

New Mexico Bureau of Mines and Mineral Resources

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New Mexico Institute of Mining & Technology

OIL AND GAS EVALUATION OF WHITE  
SANDS MISSILE RANGE AND FORT BLISS  
MILITARY RESERVATION, SOUTH-CENTRAL  
NEW MEXICO

by

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## INTRODUCTION

In February 1978 the State Land Office requested several State agencies to assist in the evaluation of mineral and water resources for certain tracts of State land within White Sands Missile Range. These tracts had been condemned June 30, 1975, by the Department of Defense. The New Mexico Bureau of Mines and Mineral Resources was given the task of evaluating the oil and gas resources as well as mineral deposits other than sand and gravel. This report is limited to an evaluation of the oil and gas potential and its value to the State.

The current condemnation suit involves only 10,730.60 acres of the 341,388 acres of State mineral rights in White Sands Missile Range. Because of plans by the Department of Defense to acquire all of these rights it was decided to broaden the scope of this report to include the entire military reservation in south-central New Mexico. The area considered includes both White Sands Missile Range and the Fort Bliss Military Reservation within New Mexico.

Because of the lack of oil and gas exploration within the military reservation it was necessary 1) to investigate a larger area to establish the geologic framework and 2) to evaluate State oil and gas leases sold in the vicinity of the reservation. The area of geologic studies is shown in fig. 1. Roughly it includes from T. 4 S. through T. 29 S., and R. 4 W. through R. 14 E. -- a total of about 430 townships, 14,490 square miles, and 9.9 million acres. Of this area, White Sands Missile Range covers

approximately 2.1 million acres. The area evaluated for State leases includes an additional township on the west, north and east sides.

The geologic evaluation is based on published and unpublished reports, well records, geophysical and geological logs, plus personal knowledge of the area that began in 1954 with work in the San Andres Mountains. Well records and logs that were examined are in the files of the Bureau in Socorro and the Permian Association in Roswell. Additional logs were obtained from Houston Oil and Minerals, and logs and other information were obtained from Ben Donegan, Consulting Geologist, Albuquerque. The outcrop distribution of the various geologic intervals was modified from the Geologic Map of New Mexico by Dane and Bachman (1965). Lease data were compiled from information supplied by the New Mexico State Land Office and reports of oil and gas lease sales published by Robert W. Piatt, Santa Fe.

Values are based on lease sales conducted through June 1975. Only those wells completed or in the process of being drilled prior to July 1, 1975, are included in the geologic interpretations presented in this report.

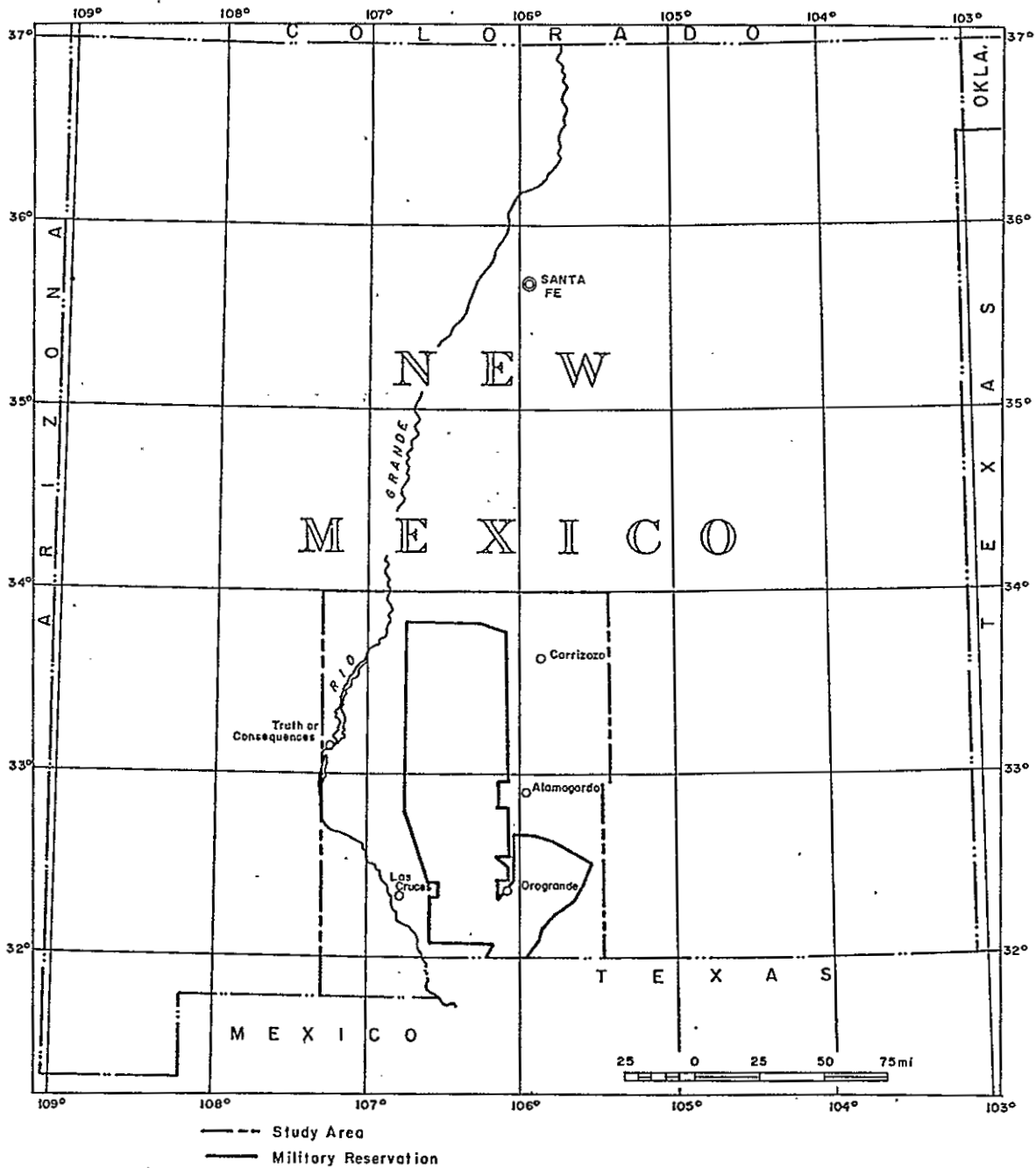


FIGURE I LOCATION MAP OF STUDY AREA AND MILITARY RESERVATION

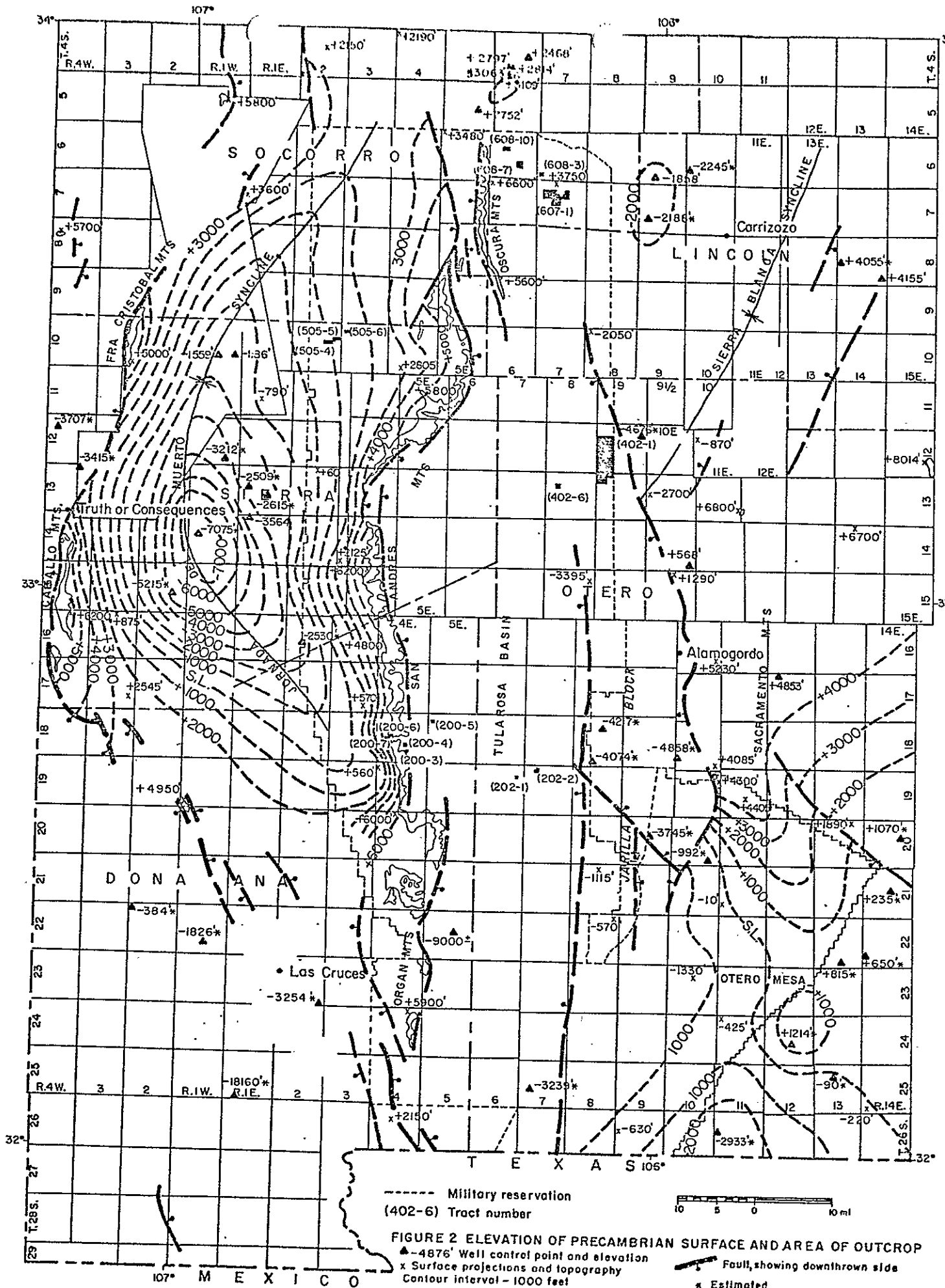
## STRATIGRAPHY

In order to evaluate the oil and gas potential of White Sands Missile Range it is necessary to establish the stratigraphic framework of south-central New Mexico. Broadly speaking, potential source and reservoir rocks in this area are restricted to sediments of Paleozoic and Mesozoic age. Local and regional structural features can result in migration of hydrocarbons into older or younger rocks of any type as long as a suitable reservoir is present. However, occurrences of this nature are not common, and no consideration of hydrocarbon potential is made for these rocks. An understanding of the Precambrian is important because rocks of this age represent an exploratory base as far as oil and gas evaluation is concerned. Knowledge of the elevation of this base surface aids in determining the thickness of the overlying sedimentary sequence and that part of the sequence considered to have some potential for the accumulation of oil and gas. In part for the same reasons some awareness of the thickness of post-Mesozoic deposits is important in evaluation and determination of drilling depths involved in adequately exploring the favorable part of the stratigraphic section.

## Precambrian Rocks

The outcrop distribution of Precambrian rocks is shown in fig. 2. Major outcrop areas are in the Caballo-Fra Cristobal ranges and in the Oscura-San Andres-Organ chain. Only minor exposures are present in the Sacramento Mountains.





**FIGURE 2 ELEVATION OF PRECAMBRIAN SURFACE AND AREA OF OUTCROP**  
 ▲ -4876' Well control point and elevation  
 x Surface projections and topography  
 Contour interval - 1000 feet

Granite, gneissic in part, is the dominant rock type in the Precambrian of the Caballo Mountains (Kelley and Silver, 1952). In the central part of the range there are several square miles consisting mostly of mica schist but including some granite gneiss, metadiorite and greenstone. Condie and Budding (in press) note the presence of amphibolite in the southern part of the Caballo Mountains. The Precambrian in the Fra Cristobal Mountains consists mostly of granitic rocks. Similarly in the Oscura, San Andres, and Organ Mountains, granite is the most common rock type. Kottowski et al. (1956) described pink granite at the mouth of Ash Canyon and light-gray granite at the mouth of Rhodes Canyon. The granites include masses of greenish biotite-hornblende schists, black biotite-quartz-feldspar schist, and some simple pegmatite and diabase dikes. In the central part of the San Andres Mountains from Sulphur Canyon (T. 15 S., R. 4 E.) to south of Hembrillo Canyon (T. 16 S., R. 4 E.) there is a thick series of metamorphic rocks. Condie and Budding calculated percentages of various rock types based on measured sections. In order of decreasing amounts, these are mica-quartz schist and phyllite, arkosite, mafic metaigneous rocks, and quartzite. Locally in the Hembrillo Canyon area there is a thin quartzite interval that unconformably overlies older Precambrian rocks and is truncated by the overlying Bliss Sandstone. This may be a remnant of the younger sedimentary/volcanic sequence present in the Sacramento and Franklin Mountains.

At San Diego Mountain (T. 19 S., R. 1 W.) the Precambrian consists of red coarse-grained granite with minor granite gneiss, schist, and pegmatite and diabase dikes (Seager et al., 1971).

Exposures in the Organ Mountains are granitic rocks with minor pegmatite and aplite dikes. The small exposures north and north-west of the Fra Cristobal Mountains also consist of granite.

Outcrops of Precambrian rocks in the Sacramento Mountains are found in small exposures at the base of the uplift south of Alamogordo (T.19S., R.10E.), at Pajarito Peak (T.12S., R.15E.), and at Bent (T.13S., R.12E.). The exposures south of Alamogordo have been described by Pray (1961) as consisting of gray-green, in part mottled-red, shale, siltstone and quartzite intruded by thin sills of diorite. The exposures at Pajarito Peak consist of hornblende syenite and syenite with common pegmatitic phases (Kelley, 1968). At Bent the exposures are light-gray quartzite that appears to be intruded by granite (Bachman, 1960).

Subsurface data for Precambrian rock types is sparse. West of the Caballo Mountains the Gartland Brister well (T.12S., R.4W.) encountered syenite (Foster and Stipp, 1961). In the Jornada del Muerto the two Sun wells (T.10S., R.1W.) bottomed in granite beneath the Bliss Sandstone. The only other well drilled to the Precambrian in this area was the Exxon Beard test (T.14S., R.1E.). Samples were not available for this well. Six wells have been drilled to the Precambrian on the Oscura anticline (T.4S., R.6E.). Samples were examined for several of these wells and consist of granite similar to the exposures in the Oscura Mountains to the south. The Sun Bingham test (T.5S., R.5E.) encountered similar granite with some inclusions of quartz-biotite-hornblende schist. Well cuttings from beneath Pennsylvanian sediments in the Standard of Texas Heard well (T.6S., R.9E.) on the Carrizozo anticline were identified as gabbro. This is not a common rock type in the

Precambrian of New Mexico. However, east of the area of this report gabbro was identified in the Standard of Texas Scarp well (T.21S., R.18E.) by Flawn (1956) and in the Texam Boyle (T.9S., R.20E.) and possibly Hunt McMillan (T.26S., R.16E.) by Foster (1959). The gabbros are of particular interest because they appear to be part of the Precambrian sequence that includes rhyolite and a variety of sedimentary rock types that underlie much of the Sacramento Mountain area and extend south into Texas. Sedimentary rocks of Precambrian age similar to those exposed south of Alamogordo were encountered in the Stanolind Picacho (T.12S., R.18E.), Humble State N (T.14S., R.17E.), Southern Production Cloudcroft (T.17S., R.12E.), Gulf Chaves U (T.18S., R.16E.), and Magnolia Black Hills (T.17S., R.20E.). In the Gulf well the sedimentary sequence includes dolomite.

The age of the sedimentary sequence is not known, but it is no doubt younger than the granitic-metamorphic terrane in the western part of the area. Radiometric dates of granites from the San Andres, Oscura, and San Diego Mountains range from 1.36 to 1.4 billion years (Muehlberger, et al., 1966). Rhyolites and metarhyolites from west Texas in the Carrizo Mountains and Pump Station Hills (Wasserburg et al., 1962) and the Franklin Mountains (Muehlberger et al., 1966) have ages of approximately 1.0 billion years. The igneous rocks of Pajarito Peak were dated at 1.15 to 1.19 billion years.

If the gabbros, rhyolites, and other igneous rocks are part of the same sequence as the sedimentary rocks, then most of the eastern area is underlain by rocks younger and markedly different from those of the western part of the area. This could have a significant effect on the interpretation of geophysical studies.

## Elevation of the Precambrian Surface

Well control is not adequate to satisfactorily contour the Precambrian surface and this was attempted only in the Jornada del Muerto and south of the Sacramento Mountains. Additional elevation control for fig. 2 was obtained for wells that did not reach this interval by projecting the depth to Precambrian by use of the isopach maps and selected formation tops. Elevations for Precambrian outcrops were estimated from topographic maps. In the Jornada del Muerto the maximum known relief on the Precambrian surface is from 6,200 feet above sea level at outcrops in the San Andres and Caballo Mountains to 7,075 feet below sea level in the Beard 1 Jornada well (T. 14 S., R. 1 W.). This is a relief of 590 feet per mile west from the San Andres Mountains and 720 feet per mile east into the Jornada del Muerto from the Caballo Mountains.

Estimates based on surface exposures of rocks younger than Precambrian are biased toward shallow depths for the Precambrian. In part this also is true from well data where tests are generally drilled on surface structures or geophysical highs. South of the Jornada del Muerto this is reflected in depths of slightly below sea level in the Cities Service Corralitos test (T. 22 S., R. 2 W.), 1,800 feet below sea level in the Sinclair Doña Ana (T. 22 S., R. 1 W.), and a minus 3,200 feet estimated for the Clary State (T. 23 S., R. 2 E.). The elevation of the Precambrian surface estimated for the Grimm well (T. 25 S., R. 1 E.) is 18,000 feet below sea level. Just east of San Augustin Pass a test drilled in the military reservation (T. 22 S., R. 5 E.) bottomed in Tertiary or Quaternary basin-filling sediments at a depth of

6,005 feet. Lacking any data to the contrary it is assumed that the western part of the Tularosa Basin beneath the fill is underlain by a complete section of Paleozoic rocks and, at least in the northern part of the basin, sediments of Cretaceous and Triassic age. Considering only Paleozoic rocks present at the location of the well drilled in T. 22 S., R. 5 E. and assuming that the total thickness of basin fill had been penetrated, the depth to the Precambrian surface would be about 13,000 feet and the elevation about 9,000 feet below sea level.

In the Tularosa Basin south of Alamogordo three wells were drilled by Texaco (T. 18 S., R. 8 and 10 E.) and one by Plymouth (T. 20 S., R. 9 E.). The two Texaco wells in R. 8 E. are located on the Jarilla block an intrabasin uplift. The elevation on the Precambrian surface is 4,074 feet and 4,217 feet below sea level in these wells. Based on isopach data and exposures in the Jarilla Mountains (T. 21 S., R. 8 E.) the Precambrian elevation in this area is estimated to be 570 feet to 1,115 feet below sea level. The Plymouth well also is considered to be on the Jarilla block with an elevation of minus 3,745 feet. The Texaco well nearest to the front of the Sacramento Mountains has the deepest estimated Precambrian in this area at 4,858 feet below sea level. This well appears to be located in a sub-basin that flanks the Sacramento Mountains. To the north in the Three Rivers area The Houston Oil and Minerals 1 Lewelling is estimated to have an elevation of 4,676 feet below sea level on the Precambrian surface. This well is located at the southern end of the Sierra Blanca syncline but also on the uplifted Sacramento block. Immediately to the west of this well the

surface of the Precambrian should be at a greater depth.

In the Sacramento Mountains and Otero Mesa the Precambrian is at over 8,000 feet above sea level at Pajarito Peak (T. 12 S., R. 15 E.). In the Southern Production Cloudcroft test (T. 17 S., R. 12 E.) the surface is at 4,853 feet above sea level. Relatively shallow depths continue to the south and east reflecting both the Sacramento uplift and the buried older Pedernal uplift. The deepest Precambrian east of the Hueco/Sacramento front is estimated for the Seaboard Trigg (T. 26 S., R. 11 E.) at 2,933 feet below sea level. This test is located between the Cornudas and Hueco Mountains.

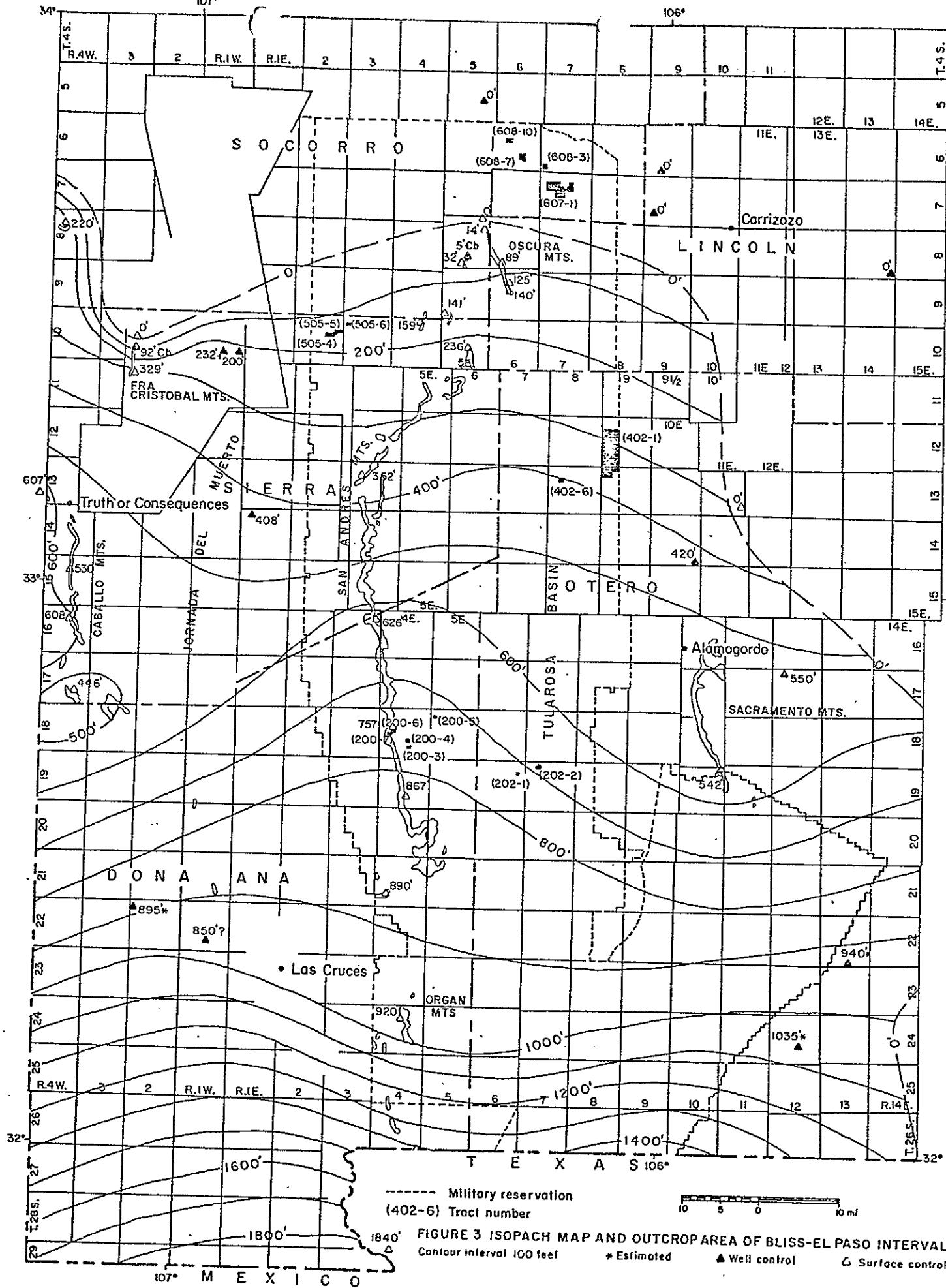
#### Bliss Sandstone-El Paso Group

The Bliss Sandstone and El Paso Group are combined on the isopach map (fig. 3). The general lithology is indicated in fig. 4. The Bliss consists mostly of quartz sandstone with some feldspathic sandstone in the lower part. The sandstones grade upward into sandy dolomite or limestone through a gradational zone with the overlying El Paso carbonates. In the Caballo and San Andres Mountains sandstones in the lower part of the Bliss commonly contain glauconite and thin beds of oolitic hematite. Glauconite is present in the Bliss in the Sacramento Mountains, but the oolitic hematite is absent. Based on fossil collections from the oolitic hematite interval; the lower part of the Bliss is Cambrian in age in the Caballo Mountains. Similar beds in the San Andres Mountains are probably also of Cambrian age. The remainder of the Bliss is Ordovician, and the entire section in the Sacramento Mountains is considered to be Ordovician.

The El Paso Group consists almost entirely of carbonates. In the Caballo Mountains and south of the San Andres Mountains the interval is mostly limestone with varying amounts of chert. In the San Andres Mountains, at least as far south as Ash Canyon (T. 19 S., R. 4 E.), and in the Sacramento Mountains, the formation is almost entirely dolomite. In the Caballo Mountains the upper part of the El Paso contains numerous biohermal masses that, according to Kelley and Silver (1952), "... are piled upward across the normal section in some places for several tens of feet or occasionally for hundreds of feet." The El Paso Group is Canadian, Lower Ordovician in age.

The isopach map of the Bliss/El Paso shows a fairly uniform southward thickening across the area. Sedimentary rocks of this interval pinch out in the northern part of the Fra Cristobal and Oscura Mountains. The sequence thickens to 329 feet at the southern end of the Fra Cristobal Mountains and 608 feet in the central part of the Caballo Mountains (Kelley and Silver, 1952). In the southern part of the Oscura Mountains Bachman (1961, 1965, 1968) measured from 5 to 140 feet, and at the north end of the San Andres Mountains, 236 feet. South in the San Andres Mountains the sequence thickens from 352 feet in Rhodes Canyon (T. 13 S., R. 4 E.) to 626 feet in Hembrillo Canyon (T. 16 S., R. 3 E.), 757 feet in San Andres Canyon (T. 18 S., R. 4 E.), and 867 feet in Ash Canyon (T. 19 S., R. 4 E.) (Kottlowski et al., 1956 and Bachman and Myers, 1963). In the Organ Mountains, Howe (1959) measured 920 feet of Bliss/El Paso; 1,840 feet have been reported in the Franklin Mountains.





