARTIF. LIFT	WELLS PRODUCING: GAS	WELLS ABD.: DRILD DRY	WELLS ABD.: ABD. PRODUCERS	BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	BBLS IN 1962	CUMULATIVE BBLS TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63
3	2	1	2	0			44,013	118,727						
2	0	0	1	0			28,747	356,833						
7	0	4	3	0			105,805	518,381						
4	0	0	0	3							145,334	2,200,277		
1	1	1	0	0			442	8,511						
1	0	0	1	0			21,576	41,560						
1	Comb w/Maljamar 1956							19,720						
5	Comb w/Maljamar GB-SA Apr 1961							198,154						
2	0	0	1	0			2,208	72,113						
1	Shut In						0	920						
1	Shut In						0	14,946						
1	0	0	1	0			2,109	16,189						
1	0	0	1	[illegible]			871	871						
41	1	8	32	0	2		142,390	2,030,836						
3	0	0	2	0			32,557	566,859						
16	0	0	12	0			7,475	251,495						
4	0	0	1	0			46	13,565						
1	0		1	Abd Mar 1962			186	753						
8	7	4	0				342,447	356,516						
4	4	4	0	0	0	0	5,012	5,012						
7	0	5	1	0	0	1	263,473	2,437,895						
6	0	1	5	0	0	0	36,926	646,933						
2	2	0	2	0	1	0	7,811	7,811						
1	0	0	0	1					205	2,129	41,973	197,202		
2	0	0	2	0			16,384	40,049						
12	0	1	7	0			13,645	188,487						
65	2	25	34	0			442,158	1,939,714						
1	Abd 1960;Recomp in Millman E Queen-Grayburg							4,642						
22	0	1	21	0			76,902	119,113						
13	0	1	2	0	0	3	27,861	901,548						
43	32	21	14	0	1	0	267,583	301,446						
1	Comb w/Milnesand Penn 1960							1,450						
9	See Eunice Gas													
5	Converted to Salt Water Disposal Well 1960							111,089						
53	4	11	25	0			349,080	5,429,856						
1	0	0	0	1					3,136	48,952	215,991	2,750,686		
7	Comb w/Eunice-Monument							3,879,360						
5	2	0	0	3			0	13,874	40,307	183,016	1,817,391	7,439,815		
36	2	18	11	0			411,728	4,371,512						
8	6	2	2	0			77,150	146,797						
1	1	0	1	0			1,195	1,195						
19	0	13	5	0			820,867	10,558,109						
3	Abd 1962						0	29,225						
2	0	0	0	2					542	72,861	83,989	2,383,426		
3	0	0	3	0			8,842	143,898						
1	Abd 1953						0	6,806						
13	Comb w/Artesia 1955							183,105						
9	9	9	0	0	0	0	43,881	43,881						
12	0	0	5	0			10,090	701,429						
131	5	62	69	0			599,271	13,996,683						
1	0	0	1	0			640	3,716(Shut In Aug 1962)						
9	3	3	6	0			99,427	323,954						
65	4	34	31	0	1		704,817	1,291,426						
2	0	0	1	0			1,855	2,061						
2	1	0	2	0			6,167	60,390						
1	0	0	1	0			529	4,221						
1	Abd Dec 1956;Recomp in Pearl Queen						0	4,235						
1	0	1	0	0			5,302	30,058						
147	18	5	142	0	6		1,004,337	3,970,265						
1	0	0	0	0			0	2,692						
1	0	1	0	0			668	1,111						
1	0	0	0	1							102,875	411,537		
4	0	0	4	0			36,096	103,194						
30	0	1	26	0			55,792	1,541,093						
3	1	0	1	0	1	0	441	441						
2	2	0	2	0	1		5,265	5,265						
1	1	1	0	0			431	431						
1	0	0	1	0			1,260	7,920						
240	12	56	95	0			336,728	13,483,827						
1	Abd Jan 1960						0	111						
3	2	Comb w/Prairie S Penn Jul 1962						10,113						
18	3	14	3	0	3		517,965	1,043,907						
78	Comb w/Grayburg Jackson 1957							3,386,803						

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TABLE 5.—*Oil and gas fields in New Mexico*—Continued

FIELD: COUNTY	DISCOVERY MO - YR	GEOLOGY: PRODUCING FORMATIONS: AVG. TOP FT.	AVG. THK. AVG. PERFS IN FT	GEOLOGICAL FORMATION	AVERAGE API GRAV	RESERVOIR CHARACTERISTICS: STRUCTURE	CHARACTER	PERMEABILITY MILLIDARCIES	% POROSITY ESTIMATED	PRODUCTION MECHANISM	DEEPEST TEST: TOTAL DEPTH	GEOLOGICAL FORMATION	TOTAL PROVED ACRES
Quahada Ridge Delaware;Eddy	May 54	6112	6	Delaware Mtn							15854	Fusselman	40
Quail Ridge Bone Spring;Lea	Oct 61	10118	16*	Bone Spring	39						13972	Miss	80
Quail Ridge Morrow; Lea	Oct 61	13325	12*	Morrow	57						13972	Miss	1280
Quail Ridge North Morrow; Lea	Apr 61	13160	37	Morrow							14784	Devonian	640
Querecho Plains Bone Spring; Lea	Nov 58	11922	13	Penn	49						14330	Devonian	40
Querecho Plains Delaware; Lea	Mar 59	6860	11	Delaware Sd	37						9593	Bone Spring	40
Querecho Plains Penn; Lea	Jan 57	11595	50	Penn	42		Lm	P	por	SGD	14217	Devonian	40
Querecho Plains Queen; Lea	Mar 61	3940	21*	Queen							7160	Bone Spring	40
Ranger Lake Penn; Lea	Sep 56	10312	33	Penn	41	AC	Lm	P	8	SGD	12977	Devonian	960
Red Hills; Eddy	Feb 56	1630	44	Yates	29		SS	M	15	SGD	1832	Yates	200
Red Lake; Eddy	Oct 24	1725		Grayburg	29	MC	SS-Do	2	110	SGD	12431	Ellen	8160
		2100		San Andres									
Red Lake Penn; Eddy	Apr 56	9443	22	Penn		MC	Lm	P	por	SGD	10404	Devonian	960
Red Lake Seven Rivers; Eddy	Apr 52	673	54	Seven Rivers		MC	SS	M	12	SGD	727	Seven Rivers	40
Red Lake East Queen; Eddy	Mar 59	1560	7	Queen	36						2230	San Andres	920
Red Lake North Queen; Eddy	Nov 58	1472	41	Queen-Grayburg	35	MC	SS	M	15	SGD	2087	San Andres	240
Reeves Bone Spring; Lea	Sep 54	9980	6	Bone Spring			SS	P	por	SGD	12355	Devonian	40
Reeves Devonian; Lea	Feb 60	12180	10	Devonian	44						12341	Devonian	240
Reeves Penn; Lea	Nov 56	10945	10	Penn	41	AC	Lm	P	por	SGD	12341	Devonian	200
Remuda Wolfcamp; Eddy	Dec 60	11111	43	Wolfcamp	47						15144	Devonian	80
Rhodes; Lea	Jan 29	3000	25	Yates-Sev Riv	36	MC	SS-Do	M	15	SGD	4110	San Andres	2320
Rhodes Gas; Lea	Sep 57	3000		Yates		MC	SS	M	15	SGD	3300	Seven Rivers	160
Roberts; Lea	Sep 43	4195	15	Grayburg	34	AC	SS	9	11	SGD	4660	San Andres	4040
Roberts West; Lea	Dec 45	4192	15	Grayburg	34	AC	SS	P	11	SGD	4660	San Andres	
Robinson; Eddy-Lea	26	3550	20	Grayburg	34	MC	SS	P	por	SGD	4483	San Andres	2920
		3919	30	San Andres									
Robinson North Queen; Eddy	Jan 61	3628	46*	Queen	36						4218	Lovington Sd	40
Round Tank San And; Chaves	Apr 62	2960	20*	San Andres	34						10590	Devonian	520
Russell; Eddy	Apr 42	785	10	Yates	38	AM	SS-Do	30	19	SGD	2500	Devonian	2480
S R R Devonian; Lea	May 55	11103	50	Devonian	40						11360	Devonian	120
S R R Penn; Lea	Nov 55	9208	10	Penn	49						11360	Devonian	80
Saladar Yates; Eddy	Mar 56	650	20	Yates	34		SS	M	15	SGD	816	Yates	320
Salado Draw; Lea	Feb 62	5005	4*	Delaware							5300	Delaware	440
Salt Lake; Lea (Abd Dec 48, Rev Jul 62)	Jul 41	2990	10	Yates-Sev Riv			SS	P	por	SGD	4003	Seven Rivers	440
Salt Lake South Morrow; Lea	Apr 60	13240	39	Morrow	53						16600	Granite	160
Salt Lake South Penn; Lea	Jan 58	12909	7	Penn	47		Lm	P	7	SGD	16600	Granite	160
San Miguel Yates-Seven Rivers; Lea	Aug 59	3613	17	Seven Rivers	31						3630	Seven Rivers	40
San Simon; Lea	Nov 43	3935	20	Yates	34	AC	SS	5	20	SGD	4183	Yates	80*
Sah Simon North Yates; Lea	Sep 57	3800		Yates									840
Sand Hills; Lea	Apr 52	4292	10	Grayburg			SS	P	por		8722	Montoya	40
Sand Springs Devonian; Lea (Abd 1960, Rev Apr 62)	Nov 57	13115	38	Devonian		AC	Do	P	5	WD	13206	Devonian	80
Sanmal Penn; Lea	Oct 57	11708	14	Penn		MC	Lm	P	por	SGD	11842	Penn	40
Sanmal San Andres; Lea	Jul 55	4571	10	San Andres	35	MC	SS	P	por	SGD	4711	San Andres	80
Santo Nino; Eddy	Jan 51	3960	10	Delaware Mtn			SS	M	24	SGD	4351	Delaware Mtn	120
Saunders; Lea	Jan 50	9831	50	Wolfcamp	42	AC	Lm	P	7	SGD	14809	Pre-Cambrian	4560
	May 60	9954	26	Penn									
Saunders East Permo-Penn; Lea	Mar 62	10363	65	Penn	42						12521	Penn	160
Saunders North; Lea	Jan 51	9775	30	Permo-Penn	42	AC	Lm	P	7	SGD			
Saunders South; Lea	Apr 51	10587	20	Penn	36		Lm	P	8	SGD	10621	Penn	240
Sawyer Devonian; Lea	Aug 55	11618	50	Devonian	42	AC/F	Do	P	5	WD	12097	Devonian	80
Sawyer San Andres; Lea	Feb 47	4926	25	San Andres	25	MC	Do	2	10	SGD	12097	Devonian	1040
Sawyer South San And; Lea	Jan 58	4950	28	San Andres	28	AC	Do	8	8	SGD	5032	San Andres	80
Scanlon Draw Queen; Eddy	Apr 61	1983	2*	Queen	34						2100	Penrose	40
Scharb; Lea	Jan 60	13033	23	Atoka	54						14647	Devonian	160
Scharb Bone Spring; Lea	Jan 62	10152	14*	Bone Spring	38						14647	Devonian	160
Seven Rivers; Lea	Dec 54												
Shoe Bar Devonian; Lea	Sep 53	12482	76	Devonian	57	AC	Do	P	6	WD	12780	Devonian	200
Shoe Bar Dev North; Lea	Dec 56	12638	100	Devonian	60	AC	Do	P	6	WD	12978	Devonian	80
Shoe Bar Penn; Lea	Mar 54	10440	55	Penn	58	MC	Lm	P	por	SGD	12978	Devonian	120
Shoe Bar Penn Gas; Lea	Feb 54	12310	20	Bend		MC	Lm	P	por	SGD	12978	Devonian	320
Shoe Bar North Penn; Lea	Aug 58	10954	26	Penn	43	MC	Lm	P	por	SGD	12978	Devonian	40
Shugart; Eddy	Jul 37	2600	15	Yates	38	MC	SS	P	por	SGD	13446	Montoya	8000
		3450	10	Queen									
Shugart Bone Spring; Eddy	Apr 61	8135	50*	Bone Spring	41						12858	Devonian	80
Shugart Delaware; Eddy	Dec 58	4970	24	Delaware Sd	38	Nose	SS	M	24	SGD	13446	Montoya	80
Shugart Penn; Eddy	Jan 58	10912	49	Penn	60	MC	Lm	P	por	SGD	13446	Montoya	160
Shugart Sil-Dev; Eddy	Feb 57	12362	70	Siluro-Devonian		AC	Do	M	6	WD	13446	Montoya	960
Shugart Wolfcamp; Eddy	Mar 61	9615	10*	Wolfcamp	41						13446	Montoya	40
Shugart North; Eddy	38	3350		Queen	33	ML	SS	P	por	SGD	4890	San Andres	4600
		3957	31	Grayburg		ML	SS	P	por	SGD			
	Aug 60	2620	12	Yates									
Shugart North Grayburg;Eddy	Jan 56	3957	31	Grayburg	32						4785	Delaware Sd	200
Skaggs; Lea	Mar 37	3800	50	Grayburg	36	AM	SS-Do	7	3	SGD	9475	Ellen	3400
Skaggs Drinkard; Lea	Sep 53	6856	30	Leonard	37	AM	Do	P	por	SGD	9671	Simpson	360
Skaggs Glorieta; Lea	Jun 58	5266	36	Glorieta	33	AM		P	por	SGD	9671	McKee	360
Skaggs North Drinkard; Lea	Feb 60	6898	30	Drinkard							9671	McKee	320
Sombrero Penn; Lea	Feb 57	13166	22	Penn							13700	Miss	320
Spencer Devonian; Lea	May 56	11034	12	Devonian		AC	Do	P	4	WD	11046	Devonian	40
Square Lake; Eddy	Nov 41	2700	15	Grayburg	38	MC	SS	110	21	SGD	6587	Abo	14280
Square Lake North Grayburg; Eddy	Nov 59	3633	33	Premier Grayburg	34						13400	Devonian	1520
Squyres Devonian; Roosevelt	Jan 54	9229	40	Devonian	45	AC/F	Do	200	8	WD	9637	Devonian	40
Squyres Penn; Roosevelt	Apr 61	8380	10*	Penn	45						9637	Devonian	40