--- Military reservation  
 (402-6) Tract number  
 \* Estimated      ▲ Well control      ◌ Surface control  
**FIGURE 3 ISOPACH MAP AND OUTCROP AREA OF BLISS-EL PASO INTERVAL**  
 Contour interval 100 feet

Well control on the thickness of the Bliss-El Paso is limited. In the Sun tests (T. 10 S., R. 1 W.) in the Jornada del Muerto there are 200 to more than 230 feet present. At the Exxon Beard location (T. 14 S., R. 1 E.) there are 408 feet present, and south of the Jornada del Muerto there are an estimated 895 feet in the Cities Service Corralitos (T. 22 S., R. 2 W.). In the Tularosa Basin control is limited to the Houston State 3724 (T. 14 S., R. 10 E.) with 420 feet. The Bliss-El Paso thickens to the south in the Sacramento Mountains from 550 feet in the Southern Production Cloudcroft test (T. 17 S., R. 12 E.) to an estimated 940 feet in the Turner Everett well (T. 22 S., R. 12 E.) and 1,035 feet in the Turner Evans (T. 24 S., R. 12 E.). Within the military reservation the interval thickens southward from the eroded edge in T. 8 S. to a maximum of 1,200 feet and possibly 1,400 feet at the New Mexico-Texas line.

As has been discussed by Kelley and Silver (1952) and others, northward thinning of the El Paso is the result of erosion preceding deposition of the overlying Upper Ordovician Montoya Group. At the present northern limit of the El Paso and Bliss this is further complicated by the overlap of Pennsylvanian sediments onto the Precambrian. The present eastern limits of the Bliss-El Paso in the map area are poorly known. The interval was removed by erosion during and following uplift of the Pedernal block in Late Pennsylvanian-Early Permian time. In parts of the map area and to the east Permian sediments overlap Pennsylvanian and older rocks and directly overlie the Precambrian.

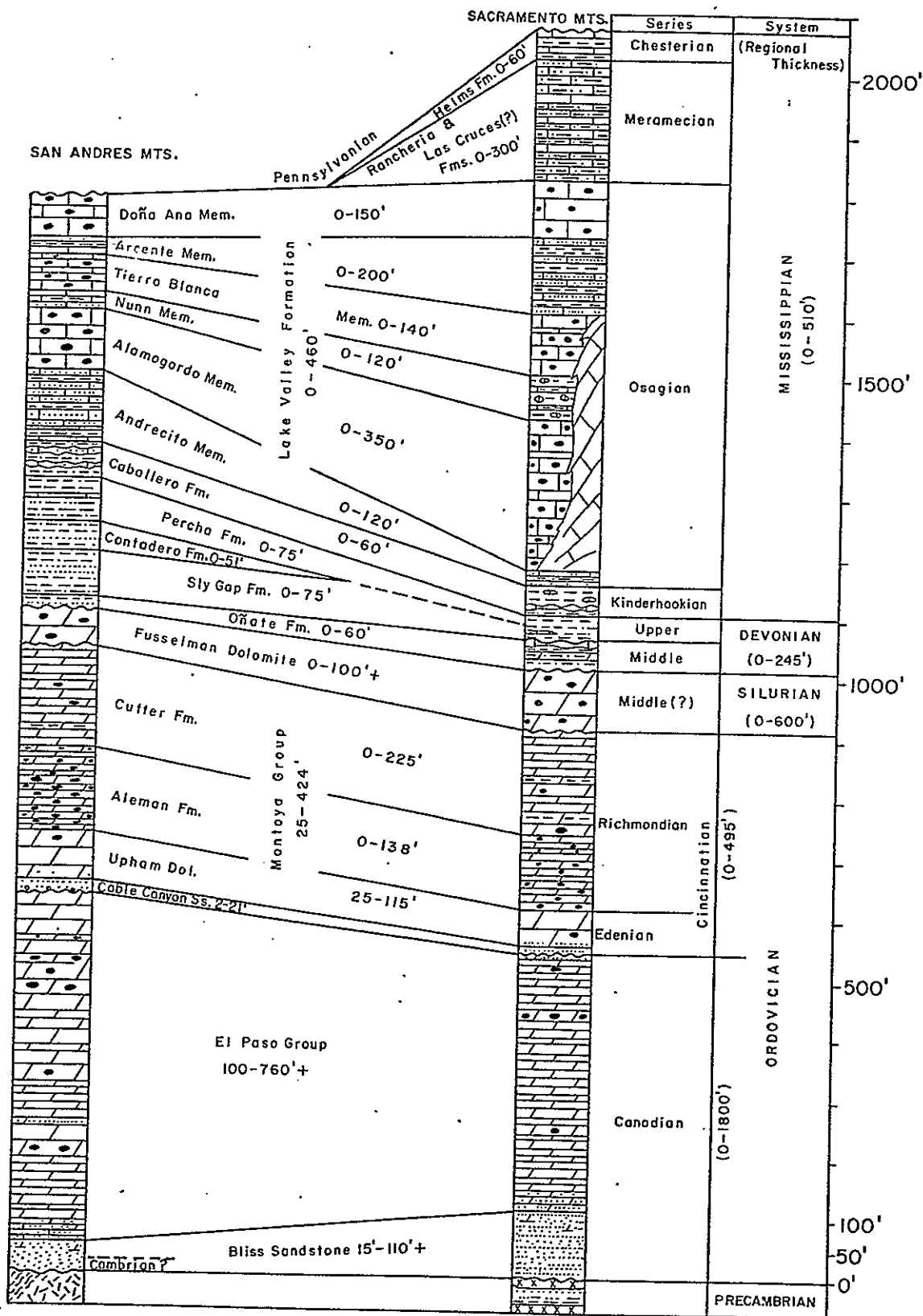
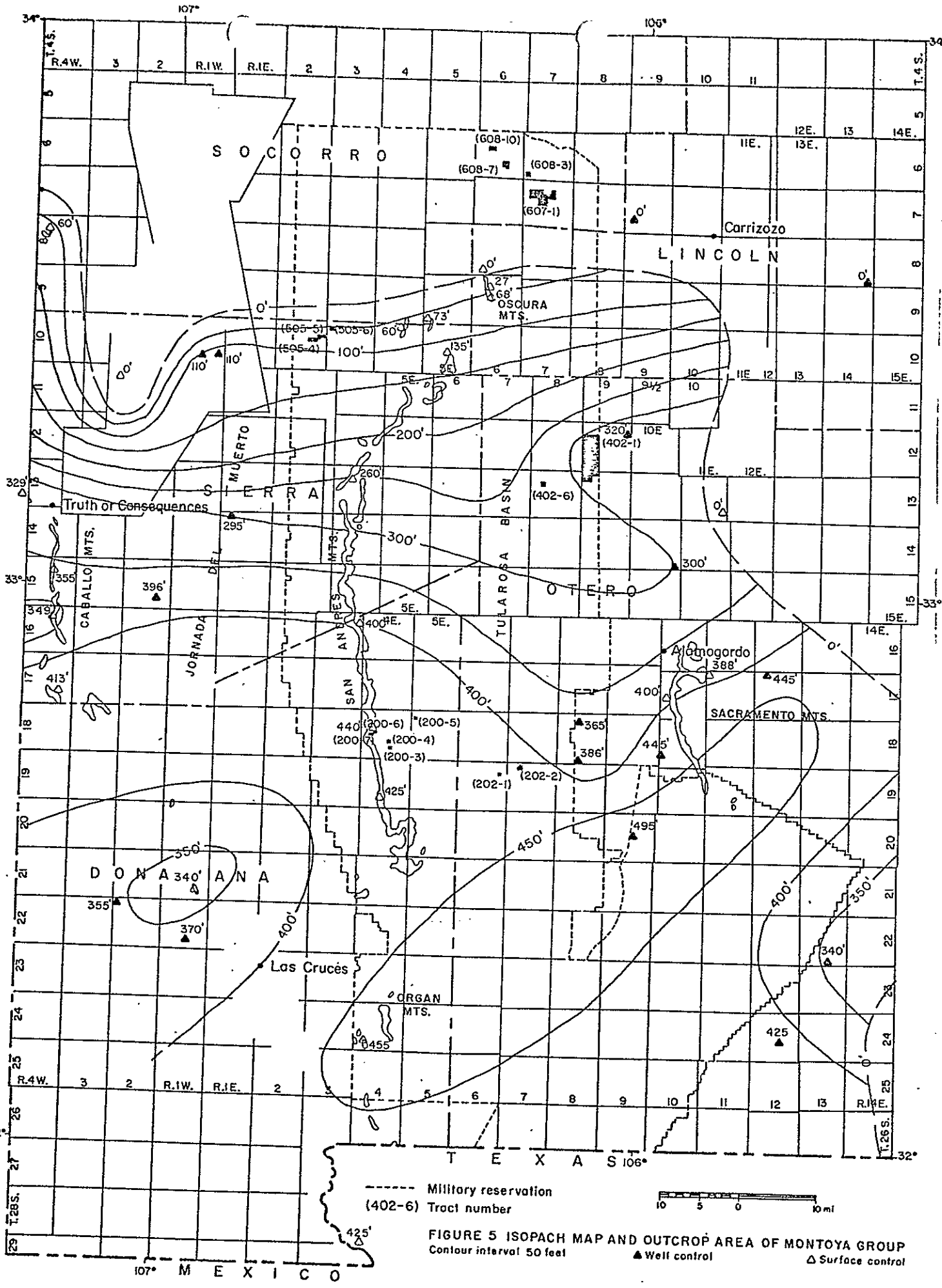


FIGURE 4— STRATIGRAPHIC SECTIONS OF PRE-PENNSYLVANIAN ROCKS  
 Composite sections modified from Kottlowski, et al (1956) and Pray (1961)

## Montoya Group

The Montoya Group of Late Ordovician age has been subdivided into four formations that, in ascending order, are Cable Canyon Sandstone, Upham Dolomite, and Aleman and Cutter Formations (fig. 4). The Cable Canyon is a light-gray to white sandstone, locally conglomeratic and usually well cemented with dolomite. The overlying formations consist almost entirely of dolomite with abundant chert present in the Aleman. Color varies upward from dark gray in the Upham to light gray in the Cutter. The outcrop distribution is essentially the same as that of the Bliss-El Paso except that the northern eroded edge of the Montoya is a few miles farther south (fig. 5). Prior to erosion that preceded Pennsylvanian deposition, the Montoya probably overlapped the El Paso and Bliss and rested directly on the Precambrian. This assumption is based in part on a probable Precambrian source area to the north for sand in the Cable Canyon. The Montoya north of its present extent also may have been removed in part by erosional periods during Silurian and Devonian time. The interval is not present in the Fra Cristobal Mountains, at least where lower Paleozoic rocks are exposed, but is present to the northwest in the foothills of the San Mateo Mountains in T. 8 S., R. 4 W. (Kelley and Furlow, 1965).

The thickness of the Montoya is very uniform where it is overlain by the Silurian Fusselman Dolomite south of T. 14 S. In this area it varies only from 355 to 495 feet in total thickness and is 425 feet thick in the Franklin Mountains of Texas. The thickest section of the Montoya known in the map

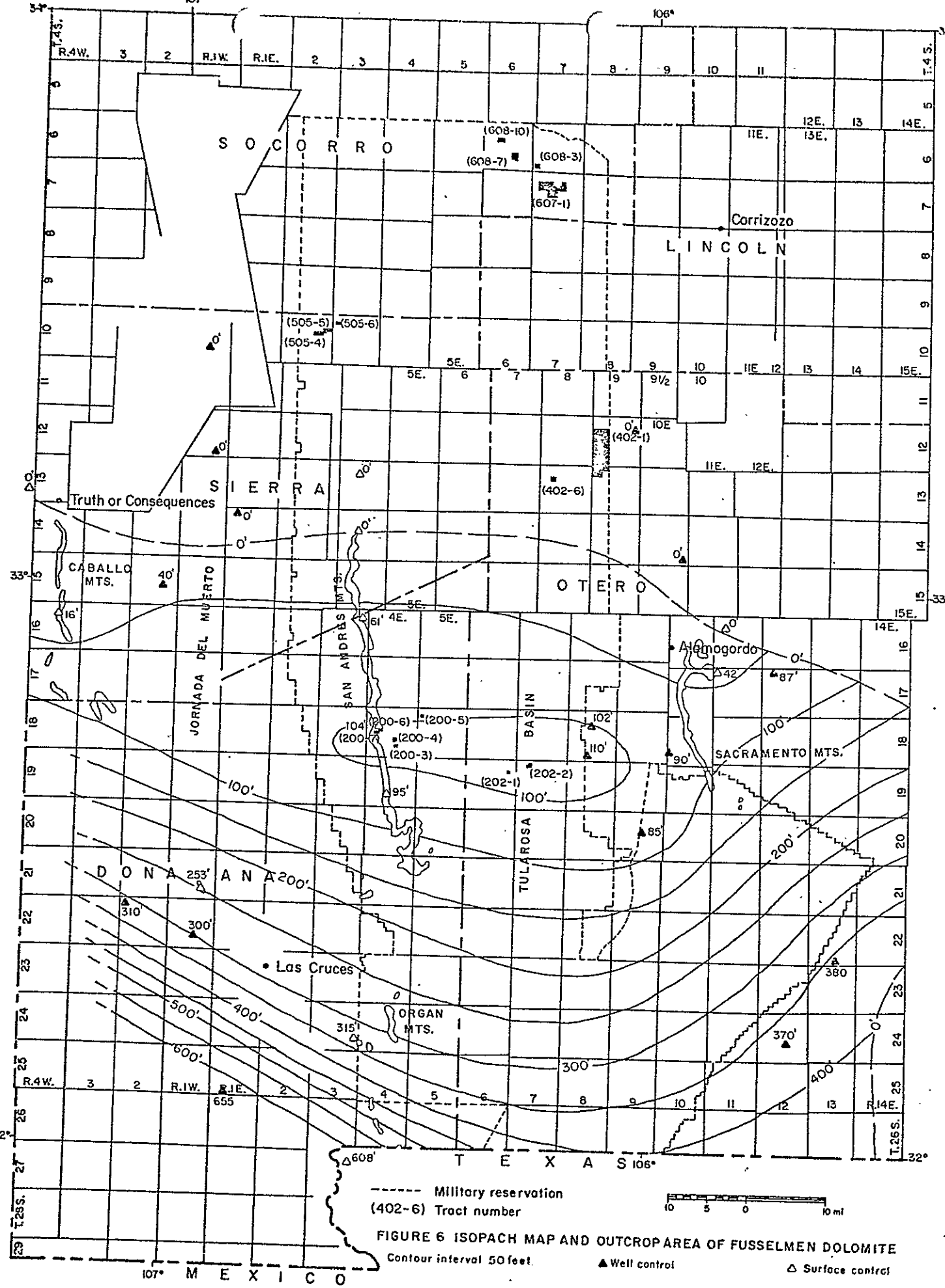
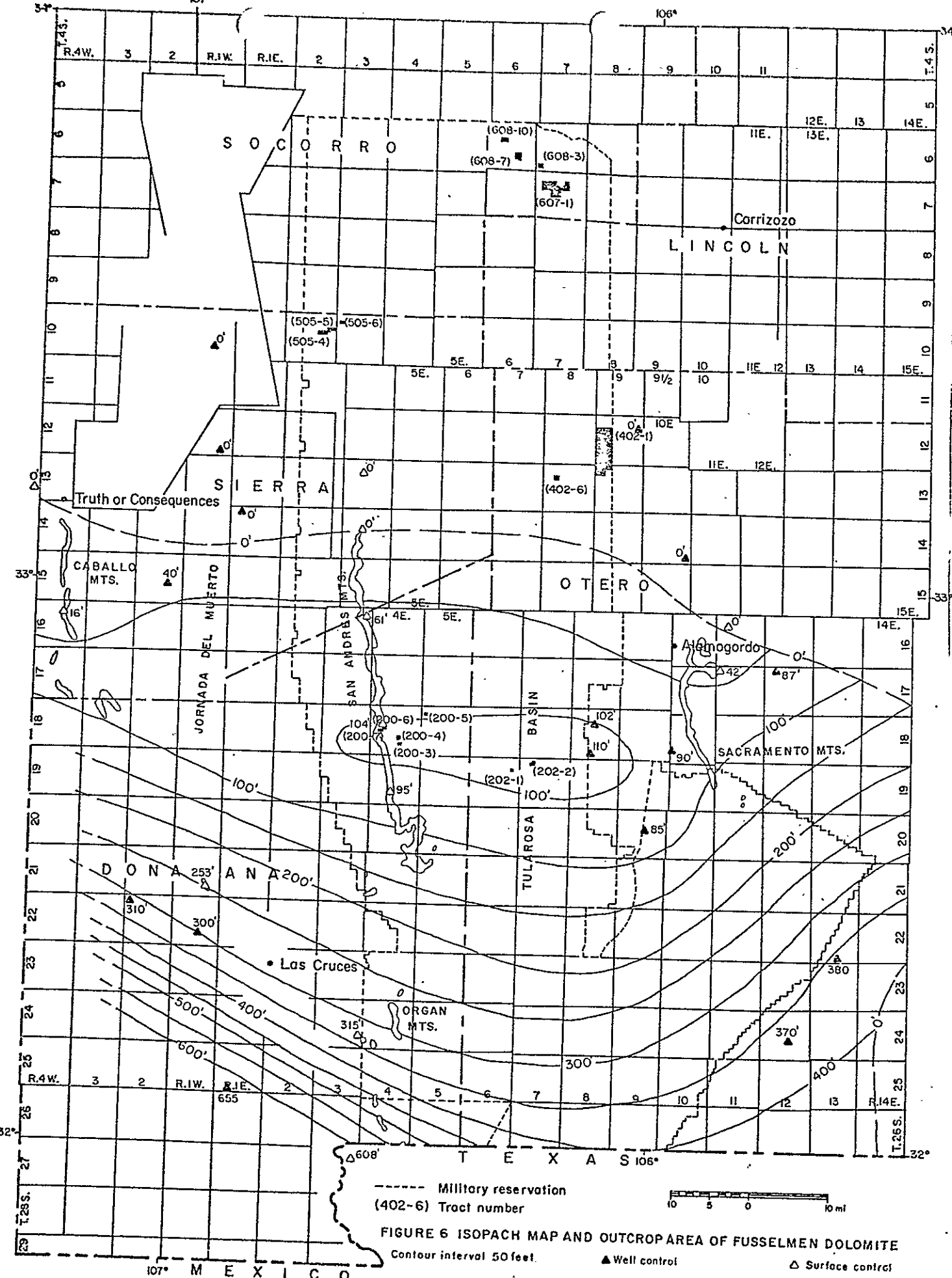


area is in the Plymouth Federal well (T. 20 S., R. 9 E.), where 495 feet were penetrated. In the southeast part of the map the eroded edge of the Montoya on the west flank of the Pedernal uplift is indicated. A short distance to the east the Montoya is absent in the Campbell Lieberman well (sec. 7, T. 25 S., R. 15 E.). The influence of this late Paleozoic uplift also is evident northeast of Alamogordo.

#### Fusselman Dolomite

The Fusselman consists of light- to dark-gray dolomite locally containing abundant chert (fig. 4). Fossils are generally poorly preserved, but collections from various localities have established a Silurian age. The northward extent of the Fusselman is much less than that of other Paleozoic intervals. In the western part of the area and in the Sacramento Mountains, Devonian rocks overlap the Fusselman above a generally smooth surface of erosion. To the east the northern extent is less because of the influence of Late Pennsylvanian-Early Permian erosion.

Where present in the San Andres and Sacramento Mountains the Fusselman thickens gradually to the south with local variations (fig. 6). In the extreme southwestern part of the area the interval thickens more abruptly to the 655 feet present in the Grimm well (T. 25 S., R. 1 E.). From well data in the Tularosa Basin the interval ranges from zero in the Houston State 3724 (T. 14 S., R. 10 E.) to a maximum drilled thickness of 110 feet in the Texaco Federal G (sec. 33, T. 18 S., R. 8 E.). Based on projections from wells and outcrops bordering the basin the



Fusselman should thicken to as much as 400 feet at the Texas border.

### Devonian Rocks

Rocks of Devonian age have been subdivided into numerous formations (fig. 4). In the San Andres Mountains these are (from the base up) Onate, Sly Gap, Contadero and Percha. In general the lithology is one of shale and siltstone with lesser amounts of sandstone and limestone. The shales and siltstones are brownish to dark gray and black, and calcareous or dolomitic. The section is similar in the Sacramento Mountains except that the Contadero Formation apparently is not present (Pray, 1961). In southern Otero and Doña Ana Counties a cherty limestone facies is called the Canutillo Formation (Kottlowski, 1963).

From well control south and southeast of outcrops in the Sacramento Mountains the thickness is only 15 to 80 feet, and sediments of Devonian age appear to be absent along the entire eastern edge of the area (fig. 7). In part this is due to non-deposition as well as to the effect of erosion associated with the Pedernal uplift. The maximum thicknesses for the Devonian are 234 feet (LeMone, 1969) where it crops out in the Bishop's Cap area (T. 24 S., R. 3 E.) and 245 feet in the Grimm well (T. 25 S., R. 1 E.). Seager (1973) reports a thickness of about 190 feet at Bishop's Cap, suggesting local variations. Although present as far north as Mockingbird Gap (T. 9 S., R. 5 E.) the interval is absent in the Fra Cristobal and most of the Caballo Mountains. However, west of Truth or Consequences 105 feet are present in the Mud Springs Mountains in T. 13 S., R. 4 W.



Wells in the Tularosa Basin south and west of Alamogordo penetrated from 45 to 68 feet of Devonian sediments. In the Houston well (T. 12 S., R. 9 E.) in the northern part of the basin the interval is 116 feet thick. This thickness suggests that the Devonian may extend farther north into the Sierra Blanca syncline.

#### Mississippian Rocks

Mississippian strata have been subdivided into a number of formations and members (fig. 4). In ascending order the formations are Caballero, Lake Valley, Las Cruces, Rancheria, and Helms. The dominant rock type is limestone with abundant chert in some members of the Lake Valley Formation and in the Rancheria Formation. Shales with nodular limestone make up most of the Caballero and parts of the Lake Valley.

In the Caballo Mountains Mississippian rocks are present only in the southern part of the range (fig. 8). The thickness is only 40 feet and is restricted to a remnant of the Lake Valley Formation. In the San Andres Mountains the Caballero, Las Cruces, and Rancheria are found only in the southern exposures. Elsewhere the Mississippian is restricted to the Lake Valley. Almost 450 feet are present in Ash Canyon (T. 19 S., R. 4 E.), thinning rather abruptly to 315 feet in San Andres Canyon (T. 18 S., R. 4 E.), and to 82 feet in Hembrillo Canyon (T. 16 S., R. 3 E.). North of Hembrillo Canyon the thickness is fairly uniform with 62 feet at Rhodes Canyon (T. 13 S., R. 4 E.) and 42 to 75 feet in the northern part of the range. The unit is absent in the southern part of the Oscura Mountains where it is overlapped by

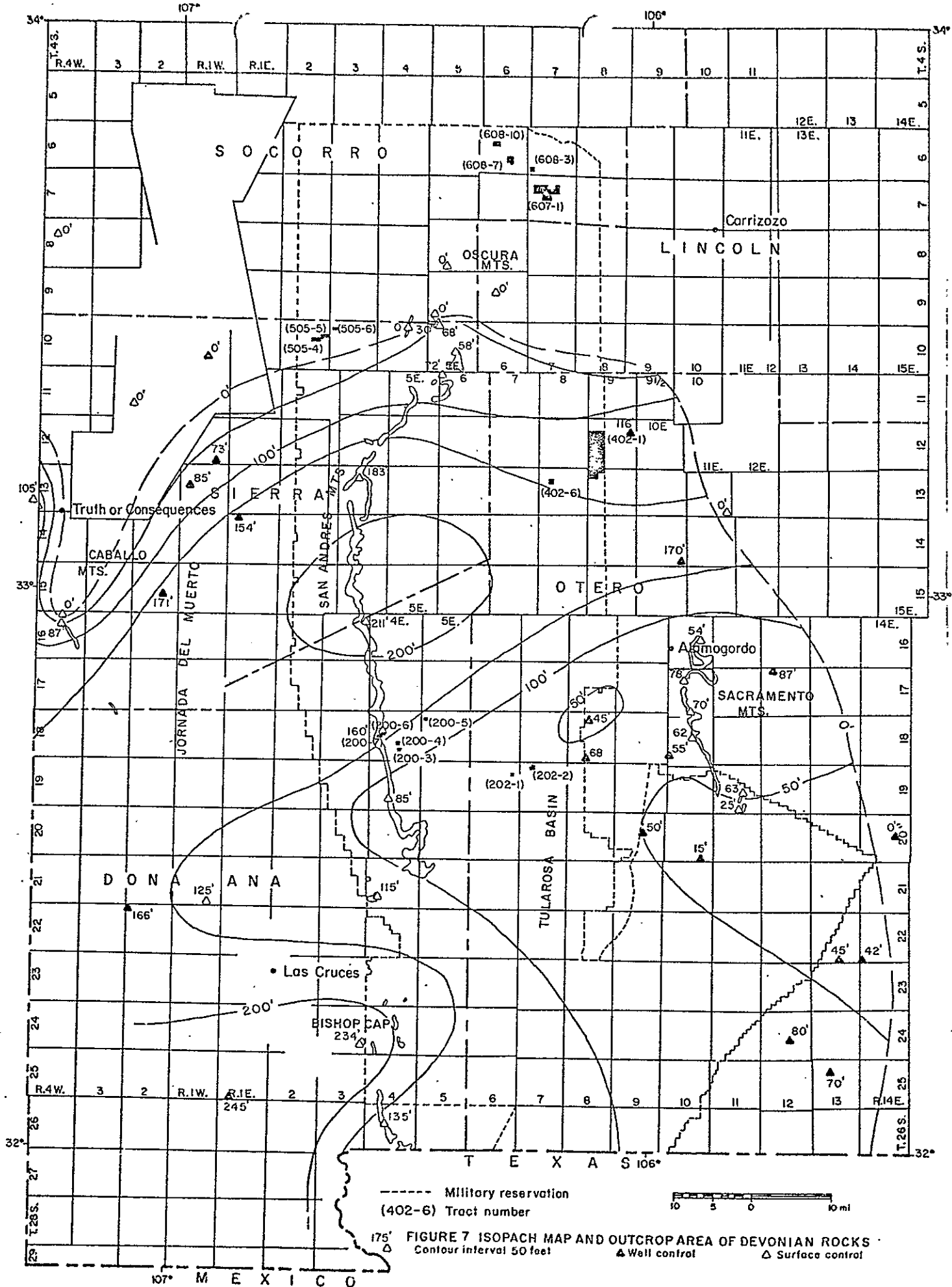
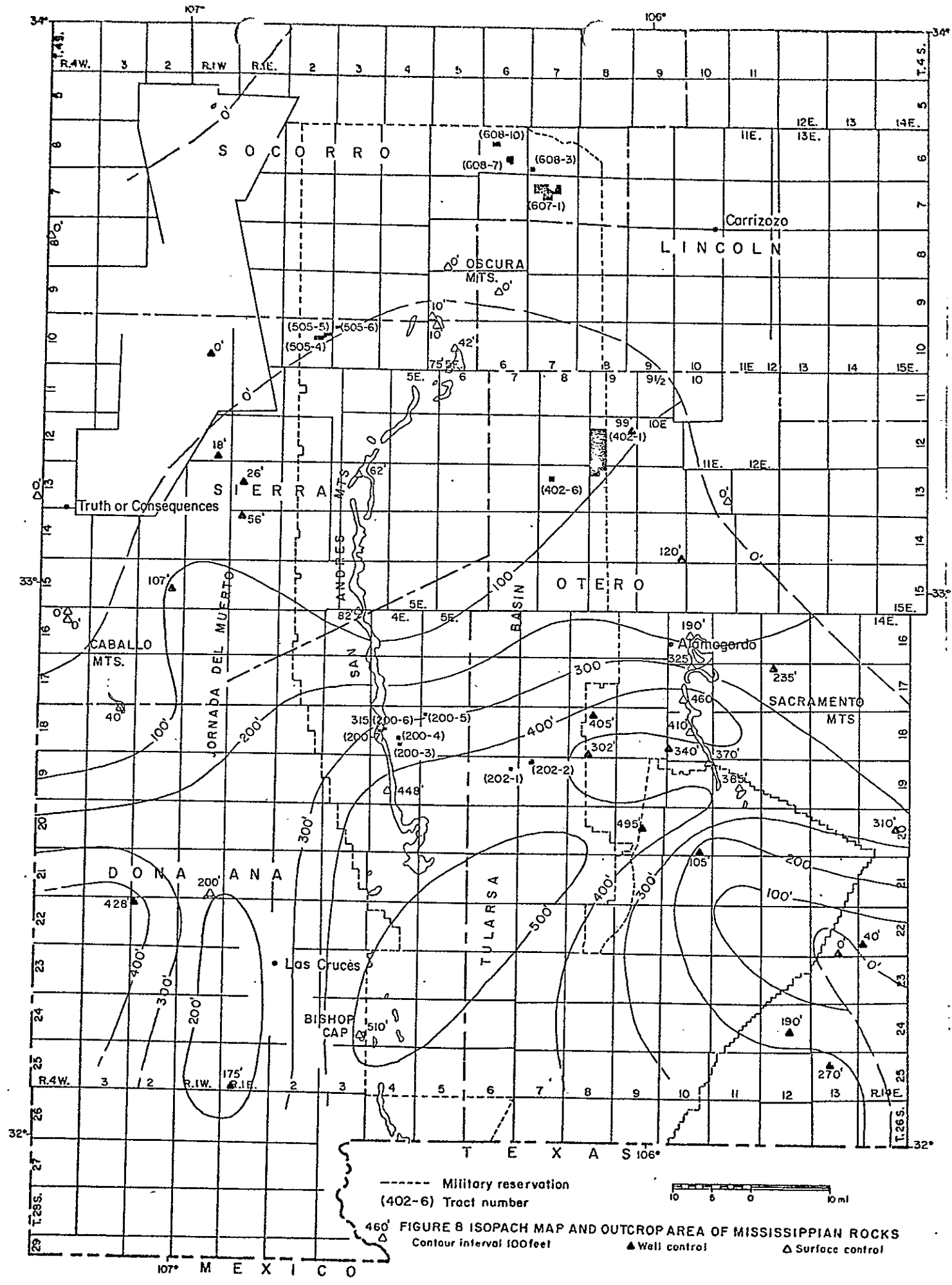


FIGURE 7 ISOPACH MAP AND OUTCROP AREA OF DEVONIAN ROCKS  
 Contour interval 50 feet

▲ Well control  
 Δ Surface control



460' FIGURE 8 ISOPACH MAP AND OUTCROP AREA OF MISSISSIPPIAN ROCKS  
 Contour interval 100feet

▲ Well control  
 △ Surface control

Pennsylvanian sediments. In surface sections measured by Pray (1961) in the Sacramento Mountains the sequence varies from 190 to 460 feet in thickness. Mississippian formations identified in the area include the Caballero, Lake Valley, Rancheria and Helms; the latter two formations are restricted to the southern exposures. South of Alamogordo massive bioherms are present in the Lake Valley Formation.

Similar to the Devonian, Mississippian rocks are thicker farther to the north in the Tularosa Basin than they are in the San Andres Mountains or Jornada del Muerto. Within the military reservation the thickness varies from zero in the north to about 500 feet in the southwestern part of the Tularosa Basin.

Considerable erosion of Mississippian rocks occurred prior to Pennsylvanian deposition in much of the area. The Mississippian overlapped older Paleozoic rocks and, where preserved to the north of the eroded edge, now rests directly on the Precambrian. Pre-Pennsylvanian erosion is less important in the southern part of the area and eastern thinning and absence of the interval is associated with the buried Pedernal uplift.

#### Pennsylvanian Rocks

Sediments deposited during Pennsylvanian time consist of a complex sequence of limestone, shale, sandstone, conglomerate and minor anhydrite and dolomite (fig. 9). Most of the Pennsylvanian comprises rocks deposited in a marine environment with various shelf, basin and deltaic features and rapid facies changes. Biohermal reefs are common in parts of the section. The Pennsylvanian sequence, along with part of the lower Permian,

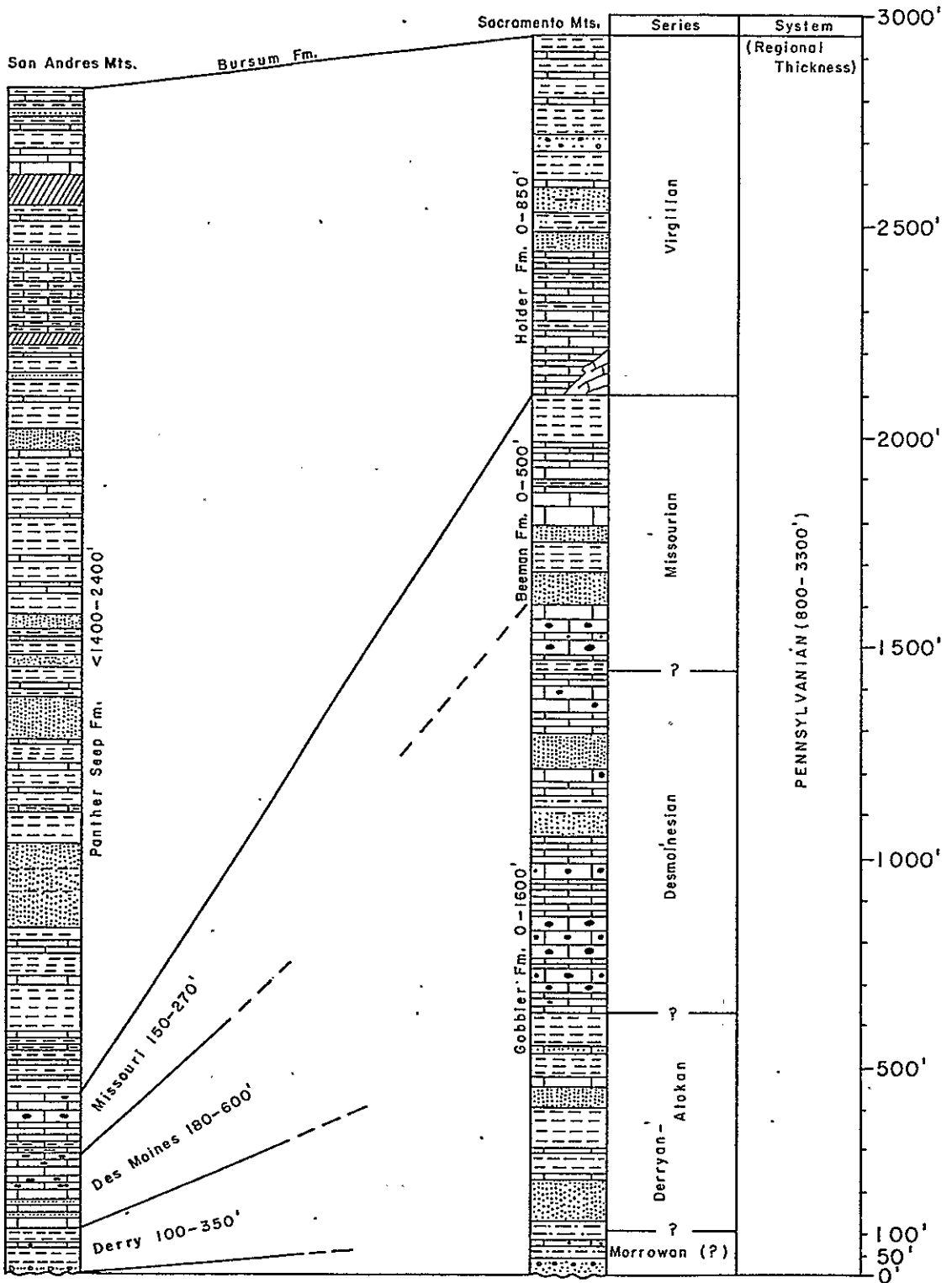


FIGURE 9 STRATIGRAPHIC SECTIONS OF PENNSYLVANIAN ROCKS  
 Composite sections modified from Kottlowski, et al (1956), and Pray (1961)

contains the most probable sediments for the generation and accumulation of hydrocarbons in the area of this report.

Pennsylvanian sediments appear to have been originally present over the entire area. Where the sediments are now absent erosion took place during the Late Pennsylvanian/Early Permian uplift of the Pedernal block or during the Laramide uplifts that began in the Late Cretaceous and formed the present mountain ranges.

Although the Pennsylvanian has been divided locally into formations, it is more common now to use series names based on biostratigraphic zonation. In south-central New Mexico these are Morrow (Lower Pennsylvanian), Derry and Desmoines (Middle Pennsylvanian), and Missouri and Virgil (Upper Pennsylvanian). Equivalent terms used in the Permian Basin of southeastern New Mexico are Morrow, Atoka or Bend, Strawn, Canyon and Cisco. In the Caballo Mountains Kelley and Silver (1952) referred to Pennsylvanian strata as the Magdalena Group and named three formations: Red House, comprising the lower third of the Magdalena Group; Nakaye, the middle third; and Bar B, the upper third. The Red House consists mostly of thin-bedded limestone and shale containing limestone nodules. There is a thin sandstone at the base and a conglomeratic sandstone near the middle of the unit. The Nakaye is made up almost entirely of thick to massive beds of limestone commonly containing abundant chert. The Bar B is similar to the Red House but has a higher percentage of shale. The uppermost part of this unit includes reddish-brown siltstone, limestone conglomerate, and calcareous sandstone in a transition zone with the overlying redbeds of

the Lower Permian. Age determinations were not made for the formations but based on comparisons with sections in the Derry Hills at the southern end of the Caballo Mountains, the Mud Springs Mountains, and the San Andres Mountains; where fusulinid studies have been conducted (Thompson, 1942), tentative correlations can be made. The Red House would represent the Derry interval; Nakaye would represent the Desmoines; and Bar B would include both the Missouri and Virgil series. Rocks of Morrowan age have not been recognized in this area (Kottowski, 1960).

In the San Andres Mountains the Derry consists of sandstone, limestone, shale, and a basal conglomerate of chert pebbles derived from the Mississippian. Rocks assigned to the Desmoines are mostly cherty limestone and the Missouri interbedded limestone and shale. Sedimentary rocks of Virgilian age were named the Panther Seep Formation (Kottowski et al., 1956). This unit consists mostly of shale, sandstone, and limestone. In the southern part of the range two beds of gypsum are present in the upper part of the formation. Biohermal reefs occur in the Panther Seep in the Hembriillo Canyon area (T. 16 S., R. 3 E.).

In the Sacramento Mountains Pray (1961) subdivided the Pennsylvanian into three formations. From the base up these are Gobbler, Beeman, and Holder. Strata assigned to the Gobbler range in age from Morrowan (?) to middle Missourian. The lower part of this interval consists of coarse quartz sandstone and dark limestone with black chert masses. The upper part includes two facies, one of limestone named the Bugg Scuffle Member and the other an unnamed detrital facies of shale and quartz sand-

stone with only minor limestone. The two facies are contemporaneous and the change from one to the other is abrupt. Pray notes that in a lateral distance of 3 to 4 miles nearly 1,000 feet of limestone changes to a section almost entirely of terrigenous detritus. The north to northeastern change to clastic material suggests a deltaic environment in this direction. The eastern component further suggests that pre-Pennsylvanian sediments were eroded farther to the south in the northern Sacramento Mountains. Kottowski (1960) also indicates this source direction for clastic sediments.

The Beeman Formation is rather uniform consisting mostly of thin-bedded limestone and calcareous shale. Sandstone beds increase in thickness and number from a basinal facies on the west to a shelf facies in the east. Sandstones in the Beeman contain more feldspar clasts than they do in the underlying Gobbler; this fact suggests a nearer source and increasing tectonic instability. Sediments of the Holder Formation are of shallow-shelf marine origin with some nonmarine rocks in northeasternmost exposures. The interval is absent in eastern outcrop areas of the Pennsylvanian, where it was removed by erosion associated with the major period of uplift of the Pedernal block. In addition to bedded limestone, the Holder includes deposits of red shale, nodular limestone, limestone conglomerate, chert and quartzite pebble conglomerate, sandstone, and feldspathic sandstone. Clastic material increases upward in the section. Bioherms at approximately the same latitude as in the San Andres Mountains are present in the lower part of the

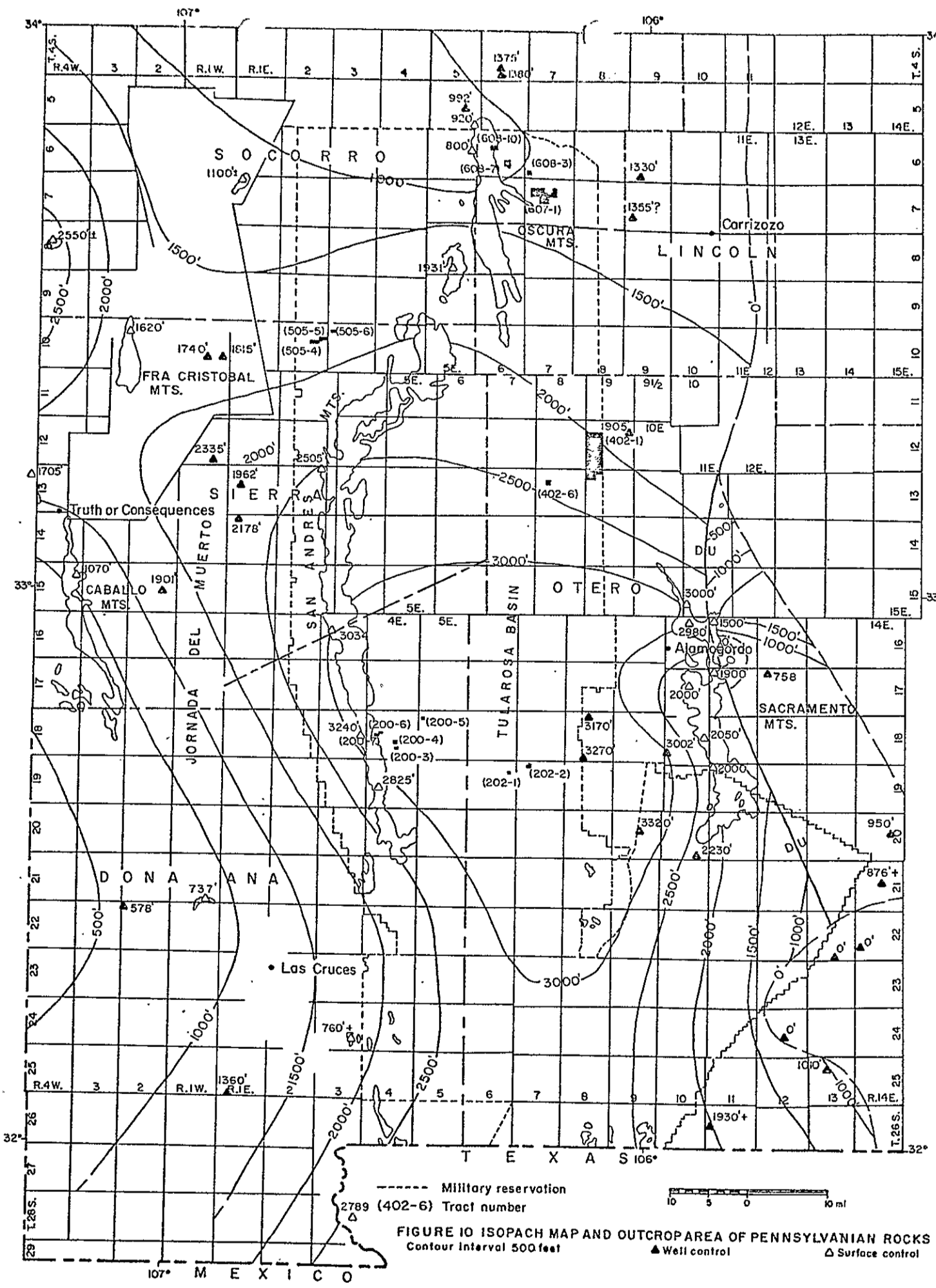


Holder. Gypsum beds are not present in the outcrops of the Sacramento Mountains. However, two beds of gypsum in the upper part of the Pennsylvanian were penetrated in the Seaboard Trigg well (T.26S., R.11E.).

The isopach map of the Pennsylvanian (fig. 10) indicates the approximate eroded edge along the west flank of the Pedernal uplift and a possible location for one of the bordering faults. Numerous buried faults are probably present east of the Sacramento front, and the thickness of the Pennsylvanian would vary much more than indicated in this area. The maximum outcrop thickness of Pennsylvanian strata is about 3,000 feet in the northern Sacramento Mountains and southern part of the San Andres Mountains. This thick sequence extends across the Tularosa Basin as demonstrated by the section penetrated in the Texaco and Plymouth wells. This Pennsylvanian depositional basin has been called the Orogrande basin. The Pennsylvanian section thins to the west across the Jornada del Muerto to slightly over 1,000 feet in the Caballo Mountains and between 500 and 600 feet in the Cities Service Corralitos well (T.22S., R.2W.). Slightly less than 1,000 feet are present in the Oscura Mountains. Over 2,500 feet were measured in the foothills of the San Mateo Mountains (Kottlowski, 1960), and contouring suggests a northwestern continuation of the Orogrande basin across this area.

#### Permian Rocks

Rocks of Permian age include the Bursum, Abo, Hueco, Yeso



and San Andres Formations (fig. 11). In the northern part of the study area the Glorieta Sandstone and Bernal Formation are present. These are not treated separately in this report.

#### Bursum-Hueco-Abo Formations

The lower part of the Permian is characterized by a marked facies change from mostly continental red beds of the Abo Formation in the north to marine limestones of the Hueco Formation in the south. The red shale, siltstone, and arkosic conglomerate and sandstone of the Abo were deposited by rivers. The source of the clastic material was to the east and northeast where erosion of the uplifting Pedernal Mountains was removing preexisting Paleozoic sediments from Ordovician to Pennsylvanian age and was exposing the Precambrian core. Transitional with the underlying Pennsylvanian strata are sedimentary rocks that reflect the changing conditions brought about by this uplift. From the limestone and dark shale of the upper part of the Pennsylvanian the section changes to one of interbedded limestone, red and gray shale, sandstone and limestone conglomerate with the amount of red shale and sandstone increasing upward. This transitional zone is generally referred to as the Bursum Formation in south-central New Mexico although Otte (1959) named it the Laborcita Formation in the northern Sacramento Mountains. In this area rapid lateral facies changes occur to the east toward the Pedernal uplift. In a distance of  $1\frac{1}{2}$  miles the section changes from an open-marine environment to a terrestrial floodplain environment and includes fringing reefs.

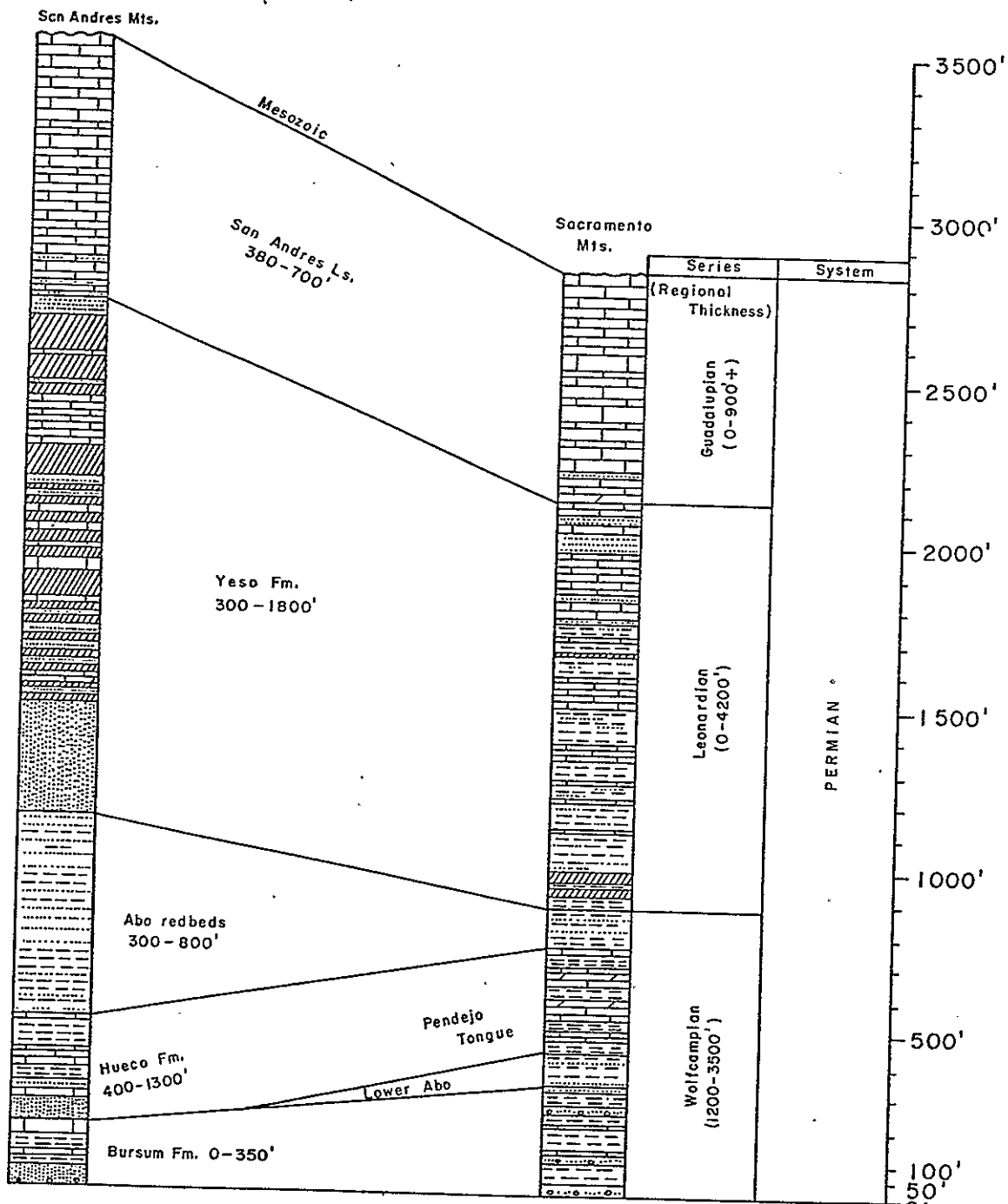
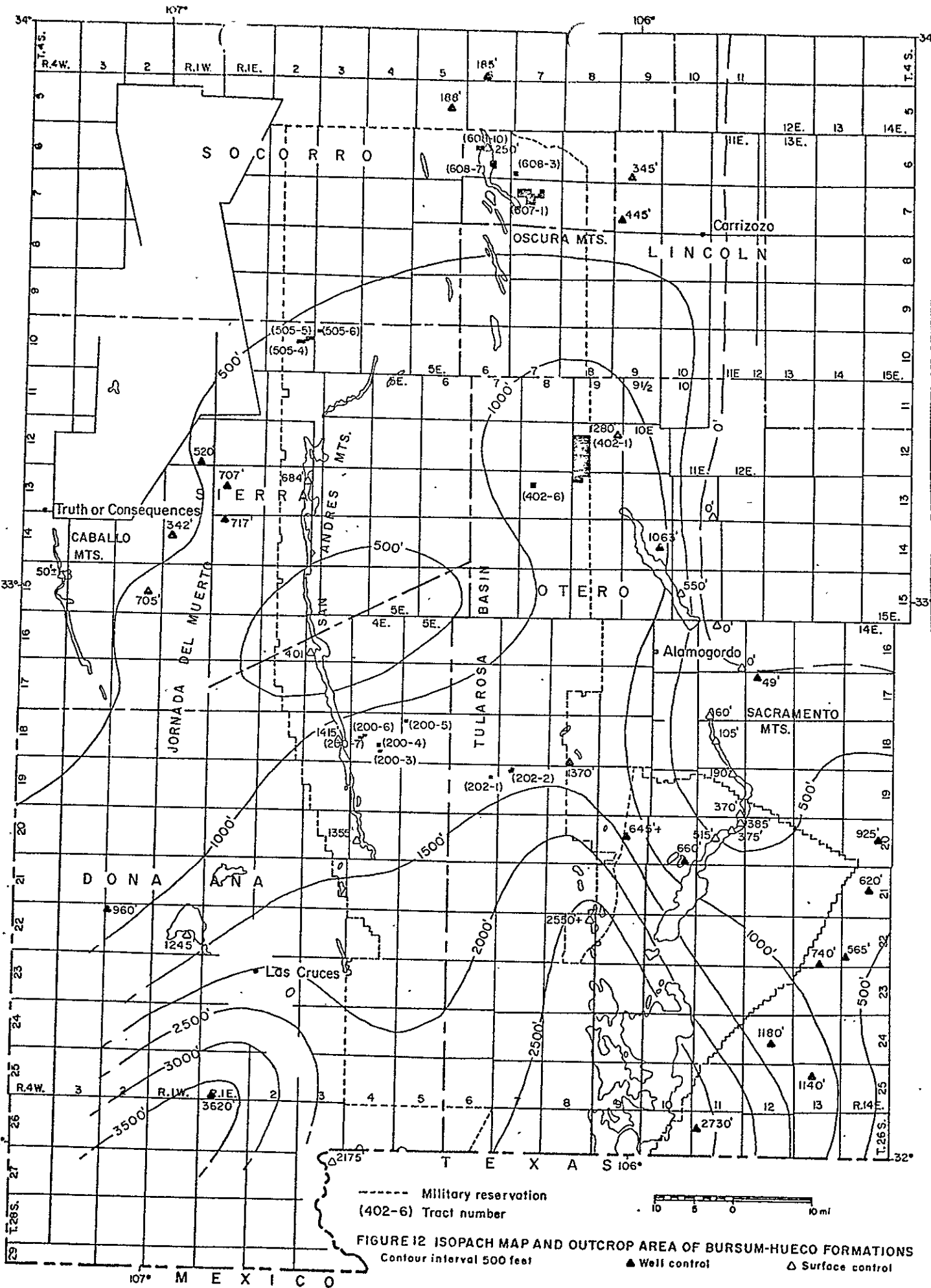