TABLE 5.—*Oil and gas fields in New Mexico*—Continued

WELL DATA 1962								OIL AND GAS CONDENSATE PRODUCTION				GAS PRODUCTION			
			WELLS PRODUCING			WELLS ABD.		CRUDE OIL		CONDENSATE		DRY GAS		CASINGHEAD GAS	
TOTAL OIL, GAS, COND WELLS DRILLED ALL YRS	OIL, GAS, COND WELLS DRLD	FLOWING	ARTIF LIFT	GAS	DRLD DRY	ABD. PRODUCERS		BBLS IN 1962	CUMULATIVE BBLS TO 1/1/63	BBLS IN 1962	CUMULATIVE BBLS TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63
1	0	0	1	0				1,343	18,578						
2	1	2	0	0		2		73,871	73,871						
2	2	0	0	2						4,610	4,610	109,022	109,022		
1	0	0	0	1						1,173	1,173	108	108		
1	0	0	1	0				3,947	17,313						
1	0	0	1	0				575	9,599						
1	0	0	1	0				27,046	286,851						
1	Abd Dec 1961														
24	0	7	16	0	0	0		388,174	2,828,488						
5	0	0	1	0	1	1		196	25,100						
204	8	12	136	0	4			259,358	4,033,120						
3	0	0	0	3						2,954	18,985	1,151,857	5,785,577		
1	0	0	0	0				0	530						
23	2	14	9	0				59,906	179,380						
6	1	6	0	0				6,705	47,338						
1	Abd 1954							0	1,010						
3	1	2	1	0	1			122,164	249,238						
5	0	3	0	0				83,788	685,050						
1	0	1	0	0				2,188	7,741						
58	1	21	17	0				231,279	5,740,745			0	23,092		
1	Comb w/Jalmat 1957														
101	Comb w/Jaljamar GB-SA 1961								2,164,368						
	Comb w/Roberts 1947														
73	2	27	46	0				161,626	1,583,690						
1	0	0	1	0				2,072	2,794						
13	13	0	13	0	0			4,155	4,155						
62	0	0	15	0				88,528	1,829,673						
3	0	0	1	0				24,532	414,420						
2	Abd 1959							0	46,938						
8	2	0	6	0	1			9,767	78,463						
11	11	7	4		1			32,833	32,833						
11	1	0	1	0				4,699	299,838						
1	0	0	0	1						7,521	8,545	387,600	434,327		
1	0	0	0	1						10,251	34,783	386,715	1,282,120		
1	0	0	1	0				11,436	37,874						
2	0	0	2	0				2,106	97,463*						
21	0	13	6					29,785	196,892						
1	Abd Jan 1953							0	807						
2	1	0	1	0				11,691	27,821						
1	0	0	0	0				0	10,433						
2	0	0	2	0				3,994	62,424						
3	Abd 1956							0	9,705						
114	3	8	97	0				1,417,591	21,740,270						
2	2	2	0	0	0			78,384	78,384						
	Comb w/Saunders 1951														
		0	1	0				8,922	129,618						
1	0	0	0	0				0	177,280						
26	1	0	0	10				0	62,826	11,383	37,339	1,044,626	1,633,437		
2	Comb w/Sawyer San Andres Nov 1959								16,321						
1	0	0	0	0				0	80						
1	Abd Jan 1962									0	2,155	0	4,520		
1	1	1	0	0				35,256	35,256						
	Comb w/E-K Queen														
5	0	0	2	0				12,880	940,766						
2	0	0	1	0				4,588	139,509						
3	0	2	1	0				70,243	120,258						
1	0	0	0	0						0	14,064	0	604,135		
1	0	1	0	0				1,217	25,322						
200	23	25	175	0	7			745,458	2,916,231						
1	0	1	0	0				34,600	39,317						
2	0	1	1	0				25,820	95,335						
2	0	0	0	1						15,569	157,397	575,227	4,874,742		
2	0	0	0	1						95,837	537,854	1,646,196	9,747,618		
1	0	1	0	0				2,088	2,195						
115	Abd Nov 1961							0	2,509,301						
6	Comb w/Shugart N 1959								22,074						
85	0	29	41	0				198,784	5,471,072						
9	3	5	4	0	1			59,139	352,801						
9	4	1	7	0	2			74,314	218,249						
2	1	0	0	2						8,896	23,396	508,217	1,242,721		
2	0	0	0	2						11,378	26,110	237,030	586,476		
1	Abd 1956							0	1,634						
357	11	61	209	0	2			633,883	10,523,169						
38	11	15	13	0	4			330,997	486,038						
1	Abd Jan 1955							0	7,887						
1	0	0	1	0				1,277	2,333						

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TABLE 5.—*Oil and gas fields in New Mexico*—Continued

FIELD: COUNTY	DISCOVERY MO - YR.	GEOLOGY: PRODUCING FORMATIONS: AVG. TOP FT.	AVG. THK. *AVG. PERFS IN FT.	GEOLOGICAL FORMATION	AVERAGE API GRAV	RESERVOIR CHARACTERISTICS: STRUCTURE	CHARACTER	PERMEABILITY MILLIDARCIES	% POROSITY ESTIMATED	PRODUCTION MECHANISM	DEEPEST TEST: TOTAL DEPTH	GEOLOGICAL FORMATION	TOTAL PROVED ACRES
T V Morrow; Chaves	Apr 60	12860	40	Morrow	56						11000	Morrow	160
Tatum Wolfcamp; Lea	Oct 57	10285	31	Wolfcamp	43	AC	Lm	6	7	SGD	14393	Devonian	120
Teague; Lea	Mar 48	9340	50	Simpson	41	AC	SS	M	por	SGD	10218	Pre-Cambrian	640
Teague Abo; Lea	Sep 59	6764		Abo									320
Teague Devonian; Lea	Feb 52	7150	25	Devonian	41	AC	Do	P	por	SGD	10165	Pre-Cambrian	200
Teague Ellen; Lea	Feb 50	9700	50	Ellen	45	AC	Do	M	3	WD	10165	Pre-Cambrian	400
Teague Grayburg; Lea	May 57	3685	4	Grayburg	34	AC	SS-Do	P	10	SGD	10165	Pre-Cambrian	80
Teas; Lea	Mar 51	3285	5	Yates	34	AC	SS	P	por	SGD	3750	Seven Rivers	920
		3352	5	Seven Rivers									
Teas Bone Spring; Lea	Dec 62	9408	31	Bone Spring	38						14948	Devonian	40
Teas Morrow; Lea	Dec 62	13294	35	Morrow							14948	Devonian	640
Teas West Yates; Lea	Dec 59	3220	12	Yates	30						3325	Yates	280
Tecolote Peak Dela; Eddy	Mar 59	2512	2	Delaware Sd	41						2514	Delaware	40
Terry Blinebry; Lea	Mar 52	5840	20	Yeso	42	AC	Do	20	7	SGD	9150	Pre-Cambrian	4360
Tonto; Lea	Jun 44	3565	8	Seven Rivers	35	MC	Do	20	8	WD	3648	Seven Rivers	120
Tonto Wolfcamp; Lea	Apr 62	11180	20*	Wolfcamp	40						13800	Miss	40
Tonto Deep; Lea	Jun 59	11394	29	Wolfcamp	44						14025	Devonian	80
Tonto South Yates; Lea	Jun 61	3001	21	Yates							3192	Seven Rivers	120
Tonto West Atoka; Lea	Apr 60	13325	53	Atoka	52						14945	Devonian	160
Tonto West Yates; Lea	May 60	3258	4	Yates	30						14945	Devonian	240
Townsend Penn; Lea	Jun 56	11040	40	Penn	41	AC	Lm	P	7	SGD			40
Townsend Wolfcamp; Lea	May 52	10410	29	Wolfcamp	40	MC	Lm	38	8	SGD	13803	Devonian	4800
Tristie Draw; Lea	Feb 61	5062	4*	Delaware Sd	40						5200	Delaware	400
Tubb Oil; Lea	May 56	6105	72	Tubb	38	MC	Do	5	19	SGD	8370	Pre-Cambrian	800
Tubb Gas; Lea	Sep 46	6090	20	Yeso		MC	Do	P	19	SGD	8370	Pre-Cambrian	24480
Tulk Wolfcamp; Lea	Aug 51	9700	25	Wolfcamp	41	AM	Lm	P	8	SGD	13100	Penn	480
Tulk North Wolfcamp, Lea	Feb 52	9564	34	Wolfcamp	41	AM	Lm	P	por	SGD	10294	Penn	40
Tulk South Wolfcamp; Lea	Jan 62	9652	14*	Wolfcamp	40						11179	Penn	40
Turkey Track; Eddy	Aug 43	2050	10	Queen	38	Terr	SS	P	por	SGD	3896	Grayburg	1800
		2575	15	Grayburg									
Turkey Track Sev Riv; Eddy	Jul 49	1655	10	Seven Rivers	34	Terr	SS	P	por	SGD	3896	Delaware Mtn	320
Turkey Track East; Eddy	Apr 50	2235	9	Queen	34	Terr	SS	P	por	SGD	4371	Delaware	360
Turkey Track West; Eddy	May 51	2747	5	San Andres		Terr	Do	P	por	SGD	3005	San Andres	80
Twin Lakes Devonian; Chaves	Dec 50	7253	6	Siluro-Devonian	54	AC	Do	P	por	WD	8952	Devonian	40
U S Delaware; Eddy	Sep 53	6890	30	Delaware Mtn							15611	Simpson	40
Vacuum Abo; Lea	Oct 60	8650	70	Abo	40						13811	Devonian	3360
Vacuum Devonian; Lea	Oct 62	12069	25*	Devonian	49						13811	Devonian	40
Vacuum Drinkard; Lea	Dec 61	8450	26*	Drinkard	41						13811	Devonian	120
Vacuum Graybg-San And; Lea	May 29	4315	20	Grayburg	35	AC	Do	400	9	SGD WD	13811	Devonian	21720
		4650	75	San Andres									
Vacuum Queen Oil; Lea	May 61	3933	5*	Queen	36						13811	Devonian	680
Vacuum Queen Gas; Lea	Mar 57	3890	26	Queen		AC	SS	P	por	SGD	13811	Devonian	160
Vacuum Wolfcamp; Lea	Oct 62	9518	138	Wolfcamp	41						13811	Devonian	40
Vacuum Yates; Lea	Jun 57	3067	14	Yates	33	AC	SS	100	11	SGD	13811	Devonian	320
Vacuum Yeso; Lea	Oct 62	6394	35	Yeso	36						13811	Devonian	120
Vacuum East Abo; Lea	Jan 61	8890	40*	Abo Reef	39						9075	Abo Reef	240
Vacuum South Bone Spr; Lea	Apr 58	8504	10	Bone Spring	34		SS	M	por	SGD	15000	McKee	120
Vacuum South Devonian; Lea	Jan 58	11643	37	Devonian	48	AC	Do	226	7	WD	11848	Silurian	480
Vacuum South Wolfcamp; Lea	May 60	10011	16	Wolfcamp							11675	Devonian	40
Vandagriff-Keyes; Eddy		1374	10	Queen			SS	M	15	SGD	2503	Grayburg	4480
Wantz Abo; Lea	Jan 52	7218	20	L Leonard	41	AC	Do	P	14	SGD	9208	Montoya	1640
Warren Abo; Lea	Oct 54	7250	45	Abo	40	AC	Do	P	5	SGD	9852	Pre-Cambrian	160
Warren Blinebry; Lea	Jan 57	5755		Blinebry	36								320
Warren Connell; Lea	Dec 58	9245		Connell									160
Warren Drinkard; Lea	Mar 50	6765	15	Yeso	53	AC	Do	P	por	SGD	9352	Pre-Cambrian	160
Warren McKee; Lea	Dec 48	8965	50	Simpson	46	AC	SS	40	13	SGD	9852	Pre-Cambrian	1840
Warren Tubb; Lea	Jan 57	6360		Tubb									720
Warren North McKee; Lea	Jan 52	9012	100	Simpson	45	AC	SS	40	13	SGD	9475	Ellen	1040
Watkins; Lea	Dec 45	3564	10	Seven Rivers	25	MC	SS-Do	P	por	SGD	4266	Grayburg	240
Watkins Grayburg; Lea	Jan 48	4217	15	Grayburg	27	MC	SS	P	por	SGD	4266	Grayburg	40
Weir; Lea	May 46	6760	50	Leonard	38	AC	Do	P	por	SGD	10465	Pre-Cambrian	160
	Apr 59	6556		Tubb	37								
Weir Blinebry; Lea	May 61	5782		Blinebry-Paddock									120
Weir Tubb Gas; Lea	Apr 59	6474		Tubb									160
Weir East; Lea	Mar 62	5814	16	Blinebry	43								40
Welch Delaware; Eddy	Nov 57	2082	6	Delaware	41		SS	M	24	SGD	12620	Atoka	160
Welch Penn; Eddy	Oct 56	12502	20	Atoka			Lm	P	8	SGD	12620	Atoka	320
White City Penn; Eddy	Apr 60	9806	10	Wolfcamp	58						12212	Devonian	640
White Ranch Sil-Dev; Chaves	Apr 53	8727	35	Silurian-Devonian	47	AC	Do	150	8	WD	8810	Devonian	120
White Ranch West Dev;Chaves	Jul 59	8132	12	Devonian	46						8260	Devonian	40
Williams Penn; Lea (Abd 1959 Rev Mar 62)	Jan 55	11097	6	Bend	48	ML	SS	P	por	SGD	12519	Devonian	40
Wilson; Lea	Aug 28	3600											
		-3850	30	Yates-Sev Riv	31	ML	SS-Do	P	15	SGD	4695	San Andres	2600
Wilson North; Lea	Feb 51	3990	20	Seven Rivers	32	ML	SS-Do	P	15	SGD	4201	Seven Rivers	80
Wilson West; Lea	Nov 48	3936	10	Seven Rivers	27	ML	SS-Do	P	15	WD	3948	Seven Rivers	400
Windmill San Andres; Chaves	Feb 59	2514	18	San Andres	31						2750	San Andres	40
Wye Delaware; Eddy	Sep 56	5160	70	Delaware Sd			SS	M	24	SGD	7300	Bone Spring	40
Young; Lea	Feb 45	3765	10	Queen	37	Nose	SS	P	por	SGD	4677	Grayburg	1120
Young Tan Andres; Lea	Jun 56	4048	27	San Andres	36	Nose	SS	P	por	SGD	4648	San Andres	120
Not Named; Lea	Jun 61	5113	18	Grayburg	35						5131	Grayburg	120
Not Named; Lea	Jul 62	5682	98	Paddock							5780	Paddock	
Not Named; Eddy	Mar 61	9346	88*	Morrow							9600	Morrow	160
Not Named; Eddy	Feb 62	1634	5*	Seven Rivers							2095	Queen	
Not Named; Lea	Sep 62	9445	13*	Canyon	49						9990	Penn	
Not Named; Lea	Jan 62	4952	6*	Penrose	36						5028	Penrose	
Not Named; Lea	Oct 62	3382	10*	Queen							3421	Queen	
Not Named; Lea	Jul 62	11410	20*	Strawn	47						12834	Morrow	
Not Named; Lea	Jul 62	12448	30	Morrow							12834	Morrow	
Not Named; Roosevelt	May 61	9451	4*	Bough C	46						9470	Bough C	40

TABLE 5.—*Oil and gas fields in New Mexico*—Continued

WELL DATA 1962							OIL AND GAS CONDENSATE PRODUCTION				GAS PRODUCTION			
		WELLS PRODUCING			WELLS ABD.		CRUDE OIL		CONDENSATE		DRY GAS		CASINGHEAD GAS	
TOTAL OIL, GAS, GAS COND WELLS DRILLED	OIL, GAS, GAS COND WELLS DRILD	FLOWING	ARTIF. LIFT	GAS	DRLD DRY	ABD. PROD. WELLS	BBLS IN 1962	CUMULATIVE BBLS TO 1/1/63	BBLS IN 1962	CUMULATIVE BBLS TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63
1	0	0	0	1					20,050	21,240	457,004	480,632		
3	0	1	2	0			31,818	345,611						
16	0	0	10	0			46,265	2,026,695						
2	1	0	0	2					469	9,218	112,169	444,269		
5	0	0	3	0	0	2	15,822	391,437						
10	0	0	6	0	0	0	35,636	2,173,303						
2	0	1	0	0	0	0	571	20,090						
23	0	0	21	0			72,527	839,765						
1	1	1	0	0	0	0								
1	1	0	0	1	0	0								
7	0	0	7	0	1	0	69,627	173,593						
1	0	0	0	0			0	2,662						
109	1	74	30	0			587,183	5,444,247						
3	Abd Feb 1962						111	225,412						
1	1	1	Abd Aug 1962				6,108	6,108						
1	0	SI	0	0			0	726						
3	2	1	0	0	1		29,263	34,110						
1	0	0	0	1					3,424	3,424	159,116	159,116		
6	0	3	2	0			84,083	196,868						
1	Comb w/Townsend Wolfcamp													
105	0	18	63	0			490,520	14,512,794						
10	6	3	6	0	2		93,582	116,225						
24	1	21	3	0	1		110,256	517,416						
153	0	0	0	154					204,863	2,222,898	13,728,415	130,177,257		
12	0	0	-	0			35,076	1,243,637						
1	Abd Dec 1952						0	4,679						
1	1	1	0	0	0		14,190	14,190						
45	2	15	27	0	3		91,904	705,645						
8	0	0	6	0			3,054	150,116						
9	3	2	7	0	4		20,594	114,536						
2	Abd Jun 1954						0	728						
1	0	0	1	0			4,769	43,919						
1	0	0	1	0			833	20,586						
84	42	76	8	0	2		2,432,408	3,018,314						
1	1	1	0	0	0	0	2,039	2,039						
3	2	2	1	0			4,981	4,981						
543	7	74	419	0	2		3,241,949	98,067,229						
17	11	12	2	0	1		117,604	129,312						
1	0	0	0	1					636	8,543	27,934	551,756		
1	1	1	0	0	0	0	954	954						
8	0	6	2	0	0	0	14,700	146,815						
3	3	3	0	0	1		2,834	2,834						
6	Comb w/Vacuum Abo 1962						38,707	140,437						
3	0	1	2	0			11,200	103,301						
13	0	6	6	0	0	0	814,357	3,036,325						
1	0	0	1	0			16,070	39,833						
14	0	0	0	12	0	2			104	1,759	617,288	2,969,061		
41	3	16	18	0			213,653	2,014,295						
4	0	0	0	0			1,158	67,625						
2	0	0	0	2					1,415	71,798	121,337	1,5[illegible],786		
1	0	0	0	1							11,065	56,929		
3	0	2	1	0			14,990	220,622						
46	0	11	32	0			838,958	9,139,819						
6	0	0	0	4					NR		795,337	2,420,730		
26	Comb w/Warren McKee 1957							5,606,528						
6	0	0	2	0			1,581	72,436						
1	0	0	1	0			4,434	91,864						
4	0	0	1	0			15,640	175,807						
3	2	3	0	0	0	0	36,940	40,345						
1	0	0	0	1					44,392	119,176	362,229	1,312,044		
1	1	1	0	0	0	0	7,666	7,666						
4	0	0	4	0			9,412	97,237						
1	0	0	0	1							5,042	741,721		
2	0	0	0	2					618	757	185,949	327,100		
3	0	0	3	0			21,004	564,809						
1	0	0	1	0			34,838	136,890						
1	0	0	1	0			838	56,109						
65	0	0	40	0			119,965	8,182,571						
2	0	0	1	0			993	25,815						
10	0	0	6	0			22,293	725,828						
1	Abd Jan 1962						0	0						
1			SI											
28	0	4	21	0			45,752	1,144,942						
3	0	1	2	0			3,998	50,627						
3	0	0	0	0										
1	1													
1	0	0	0	SI										
1	1	0												
1	1													
1	1													
1	1													
1	1													
1	0	SI	0	0										

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TABLE 5.—*Oil and gas fields in New Mexico*—Continued