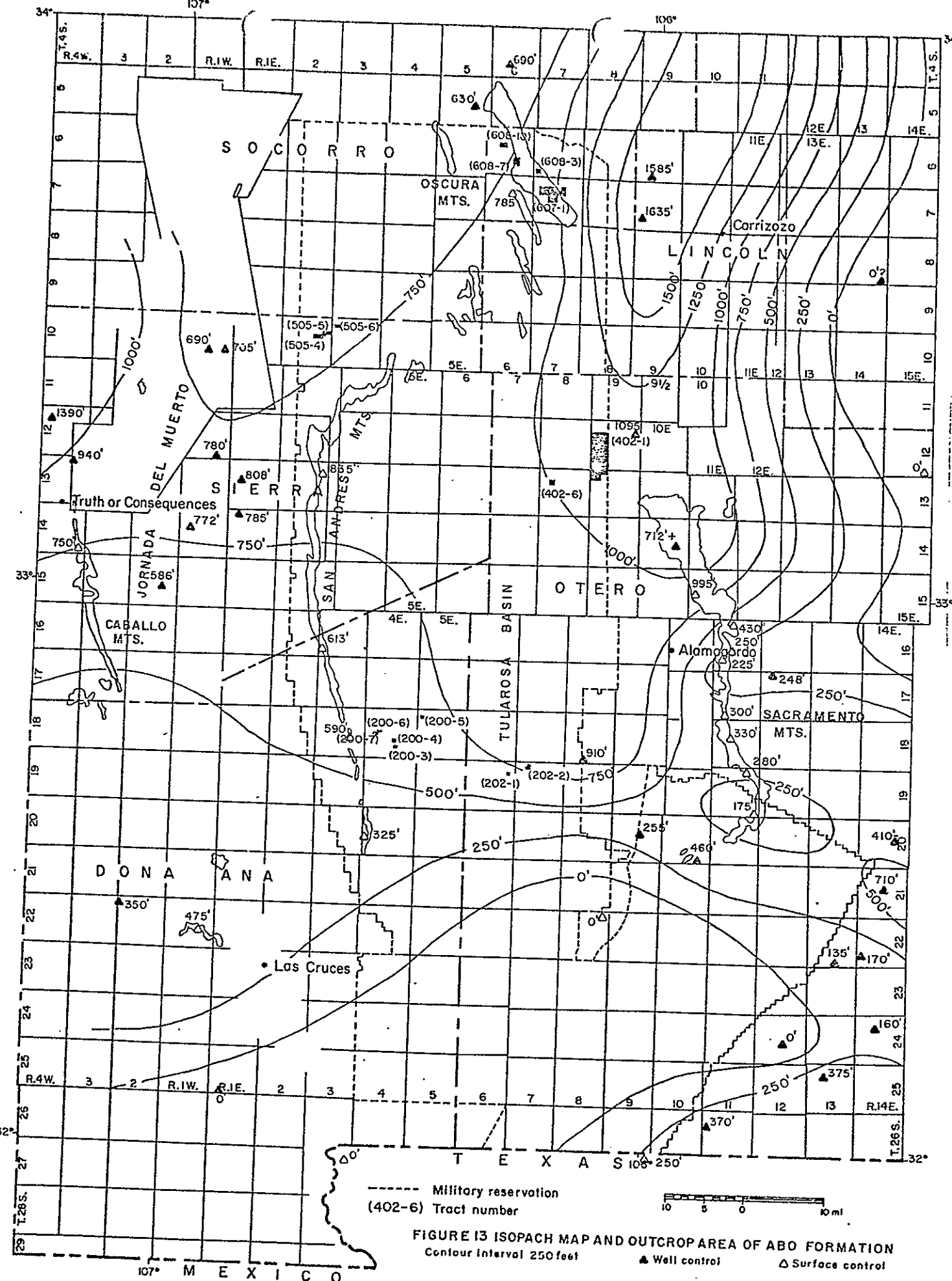
FIGURE II—STRATIGRAPHIC SECTIONS OF PERMIAN ROCKS  
 Composite sections modified from Kottlowski, et al (1956) and Pray (1961)

In the San Andres Mountains at Rhodes Canyon (T.13S., R.3E.) the Bursum is overlain by thin-bedded limestone, sandstone, and shale of the Hueco Formation. In the northern part of the range this interval is not present and the Abo directly overlies the Bursum. The Hueco thickens to the south and directly overlies the Pennsylvanian at Ash Canyon (T.18S., R.3E.). In the Sacramento Mountains the Pendejo tongue of the Hueco Limestone extends north to T.17S., R.11E. and separates the Abo red beds into lower and upper members. From the depositional limit in T.17S. the Pendejo thickens to over 300 feet in T.19S., R.11E. and eventually merges with the main body of the Hueco Limestone in the southern part of the area.

Both the red bed and marine facies are considered to be of Lower Permian (Wolfcampian) age based on fusulinids collected from the limestones. Upper beds of the Abo may in part be of Leonardian age but conclusive fossil data is not available.

Because of the importance of the marine facies in exploration for oil and gas, two isopach maps of the Lower Permian have been prepared. The first (fig. 12) is of the total Bursum-Hueco interval and the second (fig. 13) of the Abo red-bed facies, thus including the lower (Powwow Conglomerate) and upper members in the southern part of the area. The marine facies of the Bursum-Hueco thickens southward from less than 500 feet in the Oscura Mountains to over 3,500 feet in the Grimm well (T.25S., R.1E.) and to over 2,500 feet in the Seaboard Trigg test (T.26S., R.11E.). The interval is absent in the northeastern part of the area, north from the vicinity of Alamogordo. This





**FIGURE 13 ISOPACH MAP AND OUTCROP AREA OF ABO FORMATION**  
 Contour interval 250 feet

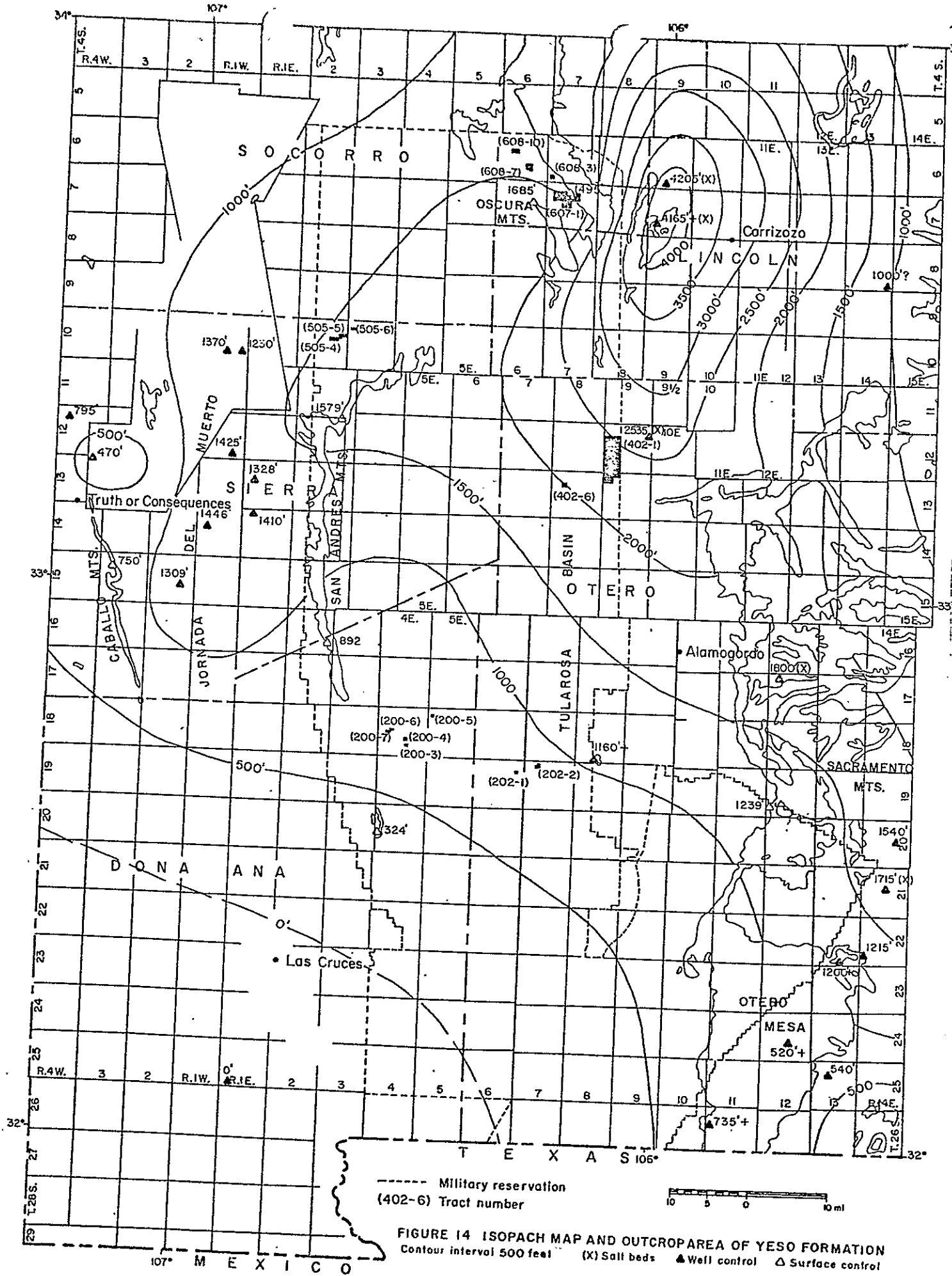
absence is the result of a combination of events involving nondeposition, facies changes, and erosion. In contrast with the marine facies the Abo red beds (fig. 13) thin from north to south and are absent in much of the extreme southern part of the study area except in the vicinity of the Pedernal uplift. A depositional basin receiving over 1,500 feet of sediments is evident in the northeastern part of the map. The limits of this basin are defined by oil tests with the thickest sections penetrated in the Standard of Texas Heard (T.6S., R.9E.) and the Texaco Federal (T.7S., R.9E.). To the east the Pedernal uplift continued as a source for clastic material and Abo red beds are locally overlapped on this high by sediments of the Yeso Formation.

#### Yeso Formation

The Yeso Formation is of Lower Permian Leonardian age. Similar to the Abo, the Yeso thins to the south from the depositional basin in the Carrizozo area (fig. 14) and is absent in the southwestern part of the study area. In the Carrizozo basin over 4,000 feet of sediments accumulated during Yeso time as shown by the section penetrated in the Standard of Texas Heard and Texaco Federal wells. The unit thins to the east onto the Pedernal uplift, where it overlaps the Abo and rests directly on Precambrian rocks.

The Yeso consists of a complex suite of sedimentary rocks including red to orange sandstone and shale, limestone, dolomite and gypsum-anhydrite (fig. 11). In addition bedded salt is

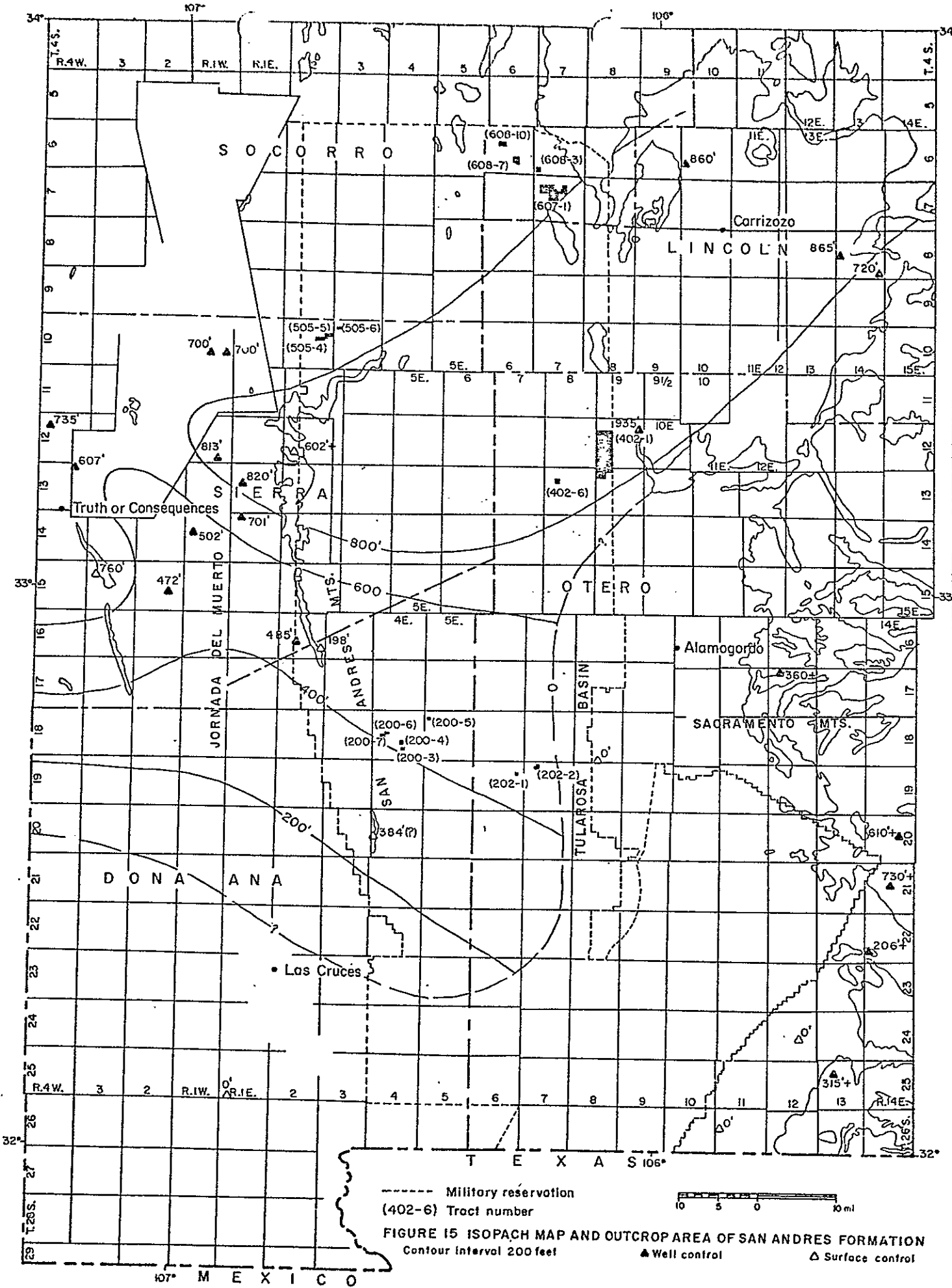




present in the northeast basin; it was encountered in the Standard of Texas Heard, Texaco Federal, and Houston, Lewelling (T.12S., R.9E.). Adequate logs were not available to determine the thickness of salt in the Standard test. In the Texaco well a total of 418 feet of salt was penetrated including two beds near the base of the Yeso that are from 40 to 50 feet thick. In the Houston well there were 173 feet of salt with the lowermost bed being 126 feet of almost-continuous salt. The present extent of salt in the Yeso in this area is not known. As originally deposited it may have been continuous at least as far south as the Southern Production Cloudcroft (T.17S., R.12E.) and the Stanolind Thorn (T.21S., R.4E.). The percent of carbonate rocks increases to the south and the amount of gypsum-anhydrite decreases. Although absent in the exposures in the southern San Andres Mountains anhydrite is present in the lower part of the Yeso at least as far south as the Seaboard Trigg well near the Texas line in T.26S., R.11E.

#### San Andres Limestone

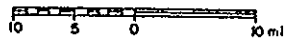
The isopach map of the San Andres Formation (fig. 15) includes sandstone intervals of the Glorieta and Hondo Formations in the lower part, and red beds of the Bernal Formation in the upper part. With the exception of the northern part of the study area these beds make up only a small part of the total thickness of this interval. The bulk of the sequence consists of dolomite and dolomitic limestone typical of the San Andres (fig. 11). The San Andres crops out extensively on the eastern slope of the Sacramento Mountains. The depositional limit indicated on the



--- Military reservation  
 (402-6) Tract number

FIGURE 15 ISOPACH MAP AND OUTCROP AREA OF SAN ANDRES FORMATION  
 Contour interval 200 feet

▲ Well control  
 △ Surface control



map south and southwest of the San Andres Mountains is approximate. The San Andres also is absent over a large area in the eastern part of the Tularosa Basin and in the western Sacramento Mountains. This is the result of erosion associated with the uplift of the Sacramento Mountains. Locally some San Andres may be preserved in downfaulted blocks in the eastern part of the Tularosa Basin.

Because of the large outcrop area and few oil tests that penetrate a complete section of the San Andres, the thickness can only be generalized. Wells in the Jornada del Muerto clearly show the southward thinning. The only complete section measured in the San Andres Mountains was at Love Ranch (T.20S., R.4E.) near the south end of the range. The reported thickness at this locality is 384 feet, although some or all of this section may actually be part of the Yeso Formation. The thickest section of San Andres known in the study area is 935 feet in the Houston 1 Lewelling test (T.12S., R.9E.).

Based on limited paleontological studies the San Andres is considered to be of Lower to Middle (Leonardian to Guadalupian) Permian age.

#### Mesozoic Rocks

No attempt has been made to isopach the eroded remnants of Mesozoic rocks. Outcrops areas are shown (fig. 16) along with thicknesses from measured sections and oil and gas tests. Where not removed by erosion, Triassic sediments are present across the northern part of the area. The approximate southern

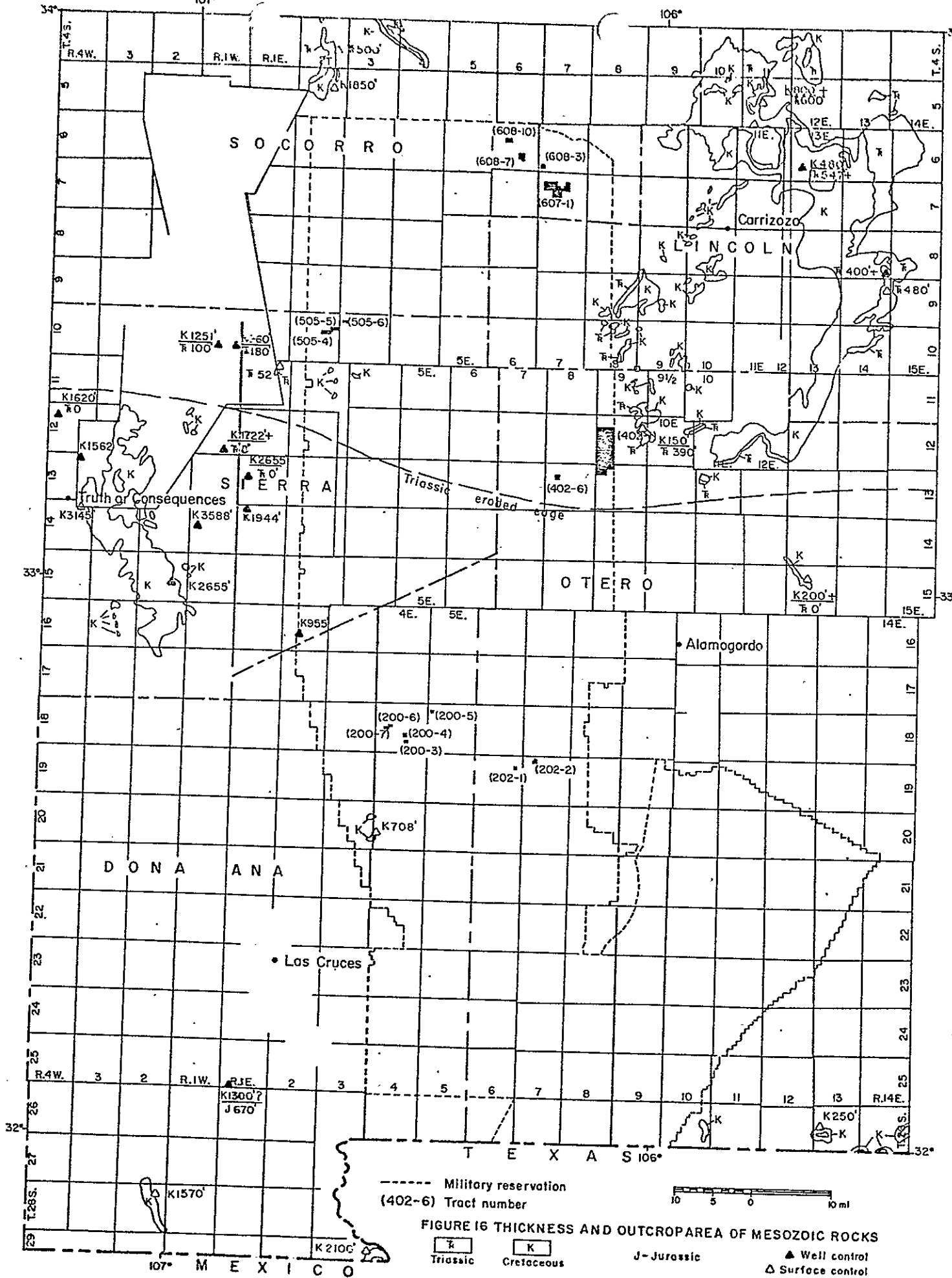
extent of the Triassic is indicated in fig. 16. Beyond this southern extent the Triassic is overlapped by sediments of Upper Cretaceous age. Rocks of Triassic age are generally referred to the Dockum Group in this area (fig. 17). Exposures near Carrizozo include equivalents of the basal Santa Rosa Sandstone and overlying Chinle Shale. The Santa Rosa consists of red sandstone with lenses of red shale and siltstone and some quartz and chert pebble conglomerate (Smith and Budding, 1959). The Chinle is mostly red and purple mudstone and sandstone. The Dockum thins from 600 feet north of Carrizozo (T.5S., R.11E.) to 390 feet in the Houston well (T.12S., R.9E.). It is absent farther south in T.15S., R.13E., where Cretaceous rocks rest directly on the San Andres Formation (Pray and Allen, 1956).

The outcrop distribution of Cretaceous rocks is limited to the Upper Cretaceous Dakota, Mancos, and Mesaverde Formations and exposures of Lower Cretaceous rocks in the southern part of the map area. Not included is the McRae Formation exposed in the Caballo Mountains and the western part of the Jornada del Muerto or the Cub Mountain Formation (Bodine, 1956) in the Sierra Blanca area. Both of these units may be in part of Cretaceous age. The maximum preserved thickness of Upper Cretaceous rocks is 3,145 feet at a measured section in the Caballo Mountains (T.14S., R.4W.). The indicated thickness of 3,588 feet in the Beard 1 Jornada (T.14S., R.1W.) may include part of the McRae Formation. The southernmost exposure of Upper Cretaceous rocks is at the Love Ranch section (T.20S., R.3E.) in the San Andres Mountains. The extent of preservation

of Cretaceous rocks in the Tularosa Basin is not known. The Texaco and Plymouth wells drilled in the eastern part of the basin south of Alamogordo began in Paleozoic sediments at the surface or beneath valley-fill deposits. To the north the Houston 1 Lewelling (sec. 12, T.12S., R.9E.) penetrated 150 feet.

Rocks of Lower Cretaceous age are exposed at Love Ranch, in the East Potrillo Mountains (T.28S., R.2W.), at Cerro de Cristo Rey (T.29S., R.4E.), in the Hueco Mountains (T.26S., R.10E.), and in the Cornudas Mountains (T.26S., Rs. 13 & 14E.). About 96 feet of black shale and green to tan sandstone are present at Love Ranch (Kottlowski, et al., 1956). In the East Potrillo Mountains the Lower Cretaceous consists of from 840 to 1,570 feet of limestone in part silty to sandy, limestone and chert pebble conglomerate, claystone, siltstone, and sandstone (Bowers, 1960, and Hoffer, 1976). About 2,100 feet are exposed at Cristo Rey. The sediments are mostly gray to black limestone and shale, but include siltstone, sandstone, and minor conglomerate (Lovejoy, 1976). About 250 feet of Lower Cretaceous shale, sandy limestone, sandstone, and minor conglomerate flank the intrusives of the Cornudas Mountains (Zapp, 1941; Timm, 1941; and Clabaugh, 1941).