FIELD; COUNTY	DISCOVERY MO - YR	GEOLOGY: PRODUCING FORMATIONS: AVG TOP FT.	AVG THK "AVG PERFS IN FT.	GEOLOGICAL FORMATION	AVERAGE API GRAV	RESERVOIR CHARACTERISTICS: STRUCTURE	CHARACTER	PERMEABILITY MILLIDARCIES	% POROSITY ESTIMATED	PRODUCTION MECHANISM	DEEPEST TEST: TOTAL DEPTH	GEOLOGICAL FORMATION	TOTAL PROVED ACRES
Not Named; Lea	Aug 61	3326	52	Yates	36						3527	Seven Rivers	40
Not Named; Eddy	Jun 59	8998	112	Bend							9283	Bend	160
Not Named; Eddy	Aug 61	9622	10*	Penn							11560	Miss	160
Not Named; Lea	Oct 61	10001	115*	Wolfcamp	39						12509	Devonian	40
Not Named; Eddy	Jul 61	10096		Morrow	49						10784	Miss	160
Not Named; Eddy	Jul 57	1568	16	Grayburg							1628	Grayburg	160
Not Named; Eddy	Dec 61	2871	29*	Yeso	37						5620	Abo Reef	40
Not Named; Eddy	Apr 61	11213	85*	Morrow							12292	Devonian	160
Not Named; Lea	Nov 61	11050	10*	Bend	48						12497	Devonian	40
Not Named; Chaves	Jun 57	1312	10	Queen							2743	San Andres	160
Not Named; Lea	Sep 56	4148	30	Penrose							4178	Penrose	40
Not Named; Lea	Dec 52	3400		Yates							4000	Yates	160
Not Named; Chaves	Nov 59	1177	8	Queen	35						1190	Penrose	40
Not Named; Lea	Nov 38	2100		Yates							3300	Yates	160
Not Named; Eddy	Apr 62	8616	52*	Bone Spring	41						12794	Miss	
Not Named; Eddy	Apr 62	10212	14*	Wolfcamp	41						12794	Miss	
Not Named; Eddy	Apr 62	11136	24*	Strawn	44						12794	Miss	
Not Named; Lea	Nov 62	10834	29*	Wolfcamp	41						11713	Strawn	
Not Named; Lea	Oct 62	13004	6*	Morrow Sd							13160	Miss	
Not Named; Lea	Nov 61	13238	38*	Morrow							13723	Barnett	160
Not Named; Eddy	Jun 59	9442	16	Penn							10486	Ellen	160
Not Named; Lea	Oct 58	13620	200	McKee	56						13919	Granite	160
Not Named; Eddy	Mar 55	5722	12	Delaware Mtn							16459	Pre-Cambrian	40
Not Named; Lea	Oct 62	9537	17*	Canyon							11400	Miss	
Not Named; Lea	Aug 59	4936	22	San Andres	37						5000	San Andres	160
Not Named; Eddy	Dec 62	8817	6*	Atoka							9608	Morrow	
Not Named; Eddy	Oct 60	7452	15	Atoka							10237	Ellen	320
Not Named; Eddy	Jan 58	3873	5	Delaware Sd							3878	Delaware Sd	160
Not Named; Eddy	Aug 62	1637		L Seven Rivers	38						2693	San Andres	
Not Named; Eddy	Sep 59	1117	30	Grayburg	36						1196	Grayburg	40
Not Named; Chaves	Mar 61	3128	8*	Premier	33						3357	Premier	40
Not Named; Eddy	Oct 60	8685	12	Wolfcamp	40						12160	Devonian	80
Not Named; Chaves	Oct 60	890	20	San Andres	29						930	San Andres	40
Not Named; Lea	Oct 59	4945	35	San Andres	34						5045	San Andres	40
Not Named; Lea	Dec 59	3921	18	Yates	32						4105	Yates	40
Not Named; Eddy	Jan 62	7060	96	Penn							9310	Devonian	
Not Named; Lea	Feb 51	3852		Yates							3860	Yates	160
Not Named; Lea	Sep 58	3788		Yates							3860	Yates	160
Not Named; Lea	Dec 59	3910	10	Yates	35						4111	Yates	40

(a) 12 wells transferred to Anderson Ranch North Wolfcamp 1962

* Corrected

TABLE 5.—*Oil and gas fields in New Mexico*—Continued

WELL DATA							OIL AND GAS CONDENSATE PRODUCTION				GAS PRODUCTION			
	1962						CRUDE OIL		CONDENSATE		DRY GAS		CASINGHEAD GAS	
TOTAL OIL, GAS, CAS CONDENSATE WELLS DRILLED ALL YRS	OIL, GAS, GAS CONDENSATE WELLS DRLD	WELLS PRODUCING			WELLS ABD.		BBLS IN 1962	CUMULATIVE BBLS TO 1/1/63	BBLS IN 1962	CUMULATIVE BBLS TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63
		FLOWING	ARTIF. LIFT	GAS	DRLD DRY	ABD. PROD. WELLS								
1		Comb w/Teas-Yates 1962												
1	0	0	0	SI										
1	0	0	0	SI										
1	0	0	0	0										
1	0	0	0	SI										
1	0	0	0	SI										
1	0	0	0	0										
1	Abd Aug 1961													
1	0	0	0	0										
1	0	0	0	SI										
1	0	0	0	0			0	9,465						
1	0	0	0	SI										
1	0	0	0	0										
1	0	0	0	SI										
1	1													
1	1													
1	1													
1	1													
1	1													
1	0	0	0	1										
1	0	0	0	SI										
1	0	0	0	SI							0	38,609		
1	0	0	0	0			0	44,788						
1	1													
1	Comb w/Sawyer-San Andres													
1	1	0	0	SI										
1	0	0	0	SI										
1	0	0	0	SI										
1	1													
1	0	0	0	0										
1		0	0	0										
1	0	0	0	0			0	2,865						
1	0	0	0	0										
1	0	0	0	0			0	1,303						
1	0	0	0	0			0	2,073						
1	1	0	0	SI										
1		0	0	1							NR			
1	0	SI	0				0	2,219						
1	0	0	0	0			0	503						

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TABLE 5.—*Oil and gas fields in New Mexico*—Continued

FIELD; COUNTY	DISCOVERY MO. - YR.	GEOLOGY: PRODUCING FORMATIONS: AVG. TOP FT.	AVG. THK. *AVG. PERFS IN FT.	GEOLOGICAL FORMATION	AVERAGE API GRAV	RESERVOIR CHARACTERISTICS: STRUCTURE	CHARACTER	PERMEABILITY MILLIDARCIES	% POROSITY ESTIMATED	PRODUCTION MECHANISM	DEEPEST TEST: TOTAL DEPTH	GEOLOGICAL FORMATION	TOTAL PROVED ACRES
Allison; San Juan	Aug 52	5554	350	Mesaverde							5904	Mesaverde	640
Alsup; Rio Arriba	Feb 52	4155	200	Pictured Cliffs							4355	Pic Cliffs	160
Angel's Peak Dakota; San Juan	Nov 47	6470	60	Dakota	55	ML	SS	2	12	SGD	8043	Entrada	160
Angel's Peak Gallup; San Juan	Feb 58	5913		Gallup							7102	Morrison	840
Aztec Farmington; San Juan	Aug 53	1491	18	Farmington Ss	55	ML	SS	3	12	SGD	1766	Pic Cliffs	160
Aztec Fruitland; San Juan	Jan 54	1464	26	Fruitland	55	ML	SS	5	16	SGD	1647	Fruitland	5280
Aztec Fruitland North; San Juan	Apr 54	2480	20	Fruitland	55	ML	SS	5	16	SGD			
Aztec Pic Cliffs; San Juan	Jul 51	2650	90	Pictured Cliffs	55	ML	SS	10	20	SGD	3010	Pic Cliffs	60800
Ballard Gallup; San Juan	Dec 61	5728	78	Gallup	40						6800	Dakota	
Ballard Pic Cliffs; San Juan	Dec 53	2000	50	Pictured Cliffs	55	ML	SS	3	20	SGD	2183	Pic Cliffs	64000
Barker Creek Dakota; San Juan	Jan 42	2425	75	Dakota	55	AC/F	SS	14	16	SGD	9670	Penn	5000
Barker Creek Paradox; San Juan	Mar 45	8840	60	Paradox	52	AC/F	Do-Lm	25	6	SGD	9656	Penn	7360
Barker Dome South Tocito; San Juan	Sep 55	2336	64	Tocito	37	MF	Sh	P	f	GS	2400	Mancos	
Basin Dakota; San Juan-Rio Arriba	Dec 47	6000	250	Dakota	65	MC	SS	P	10	SGD	8150	Pre-Cambrian	268160
	May 62	7954	68	Dakota	63								
	Nov 62	6378	46	Dakota									
Bisti L Gallup; San Juan	Oct 55	4760	200	Gallup	41	ML	SS	30	15	SGD	5905	Morrison	16120
Blanco; Rio Arriba-San Juan	Dec 27	4600	800	Mesaverde	35	ML	SS	2	10	SGD	8164	Dakota	625000
	Jan 51	2500	80	Pictured Cliffs		ML	SS	3	18	SGD			
	Dec 52	7573	200	Dakota	55	ML	SS	0.5	8	SGD			
Blanco Dakota; San Juan	Oct 52	7796	215	Dakota	55	ML	SS	0.5	8	SGD	8095	Dakota	640
Blanco Mesaverde; Rio Arriba-San Juan	Dec 27	4600	750	Mesaverde	35	ML	SS	2	10	SGD	8164	Dakota	621440
Blanco Pic Cliffs; San Juan	Apr 52	2502	26	Pictured Cliffs		ML	SS	3	18	SGD	4550	Mesaverde	8320
Blanco East Pic Cliffs; Rio Arriba	Feb 52	4170	185	Pictured Cliffs		ML	SS	1	15	SGD	4355	Pic Cliffs	3520
Blanco Northeast; San Juan	Oct 52												
Blanco South Dakota; Rio Arriba	Sep 51	7150	200	Dakota	55	ML	SS	0.2	8	SGD	7637	Morrison	
	May 52	7485	113	Dakota	55	ML	SS	0.2	8	SGD			
Blanco South Pic Cliffs; Rio Arriba-San Juan	Dec 51	2136	70	Pictured Cliffs		ML	SS	3	20	SGD	6748	Morrison	165280
Blanco South Tocito; Rio Arriba	Jul 51	6622	16	Tocito	50	ML	SS	66	15	SGD	7637	Morrison	3520
Blanco West Dakota; San Juan	Oct 51	6740		Dakota	55	ML	SS	0.5	8	SGD			
Bloomfield Farmington; San Juan	Jul 26	718	18	Farmington	55	ML	SS	2	12	SGD	2100	Pic Cliffs	2000
Bluehill Paradox; San Juan	May 53	7040	40	Paradox	55	AC	Lm	2	8	SGD	8150	Molas	640
Boulder Mancos; Rio Arriba	Jul 61	5200		Gallup	37						5264	Gallup	920
Canyon Largo (T) Chacra; Rio Arriba	Jan 58	3506	12	Chacra		ML	SS	2	11	SGD	7221	Morrison	
Canyon Largo Pic Cliffs Rio Arriba	Apr 53	2200	650	Pic Cliffs-Dakota		ML	SS	5	18	SGD			
Cedar Hills; San Juan	Sep 50	4760	191	Point Lookout							4951	Pt Lookout	320
Cha Cha Gallup; San Juan	Oct 59	5270		Gallup	38						5722	Mancos	7760
Chaco Canyon Tocito; San Juan	Oct 55	4630	140	Tocito	40	ML	SS	0.5	10	SGD	5830	Morrison	2560
Chaco Wash Mesaverde; McKinley	Sep 61	312	4	Mesaverde	48								240
Chimney Rock (T); San Juan	Feb 53	7604	24	Penn Paradox	55	AC	Lm	2	8	SGD	8150	Penn	160
Chimney Rock Gallup; San Juan	Dec 57	963	35	Gallup	45	ML	SS	50	12	SGD	1800	Morrison	
		472	18	Gallup	45	ML	SS	150	20	SGD			
Choza Mesa Pic Cliffs; Rio Arriba	Sep 55	3912	233	Pictured Cliffs		MI	SS	5	20	SGD	6580	Mancos	
Companero Dakota; Rio Arriba	May 52	7708	173	Dakota	55	ML	SS	0.3	8	SGD	7881	Dakota	1440
Companero East Dakota; Rio Arriba	Sep 55	8091	321	Dakota	55	ML	SS	0.3	8	SGD	8330	Morrison	
Cottonwood (Rosa) Fruitland; Rio Arriba	Nov 53	2875	189	Fruitld-Pic Cliffs		MC	SS	P	por	SGD	5884	Mesaverde	160
Counsellor's Gallup NE; Rio Arriba	Mar 58	5540	45	Gallup	41	MC	SS	0.2	9	SGD	6685	Dakota	160
Counsellor's Gallup SE; Sandoval	Feb 58	5293	45	L Gallup	41	MC	SS	0.5	10	SGD	5503	Gallup	
Devil's Fork Gallup; Rio Arriba	Oct 58	5240	95	Gallup		ML	SS	38	15	SGD	6581	Dakota	3920
Dogie Canyon; Rio Arriba	Jun 51	2861	80	Pictured Cliffs							7795	Morrison	8000
Escrito Gallup; Rio Arriba	Jun 57	5580	25	Gallup	41	ML	SS	0.5	9	SGD	6956	Morrison	3760
Farmington South Gallup; San Juan	Jul 58	5335	162	Gallup	42	ML	SS	10	15	SGD	6381	Dakota	
Flora Vista Fruitland; San Juan	Dec 56	1750	15	Fruitland	55	ML	SS	2	12	SGD	4568	Mesaverde	1600
Flora Vista Mesaverde; San Juan	Feb 61	3250	64	Mesaverde							6574	Dakota	3200
Four Corners Paradox Penn; San Juan	56	5608	24	U Hermosa	42	AC	Lm	P	9	SGD	6850	Devonian	360
Fulcher Basin; San Juan	34	(See Fulcher-Kutz)											
Fulcher-Kutz; San Juan	Nov 27	1800	30	Pictured Cliffs		ML	SS	3	16	SGD	8043	Morrison	92800
		4348	100	Mesaverde									
		1670	15	Fruitland		MC	SS	2	14	SGD			2560
Gallegos Gallup; San Juan	Jul 58	5360	82	Gallup	41	MC	SS	0.2	9	SGD	6064	Dakota	17280
Gavilan Pic Cliffs; Rio Arriba	Jul 49	3425	57	Pictured Cliffs		MC	SS	5	18	SGD	3574	Lewis Sh	12480
Gomez; Rio Arriba	Jun 52	3092	118	Fruitland							3485	Pic Cliffs	360
Hammond; Rio Arriba	Feb 52	3197	93	Pictured Cliffs							3290	Pic Cliffs	320
Hart Mountain; San Juan	Dec 50	4981	196	Cliff House							5177	Cliff House	320

TABLE 5.—*Oil and gas fields in New Mexico*—Continued

WELL DATA								OIL AND GAS CONDENSATE PRODUCTION				GAS PRODUCTION			
	1962							CRUDE OIL		CONDENSATE		DRY GAS		CASINGHEAD GAS	
TOTAL OIL, GAS, CONDENSATE WELLS DRILLED ALL YRS	OIL, GAS, CONDENSATE WELLS DRILLED	WELLS PRODUCING: FLOWING	WELLS PRODUCING: ARTIF. LIFT	WELLS PRODUCING: GAS	WELLS ABD.: DRLG. PRY.	WELLS ABD.: ABD. PROD. USGS.		BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63
1	Comb w/Blanco Mesaverde 1953														
1	Comb w/Blanco E 1954														
6	Comb w/Basin Dakota Nov 1960										167,656		8,764,791		
21	0	18	2	0				55,948	328,602					4,111,165	15,962,411
5				SI											
32	1	0	32							0	2,114	706,251	4,978,586		
6	Abd 1958											0	15,138		
381	14	0	0	380		1				104	2,151	10,193,863	89,528,534		
			NR												
428	8	0	0	428	1					0	27,614	12,019,562	116,936,210		
14	Gas Storage												7,122,413		
9	0	0	0	9						0	63,150	889,767	99,216,066		
	Renamed Verde-Gallup 1956														
844	245			838	6	3				1,160,806	3,218,056	82,269,882	219,737,683		
403	4			50	257			2,637,993	23,843,151					11,392,251	55,216,892
547	Divided into Blanco Mesaverde & Blanco E 1954														
1	Comb w/Blanco 1953														
1942	44			1942	1	7				454,639	4,822,590	131,948,158	1,493,274,361		
52	12			52	1					1,079	1,348	5,788,383	16,443,945		
22	0	0	0	21						0	207	650,487	5,446,957		
	Comb w/Blanco Mesaverde 1952														
9	Comb w/Basin Dakota Nov 1960										41,593		4,094,858		
1033	65	0	0	1033	1	1				1,444	35,848	36,490,607	280,965,602		
23	2	6	4	0				121,243	3,485,272					1,248,468	6,621,106
	Comb w/Basin Dakota Nov 1960												28,215		
4	0	0	0	0				0	3,302						
1	0	0	0	1								28,986	1,221,724		
23			1	12				263,431	304,147			104,296	119,904		
42	Comb w/Ballard Pictured Cliffs 1959														
	Comb w/Blanco												4,530,085		
97	8	29	57	0				1,077,625	4,143,523					4,610,676	9,775,354
5	Abd 1957														
6	0	0	4	0				1,811	2,723						
1	0	0	0	SI										716	
	Comb w/Horseshoe Canyon Gallup 1959														
8	0	0	0	8											
1	Comb w/Basin Dakota Nov 1960											126,332	1,409,976		
											1,372		717,895		
4	Comb w/Basin Dakota Nov 1960														
											734		557,363		
1	Abd 1956														
2	0	0	2	0				823	7,083					1,816	
1	0	0	1	0				501	3,305						
27	6	17	5	0				141,355	305,757					2,212,261	6,572,953
39	Comb w/Blanco S Pictured Cliffs														
47	6	21	26	0	1			297,324	1,124,869					2,003,644	3,864,503
1	Comb w/Cha Cha Gallup 1960														
5	0	0	0	5						0	0	42,845	600,462		
10	0	0	0	10								1,828,485	2,458,618		
1	0	1	0	0				5,608	74,889					4,762	118,385
	See Flucher-Kutz														
339	0	0	0	325		1				228	3,075	4,209,097	127,415,428		
1	0	0	0	1						0	13	25,073	597,086		
100	0	59	35	0				88,584	1,146,484					2,844,132	13,990,940
78	7	0	0	78		1				6,951	40,802	2,685,355	13,618,440		
1	Comb w/La Jara Fruitland														
1	Comb w/Blanco South 1953														
1	Comb w/Blanco 1952														

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TABLE 5.—*Oil and gas fields in New Mexico*—Continued

FIELD; COUNTY	DISCOVERY MO. - YR.	GEOLOGY: PRODUCING FORMATIONS: AVG. TOP FT.	AVG. THK. *AVG. PERFS IN FT.	GEOLOGICAL FORMATION	AVERAGE API GRAV	RESERVOIR CHARACTERISTICS: STRUCTURE	CHARACTER	PERMEABILITY MILLIDARCIES	% POROSITY ESTIMATED	PRODUCTION MECHANISM	DEEPEST TEST: TOTAL DEPTH	GEOLOGICAL FORMATION	TOTAL PROVED ACRES
Hogback Dakota; San Juan	Sep 22	710	9	Dakota	56	AC/F	SS	10	19	SGD	7453	Pre-Cambrian	960
Hogback Miss; San Juan				Miss		AC/F	Lm-Do	2	10	WD			
Hogback Penn; San Juan	Mar 54	6166	466	Penn		AC/F	Lm	5	12	SGD	7453	Pre-Cambrian	1440
Horseshoe Canyon Gallup; San Juan	Nov 56	1300	24	U Gallup	42	ML	SS	50	12	SGD	2085	Morrison	15120
			18	L Gallup	42	ML	SS	175	20	SGD			
Hospah Gallup; McKinley	Dec 26	1560	40	Hospah	30	AC/F	SS	250	25	WD	3282	Dakota	3200
Huerfano Dakota; San Juan	Oct 50	6776	24	Dakota	55	ML	SS	0.5	10	SGD	7072	Morrison	480
Ignacio South; San Juan	Jul 53	2766	40	Fruitland		AC/F	SS	P	por	SGD	5002	Mesaverde	160
Kutz Farmington; San Juan	Nov 55	1105	13	Farmington	55	MC	SS	5	15	SGD	1831	Pic Cliffs	1760
Kutz Fruitland; San Juan	Aug 56	1330	15	Fruitland									1920
Kutz Gallup; San Juan	Apr 58	5575	72	Gallup	37	MC	SS	1	11	SGD	6770	Morrison	2880
Kutz West Dakota; San Juan	Feb 52	5959	144	Dakota	55	ML	SS	1	10	SGD	6188	Dakota	
Kutz West Fruitland; San Juan	Oct 52	900	75	Fruitland		MC	SS	2	15	SGD	2042	Pic Cliffs	2720
Kutz West Pic Cliffs; San Juan	May 50	1771	69	Pictured Cliffs		ML	SS	3	18	SGD	6830	Morrison	57600
Kutz Canyon; San Juan	Nov 27	(See Fulcher-Kutz)											
Kutz Canyon South; San Juan	Oct 50	2042	68	Pictured Cliffs							6850	Morrison	160
Kutz Canyon West; San Juan	May 50	1771	69	Pictured Cliffs		ML	SS	3	18	SGD	6830	Morrison	57600
	Mar 52	1672	10	Fruitland		ML	SS	2	15	SGD			
		5950	80	Dakota	55	ML	SS	1	10	SGD			
La Jara Fruitld;Rio Arriba	Jun 52	3092	18	Fruitland		MC	SS	P	por	SGD			
La Jara Pic Cliffs; Rio Arriba	Oct 53	3850	30	Pictured Cliffs		MC	SS	P	por	SGD	6445	Mesaverde	160
La Plata; San Juan	Sep 49	5040	270	Point Lookout		MC	SS	3	12	SGD	5312	Pt Lookout	320
La Plata Gallup; San Juan	Apr 59	5700		Gallup	40						6200	Gallup	320
La Plata NW(T) Gallup; San Juan	Sep 58	2533	120	Gallup	42	MC	Sh	pfrc	f	SGD			
La Plata South; San Juan	Jul 50	4535	315	Point Lookout							4930	Pt Lookout	320
Largo; San Juan	Jan 50	4435	232	Point Lookout							4667	Pt Lookout	320
		4629	83	Mesaverde	35	ML	SS	3	12	SGD			
Largo Dakota; San Juan	Apr 55	6740	16	Dakota	55	ML	SS	1	10	SGD	6964	Morrison	160
Largo East; Rio Arriba	Dec 50	4884	136	Point Lookout							5210	Pt Lookout	320
Largo West; San Juan	Apr 50	4495	152	Point Lookout							4736	Pt Lookout	320
La Ventana; Rio Arriba	Feb 56	3784	31	La Ventana		ML	SS	2	12	SGD	7505	Morrison	320
		3900											
Lindrith Dakota; Rio Arriba	Dec 49	7515	215	Dakota	40	ML	SS	5	12	SGD	7865	Morrison	2560
Los Pinos North Dakota; San Juan	Aug 54	7930	54	Dakota	55	ML	SS	0.2	5	SGD			
Los Pinos North Fruitland; San Juan	Jul 53	2766	40	Fruitland		ML	SS	3	14	SGD	5002	Mesaverde	160
Los Pinos South Dakota; San Juan	Oct 54	7790	205	Dakota	55	ML	SS	0.2	6	SGD	8095	Morrison	
Los Pinos South Fruitland; San Juan	Aug 53	3054	21	Fruitland		ML	SS	3	14	SGD	3240		160
Lybrook Gallup; Rio Arriba	Aug 57	5715		Gallup	37						5896	Gallup	400
Media; Sandoval	Nov 62	2830		Gallup	38						9684	Pre-Cambrian	80
Mesa Gallup; San Juan	Aug 61	1013	16	Gallup	40						1482	Carlile	480
Oswell Farmington; San Juan	Jan 32	1342		Farmington Ss	55	ML	SS	2	12	SGD	1455	Farmington	2560
Otero Chacra; Rio Arriba	Feb 56	3700	31	Chacra-LaVentana		ML	SS	5	12	SGD	7505	Morrison	6880
Otero Dakota; Rio Arriba	Oct 54	6663	12	Dakota	55	ML	SS	2	10	SGD	7658	Entrada	
	Feb 57	7022	26	Dakota	55	ML	SS	5	12	SGD			
Otero Gallup; Rio Arriba	Aug 56	6550	10	Gallup	42	ML	SS	1	10	SGD	7743	Morrison	4800
Otero Graneros; Rio Arriba	Aug 55	7110	22	Dakota (Graneros)	55	ML	SS	2	10	SGD	7484	Morrison	1400
Otero Pic Cliffs;Rio Arriba	Feb 55	2218	52	Pictured Cliffs		ML	SS	3	16	SGD	2270	Pic Cliffs	1600
Otero Pt Lookout; Sandoval	Jan 55		16	Point Lookout	37	ML	SS	2	12	SGD			160
Otero Sanostee; Sandoval	May 55	5820	20	Sanostee	37	ML	SS	2	10	SGD	6368	Morrison	1280
Puerto Chiquito; Rio Arriba	Jan 60	1765	29	Gallup	37	MF	Sh	P	f	GS	4850	Gallup	960
	Jun 60	3419	52	Greenhorn	38								
Rattlesnake Dakoka;San Juan	Feb 24	840	11	Dakota	55	AC/F	SS	14	12	SGD	7407	Penn	960
Rattlesnake Penn; San Juan	Jun 29	6585	10	Hermosa		AC/F	Lm	1	8	SGD	7407	Devonian	2460
Red Mountain; McKinley	Jun 34	490	6	Mesaverde	35	AC/F	SS	5	15	SGD	971	Mesaverde	2560
Salt Creek Dakota; San Juan	Jul 58	1039	4	Dakota	54						8175	Basement	160
San Luis Mesaverde;Sandoval	Apr 59	891	27	Mesaverde	38	AC/F	SS	P	por	WD	918	Mesaverde	160
Shiprock Gallup; San Juan	Mar 59	9[illegible]	10	Gallup	50	ML	SS	10	15	SGD	100	Gallup	
Simpson Gallup; San Juan	Feb 59	5240	72	Gallup	41						6343	Dakota	200
Southern Ute Dome Dakota; San Juan	Oct 21	2200	80	Dakota	55	AC/F	SS	14	16	SGD	8602	Penn	640
Starr Lake Mesaverde; McKinley	Apr 58	1895	10	Mesaverde	39	ML	SS	5	15	SGD	1949	Mesaverde	
Stephenson (T); Rio Arriba	Jul 52	2931	40	Greenhorn Lm							3292	Dakota	
Stoney Butte Dak; San Juan	Sep 50	3639	5	Dakota	42	AC/f	SS	10	16	WD	9346	Pre-Cambrian	40
Table Mesa Dakota; San Juan	Nov 25	1360	12	Dakota	55	AC/F	SS	14	16	SGD	7763	Granite	640
Table Mesa Miss; San Juan		7450	80	Miss	59	AC/f	Lm-Do	P	por	WD	7789	Elbert	
	Mar 62	7676	22	Miss									
Tapacitos; Rio Arriba	Dec 53	6985	46	Dakota		ML	SS	0.5	10	SGD	8043	Morrison	1760
		8090	109	Dakota		ML	SS	0.5	10	SGD			
Tapacitos Pic Cliffs; Rio Arriba	May 54	3557	62	Pic Cliffs		ML	SS	10	18	SGD	8041	Morrison	21120
Torreon; Sandoval	Jan 53	965	29	Mesaverde		MF	SS	P	por	WD			160
Torreon Entrada; Sandoval	Nov 53	5210	5	Entrada		MF	SS	M	por	WD	9684	Entrada	80
Torreon Mesaverde; Sandoval	Dec 53	1672	13	Mesaverde		MF	SS	P	por	WD	1685	Mesaverde	40
Totah Gallup; San Juan	Sep 59	4900	62	Gallup	41						6030	Morrison	5200
Twin Mounds Mesaverde; San Juan	Feb 54	3348	10	Point Lookout	35	ML	SS	5	12	SGD	5760	Morrison	320
Twin Mounds Pic Cliffs; San Juan	Jul 54	921	18	Pic Cliffs		ML	SS	3	16	SGD	3512	Pic Cliffs	40
Ute Dome Dakota; San Juan	Oct 21	2190	285	Dakota	55	DF	SS	14	16	WD	8602	Penn	2560
Ute Dome Paradox; San Juan	Aug 48	7300	1000	Paradox Penn	52	DF	Lm	P	5	WT	8602	Penn	2560
Verde Gallup; San Juan	Sep 55	2336	64	Tocito	42	MF	Sh	pfrc	f	SGD	2833	Morrison	9000