The only subsurface information for Lower Cretaceous strata is from the Grimm well (T.25S., R.1E.), where about 1,300 feet were penetrated beneath Tertiary sediments. Also in this test a marine Jurassic section of 670 feet was drilled. This is the only known Jurassic occurrence in the study area and the only



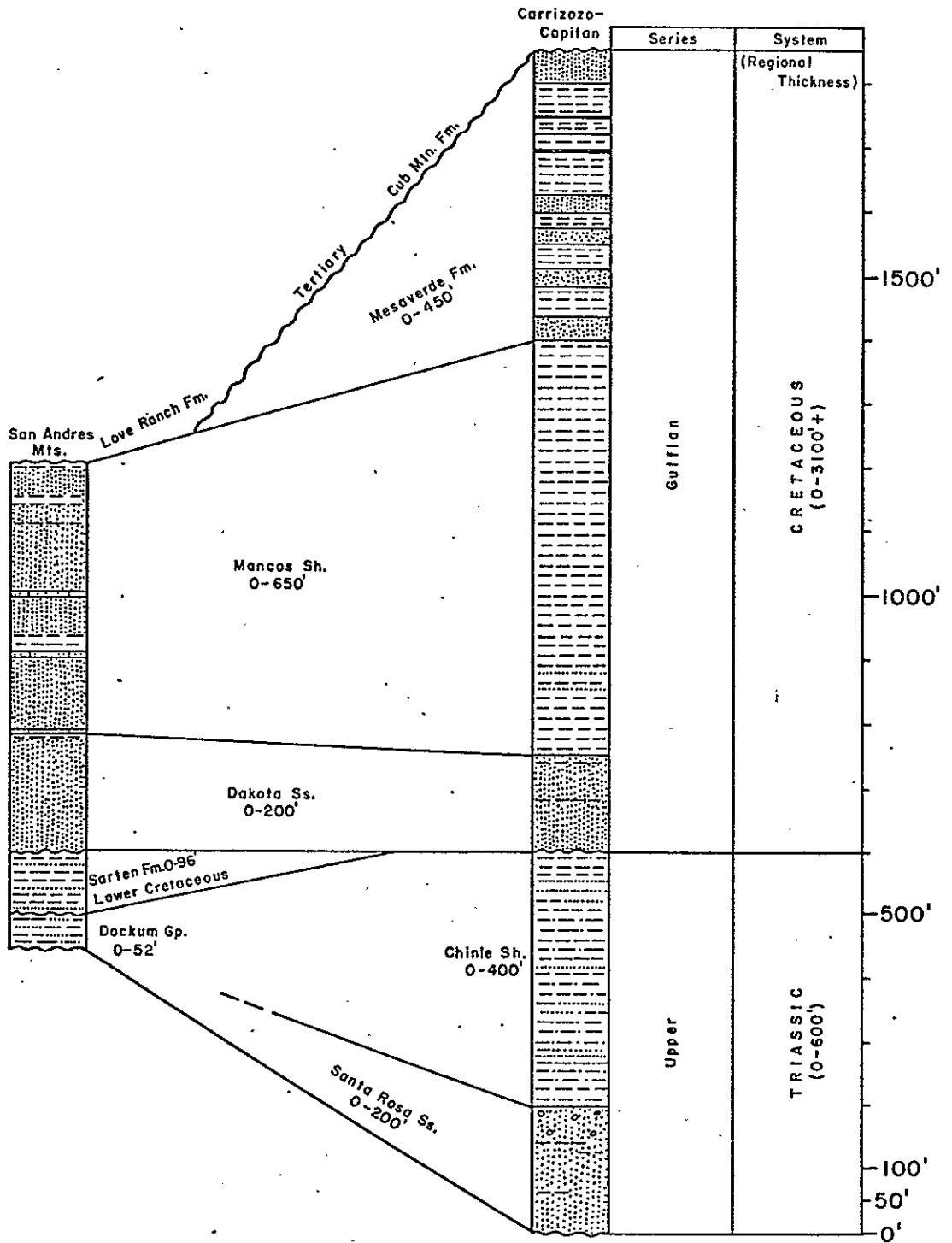


FIGURE 17 STRATIGRAPHIC SECTIONS OF MESOZOIC ROCKS  
 Composite sections modified from Kottlowski, et al (1956), Smith and Budding (1959), and Bodine (1956)



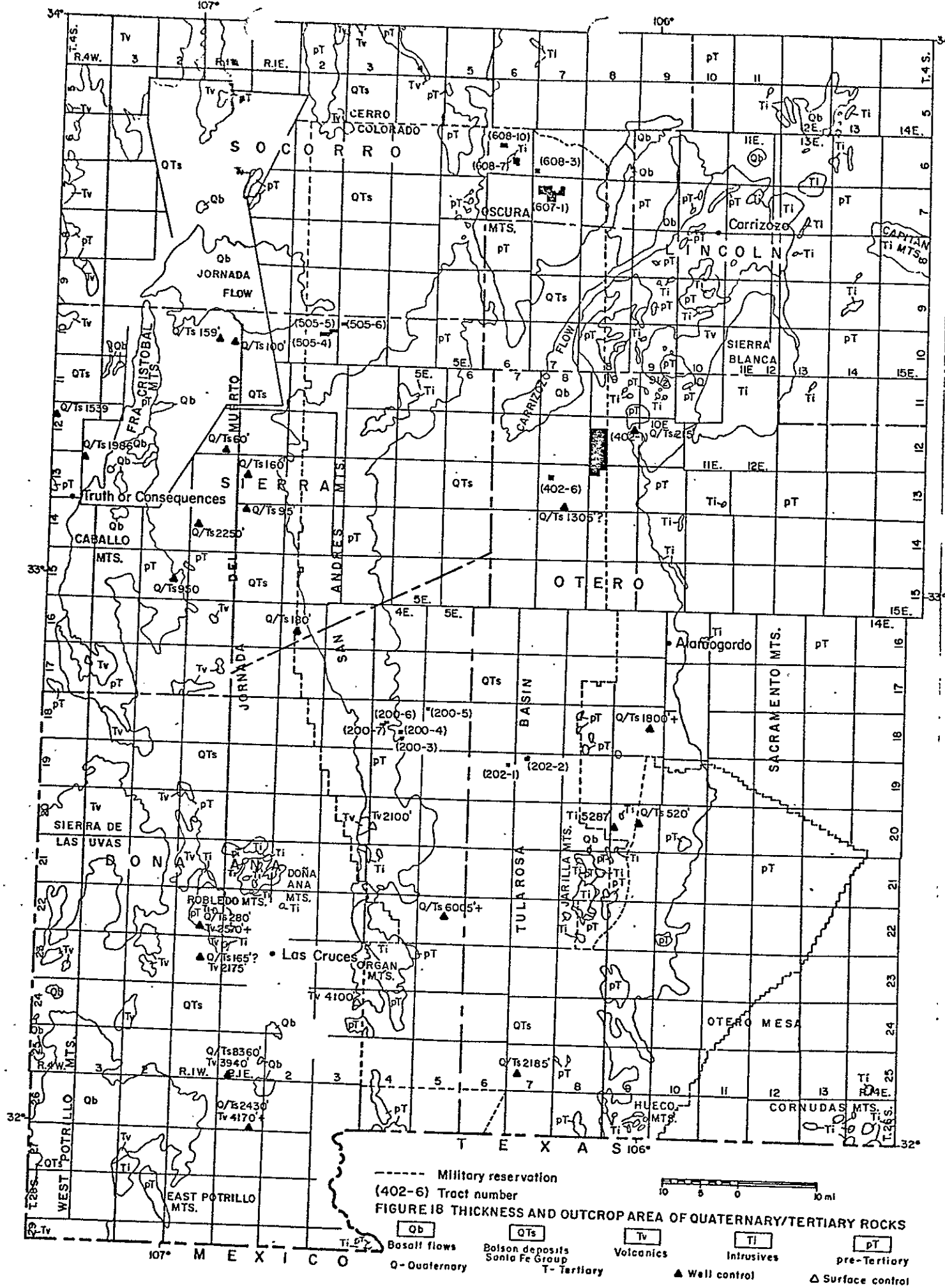
marine Jurassic in New Mexico. It is doubtful that this sequence of rocks is present very far north or east of the Grimm well.

### Tertiary/Quaternary Rocks

The general outcrop distribution of Tertiary/Quaternary rocks is shown in fig. 18. The subdivisions have been simplified from the State Geologic Map (Dane and Bachman, 1965) into four units. These are Tertiary intrusives, Tertiary volcanics, Quaternary-Tertiary bolson deposits and Santa Fe Group, and Quaternary basalt flows.

In the area surrounding the military reservation Tertiary volcanic rocks and associated sediments crop out at the southern end of the Caballo Mountains, Sierra de las Uvas, Robledo and Doña Ana Mountains, and on the west and northern sides of the Sierra Blanca intrusive. The only outcrops of these rocks within the military reservation are at Cerro Colorado in the northwestern corner of the range and in the southern San Andres and Organ Mountains.

Volcanic rocks exposed in the Organ Mountains consist of a lower sequence of rhyolite tuffs overlain by andesite flows, rhyolite ash-flow tuffs, and rhyolite flows (Dunham, 1935 and Seager, 1973). The section is over 4,100 feet thick. To the southwest the Texaco Weaver well (T.26S., R.1E.) bottomed in volcanics after penetrating 4,170 feet of flows and tuffs of rhyolitic to andesitic composition (Kottlowski, Foster, and Wengerd, 1969). In the Grimm well to the north the total



thickness of volcanics is 3,940 feet. In the southern part of the Robledo Mountains the Sinclair Doña Ana test (T.22S., R.1W.) drilled 2,570 feet of rhyolite and quartz-latite flows and tuffs in fault contact with underlying Paleozoic rocks. The large volcanic mass of the Sierra de las Uvas includes a lower sequence of approximately 3,500 feet of tuffaceous mudstone, sandstone, breccia, and conglomerate of andesite-latite detritus (Clemons, 1976, 1977). This interval, known as the Palm Park Formation, also is exposed in the Caballo Mountains where the thickness was estimated to be at least 1,000 feet (Kelley and Silver, 1952). The small outcrop in the southern part of the San Andres Mountains consists of a maximum of 2,100 feet of conglomerate and siltstone with clasts made up of nonvolcanic pre-Tertiary rocks. The only volcanic material present is a thin lens of andesite tuff-breccia. This interval, known as the Love Ranch Formation, may be correlative with the Palm Park and is included with the Tertiary volcanic sequence for this reason. Overlying the Palm Park Formation in the Sierra de las Uvas are about 2,000 feet of tuff, basalt, basaltic andesite, and associated sediments. To the north at Cerro Colorado (T.5S., R.2E.) the volcanic sequence consists of latite conglomerates and pyroclastics overlain by andesitic flows (Weber, 1963). No volcanic rocks have been encountered beneath the alluvial fill in the Jornada del Muerto although they are probably present in the southern part of the basin.

Volcanic rocks are widely exposed in the northeast part of the map area. These rocks consist mostly of andesitic flows,

tuffs, and agglomerates (Bodine, 1956; Griswold, 1959).

Tertiary intrusives in the map area include a wide variety of rock types. Within the military reservation are the diorites, granodiorites, and monzonites of the Jarilla Mountains (Schmidt and Craddock, 1964); the Organ Mountain batholith of monzonite and quartz monzonite (Dunham, 1935); the rhyolite sills of Salinas Peak (Bachman and Harbour, 1970); and the syenites of the Hueco Mountains (Richardson, 1909). In the surrounding area the Cornudas Mountains are made up of augite syenite, nepheline syenite, and trachyte and phonolite porphyries. The intrusive rocks of the Sierra Blanca complex consist of monzonite, diorite, syenite, and possibly some granite.

Intrusive dikes and sills have been encountered in numerous wells drilled for oil and gas in this area. For the most part these are fairly thin, normally less than 100 feet thick. The Phillips Turquoise well (T.20S., R.9E.) located north of the Jarilla Mountains drilled almost 5,300 feet of a diorite intrusive before being abandoned in this material.

Alluvium underlying the Jornada del Muerto and Tularosa Basin has not been differentiated for this report. It includes Quaternary bolson deposits and the underlying Tertiary Santa Fe Group. Very little information is available on the thickness of these sediments. A test drilled for White Sands Missile Range in the Tularosa Basin (T.22S., R.5E.) penetrated 6,005 feet of fill without drilling the entire section. The Ernest test (T.25S., R.7E.) did drill into older rocks after 2,185 feet of fill. The Houston-Lewelling (T.12S., R.9E.) encountered 215 feet of

alluvium above Cretaceous sediments. The fill is generally thin in the Jornada del Muerto with only 60 to 160 feet present in most wells. The Beard 1 Jornada (T.14S., R.1W.) had a reported 2,250 feet of sediments above the Cretaceous. However, this may include strata of the McRae Formation.

Quaternary basalt flows are of little importance in evaluating the oil and gas potential. They are normally thin and occur only in limited outcrops within the military reservation. These are the Carrizozo and Jornada flows in the northern part of the reservation..

#### STRUCTURE

The major structural features of the area are shown in fig. 2. Within the military reservation these include the southern part of the Sacramento Mountains, Otero Mesa, northern Hueco Mountains, Tularosa Basin, Jarilla Mountains, Oscura, San Andres, Organ and northern Franklin Mountains, and the eastern part of the Jornada del Muerto. Structure within the Tularosa Basin is poorly known. From a regional standpoint it is a large graben flanked to the east by the east-dipping Sacramento Mountains and on the west by the west-dipping San Andres Mountains. The structural relief along the margins of the basin can only be inferred from sparse well control. From exposed Precambrian in the Organ Mountains to the well drilled on the west side of the Tularosa Basin (T.22S., R.5E.)--a distance of a few miles--there may be as much as 14,000 feet of structural

relief. Along the Sacramento escarpment somewhat better control is available between outcrops of Precambrian rocks (T.19S., R.10E.) and the Texaco Federal F (T.18S., R.10E.). Here the displacement on the frontal fault of the Sacramento Mountains is on the order of 9,000 feet. The Jarilla block within the Tularosa Basin is much more complex than indicated. The southern part of the block appears to be much higher than the northern part based on projections from outcrops of Paleozoic rocks. The Texaco and Plymouth wells indicate that this block is downdropped to the north but is still probably structurally higher than the basin to the west. The Jarilla block appears to continue at least as far north as T.15S., R.8E., where strata of the Yeso Formation are exposed. The west-bounding fault of the Sacramento uplift is continued to the north based on exposures in the Three Rivers area.

The major structural features of the area are related to Laramide orogeny that began in Late Cretaceous time. Displacement is still taking place as evidenced from fault scarps cutting recent fans. In the eastern Sacramento Mountains and continuing south into Texas, the uplift of the Pedernal block began in Late Pennsylvanian. This structural high was later buried by sedimentation during Permian time. The block-faulting that gave rise to the Pedernal uplift is similar in age and trend to that of the Central Basin Platform in southeastern New Mexico and west Texas. Thus the southeastern part of the area as suggested from the available control is a series of horst and graben blocks similar to those that flank the western side of

the Central Basin Platform.

## OIL AND GAS EVALUATION

As a result of the long period of restrictions on oil and gas exploration there have been no significant tests drilled within the military reservation (fig. 19 and table 1). If the area had been open, exploratory wells would have been drilled particularly during the active drilling programs of the 1950's and the current activity that began following the Arab oil embargo and increases in the price of crude oil and natural gas. This conclusion is evident from the activity in parts of southwestern and west-central New Mexico where the potential for accumulation of hydrocarbons is much lower than in the Tularosa Basin. This conclusion also is supported by exploration in the Jornada del Muerto where five wells were drilled between 1970 and 1975.

The lack of exploration except around the margins of the Tularosa Basin, along with the difficulty of locating favorable structures because of alluvial cover, makes an evaluation of the hydrocarbon potential exceedingly difficult. The approach used is to evaluate first the geologic potential, second the results of testing in the area surrounding the reservation, and third the overall interest in the area by oil companies as evidenced primarily by leasing activities.

### Geologic Evaluation

From a geologic standpoint the area can be evaluated based

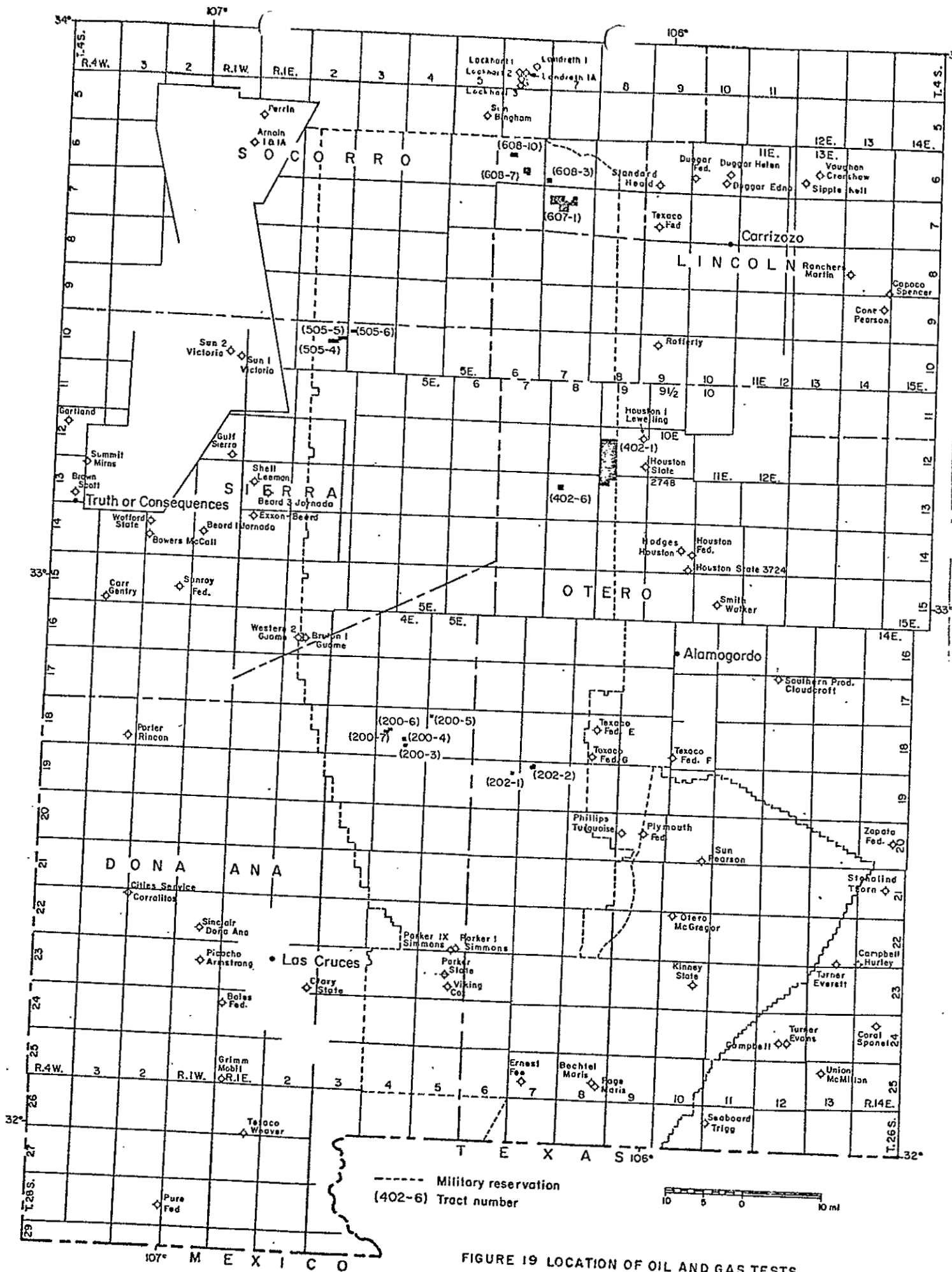


FIGURE 19 LOCATION OF OIL AND GAS TESTS



TABLE 1-- OIL AND GAS TESTS

WELL	LOCATION			COMPLETION DATE	ELEV. (ft)	TOTAL DEPTH (ft)	DEEPEST TESTED
	S.	T.	R.				
Landreth 1 Federal	554N	766W	23-4S-6E	2/1/73	?	3,445	Precambrian
Landreth 1 Panhandle A	1980N	1980E	28-4S-6E	8/10/73	5,774	3,240	Precambrian
Lockhart 1 Federal	1980N	1980W	28-4S-6E	11/18/53	5,744	2,990	Precambrian
Lockhart 2 Lockhart	660N	660W	33-4S-6E	12/31/54	5,689	3,037	Precambrian
Lockhart 3 Lockhart	2310N	330W	33-4S-6E	10/10/55	5,709	2,665	Precambrian
N. M. Devel. 1 Perrin	660S	1980E	30-5S-1E	3/19/28	?	3,275?	Valley fill
Sun 1 Bingham	660S	660W	23-5S-5E	10/17/55	5,423	3,141	Precambrian
Standard Texas 1 Heard	1980N	1980W	33-6S-9E	4/18/51	5,882	8,050	Precambrian
Dugger 1 Helen	330S	2310E	23-6S-10E	2/29/75	5,579	1,250	Triassic
Dugger 1 Gallagher	330S	330W	26-6S-10E	7/11/69	?	2,059	Permian?
Dugger 1 Federal	3625S	505W	30-6S-10E	3/9/63	5,500	1,500	Yeso
Vaughan 1 Crenshaw	335N	330E	21-6S-13E	8/5/59	?	400	Dakota?
Sipple 1 Kelt	1980N	2310W	29-6S-13E	5/6/49	6,550	1,027	Chinle
Arnold 1 Apache	330N	330E	13-6S-1W	12/9/27	?	2,445	Santa Fe
Arnold 2 Apache	NE		13-6S-1W	5/9/29	4,505	1,973	Santa Fe
Texaco 1 Federal	1980N	1980E	29-7S-9E	6/6/69	5,412DF	7,616	Precambrian?
W. Ranchers 1 Martin	1650N	337E	19-8S-14E	8/5/59	6,960	1,342	Yeso
Capoco 1 Spencer	330S	330E	36-8S-14E	8/8/59	6,275	2,181	Precambrian
Cone 1 Pearson	2156S	1660W	12-9S-14E	8/5/59	?	1,005	Glorieta
Rafferty 1	NW?		9-10S-9E	1924	?	864	Cretaceous?
Sun 1 Victoria	660S	1980W	25-10S-1W	1/25/52	4,809	6,053	Precambrian
Sun 2 Victoria	1980N	660E	27-10S-1W	5/5/52	4,786	6,352	Precambrian
Houston 1 Lewelling	660N	660W	12-12S-9E	8/2/76	4,706	9,360	Bliss
Houston 1 State 2748	2018S	990E	25-12S-9E	9/1/74	4,799	715	Permian
Gulf 1 Sierra	1980N	660E	35-12S-1W	8/10/70	5,112	7,860	Montoya
Gartland 1 Brister	2010S	1988E	8-12S-4W	9/20/55	4,855	8,585	Precambrian
Shell 1 Leeman	1980N	660E	17-13S-1E	3/13/65	5,261DF	7,346	Montoya
Beard 3 Jornada	827S	2197W	22-13S-1E	3/15/75	4,568	2,320	Glorieta
Tularosa Basin 1	?		34-13S-8E	4/16/26	?	3,965	Hueco-Abo
Summit 1 Mims	1980S	660W	2-13S-4W	3/1/54	4,570	6,195	Pennsylvanian
Brown 1 Scott	1980S	660E	28-13S-4W	9/15/47	4,300	520	Pennsylvanian
Exxon 1 Beard	1980S	1980E	5-14S-1E	3/4/74	5,163	8,850	Precambrian

WELL	LOCATION			COMPLETION DATE	ELEV. (ft)	TOTAL DEPTH (ft)	DEEPEST TESTED
	S.	T.	R.				
Hodges 1 Houston	470N	1980W	23-14S-10E	10/16/70	5,017DF	3,040	Pennsylvanian
Houston 1 Federal	660S	660E	24-14S-10E	7/8/72	5,312	3,690	
Houston 1 State 3724	2198S	1160W	36-14S-10E	8/5/74	5,053	4,579	Precambrian
Beard 1 Jornada	1980S	660E	17-14S-1W	4/16/73	4,792	9,800	Pennsylvanian
Wofford 1 State	990S	1650E	7-14S-2W	1/7/49	4,700	533	Mesaverde
Bowers 1 McCall	NE		19-14S-2W	1927	?	2,910	Permian?
Smith 1 Walker	2290S	500E	21-15S-11E	3/7/62	?	555	Abo Bursum
Sunray 1 Federal	660S	660E	23-15S-2W	4/18/59	4,689DF	9,765	El Paso
Carr 1 Gentry	660N	1980E	32-15S-3W	6/23/53	?	5,418	Pennsylvanian?
Western 2 Guame	1980S	1980W	21-16S-2E	8/11/53	?	3,507	Bursum?
Bruten 1 Guame	1987S	660E	21-16S-2E	6/7/50	?	2,202	Yeso
Southern Prod., 1 Cloudcroft	2310N	1980E	5-17S-12E	6/29/53	9,370	4,701	Precambrian
Texaco 1 Federal E	660S	660W	10-18S-8E	2/28/70	3,999	7,785	El Paso
Texaco 1 Federal G	1552N	1934E	33-18S-8E	9/4/70	4,186	7,660	?
Texaco 1 Federal F	1980S	1980E	30-18S-10E	11/3/70	4,042	8,288	?
Porter 1 Rincon	330S	2310W	25-18S-3W	6/18/71	?	569	Valley fill
Plymouth 1 Federal	660N	660W	15-20S-9E	11/18/54	4,044	7,585	El Paso
Phillips 1 Turquoise	661N	661E	18-20S-9E	2/1/61	4,059DF	5,437	Tertiary Intrusive
Sun 1 Pearson	800S	800E	35-20S-10E	12/24/54	4,408	4,468	Montoya?
Zapata 1 Federal	660S	660W	14-20S-14E	3/28/58	6,906	5,043	Montoya
Stanolind 1 Thorn	1980N	660E	15-21S-14E	9/14/53	6,310est.	4,646	Pennsylvanian
Parker 1 Simmons	330S	990E	35-22S-5E	1939	?	2,785	Valley fill
Parker IX Simmons	220S	1100E	35-22S-5E	3/44	?	3,104	Valley fill
Otero 1 McGregor	SENW		5-22S-10E	2/22/43	4,250	1,730	Hueco
Turner 1 Everett	660S	660E	34-22S-13E	8/6/38	4,745	3,930	Bliss
Campbell 1 Hurley	660S	660W	30-22S-14E	7/4/60	4,605	2,433	Montoya?
Sinclair 1 Dona Ana	660N	660W	27-22S-1W	4/7/62	4,684	6,510	Bliss-Tertiary
Cities Service 1 Corralites	1980N	1980W	6-22S-2W	7/25/71	4,776	5,129	Bliss
Clary 1 State	106N	41W	36-23S-2E	11/1/49	4,240	2,585	Pennsylvanian
Parker 1 State	1980S	1980E	15-23S-5E	10/44		4,260	Valley fill?
Viking 1 Cox	1100N	200W	26-23S-5E	1932?		3,224	Valley fill?
Kinney 1 State	SW		14-23S-10E	1/26	4,768	2,168	Mississippian?
Picacho 1 Armstrong	660N	1980E	15-23S-1W	5/15/41	4,480	3,196	Mississippian?
Boles 1 Federal	660S	660E	7-24S-1E	4/12/63	4,943DF	5,180	Valley fill?