TABLE 5.—*Oil and gas fields in New Mexico*—Continued

WELL DATA								OIL AND GAS CONDENSATE PRODUCTION				GAS PRODUCTION			
	1962							CRUDE OIL		CONDENSATE		DRY GAS		CASINGHEAD GAS	
TOTAL OIL, GAS, GAS COND. WELLS DRILLED ALL YRS	TOTAL OIL, GAS, COND. WELLS DRILD.	WELLS PRODUCING			WELLS ABD.			BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63
		FLOWING	ARTIF. LIFT	GAS	DRLD. DRY	ABD. PRDG. WELLS									
10	0	10	0	0				54,936	3,664,509						
	Abandoned														
2	0	2	0	0				16,857	357,927					29,550	3,370,244
378	0	0	299	0				2,327,517	14,227,033					1,436,736	5,887,316
46	0	0	42	0				101,556	4,233,808						
1	Comb w/Basin Dakota Nov 1960										18,298		725,984		
1	Comb w/Los Pinos N Fruitland														
5				3								10,287	183,499		
4				4						0	228	165,018	1,683,215		
19	0	7	11	0				73,155	406,564					364,848	989,151
3	Comb w/Basin Dakota Nov 1960										11,762		468,745		
3	0	0	0	2								27,234	217,446		
219	0	0	0	211		4						0	241	3,324,643	74,415,972
	See Fulcher-Kutz														
	Comb w/Kutz Canyon West														
162	Divided into Kutz W Dakota, Kutz W Fruitland 1954														
	Abd 1955;Recomp as Blanco Mesaverde field well														
1	Comb w/La Jara Fruitland														
	Comb w/Blanco 1949														
1	0	0	1	0				34,969	119,769					14,217	
	Comb w/Blanco 1951														
	Comb w/Blanco 1951														
1	Abd 1959											0	80,916		
	Comb w/Blanco 1950														
	Comb w/Blanco														
2	Name changed to Otero Chacra 1956														
4	0	0	1	0				169	27,141					457	
	Comb w/Basin Dakota Nov 1960								6,332,687						
1	0	0	0	1								12,175	208,628		
3	Comb w/Basin Dakota Nov 1960												415,806		
1	0	0	0	1								30,114	284,542		
10	0	4	6	0				40,265	95,152					482,349	
2	2	0	2	0				1,537	1,537					155	155
12	0	0	9	0				60,386	63,946						
8	0	0	1					803	8,626						
28	5	0	0	28						0	2,362	1,733,791	7,881,073		
	Comb w/Basin Dakota Nov 1960										199,238		3,822,106		
42	0	2	40	0				134,554	979,497					891,415	4,052,516
	Comb w/Otero Dakota								7,516		93,493		1,823,835		
	Comb w/Ballard Pictured Cliffs 1959												11,538,630		
2	Abd 1961							0	18,352						
3	Abd 1961							0	29,882						
14	0	0	12	0				93,161	111,537*					873	
85	0	1	29	0	1			8,668	4,642,797					14,856	
11	7	3	5	0		3		161,419	680,127						
21	7	1	13	0				52,687	85,669						
4	0	0	3	0				3,014	40,055						
4	0	0	3	0	3			3,014	40,055						
40	0	0	39	0	3			15,101	37,172						
5	0	1	4	0				88,945	160,309					136,502	
5	Comb w/Ute Dome Dakota														
	Abd 1959														
1	Abd 1953							0	366						
1	Abd 1952							0	9,887						
14	1	0	12	0				55,703	1,185,141						
			NR												
11	Comb w/Basin Dakota														
132	20	0	0	132						140	26,371	6,997,512	63,791,593		
	Abd 1951														
2	Abd Dec 1955							0	350						
1	Abd							0	13,875						
65	3	32	23	0	1			465,994	2,383,848					2,437,647	5,376,762
1	Abd 1956									0	4,575	0	652,995		
2	Abd 1956														
6	0	0	0	6						0	2,830	67,240	3,141,449		
				2(SI)								0	0		
197	0	0	137	0	1	8		504,327	6,507,152					348,684	

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TABLE 5.—*Oil and gas fields in New Mexico*—Continued

FIELD; COUNTY	DISCOVERY MO - YR.	GEOLOGY: PRODUCING FORMATIONS: AVG. TOP FT.	AVG. THK. *AVG. PERFS IN FT.	GEOLOGICAL FORMATION	AVERAGE API GRAV	RESERVOIR CHARACTERISTICS: STRUCTURE	CHARACTER	PERMEABILITY MILLIDARCIES	% POROSITY ESTIMATED	PRODUCTION MECHANISM	DEEPEST TEST: TOTAL DEPTH	GEOLOGICAL FORMATION	TOTAL PROVED ACRES
Walker Dome Los Mancos; McKinley	Aug 56										975	Mancos	
Nyper; San Juan	Aug 46	568	10	Farmington Ss	55	ML	SS		5 16	SGD			2560
Not Named; Rio Arriba	Dec 62	6250		Gallup	38						6598	Mancos	80
Not Named; Rio Arriba	Aug 60	6425	135	Gallup	42						7838	Dakota	640
Not Named; San Juan	Aug 59	1560	7	Fruitland							1856	Pic Cliffs	160
Not Named; Rio Arriba	Aug 62	600	30*	Morrison							1401	Entrada	320
Not Named; San Juan	Jun 59	4740		Gallup	39	ML	SS		P por	SGD	5904	Morrison	
Not Named; San Juan	Nov 62	1240	11*	Gallup	40						1288	Mancos	40
Not Named; McKinley	Aug 60	2070		Gallup	40								40
Not Named; Rio Arriba	Apr 57	7264	30	Gallup	43	ML	SS		0.5 9	SGD	7368	Gallup	320
Not Named; Sandoval	Aug 57	4730	12	Gallup Sd	35						5980	Morrison	160
Not Named; San Juan	Apr 59	5940		Paradox	72	AC/F	Lm		P c	WD	7026	Miss	640
Not Named; McKinley	May 60	2172	38	Mancos	46						2438	Gallup	40
Not Named; San Juan	Apr 60	5668	253	Gallup	40						6937	Dakota	40
Not Named; Rio Arriba	May 60	2126	524	Gallup	37						2126	Gallup	40
Not Named; Rio Arriba	May 62	8160	48*	Dakota							8330	Dakota	320
Not Named; San Juan	Oct 59	3900		Gallup	38	ML	SS		5 11	SGD	4897	Morrison	160
Not Named; Sandoval	Aug 56	5331	15	Gallup	40	ML	SS		0.5 9	SGD	5515	Gallup	80
Not Named; Rio Arriba	Jan 60	8046	88	Dakota2	44						8350	Dakota	160
Not Named; San Juan	Sep 59	6306		Dakota	41						6705	Morrison	190

TABLE 5.—*Oil and gas fields in New Mexico*—Continued

WELL DATA								OIL AND GAS CONDENSATE PRODUCTION				GAS PRODUCTION			
	1962							CRUDE OIL		CONDENSATE		DRY GAS		CASINGHEAD GAS	
TOTAL OIL, GAS, CONDENSATE WELLS DRILLED ALL YRS	OIL, GAS, CONDENSATE WELLS DRLD	WELLS PRODUCING			WELLS ABD.			BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	BBLS IN 1962	CUMULATIVE BBLS. TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63	MCF IN 1962	CUMULATIVE IN MCF TO 1/1/63
		FLOWING	ARTIF LIFT	GAS	DRLD DRY	ABD. PROD. LOCS									
	Abd-Never Produced														
2	Abd														
2	0	0	2	0				1,426	1,426						
8	0	0	8	0				32,078	112,198						
1	0	0	0	1								7,078	36,318		
1	1	Abd 1962				1									
	Abd 1962							0	4,362						
1	1	0	1	0	0	0		1,848	1,848						
1	0	0	1	0				573	759						
2	Abd 1961											0	26,103		
2	0	0	2	0				1,443	11,022			196			
1	0	0	0	1	0			370,460	2,331,608						
1	Abd 1962					1		0	20						
1	0	0	1	0				2,571	9,527						
1	0	0	SI					0	140						
1	1	0	0	SI											
2	0	0	2	0				2,651	6,101						
1	Abd							0	2,990						
2	0	2	0	0				16,445	28,335					97,657	
2	0	1	1	0				2,599	20,011						

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A reserves study by the American Petroleum Institute and the American Gas Association indicates that New Mexico had 1,010,729,000 barrels of crude oil reserves as of December 31, 1963, and 588,223,000 barrels of natural gas liquid reserves, for a total hydrocarbon liquid reserve of 1,568,962,000 barrels. Natural gas reserves were estimated to be 15,037,822,000,000 cubic feet as of December 31, 1963. (See tables 6, 7, 8, and fig. 15.)