WELL	LOCATION			COMPLETION DATE	ELEV. (ft)	TOTAL DEPTH (ft)	DEEPEST TESTED
	S.	T.	R.				
Campbell 1 Federal	1880S	1999E	21-24S-12E	1/8/59	4,911DF	1,855	Hueco?
Turner/Evans	2270S	330W	22-24S-12E	7/20/37	5,014	3,763	Bliss
Coral 1 Spanel	660N	660E	9-24S-14E	8/2/61		1,873	Tertiary Syenite
Grim 1 Mobil	1315N	1315W	32-25S-1E	10/12/73	4,220	21,759	Montoya
Ernest 1 Fee	330S	330E	20-25S-7E	1/17/42	4,099	3,941	Pennsylvanian
Bechtel 1 Maris	1980S	660W	23-25S-8E	5/24/50		986	Hueco?
Page 1 Maris	330S	2310W	23-25S-8E	10/8/49		731	Valley fill
Union 1 McMillan	660N	660W	9-25S-13E	9/4/46	5,200	5,215	El Paso?
Texaco 1 Weaver	660S	660W	35-26S-1E	1/6/66	4,164	6,620	Volcanics
Seaboard 1 Trigg	1980N	1980W	18-26S-11E	5/5/55	5,302	5,600	Pennsylvanian
Pure 1 Federal	1060N	2297E	24-28S-2W	2/8/62	4,404	7,346	Intrusive

WELL	LOCATION			COMPLETION DATE	ELEV. (ft)	TOTAL DEPTH (ft)	DEEPEST TESTED
	S.	T.	R.				
Campbell 1 Federal	1880S	1999E	21-24S-12E	1/8/59	4,911DF	1,855	Hueco?
Turner/Evans	2270S	330W	22-24S-12E	7/20/37	5,014	3,763	Bliss
Coral 1 Spanel	660N	660E	9-24S-14E	8/2/61		1,873	Tertiary Syenite
Grim 1 Mobil	1315N	1315W	32-25S-1E	10/12/73	4,220	21,759	Montoya
Ernest 1 Fee	330S	330E	20-25S-7E	1/17/42	4,099	3,941	Pennsylvanian
Bechtel 1 Maris	1980S	660W	23-25S-8E	5/24/50		986	Hueco?
Page 1 Maris	330S	2310W	23-25S-8E	10/8/49		731	Valley fill.
Union 1 McMillan	660N	660W	9-25S-13E	9/4/46	5,200	5,215	El Paso?
Texaco 1 Weaver	660S	660W	35-26S-1E	1/6/66	4,164	6,620	Volcanics
Seaboard 1 Trigg	1980N	1980W	18-26S-11E	5/5/55	5,302	5,600	Pennsylvanian
Pure 1 Federal	1060N	2297E	24-28S-2W	2/8/62	4,404	7,346	Intrusive

on the presence of possible source rocks, the number and distribution of potential reservoir rocks, and the likelihood of occurrence of favorable traps although it may not be possible to identify specific traps. Possible source rocks for hydrocarbons include the dark-gray to black shales present in the Devonian, Mississippian, Pennsylvanian, and Cretaceous sediments and locally in parts of the Permian sequence. The bituminous content of the carbonates of the San Andres Formation and part of the Yeso Formation has been observed over much of New Mexico. The carbonates of the lower Paleozoic are in general not considered to be important source rocks for hydrocarbons. The algal-rich beds of the El Paso Group are possible exceptions. The low source potential of Ordovician and Silurian rocks does not exclude them from the potential for containing hydrocarbons where suitable reservoir rocks are present. As pointed out by Jones and Smith (1965), oil on the higher part of the Central Basin Platform in the Ellenburger (El Paso equivalent) is Simpson oil (Ordovician-shale source) diluted primarily with oil from the Pennsylvanian and Wolfcampian. This commingling has resulted from the faulting of the Central Basin Platform and migration of oil into older strata. Similar conditions are possible in south-central New Mexico where there is both Late Paleozoic and Laramide faulting.

It can be assumed that oil and gas were present in the area prior to the Laramide development of the Basin-and-Range structural province. Under the conditions that existed into Cretaceous time it would be unique to have a sequence of source

and reservoir rocks of the thickness and extent present in south-central New Mexico and not to have substantial deposits of oil and gas.

Having more than one or two exploration targets greatly increases the possibility of the presence of hydrocarbon reservoirs of commercial importance. In addition it increases the interest in an area and the value of that area from an exploration standpoint. From the isopach maps prepared for this report and the studies of outcrops and the literature, the presence and distribution of numerous potential reservoir rocks can be substantiated. These include carbonates of Ordovician, Silurian and Mississippian age; sandstones, conglomerates, and limestones of Pennsylvanian and Permian age; and sandstones of Cretaceous age. Potential pay zones in the pre-Pennsylvanian rocks are present in about two thirds of the area thinning to the north. These include the dolomites of the El Paso and Montoya Groups and Fusselman Formation, and the limestones and reefs of the Lake Valley Formation. Also present in the southern half of the area are the thick marine carbonates of the Permian Hueco Formation. Of particular importance in the northern part of the reservation are the porous dolomites and dolomitic limestones of the Yeso and San Andres Formations; the sandstones of the Dakota and Mesaverde Formations; and the sandstones, conglomerates and limestones (including reefs) of the Bursum Formation. Over almost the entire area of the reservation a thick Pennsylvanian sequence is present and contains numerous potential reservoir rocks including limestones,

sandstones and some conglomerates. In the northeast area in particular there is an excellent potential for reservoir rocks in the deltaic facies in the lower and middle part of the Pennsylvanian. Reefs are present in the upper Virgilian sequence and are exposed in T.16S. in both the San Andres and Sacramento Mountains. It seems possible that these reefs continue across the Tularosa Basin, perhaps along a northern arc approximately following the 3000-foot contour on the isopach map (fig. 10).

Traps that are considered to be present in the study area include stratigraphic traps of depositional origin, unconformities, anticlines and fault traps. Stratigraphic traps would be developed where there are facies changes from dolomite to limestone, deltaic sandstones enclosed in shales, and reefs. Unconformity traps may be present along the eroded edges of pre-Permian rocks in the southeast part of the area and in the north where Pennsylvanian strata overlap the older Paleozoic rocks. The presence of anticlines can be demonstrated only in the exposed fault blocks. In areas such as the Tularosa Basin identification would require seismic exploration. Anticlinal traps probably do exist and are associated with the normal faulting within the basin. Faulting, particularly Laramide and later, can have both a positive and negative aspect as far as traps are concerned. Suitable traps can be formed where permeable beds are placed opposite unpermeable rocks, such as a sandstone against a shale. Faulting could cause renewed migration of hydrocarbons from previously established traps to

TABLE 2--RESULTS OF TESTING OF PRE-PENNSYLVANIAN ROCKS

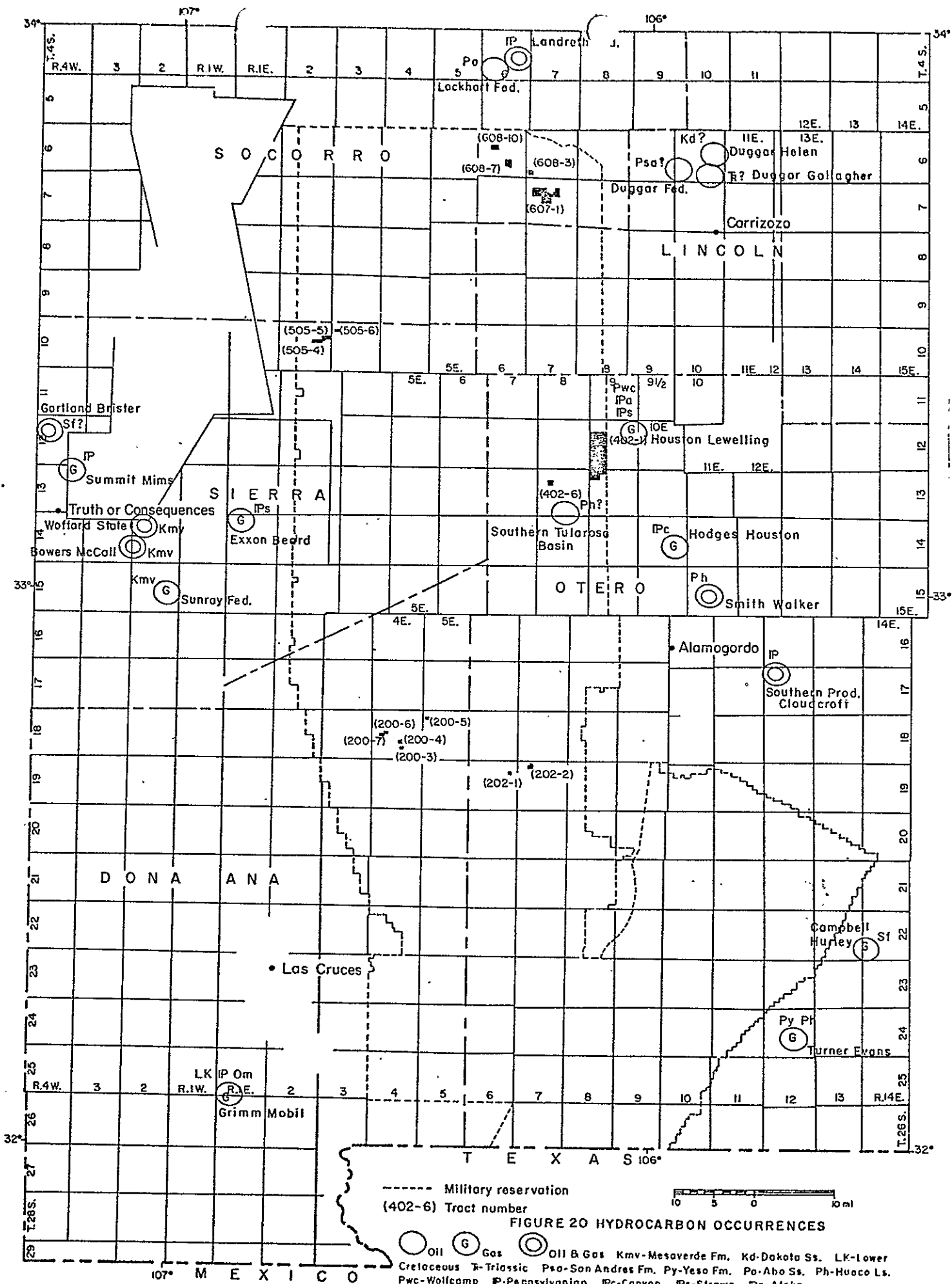
## (Western Area)

<u>Well</u>	<u>Location</u>	<u>Interval</u>	<u>Zone</u>	<u>Recovery</u>	<u>Pressure (psi)</u>
Gulf 1 Sierra	35-12S-1W	7779-7860'	Montoya	SXW	ISIP 2880
Gartland 1 Brister	8-12S-4W	8499-8527'	Fusselman?	SO&GCM	SIP 3755
		8518-8585'	Fusselman?	Fresh water	
Shell 1 Leeman	17-13S-1E	7255-7283	Montoya	Fresh water	FSIP 2668
Cities Service 1					
Corralitos	6-22S-2W	3550-3680'	Fusselman	WCM (0.8K-C1)	FSIP 1267
		3680-3880'	Fusselman	WCM (0.3-0.4K-C1)	
		4445-4600'	El Paso	WCM	
Grimm 1 Mobil	32-25S-1E	?	Montoya	SG	

## (Eastern Area)

Southern Prod. 1					
Cloudcroft	5-17S-12E	3530-3558'	Fusselman	DM	FP 250
		3596-3637'	Fusselman	DM	
Plymouth 1 Federal	15-20S-9E	6996-7045'	Montoya	XW	SIP 2750
		7202-7267'	Montoya	XW (13K-C1)	SIP 2945
		7385-7585'	El Paso	XW	SIP 3055
Sun 1 Pearson	35-20S-10E	4452-4468'	El Paso	SXW	SIP 1570
Texaco 1 Federal E	10-18S-8E	7033-7250'	Devonian-		
			Montoya	XW (27K-C1)	
		7259-7371'	Montoya	XW (35.3K-C1)	
		7534-7683'	El Paso	XW (39K-C1)	
Texaco 1 Federal F	30-18S-10E	7675-8000'	Fusselman-		
			Montoya	XW (31.8K-C1)	
		7366-7410'	Mississippian	XW (25K-C1)	
Texaco 1 Federal G	33-18S-8E	7055-7115'	Devonian-		
			Fusselman	XW (11.5-14.5K-C1)	
		7115-7228'	Fusselman-		
			Montoya	XW (35K-C1)	
		7505-7660'	Montoya- El		
			Paso	XW (41K-C1)	
Campbell 1 Hurley	30-22S-14E	2255'	Fusselman	SSG	





the permeability barriers formed by faulting. Faulting also can lead to flushing of hydrocarbons by meteoric waters and provide an avenue of escape for previously trapped hydrocarbons. Shale, anhydrite, and in particular salt beds can form suitable barriers against upward movement of hydrocarbons along faults. In an area such as the Tularosa Basin a variety of favorable and unfavorable trap conditions have probably been introduced by faulting.

#### Test Evaluation

Tests drilled in the area give some indication of the distribution of hydrocarbons, the porosity-permeability characteristics of potential reservoir rocks, and areas where flushing by meteoric waters may have taken place.

Testing of pre-Pennsylvanian rocks is somewhat limited and in general the results are not encouraging (table 2, fig. 20). The presence of some hydrocarbons has been established, but additional testing of these intervals would be warranted only in certain areas. These rocks have probably been flushed by meteoric waters in most of the Jornada del Muerto and along parts of the eastern margin of the Tularosa Basin. In the Jornada del Muerto fresh to brackish water with relatively low chlorine content has been recovered from the Montoya and Fusselman intervals. The uniform lithology of these formations and the synclinal nature of the Jornada del Muerto with exposures to the east and west suggests a high potential for flushing of hydrocarbons. However, the presence of porosity and permeability indicated by the tests is a plus factor where more favorable

TABLE 3--RESULTS OF TESTING OF PENNSYLVANIAN ROCKS

## (Western Area)

<u>Well</u>	<u>Location</u>	<u>Interval</u>	<u>Zone</u>	<u>Recovery (Max)</u>	<u>Pressure (psi)</u>
Cities Service 1 Corralitos	6-22S-2W	2975-3002'	Lower Penn.	WCM	PSIP 962
Exxon 1 Beard	5-14S-1E	7200-7430'	Strawn	76MCFPD	PSIP 469
Landreth 1 Federal	23-4S-6E	2499-2505'	---	Gas & Cond.	---
		2902-2918'	Lower Penn.	XW, O & G	---
Grimm 1 Mobil	32-25S-1E	?	---	Show gas	---
Summit 1 Mims	2-13S-4W	5708-5800'	---	SGC water	---
		5775-5800'	---	Show gas	---

## (Eastern Area)

Hodges 1 Houston	23-14S-10E	2433-2444'	Canyon Ss.	16MCFPD*	---
Houston 1 Federal	24-14S-10E	2465-2471'	Upper Penn.	Salt water(35K-C1)	FSIP 719
Standard Tx 1 Heard	33-6S-9E	6123-6162'		DM	0
		6616-6646'			
		7406-7463'			
		7745-7773'			
		7669-7773'			
Southern Prod. 1 Cloudcroft	5-17S-12E	2464-2492'		O & GCM	
Houston 1 Lewelling	12-12S-9E	8000-8016'	Strawn	430.1MCFPD	SITP 1250
		8572-8598'	Atoka	12MCFPD	
Texaco 1 Federal F	30-18S-10E	5242-5523'	Canyon?	Water (8.5K-C1)	
		6762-6946'	Strawn	Water (14.5K-C1)	
Texaco 1 Federal G	33-18S-8E	5835-5854'	Strawn	Water (21.7K-C1)	

TABLE 3--RESULTS OF TESTING OF PENNSYLVANIAN ROCKS

## (Western Area)

<u>Well</u>	<u>Location</u>	<u>Interval</u>	<u>Zone</u>	<u>Recovery (Max)</u>	<u>Pressure (psi)</u>
Cities Service 1 Corralitos	6-22S-2W	2975-3002'	Lower Penn.	WCM	PSIP 962
Exxon 1 Beard	5-14S-1E	7200-7430'	Strawn	76MCFPD	PSIP 469
Landreth 1 Federal	23-4S-6E	2499-2505'	---	Gas & Cond.	---
		2902-2918'	Lower Penn.	XW, O & G	---
Grimm 1 Mobil	32-25S-1E	?	---	Show gas	---
Summit 1 Mims	2-13S-4W	5708-5800'	---	SGC water	---
		5775-5800'	---	Show gas	---

## (Eastern Area)

Hodges 1 Houston	23-14S-10E	2433-2444'	Canyon Ss.	16MCFPD*	---
Houston 1 Federal	24-14S-10E	2465-2471'	Upper Penn.	Salt water(35K-Cl)	FSIP 719
Standard Tx 1 Heard	33-6S-9E	6123-6162'		DM	0
		6616-6646'			
		7406-7463'			
		7745-7773'			
		7669-7773'			
Southern Prod. 1 Cloudcroft	5-17S-12E	2464-2492'		O & GCM	
Houston 1 Lewelling	12-12S-9E	8000-8016'	Strawn	430.1MCFPD	SITP 1250
		8572-8598'	Atoka	12MCFPD	
Texaco 1 Federal F	30-18S-10E	5242-5523'	Canyon?	Water (8.5K-Cl)	
		6762-6946'	Strawn	Water (14.5K-Cl)	
Texaco 1 Federal G	33-18S-8E	5835-5854'	Strawn	Water (21.7K-Cl)	

structures might be present. In the Tularosa Basin salt water has been recovered in tests of the Mississippian, Fusselman, Montoya, and El Paso. In general the chlorine content of these waters is fairly high and is comparable to water produced with oil from these intervals in southeastern New Mexico. A rather low chlorine content was reported for water recovered from the Montoya in the Plymouth well (T.20S., R.9E.) and the Devonian and Fusselman in the Texaco Federal G (sec. 33, T.18S., R.8E.).

The results of testing of Pennsylvanian strata indicate good lateral and vertical distribution of hydrocarbons (table 3, fig. 20). The only significant test in the western part of the area was the Exxon Beard well (T.14S., R.1E.) near the center of the Jornada del Muerto. Maximum recovery was 76 MCFPD of gas declining to 19MCFPD at the end of the test. In the eastern part of the area several tests of Pennsylvanian strata have resulted in the recovery of natural gas. The largest volumes recovered were from the Houston 1 Lewelling (sec. 12, T.12S., R.9E.) on the eastern side of the Tularosa Basin. Maximum recovery was slightly over 430 MCFPD from the Strawn (Desmoinesian) interval from 8,000-8,016 feet. Results of four-point tests were as follows:

July 6, 1974		July 9, 1974
<u>Choke</u>	<u>Recovery (MCFPD)</u>	<u>Recovery (MCFPD)</u>
25/64"	430.1	138.4
20/64"	304.2	133.6
16/64"	257.7	139.7
11/64"	178.6	134.8

The final test of this zone was on July 20, 1974, when the well flowed at a rate of 168.3 MCFPD on 25/64" choke and a tubing pressure of 30 psi. An analysis of the gas showed 82.33% methane, 15.88% carbon dioxide, and 1.2% nitrogen. Both carbon dioxide and nitrogen were introduced into the well during treatment in completion attempts. In the same well several tests were made from 8,572-8,598 feet in the Atoka (Derryan) interval. A final test of this zone yielded 12 MCFPD.

A test of the Pennsylvanian yielded gas in the Hodges Houston well (sec. 23, T.14S., R.10E.). Recovery was estimated at 16 MCFPD of gas (98% methane) from a sandstone in the Canyon (Missourian).

Very little analytical data was available for water recovered from Pennsylvanian rocks. In the Houston Federal well (T.14S., R.10E.) near outcrops of Pennsylvanian rocks the chlorine content was 35,000 ppm. Chlorine content was low in tests of the Texaco Federal F (T.18S., R.10E.) and Federal G (sec. 33, T.18S., R.8E.) indicating introduction of fresh water. Two of the tests reported to be from the Strawn are interpreted to be from the Bug Scuffle Limestone, a unit exposed in the Sacramento Mountains to the east.

For the most part indications of hydrocarbons in Permian rocks are based on reported shows (table 4, fig. 20). Only limited mud logging or testing has been conducted on rocks of this age. The most significant recovery was from the Houston 1 Lewelling. The test was of the Wolfcamp from 5,140-5,170 feet. Maximum recovery was 18 MCFPD and the final test 13 MCFPD.

TABLE 4--RESULTS OF TESTING OF PERMIAN ROCKS

## (Western Area)

<u>Well</u>	<u>Location</u>	<u>Interval</u>	<u>Zone</u>	<u>Recovery</u>	<u>Pressure (psi)</u>
Beard 1 Jornada	17-14S-1W	6996-7491'	Yeso	DM	
		7010-7500'	"	"	
Lockhart 1 Federal	28-4S-6E	1120-1125'	Abo	SO	
Gulf 1 Sierra	35-12S-1W	1823-2025'	San Andres	Fresh water	ISIP 815

## (Eastern Area)

Standard TX 1 Heard	33-6S-9E	1230-1235'	Yeso	Fresh water	
Southern Tularosa Basin 1	34-13S-8E	1638'	Hueco?	SO	
Duggar 1 Federal	30-6S-10E	476-489'	San Andres?	SO	
Smith 1 Walker	21-15S-11E	355'	Hueco	SG	
		400'	"	SO	
Campbell 1 Hurley	30-22S-14E	2086-2104'	Hueco	Fresh water	SIP 450
Seaboard 1 Trigg	18-26S-11E	2410-2474'	Hueco	Fresh water	SIP 390
Houston 1 Lewelling	12-12S-9E	5140-5170'	Wolfcamp	18MCFPD	
Texaco 1 Federal E	10-18S-8E	218-290'	Hueco?	Water (8K-C1)	
Turner 1 Evans	22-24S-12E	353'	Yeso	SG	
		410'	Yeso	"	
		1086'	Hueco	"	

TABLE 5--RESULTS OF TESTING OF MESOZOIC ROCKS

(Western Area)

<u>Well</u>	<u>Location</u>	<u>Interval</u>	<u>Zone</u>	<u>Recovery</u>	<u>Pressure (psi)</u>
Shell 1 Leeman	17-13S-1E	1270-1320'	Dakota	DM	
Wofford 1 State	8-14S-2W	300' 458'	Mesaverde Mesaverde	SG SO	
Bowers 1 McCall	19-14S-2W	513-531' 1115-1120'	Mesaverde Mesaverde	SO&G SO	
Sunray 1 Federal	23-15S-2W	2312-2362'	Mesaverde	VSGCM	SIP 585
Grimm 1 Mobil	32-25S-1E	?	Lower Cretaceous	SG	

(Eastern Area)

Duggar 1 Helen	23-6S-10E	1200-1250'	Dakota?	SSO	
Duggar 1 Gallagher	26-6S-10E	1913'	Triassic?	SSO	



Water recovered from the Permian has been reported as fresh or relatively low in chlorides. The fresh water reported from the Yeso in the Standard of Texas Heard well (T.6S., R.9E.) is from above the salt section. The reported fresh water from the Hueco Formation in the Campbell Hurley well (T.22S., R.14E.) and the Seaboard Trigg (T.26S., R.11E.) is expectable based on regional dip and proximity to outcrops of this formation.

Tests of Mesozoic rocks are limited and occurrences of hydrocarbons are based on reported shows (table 5, fig. 20). Thus far favorable results appear to be restricted to the Mesaverde Formation in the western part of the Jornada del Muerto and possibly the Dakota Sandstone in the Sierra Blanca syncline.

#### Lease Evaluation

A study was made of State Trust Lands submitted for oil and gas leases in the area surrounding the military reservation. The results of this evaluation are summarized in tables 6 and 7. Table 6 includes the period from January 1969 through February 1974, and table 7 the period from March 1974 through June 1975. During both periods the yearly rental fees for the first five years were 15 cents an acre for leases in Doña Ana, Lincoln, and Otero Counties and 10 cents an acre in Sierra and Socorro Counties. The first year's rental fees are included in the lease bid and after five years rental fees are doubled. Up to March 1974 the minimum acceptable bid was the yearly rental fee times the acres included in the lease. In March 1974 the

minimum acceptable bid was increased to 50 cents an acre for all lands in this area.

An understanding of lease practices in a nonproductive area such as south-central New Mexico is needed in order to evaluate the prices paid for leases. Here we will consider only State leases where a minimum acceptable bid is established. State lands are put up for leasing regardless of the oil and gas potential of the particular tract and more often than not are sold at least for the minimum acceptable bid. Lease activities can be grouped into three broad categories: speculative, prospect, and exploratory leasing. Speculative leasing involves the purchase of leases normally at the minimum acceptable bid and resale of the leases to a third party. There is no intent to develop the property and in most cases a geologic evaluation is not performed. Although the initial purchase may involve a "willing and informed" buyer the third party is most often limited to a "willing" buyer. In the second category are those involved in the purchase and sale of leases through the distribution to exploration companies of a prospectus detailing the potential of a particular area through geologic and engineering studies. Leases are sold to a third party generally with a provision for a production override in case oil or gas is discovered. Exploratory leasing is done by companies that include the drilling of exploratory or wildcat wells within their overall operations. Commonly on the basis of rather cursory geologic studies these companies will lease large blocks in order to conduct additional studies that, if favorable, may lead to

the drilling of an exploratory well. Because an interest has been generated in the area within the company and lease costs are negligible when compared to the overall cost of the exploratory effort, these companies will bid well above the established minimum acceptable bid to insure that the lease is obtained. Lease plays of this nature usually result in active bidding and increased prices for adjacent tracts. This interest is sustained at least until a well is drilled. If the test encounters a show of hydrocarbons interest may continue indefinitely even if no commercial production is realized.

Although numerous studies have been made of the geologic, engineering, economic and risk factors involved in establishing a value for areas remote from production, the fair market value is usually based on actual sales of leases. It needs to be noted that this should include third-party resale value and not be limited as it is in this report to State lease sales.

For the January 1969-February 1974 period a total of 697,700.66 acres of State Trust Lands were put up for oil and gas leasing by the State Land Office in the area of this report. Of this 503,713.81 acres involving 500 tracts were sold. The remaining 193,986.85 acres or 28 percent of the total lands available were withdrawn for lack of receiving a bid or a minimum acceptable bid (MAB). The MAB for the leases sold amounted to \$68,618.31 and the actual amount bid was \$376,778.63 for an average of \$0.75 per acre. In evaluating lease sales a "bid factor" was established. This is simply the ratio of the amount bid and the MAB. With adjustments for the total acreage

sold at 10 and 15 cents per acre MAB the bid factor for this period was 6.28. The total value to the State of the leases sold assuming full 10-year rental payments is \$1,338,289 for an average of \$2.66 per acre.

The average bid per acre and the bid factor were calculated for each township where leases were sold (fig. 21). On a county basis (table 6) bid factors and average bid per acre were: Sierra - 15.50 and \$1.55; Otero - 5.20 and \$0.78; Socorro - 2.50 and \$0.25; Dona Ana - 2.27 and \$0.34; and Lincoln - 1.53 and \$0.23. Summarizing on a township basis the tracts sold nearest to or adjacent to the military reservation the bid factor is 7.46 and the average price bid per acre \$1.08. The adjacent tracts in Sierra and Socorro Counties would have a 10-year value of \$2.32 per acre based on a primary rental fee of 10 cents per acre and an average bid of 92 cents an acre. In the remaining counties where rentals are 15 cents an acre and the average bid was \$1.13 an acre the 10-year value would be \$3.23 per acre. Lands bordering the western part of the reservation had an average bid factor of 6.5 and an average bid per acre of 77 cents. East of the reservation the bid factor and average bid per acre were higher at 8.25 and \$1.34.

The highest amount bid per acre during this period was \$23.44 by Gulf Oil Corp. for a tract located in T.12S., R.1W. (Sierra County) in the Jornada del Muerto. This tract was sold in January 1974. With rentals this tract would generate \$24.84 an acre over a 10-year period and with 1280 acres involved an income to the State of \$31,795.20. East of the

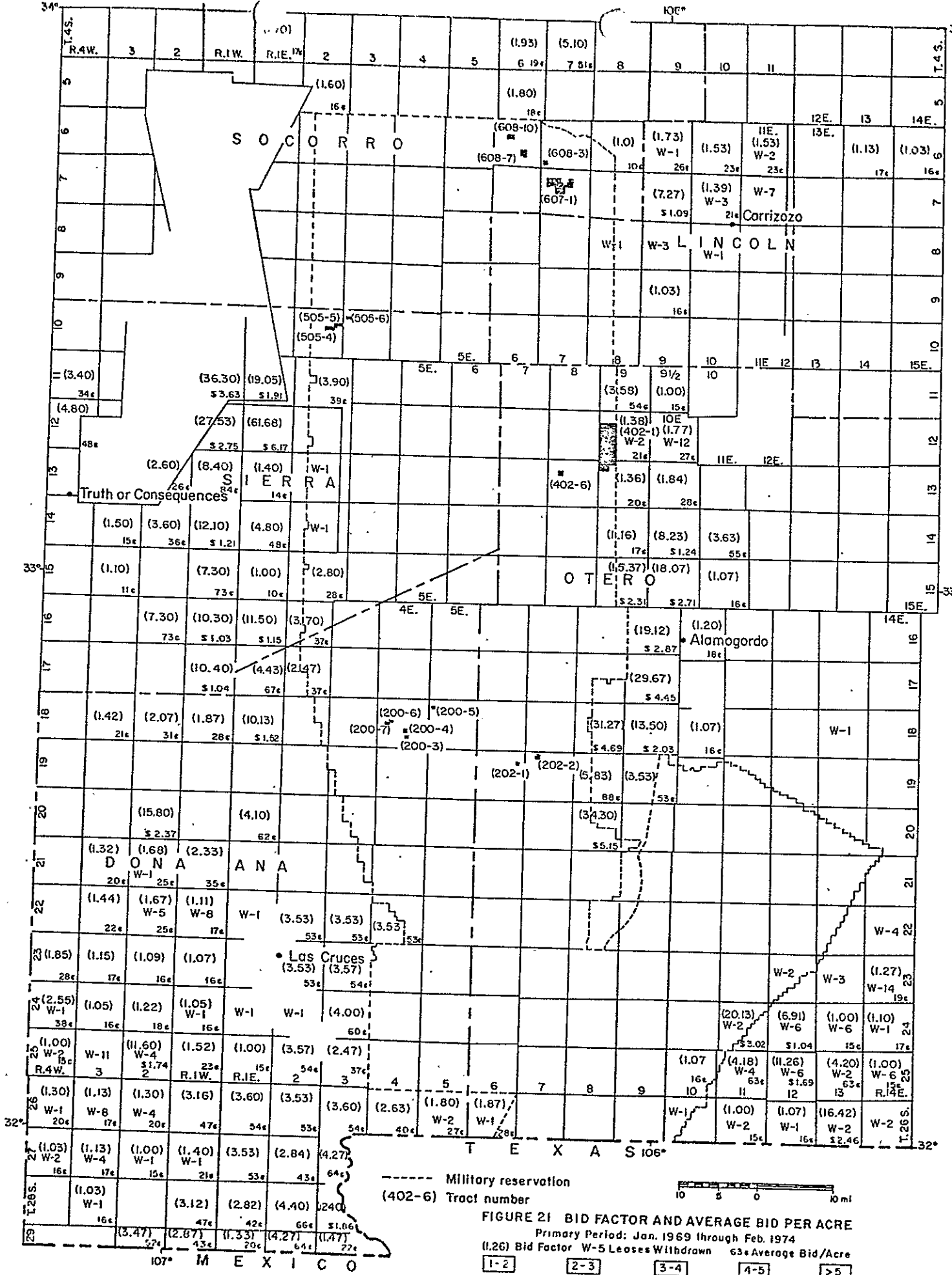


TABLE 6--SUMMARY OF LEASE DATA: JANUARY 1969 THROUGH FEBRUARY 1974

Year	County	Acres Sold	MAB	Bid	Average Bid/acre	B F	10 Year Value Rental & Bid	Per Acre	High Bid/acre	High 10 Year value/acre	Withdrawn--%
1974	Dona Ana	(15¢) 5,592.74	\$ 838.91	\$ 3,300.00	59¢	3.93	\$ 15,045	\$2.69	\$ 1.52	\$ 3.15	----
	Sierra	(10¢) 32,171.80	3,217.18	103,625.00	\$3.22	32.21	148,665	4.62	23.44	24.84	----
	Socorro	(10¢) 11,400.22	1,140.02	3,600.00	32¢	3.16	19,135	1.68	0.51	1.91	----
	Summary	49,164.76	\$ 5,196.11	\$110,525.00	\$2.25	22.48	\$182,845	\$3.72			
1973	Dona Ana	(15¢) ---	---	---	---	---	---	---	---	---	1,216.46--100%
	Lincoln	(15¢) 10,791.75	\$ 1,618.76	\$ 2,021.00	19¢	1.25	\$ 24,863	\$2.29	\$ 0.50	\$ 2.60	----
	Otero	(15¢) 21,415.59	3,212.34	5,213.95	24¢	1.62	50,192	2.34	1.20	3.30	10,160.62--32%
	Summary	32,207.34	\$ 4,831.10	\$ 7,234.95	22¢	1.50	\$ 75,055	\$2.33	---	---	11,422.08
1972	Dona Ana	(15¢) 14,155.01	\$ 2,123.25	\$ 11,325.58	80¢	5.33	\$ 41,051	\$2.90	\$ 3.33	\$ 5.43	3,200.08--26%
	Otero	(15¢) 20,270.70	3,040.61	34,373.33	\$1.70	11.30	76,938	3.80	3.75	5.85	40
	Sierra	(10¢) 1,920.00	192.00	500.00	26¢	2.6	3,188	1.66	0.31	1.71	----
	Socorro	(10¢) 1,917.24	191.72	325.37	17¢	1.7	3,010	1.57	0.18	1.58	----
	Summary	38,262.95	\$ 5,547.58	\$ 46,524.28	\$1.22	8.18	\$124,187	\$3.25	---	---	3,240.08--8%
1971	Dona Ana	(15¢) 17,545.58	\$ 2,631.84	\$ 5,709.49	33¢	2.17	\$ 42,556	\$2.43	\$ 2.37	\$ 4.47	1,920.00--10%
	Otero	(15¢) 17,593.76	2,639.06	3,206.64	18¢	1.22	40,154	2.28	2.50	4.60	7,557.65--30%
	Socorro	(10¢) 2,040.00	204.00	326.40	16¢	1.60	3,183	1.56	0.16	1.56	----
	Summary	37,179.34	\$ 5,474.90	\$ 9,242.53	25¢	1.69	\$ 85,893	\$2.31	---	---	9,477.65--20%
1970	Dona Ana	(15¢) 35,956.14	\$ 5,393.42	\$ 6,952.97	19¢	1.29	\$ 82,460	\$2.29	\$ 0.40	\$ 2.50	36,862.93--51%
	Otero	(15¢) 61,787.41	9,268.11	27,126.70	44¢	2.93	156,883	2.54	6.11	8.21	72,516.99--54%
	Sierra	(10¢) 6,965.48	696.55	4,385.17	63¢	6.3	14,137	2.03	1.17	2.57	1,280.00--16%
	Summary	104,709.03	\$15,358.08	\$ 38,464.84	37¢	2.6	\$253,480	\$2.42	---	---	110,659.92--51%
1969	Dona Ana	(15¢) 108,573.57	\$16,286.04	\$ 34,619.05	32¢	2.13	\$262,834	\$2.42	\$ 1.86	\$ 3.96	23,508.44--18%
	Lincoln	(15¢) 18,632.55	2,794.89	4,618.35	25¢	1.65	42,841	2.30	1.71	3.82	20,699.14--53%
	Otero	(15¢) 32,623.91	4,893.59	50,684.68	\$1.55	10.36	119,192	3.65	7.03	9.13	14,979.54--31%
	Sierra	(10¢) 76,679.04	7,667.90	73,863.74	96¢	9.63	183,007	2.39	3.63	5.03	----
	Socorro	(10¢) 5,681.32	568.13	1,001.21	18¢	1.76	8,955	1.58	0.26	1.76	----
	Summary	242,190.39	32,210.54	\$164,787.03	68¢	5.57	\$616,829	\$2.55			59,187.12--20%
Totals		503,713.81	\$68,618.31	\$376,778.63	\$0.75	6.28	\$1,338,289	\$2.66	\$23.44	\$24.84	193,986.85--28%
	(15¢)	364,938.71	\$54,740.81	\$189,151.74	\$0.52	3.47	\$ 955,009	\$2.62	\$ 7.03	\$ 9.13	192,706.85--35%
	(10¢)	138,775.10	\$13,877.51	\$187,626.89	\$1.35	13.50	\$ 383,280	\$2.76	\$23.44	24.84	1,280.00--1%

TABLE 6--SUMMARY OF LEASE DATA: JANUARY 1969 THROUGH FEBRUARY 1974 (continued)

	<u>COUNTY DATA</u>				
	<u>Dona Ana</u>	<u>Lincoln</u>	<u>Otero</u>	<u>Sierra</u>	<u>Socorro</u>
Acres Sold	181,823.04	29,424.30	153,691.37	117,736.32	21,038.78
Bid	\$61,907.09	\$6,639.35	\$120,605.30	\$182,373.91	\$5,252.98
Average Bid/Acre	\$0.34	\$0.23	\$0.78	\$1.55	\$0.25
5 Yr. Rental & Bid	\$171,208.74	\$24,037.87	\$204,186.30	\$228,329.91	\$13,658.98
5 Yr./acre	\$0.94	\$0.82	\$1.33	\$1.94	\$0.65
10 Yr. Rental & Bid	\$468,809.00	\$67,704.00	\$443,359.00	\$348,997.00	\$34,283.00
10 Yr./acre	\$2.58	\$2.30	\$2.88	\$2.96	\$1.63
Withdrawn--%	66,752.91--27%	20,699.14--41%	105,254.80--41%	1,280.00--1%	0 -- 0%
High Bid/Acre	\$3.33	\$1.71	\$7.03	\$23.44	\$0.51
Bid Factor	2.27	1.53	5.20	15.50	2.50
Leases Sold	173	30	163	113	21

reservation the highest per-acre bid was in November 1969 for a 734.68 acre tract in T.20S., R.8E. (Otero County). This tract was leased by Texaco for \$7.03 an acre. The value to the State over the 10-year rental period would be \$6,707.63 or \$9.13 an acre. (The basic data for all tracts sold during this period are included in the appendix to this report as table 11).

The summary of lease data for the period March 1974 through June 1975 is given in table 7 and fig. 22, and the basic data in table 12 (in the appendix).

During this period a total of 126 tracts involving 129,480.43 acres were sold. Withdrawn land amounted to 14,477.56 acres or 10 percent of the total submitted for lease. The minimum acceptable bid was \$64,740.22 and the actual bid \$187,789.59 for an average bid per acre of \$1.45, and a bid factor of 2.90. The total value to the State for the 10-year rental period amounts to \$456,847.88 for an average per-acre value of \$3.53.

Lease distribution is not as good as for the earlier period. No tracts were offered in Doña Ana County and only 2 tracts in one township in Sierra County. Both tracts in this county were within the Jornada del Muerto and were leased at MAB. North of the reservation in Socorro County two tracts sold at an average of 71 cents per acre. East of the military reservation in Lincoln County bids averaged from \$1.82 to \$4.87 an acre and bid factors from 3.64 to 9.74. This same bidding trend continues south in northern Otero

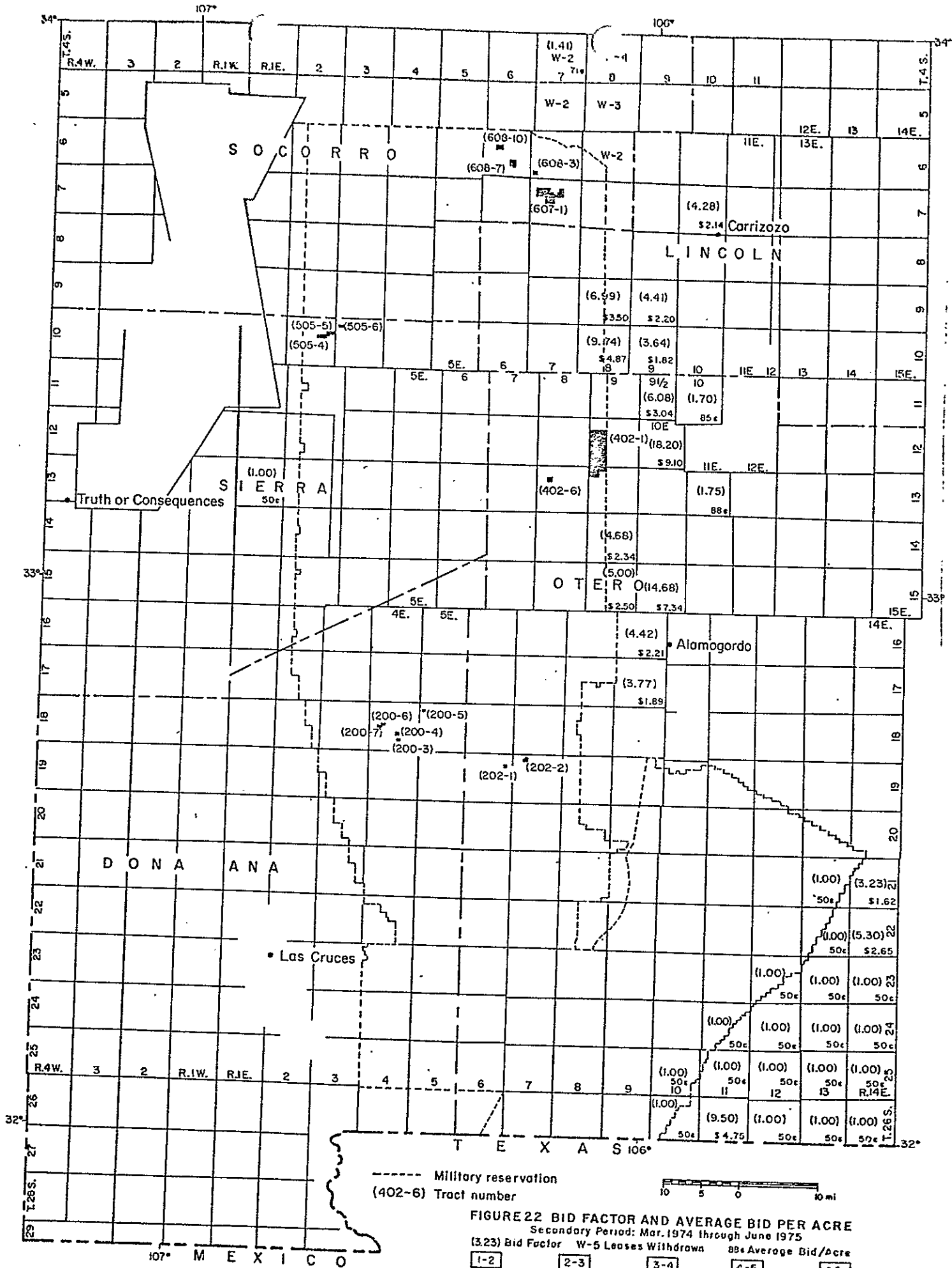


TABLE 7--SUMMARY OF LEASE DATA: MARCH 1974 THROUGH JUNE 1975

Year	County	Acres Sold	MAB	Bid	Average Bid/Acre	B F	10 Year Value Rental & Bid Per Acre		High Bid/Acre	High 10 Year value/acre	Withdrawn--%
1975	Lincoln	640.00	\$ 320.00	\$ 1,369.60	\$2.14	4.28	\$ 2,713.60	\$4.24	\$ 2.14	\$ 4.24	----
	Otero	4,970.82	2,485.41	3,290.00	0.66	1.32	13,728.72	2.76	4.75	6.85	----
	Sierra	1,918.40	959.20	900.00	0.50	1.00	3,645.76	1.90	0.50	1.90	----
	Summary	7,529.22	3,764.61	\$ 5,619.60	\$0.75	1.49	\$ 20,088.08	\$2.67	\$ 4.75	\$ 6.85	----
1974	Lincoln	16,069.30	\$ 8,034.65	\$ 43,509.99	\$2.71	5.42	\$ 77,255.52	\$4.81	\$ 6.30	\$ 8.40	----
	Otero	103,728.01	51,864.01	137,135.00	1.32	2.64	354,963.82	3.42	13.36	15.46	----
	Socorro	2,153.90	1,076.95	1,525.00	0.71	1.42	4,540.46	2.11	0.73	2.13	14,477.56--87%
		121,951.21	\$60,975.61	\$182,169.99	\$1.49	2.99	\$436,759.80	\$3.58	\$13.36	\$15.46	14,477.56--11%
	Totals	129,480.43	\$64,740.22	\$187,789.59	\$1.45	2.90	\$456,847.88	\$3.53	\$13.36	\$15.46	14,477.56--10%

COUNTY DATA

	Acres Sold	Bid	Average Bid/Acre	Bid factor	10-Year Value Rental & Bid Per Acre		High Bid/Acre	Leases Sold	Withdrawn--%
Lincoln	16,709.30	\$ 44,879.59	\$2.69	5.37	\$ 79,969.12	\$4.79	\$ 6.30	17	----
Otero	108,698.83	140,425.00	1.29	2.58	368,692.54	3.39	13.36	105	----
Sierra	1,918.40	960.00	0.50	1.00	3,645.76	1.90	0.50	2	----
Socorro	2,153.90	1,525.00	0.71	1.42	4,540.46	2.11	0.73	2	14,477.56--87%



County where average bids east of the reservation range from 85 cents to \$9.10 an acre and bid factors from 1.75 to 18.20. In the southeastern corner of Otero County bids were mostly at MAB. Tracts in T.22S., R.14E. were sold at an average of \$2.65 an acre. During the earlier evaluation period four tracts offered in this township were withdrawn for lack of an MAB. Tracts in T.26S., R.11E. were sold at the MAB during the period up to February 1974 and averaged \$4.75 in the later evaluation period. The average bid for all tracts east of the reservation along the margin of the Tularosa Basin was \$3.35 per acre and the average 10-year base lease value \$5.45 per acre.

#### Evaluation of Condemned Tracts

The State Trust Lands currently involved in condemnation proceedings are given in table 8 and are shown on each of the maps presented in this report. The evaluation of each tract includes proximity to reported occurrences of hydrocarbons, total thickness of the pre-Tertiary sedimentary section, type of potential reservoir rocks, local and regional geology, proximity to large Tertiary intrusive bodies, and lease values. No consideration is given to the size of the tract. It is assumed that if the area were open for leasing adjacent tracts of Federal or fee land could be obtained. Where large blocks of State land are involved the value to the State would be enhanced. Each tract is rated as to whether from a geologic standpoint it is considered to be a poor, marginal, fair, or

TABLE 8--CONDEMNED TRACTS

<u>Tract No.</u>	<u>Location</u>	<u>Acres</u>	<u>County</u>
202-1	SW $\frac{1}{4}$ NW $\frac{1}{4}$ , Section 12, T-19S, R-6E	40.00	Otero
202-2	SW $\frac{1}{4}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 5, T-19S, R-7E (less highway R/W)	116.72	Otero
200-3	NW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 27, T-18S, R-4E	40.00	Dona Ana
200-4	E $\frac{1}{2}$ SW $\frac{1}{4}$ Section 22, T-18S, R-4E	80.00	Dona Ana
200-5	SW $\frac{1}{4}$ SE $\frac{1}{4}$ , Section 6, T-18S, R-5E	40.00	Dona Ana
200-6	N $\frac{1}{2}$ SE $\frac{1}{4}$ , Section 17, T-18S, R-4E	80.00	Dona Ana
200-7	S $\frac{1}{2}$ SW $\frac{1}{4}$ , Section 17, T-18S, R-4E	80.00	Dona Ana
505-4	N $\frac{1}{2}$ N $\frac{1}{2}$ , Section 14, T-10S, R-2E	160.00	Sierra
505-5	N $\frac{1}{2}$ S $\frac{1}{2}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$ , Section 12, T-10S, R-2E	200.00	Sierra
505-6	S $\frac{1}{2}$ SE $\frac{1}{4}$ , Section 6, T-10S, R-3E	80.00	Sierra
607-1	All Section 8	640.00	Socorro
	W $\frac{1}{2}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$ , Section 9	440.00	Socorro
	E $\frac{1}{2}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , S $\frac{1}{2}$ SW $\frac{1}{4}$ , Section 10	440.00	Socorro
	All Section 16, All in T-7S, R-7E	640.00	Socorro
608-3	NE $\frac{1}{4}$ , Section 31, T-6S, R-7E	160.00	Socorro
	SE $\frac{1}{4}$ SE $\frac{1}{4}$ , Section 22	40.00	Socorro
	SW $\frac{1}{4}$ SW $\frac{1}{4}$ , Section 23	40.00	Socorro
	W $\frac{1}{2}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$ , Section 26	120.00	Socorro
	E $\frac{1}{2}$ NE $\frac{1}{4}$ , Section 27, All in T-6S, R-6E	80.00	Socorro
608-10	W $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ , Section 16, T-6S, R-6E	240.00	Socorro
402-1	Lots 3,4, SE $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , Section 7	322.13	Otero
	S $\frac{1}{2}$ , Section 8	320.00	Otero
	All, Section 17	640.00	Otero
	Lots 1,2,3,4, E $\frac{1}{2}$ , E $\frac{1}{2}$ W $\frac{1}{2}$ , Section 18	645.24	Otero
	Lots 1,2,3,4, E $\frac{1}{2}$ , E $\frac{1}{2}$ W $\frac{1}{2}$ , Section 19	645.60	Otero
	All, Section 20	640.00	Otero
	All, Section 29	640.00	Otero
	All Lots 1,2,3,4, E $\frac{1}{2}$ , E $\frac{1}{2}$ W $\frac{1}{2}$ , Section 30	643.48	Otero
	All Lots 1,2,3,4, E $\frac{1}{2}$ , E $\frac{1}{2}$ W $\frac{1}{2}$ , Section 31	641.36	Otero
	All, Section 32	640.00	Otero
	All above in T-12S, R-9E		
	Lots 1,2,3,4, S $\frac{1}{2}$ N $\frac{1}{2}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$ , Section 5	396.68	Otero
	Lots 1,2,3,4,5,6,7, S $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ , Section 6	639.39	Otero
	All in T-13S, R-9E		
402-6	SW $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ , Section 8, T-13S, R-8E	<u>160.00</u>	Otero
	Total	10,730.60 acres	

good exploration target. The lease values (tables 9 & 10) for the 10-year rental period are considered base values and not fair market value.

Tract 202-1 (40 acres): This location is in the Tularosa Basin west of the Jarilla Block. Surface rocks consist of alluvial and eolian sediments of Quaternary age. The subsurface structure is unknown. The total Paleozoic section should be about 8,100 feet thick. If Cretaceous rocks are preserved the total sedimentary section of interest may be as much as 9,000 feet thick. The Paleozoic section includes strata from Ordovician to Permian in age. Potential reservoir rocks having adequate porosity and permeability are probably present in the Ordovician, Silurian, Mississippian, Pennsylvanian, and Permian parts of the section. It is doubtful that there has been flushing by meteoric waters in this area. The tract is considered to be a good exploration target.

The value based on the nearest leases sold during the primary- and secondary-lease evaluation periods are given in tables 9 and 10. The range in value for the 40-acre tract is from \$104.00 to \$365.20 for the primary period and from \$138.80 to \$180.00 for the secondary period. In arriving at a fair market value the maximum base lease value is used because of the geologic rating.

Tract 202-2 (116.72 acres): This tract is considered to have the same potential as 202-1. Using the same lease data the range in value for the primary period is from \$303.47 to

TABLE 9--SUMMARY OF BASE LEASE VALUES FOR PRIMARY EVALUATION PERIOD

Tract	Location	Size (Acres)	Geologic Evaluation	Leased Tracts Evaluated			Lease Value/Acre (10 yr. Bid & Rental)			10-yr. Lease Value of Tract		
				Location	Acres Sold	Total Bid	Minimum	Average	Maximum	Minimum	Average	Maximum
202-1	T.19S., R.6E.	40	Good	T.18-20S., R.8E.	6,172.16	\$21,094.00	\$2.60	\$5.52	<u>\$9.13</u>	\$104.00	\$220.80	\$365.20
202-2	T.19S., R.7E.	116.72	"	"	"	"	\$2.60	\$5.52	<u>\$9.13</u>	\$303.47	\$644.29	<u>\$1,065.66</u>
200-3	T.18S., R.4E.	40	Poor	X	X	X	<u>\$2.25</u>	X	X	<u>\$90.00</u>	X	X
200-4	"	80	"	X	X	X	2.25	X	X	\$180.00	X	X
200-5	T.18S., R.5E.	40	Fair	T.18-20S., R.8E.	6,172.16	\$21,094.00	\$2.60	<u>\$5.52</u>	\$9.13	\$104.00	<u>\$220.80</u>	\$365.20
200-6	T.18S., R.4E.	80	Poor	X	X	X	<u>\$2.60</u>	X	X	<u>\$180.00</u>	X	X
200-7	"	"	"	X	X	X	<u>\$2.60</u>	X	X	<u>\$180.00</u>	X	X
505-4	T.10S., R.2E.	160	Fair	T.11S., R.1-2E.	2,258.66	\$3,330.00	\$1.59	<u>\$2.87</u>	\$5.02	\$254.40	<u>\$459.20</u>	\$803.20
505-5	"	200	"	"	"	"	\$1.59	<u>\$2.87</u>	\$5.02	\$318.00	<u>\$574.00</u>	\$1,004.00
505-6	T.10S., R.3E.	80	"	"	"	"	\$1.59	<u>\$2.87</u>	\$5.02	\$127.20	<u>\$229.60</u>	\$401.60
607-1	T.7S., R.7E.	2,160	Marginal	T.5S., R.6E. T.6S., R.8E.	1,597.24	\$211.57	<u>\$1.50</u>	<u>\$1.53</u>	\$1.58	<u>\$3,240.00</u>	\$3,304.80	\$3,412.80
608-3	T.6S., R.7E.	160	"	"	"	"	<u>\$1.50</u>	\$1.53	\$1.58	<u>\$240.00</u>	\$244.80	\$252.80
608-7	T.6S., R.6E.	280	"	"	"	"	<u>\$1.50</u>	\$1.53	\$1.58	<u>\$420.00</u>	\$428.40	\$442.40
608-10	T.6S., R.6E.	240	"	"	"	"	<u>\$1.50</u>	\$1.53	\$1.58	<u>\$360.00</u>	\$367.20	\$379.20
402-1	T.12-13S., R.9E.	6,813.88	Good	T.11-13S., R.9E.	27,494.92	\$6,057.04	\$2.25	\$2.32	<u>\$3.19</u>	\$15,331.23	\$15,808.20	<u>\$21,736.28</u>
402-6	T.13S., R.8E.	160	Good	"	"	"	\$2.25	\$2.32	<u>\$3.19</u>	\$360.00	\$371.20	<u>\$510.40</u>

\* Base values used in determining fair market value are underlined.