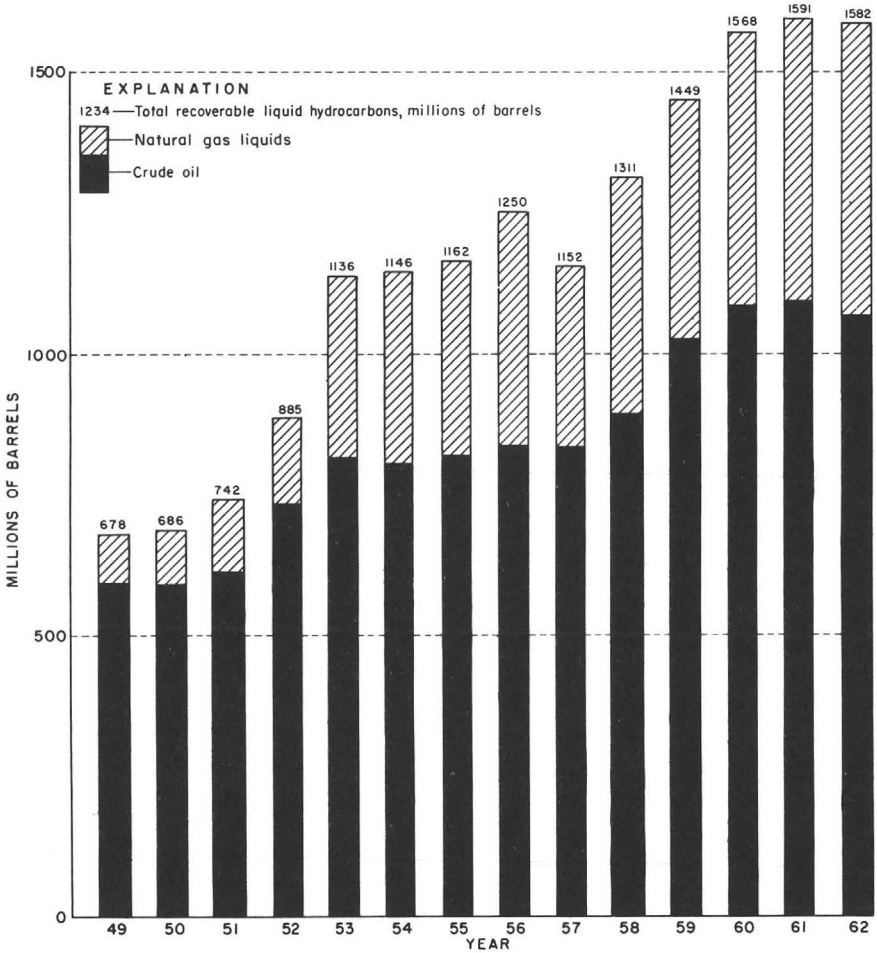

FIGURE 15.—Recoverable reserves of liquid hydrocarbons in New Mexico per calendar year. (Source of data: American Petroleum Institute.)

TABLE 6.—*Estimated proved crude oil reserves in New Mexico (in barrels)*

Year	Reserves at first of year	Changes due to extensions	New discoveries	Production during year	Reserves at end of year	Changes in total reserves
1949	552, 231, 000	46, 204, 000	41, 266, 000	47, 479, 000	592, 222, 000	39, 991, 000
1950	592, 222, 000	31, 065, 000	12, 418, 000	43, 723, 000	591, 982, 000	−240, 000
1951	591, 982, 000	63, 788, 000	9, 504, 000	53, 634, 000	611, 640, 000	19, 658, 000
1952	611, 640, 000	158, 663, 000	22, 905, 000	59, 850, 000	733, 358, 000	121, 718, 000
1953	733, 358, 000	138, 420, 000	13, 112, 000	69, 988, 000	814, 902, 000	81, 544, 000
1954	814, 902, 000	55, 647, 000	8, 131, 000	72, 794, 000	805, 886, 000	−9, 016, 000
1955	805, 886, 000	86, 016, 000	8, 576, 000	80, 820, 000	819, 658, 000	13, 772, 000
1956	819, 658, 000	81, 745, 000	21, 150, 000	87, 116, 000	835, 437, 000	15, 779, 000
1957	835, 437, 000	76, 992, 000	11, 750, 000	92, 435, 000	831, 744, 000	−3, 693, 000
1958	831, 744, 000	143, 759, 000	14, 406, 000	95, 788, 000	894, 121, 000	62, 377, 000
1959	894, 121, 000	222, 100, 000	11, 909, 000	102, 341, 000	1, 025, 789, 000	131, 668, 000
1960	1, 025, 789, 000	142, 951, 000	19, 187, 000	104, 269, 000	1, 083, 658, 000	57, 869, 000
1961	1, 083, 658, 000	88, 816, 000	26, 502, 000	108, 773, 000	1, 090, 203, 000	6, 545, 000
1962	1, 090, 203, 000	57, 565, 000	21, 615, 000	104, 793, 000	1, 064, 590, 000	−25, 613, 000
1963	1, 064, 590, 000	32, 487, 000	18, 111, 000	104, 459, 000	1, 010, 729, 000	−53, 861, 000

Source of data: American Petroleum Institute.

TABLE 7.—*Estimated proved liquid hydrocarbon reserves in New Mexico (in barrels)*

Year	Reserves at first of year	Changes due to extensions	New discoveries	Production during year	Reserves at end of year	Changes in total reserves
1949	632, 478, 000	55, 356, 000	42, 002, 000	51, 895, 000	677, 941, 000	45, 463, 000
1950	677, 941, 000	42, 838, 000	13, 788, 000	48, 688, 000	685, 879, 000	7, 938, 000
1951	685, 879, 000	108, 009, 000	10, 165, 000	61, 794, 000	742, 259, 000	56, 380, 000
1952	742, 259, 000	188, 352, 000	24, 252, 000	69, 962, 000	884, 901, 000	142, 642, 000
1953	884, 901, 000	316, 719, 000	14, 913, 000	80, 974, 000	1, 135, 559, 000	250, 658, 000
1954	1, 135, 559, 000	84, 551, 000	11, 707, 000	85, 940, 000	1, 145, 877, 000	10, 318, 000
1955	1, 145, 877, 000	102, 280, 000	9, 864, 000	96, 156, 000	1, 161, 865, 000	15, 988, 000
1956	1, 161, 865, 000	166, 319, 000	23, 639, 000	102, 287, 000	1, 249, 536, 000	87, 671, 000
1957	1, 249, 536, 000	−5, 578, 000	16, 093, 000	107, 759, 000	1, 152, 292, 000	−97, 244, 000
1958	1, 152, 292, 000	255, 774, 000	16, 149, 000	112, 856, 000	1, 311, 359, 000	159, 067, 000
1959	1, 311, 359, 000	238, 104, 000	20, 795, 000	121, 429, 000	1, 448, 829, 000	137, 470, 000
1960	1, 448, 829, 000	229, 085, 000	23, 159, 000	132, 616, 000	1, 568, 457, 000	119, 628, 000
1961	1, 568, 457, 000	134, 675, 000	27, 751, 000	139, 434, 000	1, 591, 449, 000	22, 992, 000
1962	1, 591, 449, 000	101, 932, 000	23, 425, 000	135, 007, 000	1, 581, 799, 000	−9, 650, 000
1963	1, 581, 799, 000	103, 936, 000	19, 515, 000	136, 288, 000	1, 568, 962, 000	−12, 837, 000

Source of data: American Petroleum Institute, and American Gas Association.

TABLE 8.—*Estimated proved natural gas reserves in New Mexico*

[Millions of cubic feet]

Year	Production	National rank	Reserves	National rank
1949	256, 706	6	6, 241, 003	6
1950	248, 245	6	6, 990, 670	6
1951	315, 835	6	11, 589, 970	5
1952	442, 043	6	14, 038, 889	4
1953	436, 102	6	17, 522, 210	3
1954	549, 760	4	17, 240, 669	3
1955	544, 175	4	18, 584, 912	3
1956	641, 880	4	23, 472, 707	3
1957	743, 826	4	22, 258, 009	4
1958	724, 628	4	21, 180, 020	3
1959	702, 514	4	17, 912, 798	4
1960	778, 760	4	15, 603, 724	5
1961	744, 400	4	14, 757, 739	5
1962	729, 288	5	14, 189, 797	5
1963	714, 648	5	15, 037, 822	5

Source of data: American Gas Association.

Refining of petroleum products in New Mexico shows an upward trend correlative with increasing petroleum production (figs. 16, 17, 18). Although much natural gas is exported by pipeline to other parts of the Nation, most of the gasoline produced in the State is consumed locally (fig. 19).

THE OIL AND GAS RESOURCES OF SOUTHEASTERN NEW MEXICO

(By R. F. Montgomery, Hobbs, N. Mex.)

Introduction

Since 1923 southeastern New Mexico has consistently been one of the most active areas in both exploration and development of oil and gas resources in the Nation. The area has the highest success ratio for wells drilled of all major producing provinces in the country, averaging 22 percent for the past 25 years. As a result Lea County produces more hydrocarbons than any county in the Nation. The oil and gas resources of southeastern New Mexico provide a major revenue source to New Mexico, which has one of the lowest tax rates on personal property and income in the country. A brief geologic sketch and information on production of oil and gas in southeastern New Mexico are presented. As used in this chapter southeastern New Mexico includes the oil and gas producing counties, Lea, Eddy, Chaves, and Roosevelt. Figure 20 shows the distribution of oil and gas fields in these counties.

Geology

Southeastern New Mexico is within the Permian basin. Paleogeographic features within the Permian basin, such as the Central Basin platform, the Delaware basin, the Lovington basin, and the Northwestern shelf (Figs. 7 and 24) are important to the control of regional distribution of oil and gas resources.

Central Basin platform.—The Central Basin platform is a large positive feature in the central part of the Permian basin. The platform is bordered on the west by the Delaware basin and on the north by the San Simon syncline, the site of a Permian channel connecting the Midland basin in Texas with the Delaware basin in New Mexico. The Central Basin platform was formed during Late Pennsylvanian time. Over the Eunice high sedimentary rocks about 6,000 feet thick were uplifted, and removed by erosion in Early Permian time. The Abo Formation, here consisting largely of dolomite, rests with angular unconformity on older rocks, including Precambrian basement rock on the eastern margin of the Eunice high.

Present oil and gas production from the Central Basin platform area is from sedimentary rocks of Ordovician, Silurian, Devonian, and Permian ages (table 9). Prolific Upper Permian reservoirs include those of the Eunice-Monument, Dollarhide, and Hobbs fields. Many of the anticlines, such as Hobbs, Arrowhead, and Monument, are as yet incompletely tested in spite of the intensive development since 1926. The geologic setting of these structures is similar to that of the Eunice high where 11 zones produce oil and gas. The Dollarhide, Fowler, and Justis fields are productive in five formations and most fields on the Central Basin platform produce from more than one zone.

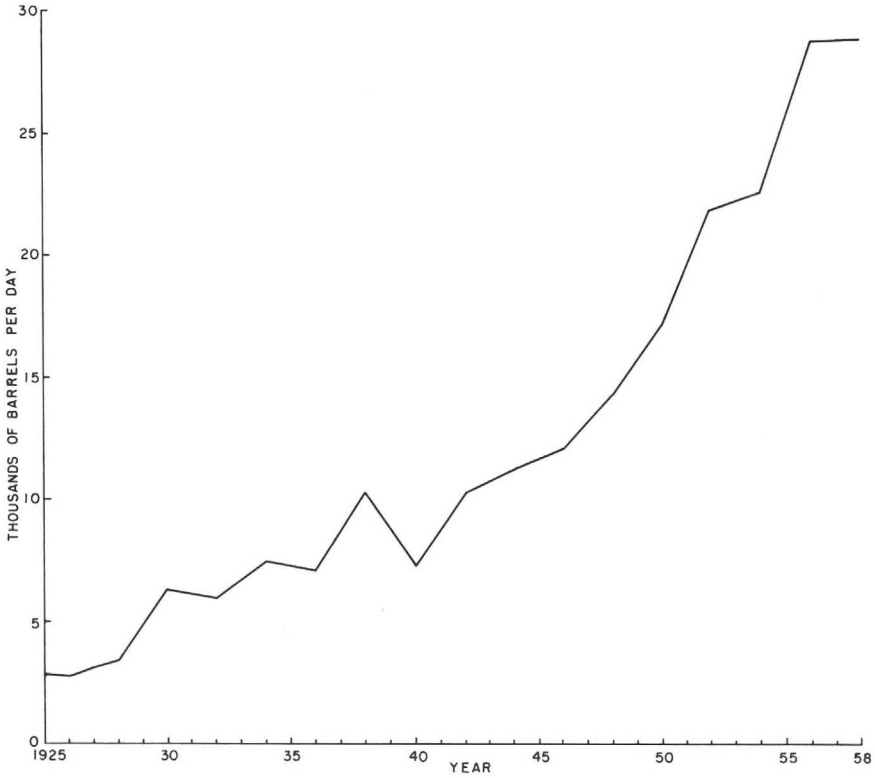

FIGURE 16.—Crude oil capacity of operating refineries in New Mexico. (Source of data: U.S. Bureau of Mines.)

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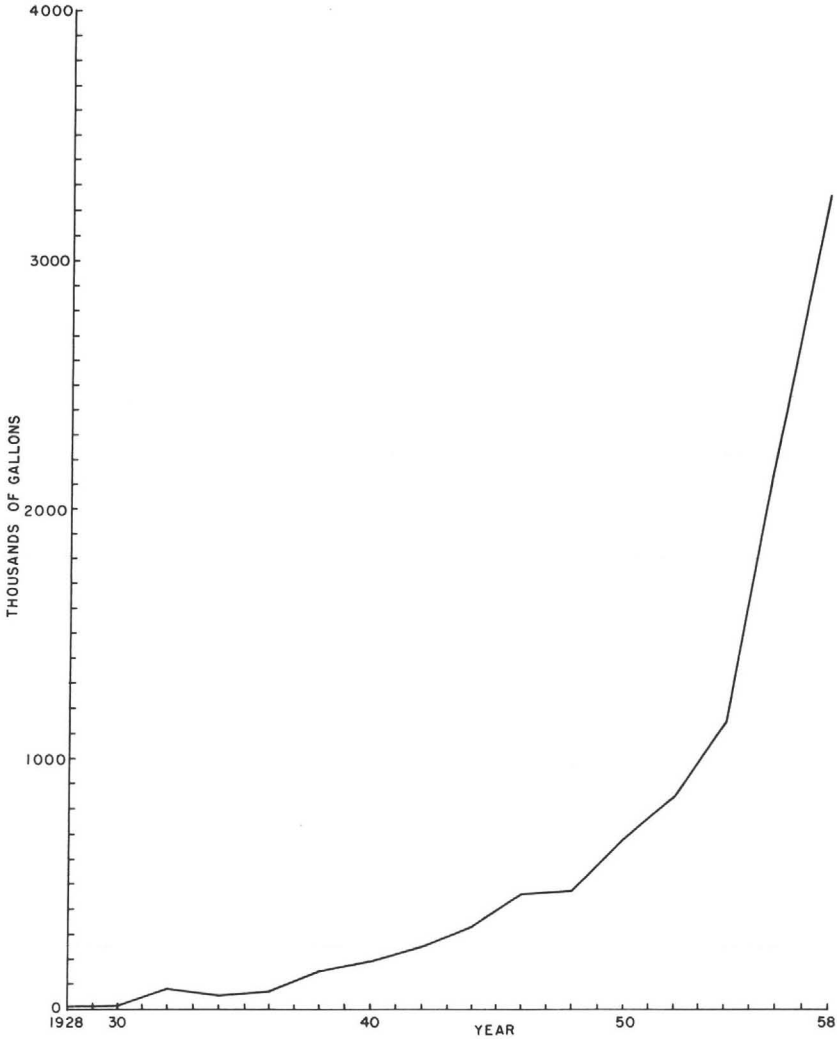

FIGURE 17.—Daily capacity of natural gasoline plants in New Mexico. (Source of data: U.S. Bureau of Mines.)

Of the 10 largest fields in accumulative production in New Mexico, the following 6 are on the Central Basin platform:

Rank	Field	Formation	Accumulated production to Jan. 1, 1964 (barrels)
1	Eunice-Monument	Grayburg-San Andres	266,437,051
2	Hobbs	Grayburg-San Andres	176,702,538
5	Langlie-Mattix	Seven Rivers-Queen	62,109,696
6	Drinkard	Drinkard	54,119,282
7	Jalmat	Yates-Seven Rivers	53,120,659
8	Eumont	Yates-Seven Rivers-Queen	51,943,951

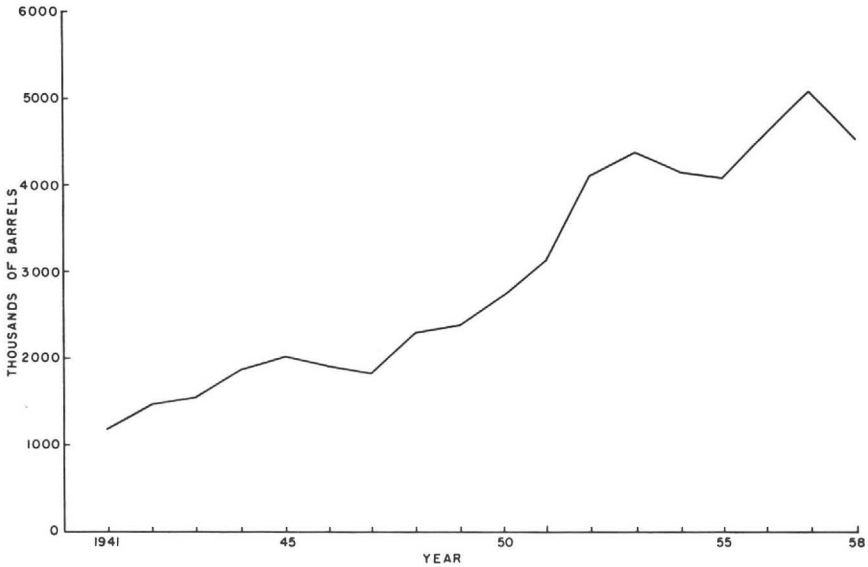

FIGURE 18.—Production of refined gasoline in New Mexico. (Source of data: U.S. Bureau of Mines.)

Northwestern shelf.—The Northwestern shelf is the relatively stable area north of the Delaware basin. Much of the oil and gas production is from back reef rocks of Guadalupe age that are similar in environment and depositional history to equivalent producing zones of the Central Basin platform. Other producing zones include older Permian, Pennsylvanian, and Devonian formations.

The hinge line of the Northwestern shelf and the Delaware basin was an area favorable for extensive reef and limestone banks that grew intermittently during part of the Pennsylvanian and most of Permian time.

Recently discovered major fields that produce oil from ancient reefs include Empire Abo, Vacuum Abo, and Lovington Abo. Producing

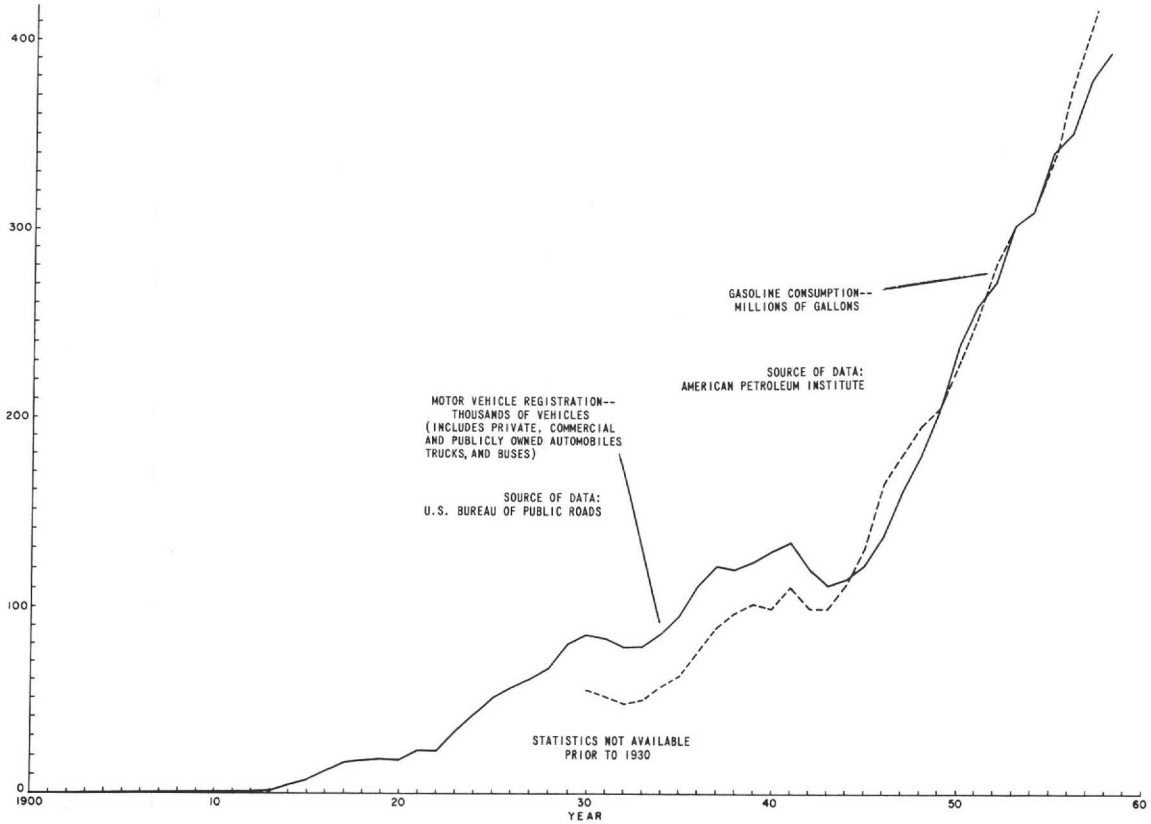

FIGURE 19.—Relationship of gasoline consumption to motor vehicle registration in New Mexico.