TABLE 10--SUMMARY OF BASE LEASE VALUES FOR SECONDARY EVALUATION PERIOD \*

Tract	Location	Size (Acres)	Geologic Evaluation	Leased Tracts Evaluated			Lease Value/Acre (10 yr. Bid & Rental)			10-yr. Lease Value of Tract		
				Location	Acres Sold	Total Bid	Minimum	Average	Maximum	Minimum	Average	Maximum
202-1	T.19S., R.6E.	40	Good	T.17S., R.9E.	1,946.99	\$3,700.00	\$3.47	\$4.00	<u>\$4.50</u>	\$138.80	\$160.00	<u>\$180.00</u>
202-2	T.19S., R.7E.	116.72	"	"	"	"	\$3.47	\$4.00	<u>\$4.50</u>	\$405.02	\$466.88	<u>\$525.24</u>
200-3	T.18S., R.4E.	40	Poor	X	X	X	<u>\$2.60</u>	X	X	<u>\$104.00</u>	X	X
200-4	"	80	"	X	X	X	<u>\$2.60</u>	X	X	<u>\$208.00</u>	X	X
200-5	T.18S., R.5E.	40	Fair	T.17S., R.9E.	1,946.99	\$3,700.00	\$3.47	<u>\$4.00</u>	\$4.50	\$138.80	<u>\$160.00</u>	\$180.00
200-6	T.18S., R.4E.	80	Poor	X	X	X	<u>\$2.60</u>	X	X	<u>\$208.00</u>	X	X
200-7	"	80	"	X	X	X	<u>\$2.60</u>	X	X	<u>\$208.00</u>	X	X
505-4	T.10S., R.2E.	160	Fair	Average all leases			X	<u>\$3.53</u>	X	X	<u>\$564.80</u>	X
505-5	"	200	"	"	"	"	X	<u>\$3.53</u>	X	X	<u>\$706.00</u>	X
505-6	T.10S., R.3E.	80	"	"	"	"	X	<u>\$3.53</u>	X	X	<u>\$282.40</u>	X
607-1	T.7S., R.7E.	2,160	Marginal	X	X	X	<u>\$1.90</u>	X	X	<u>\$4,104.00</u>	X	X
608-3	T.6S., R.7E.	160	"	X	X	X	<u>\$1.90</u>	X	X	<u>\$304.00</u>	X	X
608-7	T.6S., R.6E.	280	"	X	X	X	<u>\$1.90</u>	X	X	<u>\$532.00</u>	X	X
608-10	"	240	"	X	X	X	<u>\$1.90</u>	X	X	<u>\$465.00</u>	X	X
402-1	T.12-13S., R.9E.	6,813.88	Good	T.10S., R.8E. T.11S., R.9E. T.12S., R.10E. T.14S., R.9E.	8,523.39	\$57,800.00	\$4.25	\$8.88	<u>\$15.46</u>	\$28,958.99	\$60,507.25	<u>\$105,342.58</u>
402-6	T.13S., R.8E.	160	Good	"	"	"	\$4.25	\$8.88	<u>\$15.46</u>	\$680.00	\$1,420.80	<u>\$2,473.60</u>

\* Base values used in determining fair market value are underlined.

\$1,065.66 and for the secondary period from \$405.02 to \$525.24

Tract 200-3 (40 acres): Surface rocks consist of Precambrian granite and alluvium overlying Precambrian. The location is in the San Andres Mountains and the potential for accumulation of hydrocarbons is considered poor. Because of the low potential only minimum lease values are given. For the 40-acre tract the primary base lease value is \$90.00 for the 10-year rental period and \$104.00 for the secondary period.

Tract 200-4 (80 acres): The evaluation is the same as for Tract 200-3. Minimum lease values for 80 acres are \$180.00 and \$208.00.

Tract 200-5 (40 acres): This tract is located in the Tularosa Basin about two miles east of the front of the San Andres Mountains. Surface rocks consist of Quaternary valley fill. The total Paleozoic section is estimated to be about 7,900 feet thick or slightly thinner than at Tract 202. Cretaceous strata, if present, might be on the order of 800 feet thick; and thus the total stratigraphic section considered favorable for the accumulation of hydrocarbons could be as much as 8,700 feet. In general the same potential reservoir rocks as in Tract 202 would underlie the area. The proximity to the east-bounding fault of the San Andres Mountains reduces the exploration value of this tract. The same lease values used for Tract 202 are applied, but based on the geologic rating the average base value is used in arriving at a base fair market value. This is a range of from \$160.00 for the secondary period to \$220.80 for the primary period.



Tract 200-6 (80 acres); Surface exposures are of Precambrian metamorphic rocks and arroyo deposits of sand and gravel along the east front of the San Andres Mountains. The tract is considered a poor exploration target for hydrocarbons. Values given in tables 9 and 10 are based on minimum bid and rentals for the 10-year period.

Tract 200-7 (80 acres): This tract is immediately southwest of Tract 200-6. In addition to outcrops of Precambrian rocks and arroyo sediments, the Bliss and El Paso Formations are present. These sediments are about 750 feet thick, but because they are exposed and are structurally unfavorable the tract is considered a poor exploration target. Lease values are the same as for Tract 200-6.

Tract 505-4 (160 acres): This tract is located in the northeastern part of the Jornada del Muerto. Surface exposures are of Quaternary alluvium. The pre-Pennsylvanian section is about 225 feet thick and should be limited to the Bliss, El Paso, and Montoya intervals. The total Pennsylvanian section is about 1,800 feet thick and the Permian 3,475 feet. Cretaceous and Triassic rocks may underlie the tract but should be thin as the result of erosion. The total sedimentary section beneath the valley fill is anticipated to be about 5,500 feet thick. Potential reservoir rocks include dolomites in the El Paso and Montoya, limestone and sandstone in the Pennsylvanian, and limestone, dolomite, and sandstone in the Bursum, Yeso and San Andres Formations of Permian age. There may be more structural

complexities in this area than farther south in the Jornada. However, it would appear to be primarily a simple dip slope to the northwest. Stratigraphic traps may occur in the Pennsylvanian and lower part of the Permian. The tract is considered to be a fair exploration target.

The nearest leasing for the primary evaluation period shows a 10-year value range of from \$254.40 to \$803.20 and an average of \$459.20. Because of the lack of adequate lease data during the secondary evaluation period and the fair geologic rating, the average 10-year base value for all leases sold in the study area is used in arriving at a fair market value. The average is \$3.53 per acre and the base value for the tract \$564.80

Tract 505-5 (200 acres): The evaluation and lease values used are the same as for Tract 505-4.

Tract 505-6 (80 acres): Evaluation base is the same as Tract 505-4.

Tract 607-1 (2,160 acres): This tract is located on the east dip slope of the Oşcura Mountains. Surface rocks consist of the Permian Abo and Yeso Formations. The underlying Bursum Formation and some strata of Pennsylvanian age are exposed in the southwestern part of the township. As much as 250 feet of the Bursum and 1,200 feet of Pennsylvanian should underlie the Abo in this area. From a structural standpoint the area is not considered favorable, but some potential for stratigraphic traps

cannot be ruled out. The oil and gas potential is considered marginal.

During the primary lease period the nearest tracts received bids of 10 cents an acre (minimum acceptable bid) and 18 cents an acre. The higher bid was for a tract geologically similar to Tract 607-1; the lower was for a tract geologically more favorable. During the secondary period only two tracts were leased, receiving bids of 68 and 73 cents an acre. Because of the marginal geologic rating and limited lease data only a minimum acceptable bid was used in arriving at a fair market value.

Tract 608-3 (160 acres): This is similar to Tract 607-1 and the same lease values are used.

Tract 608-7 (280 acres): This tract is similar to Tract 607-1 but includes outcrops of Bursum Formation, and the potential would be lower because of this.

Tract 608-10 (240 acres): This tract includes exposures of Pennsylvanian beds as well as the Bursum Formation. It is still rated as marginal but with a lower potential than Tract 607-1.

Tract 402-1 (6,813.88 acres): This tract is located near the eastern edge of the Tularosa Basin. Surface rocks are of unconsolidated basin-filling sediments of Quaternary age. A short distance to the east in the Three Rivers area there are exposures of sedimentary rocks of Triassic and Cretaceous age.

Paleozoic rocks should be about 8,300 feet thick and there is a possibility for as much as 2,000 feet of Mesozoic sediments. Potential pre-Pennsylvanian pay zones include the Bliss-El Paso, Montoya, and Mississippian intervals. The Pennsylvanian section is about 2,000 feet thick and probably contains numerous reservoir rocks. Carbonate zones in the Bursum, Yeso, and San Andres Formations represent additional potential reservoirs. These three intervals are about 4,400 feet thick in this area. Stratigraphic, fault, and anticlinal traps may be present. Bedded salt is presumed present in the Yeso and could have formed a seal preventing incursion of meteoric waters and escape of hydrocarbons from lower reservoir rocks. Tests of the Bursum, Strawn, and Atoka intervals a short distance to the east recovered significant amounts of natural gas. These occurrences are on the west flank of the Sierra Blanca syncline. It is possible that during the formation of this structure hydrocarbons migrated up-dip into the area of Tract 402-1. Subsequent down-faulting of the Tularosa Basin could have preserved hydrocarbons beneath this tract.

Based on the stratigraphic section, potential for traps and proximity to known accumulations of natural gas the tract is considered a good exploration target.

The base value during the primary period is from \$2.25 to \$3.19 per acre. The low bid was a minimum 15 cents an acre and the high bid \$1.09. During the secondary period bids ranged from a low of \$2.15 an acre up to \$13.36 an acre. The high bid was for a parcel in T.12S., R.10E. sold in July 1974. The

10-year base value for the tract ranges from \$2.95 to \$15.46 an acre. Because of the geologic rating the maximum value is used in determining fair market value.

Tract 402-6 (160 acres): This tract is essentially the same as Tract 402-1 except that it is farther from the known occurrence of natural gas. Lease values used are the same. The area is considered a good exploration target.

#### SUMMARY

An attempt is made in this report to combine a geologic evaluation with a demonstrated value from the sale of State oil and gas leases. Establishing a value based solely on geologic or engineering data is not practical in this area, because a valid comparison cannot be made with actual production of oil and gas. The military reservation is located within the Mexican Highlands section of the Basin and Range Province. The only established production of hydrocarbons in this province is in Neyada. The small amount of hydrocarbons commercially developed is the result of a combination of factors including geology, difficulty of structural interpretations in the more favorable basins, lack of adequate exploration, and remoteness from producing areas leading to higher drilling costs. The national success ratio for highest-risk wildcats in 1976 of 17 percent or 1 in 6 wells drilled (Johnson, 1977) might be used by plotting the number of wildcat locations on State tracts that have

potential for success and applying average reserve figures for successful wildcat wells. This method would be misleading because most of the high-risk wildcats (and almost all that are successful) are located in producing regions. With slightly more than 84 wells drilled in the study area of this report the success ratio is zero. This might be modified somewhat by giving consideration to tests that have recovered hydrocarbons, areas that have more promise, and an evaluation of the stratigraphic section tested. Another approach would be to calculate the total volume of the potential stratigraphic section within a given basin and assign reserves for the same volume of rock from producing basins within the United States. The problem remains, however, that there is no comparable producing basin.

As pointed out there are other factors besides geology that are probably more responsible for the lack of commercial production of oil and gas in this area. Considering only the geologic framework the Tularosa Basin would appear to have a good potential for hydrocarbon accumulations. The structure is not as complex as some parts of the Basin and Range where metamorphism of the sedimentary section has occurred; potential reservoir and source rocks are present; there is a possibility for a variety of traps; and the geothermal gradient is not excessive (Reiter, et al., 1975). The Tularosa Basin was given a Class 2 rating (Foster and Grant, 1974), the same as the Jornada del Muerto. However, it was noted that the Tularosa Basin appeared to be more complex structurally, affording greater opportunity for traps.

In addition to the Tularosa Basin that part of the Fort Bliss Military Reservation to the east of the basin is considered to be a good exploration area for oil and gas. Approximately the western third of the reservation is in the Jornada del Muerto or the mountain ranges that border the Tularosa Basin. Favorable reservoir rocks are exposed in the ranges, and where buried they are on the structurally unfavorable west-dip slope of the Jornada syncline. As an exploration area most of this part of the reservation is considered poor to marginal. Locally more favorable conditions are present such as the northwestern part of the reservation in Socorro County.

The significance of the gas recovered from the Houston 1 Lewelling test cannot be over-emphasized. The final test yielded 168.3 MCFPD an amount exceeding the daily capacity of most wells in the San Juan Basin. It is not known what reserve estimates were made for the Strawn zone in the Lewelling test or, if located in a producing area, whether it would have been put on production. Certainly additional wells would be needed to warrant construction of a pipeline.

The problems in basing values on leases sold have been discussed and 10-year base values given for the condemned tracts. The latter is based on nearby leases or where this was not practical on the minimum acceptable bid or average bid for the study area. Tracts having virtually no geologic potential would still have to be considered as having a minimum lease value. This is based on the fact that leases with similar potential are sold. The geologic evaluation for the condemned tracts can be

used in determining whether the minimum, average, or maximum 10-year base value should be used in determining the fair market value for a particular tract. As an example, Tract 607-1 was considered to have a marginal potential for oil and gas. Maximum 10-year base values for nearby leases were \$1.58 an acre for the primary period and \$2.13 for the secondary period. This would mean a base value for the tract of from \$3,412.80 to \$4,600.80. By applying a low geologic rating only the minimum value was used in arriving at the base value for the tract. This is from \$3,024.00 to \$4,104.00. Tract 402-1 is considered to have a good geologic potential and therefore maximum base values were used. For the entire tract this would amount to \$21,736.28 under the primary evaluation period and \$105,342.58 under more current lease conditions.

Using minimum base values for poor and marginal tracts, average values for tracts considered to have fair potential, and maximum values for tracts with good geologic potential, a 10-year base value can be arrived at for the condemned acreage. Under the primary evaluation period this would be \$30,051.14 and for the secondary period \$116,358.62. As pointed out these estimates represent a base value for a 10-year period. The determination of a fair market value would seem to require some additional input. Based on the estimate of remaining life for crude oil production in New Mexico to the year 2018 (Foster, Gutjahr and Warner, 1978) and assuming exploratory interest will continue at least to that year a factor of 4 times the 10-year base value might be



valid as a fair market value. This would be on the order of from \$120,204.56 to \$465,434.48 depending on whether the primary or secondary evaluation period was used. Because the secondary period more closely reflects current conditions a value in this range would appear more appropriate. Under the current lease arrangement of 25 cents per acre per year rental for all mineral rights the State would realize an income of \$107,306.00 over the next 40 years from the 10,730.60 acres involved in the current condemnation suit.

From the secondary-lease evaluation period the current per acre-year value is 35 cents for oil and gas leases only. This is based on all leases sold in the study area (table 7). If only those tracts adjacent to White Sands Missile Range in Sierra, Socorro, Lincoln, and Otero Counties are considered the average per acre-year value is 51 cents. This is based on a total of 35,009.89 acres sold and a bid-plus-10-year rental value of \$176,933.34. Under a new rental agreement the State could expect a minimum of from \$150,228.00 to \$218,904.00 over the next 40 years.

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## APPENDIX



TABLE 11 - Work Sheets: Primary Lease Evaluation Period  
1974

Tract	County	Loc SE	Acres	Min.	Bid			Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre	
0-2	Dona Ana - Sierra	2,16-17-1	1,281.29	\$ 192.19	\$ .55	\$ 700.00	\$ 769.00	\$ 2,691.00	\$ 3,391.00	\$ 2.65	
0-3	Dona Ana	32,36-17-1	1,280.00	\$ 192.00	\$ .78	\$ 1,000.00	\$ 768.00	\$ 2,688.00	\$ 3,688.00	\$ 2.88	
0-4	Dona Ana	2,6,7,16-18-1	950.13	\$ 142.52	\$ 1.52	\$ 1,000.00	\$ 570.00	\$ 1,995.00	\$ 2,995.00	\$ 3.15	
0-5	Dona Ana	1,2-18-1W	1,281.32	\$ 192.20	\$ .31	\$ 400.00	\$ 769.00	\$ 2,691.00	\$ 3,091.00	\$ 2.41	
0-6	Dona Ana	11,12-18-1W	800.00	\$ 120.00	\$ .25	\$ 200.00	\$ 480.00	\$ 1,680.00	\$ 1,880.00	\$ 2.35	
0-38	Sierra	32,33,36-11-1	809.33	\$ 80.93	\$ .19	\$ 150.00	\$ 324.00	\$ 1,133.00	\$ 1,283.00	\$ 1.59	
0-39	Sierra	32-11-2	640.00	\$ 64.00	\$ .39	\$ 250.00	\$ 256.00	\$ 896.00	\$ 1,146.00	\$ 1.79	
0-40	Sierra	2,16-12-1	1,264.38	\$ 126.44	\$ 9.89	\$ 12,500.00	\$ 506.00	\$ 1,770.00	\$ 14,270.00	\$ 11.29	
0-41	Sierra	4,18,21,27,32 12-1	1,239.96	\$ 124.00	\$ 16.21	\$ 20,100.00	\$ 496.00	\$ 1,736.00	\$ 21,836.00	\$ 17.61	
0-42	Sierra	3,4-12-1W 34,35,36-11-1W	1,145.65	\$ 114.57	\$ .35	\$ 400.00	\$ 458.00	\$ 1,604.00	\$ 2,004.00	\$ 1.75	
0-43	Sierra	16,32-11-4W	960.00	\$ .96	\$ .34	\$ 325.00	\$ 384.00	\$ 1,344.00	\$ 1,669.00	\$ 1.74	
0-44	Sierra	36-11-5W	640.00	\$ .64	\$ .43	\$ 275.00	\$ 256.00	\$ 896.00	\$ 1,171.00	\$ 1.83	
0-45	Sierra	1,2-12-1W	1,283.56	\$ 128.36	\$ 19.55	\$ 25,100.00	\$ 513.00	\$ 1,797.00	\$ 26,897.00	\$ 20.95	
0-46	Sierra	9,10-12-1W	913.56	\$ 91.36	\$ .44	\$ 400.00	\$ 365.00	\$ 1,279.00	\$ 1,679.00	\$ 1.84	
0-47	Sierra	11,12-12-1W	1,280.00	\$ 128.00	\$ 23.44	\$ 30,000.00	\$ 512.00	\$ 1,792.00	\$ 31,792.00	\$ 24.84	
0-48	Sierra	13,14-12-1W	1,280.00	\$ 128.00	\$ .86	\$ 1,100.00	\$ 512.00	\$ 1,792.00	\$ 2,892.00	\$ 2.26	
0-49	Sierra	15,16,17-12-1W	1,263.07	\$ 126.31	\$ .87	\$ 1,100.00	\$ 505.00	\$ 1,768.00	\$ 2,868.00	\$ 2.27	
0-50	Sierra	20,29,30-12-1W	1,013.75	\$ 101.38	\$ .99	\$ 1,000.00	\$ 406.00	\$ 1,419.00	\$ 2,419.00	\$ 2.39	
0-51	Sierra	21,22-12-1W	1,280.00	\$ 128.00	\$ .94	\$ 1,200.00	\$ 512.00	\$ 1,792.00	\$ 2,992.00	\$ 2.34	
0-52	Sierra	23,24-12-1W	1,280.00	\$ 128.00	\$ .78	\$ 1,000.00	\$ 512.00	\$ 1,792.00	\$ 2,792.00	\$ 2.18	
0-53	Sierra	25,26-12-1W	1,280.00	\$ 128.00	\$ .78	\$ 1,000.00	\$ 512.00	\$ 1,792.00	\$ 2,792.00	\$ 2.18	
0-54	Sierra	27,28-12-1W	1,280.00	\$ 128.00	\$ .78	\$ 1,000.00	\$ 512.00	\$ 1,792.00	\$ 2,792.00	\$ 2.18	
0-55	Sierra	31,32-12-1W	1,024.34	\$ 102.43	\$ .59	\$ 600.00	\$ 410.00	\$ 1,434.00	\$ 2,034.00	\$ 1.99	
0-56	Sierra	33,34-12-1W	1,280.00	\$ 128.00	\$ .78	\$ 1,000.00	\$ 512.00	\$ 1,792.00	\$ 2,792.00	\$ 2.18	
0-57	Sierra	2,16-12-4W	1,040.00	\$ 104.00	\$ .53	\$ 550.00	\$ 416.00	\$ 1,456.00	\$ 2,006.00	\$ 1.93	
0-58	Sierra	32-12-4W	640.00	\$ 64.00	\$ .43	\$ 275.00	\$ 256.00	\$ 896.00	\$ 1,171.00	\$ 1.83	
0-59	Sierra	2,5-13-1W	1,268.81	\$ 126.88	\$ .32	\$ 400.00	\$ 508.00	\$ 1,776.00	\$ 2,176.00	\$ 1.72	
0-60	Sierra	6,7-13-1W	801.98	\$ 80.20	\$ .50	\$ 400.00	\$ 321.00	\$ 1,123.00	\$ 1,523.00	\$ 1.90	
0-61	Sierra	2,10-14-2W	879.16	\$ 87.92	\$ .34	\$ 300.00	\$ 352.00	\$ 1,231.00	\$ 1,531.00	\$ 1.74	
0-62	Sierra	2,4-16-1W	1,276.37	\$ 127.64	\$ .47	\$ 600.00	\$ 511.00	\$ 1,787.00	\$ 2,387.00	\$ 1.87	
0-63	Sierra	34,36-16-1W 17,18-17-1W	1,274.28	\$ 127.43	\$ .47	\$ 600.00	\$ 510.00	\$ 1,784.00	\$ 2,384.00	\$ 1.87	

Tract	County	Loc SE	Acres	Min.	Acres	Bid		Rentals			Value	
						Total		5 yr	10 yr	Rental Bid	Per Acre	
0-64	Sierra	2,32-16-2W	1,273.60	\$ 127.36	\$ .47	\$ 600.00	\$ 509.00	\$ 1,783.00	\$ 2,383.00	\$ 1.87		
0-65	Sierra	22,25,36-16-2W	1,280.00	\$ 128.00	\$ .63	\$ 800.00	\$ 512.00	\$ 1,792.00	\$ 2,592.00	\$ 2.03		
0-66	Sierra	32,36-17-1W	1,280.00	\$ 128.00	\$ .47	\$ 600.00	\$ 512.00	\$ 1,792.00	\$ 2,392.00	\$ 1.87		
0-67	Socorro	16-3-6	520.00	\$ 52.00	\$ .29	\$ 150.00	\$ 208.00	\$ 728.00	\$ 878.00	\$ 1.69		
0-68	Socorro	3,4-3-7	1,280.22	\$ 128.02	\$ .20	\$ 250.00	\$ 512.00	\$ 1,792.00	\$ 2,042.00	\$ 1.60		
0-69	Socorro	5,8,9-3-7	1,280.00	\$ 128.00	\$ .25	\$ 325.00	\$ 512.00	\$ 1,792.00	\$ 2,117.00	\$ 1.65		
0-70	Socorro	10,15-3-7	1,280.00	\$ 128.00	\$ .25	\$ 325.00	\$ 512.00	\$ 1,792.00	\$ 2,117.00	\$ 1.65		
0-71	Socorro	16,17,20-3-7	1,280.00	\$ 128.00	\$ .29	\$ 375.00	\$ 512.00	\$ 1,792.00	\$ 2,167.00	\$ 1.69		
0-72	Socorro	21,22-3-7	1,280.00	\$ 128.00	\$ .33	\$ 425.00	\$ 512.00	\$ 1,792.00	\$ 2,217.00	\$ 1.73		
0-73	Socorro	27,28-3-7	1,280.00	\$ 128.00	\$ .33	\$ 425.00	\$ 512.00	\$ 1,792.00	\$ 2,217.00	\$ 1.73		
0-74	Socorro	29,32-3-7	640.00	\$ 64.00	\$ .39	\$ 250.00	\$ 256.00	\$ 896.00	\$ 1,146.00	\$ 1.79		
0-75	Socorro	32,34-3-7	1,280.00	\$ 128.00	\$ .33	\$ 425.00	\$ 512.00	\$ 1,792.00	\$ 1,792.00	\$ 1.73		
0-76	Socorro	8-4-7	640.00	\$ 64.00	\$ .51	\$ 325.00	\$ 256.00	\$ 896.00	\$ 1,221.00	\$ 1.91		
0-77	Socorro	32-4-7	640.00	\$ 64.00	\$ .51	\$ 325.00	\$ 256.00	\$ 896.00	\$ 1,221.00	\$ 1.91		
						<u>1 9 7 3</u>						
0-7	Lincoln	2,3,15-6-14	1,115.84	\$ 167.38	\$ .15	\$ 168.00	\$ 669.52	\$ 2,343.00	\$ 2,511.00	\$ 2.25		
0-8	Lincoln	16,19,24-6-14	1,080.13	\$ 162.02	\$ .15	\$ 163.00	\$ 648.00	\$ 2,268.00	\$ 2,431.00	\$ 2.25		
0-9	Lincoln	20,21,22-6-14	920.00	\$ 138.00	\$ .22	\$ 200.00	\$ 552.00	\$ 1,932.00	\$ 2,132.00	\$ 2.32		
0-10	Lincoln	23,24,36-6-14	1,080.00	\$ 162.00	\$ .15	\$ 162.00	\$ 648.00	\$ 2,268.00	\$ 2,430.00	\$ 2.25		
0-11	Lincoln	25,26-6-14	1,040.00	\$ 156.00	\$ .15	\$ 156.00	\$ 624.00	\$ 2,184.00	\$ 2,340.00	\$ 2.25		
0-12	Lincoln	27,28,29-6-14	1,200.00	\$ 180.00	\$ .15	\$ 180.00	\$ 720.00	\$ 2,520.00	\$ 2,700.00	\$ 2.25		
0-13	Lincoln	30,31,32,33-6-14	1,080.00	\$ 162.00	\$ .19	\$ 200.00	\$ 648.00	\$ 2,268.00	\$ 2,468.00	\$ 2.29		
0-14	Lincoln	34,35-6-14	1,040.00	\$ 156.00	\$ .19	\$ 200.00	\$ 624.00	\$ 2,184.00	\$ 2,384.00	\$ 2.29		
0-15	Lincoln	16,17,20-6-15	880.00	\$ 132.00	\$ .15	\$ 132.00	\$ 528.00	\$ 1,848.00	\$ 1,980.00	\$ 2.25		
0-16	Lincoln	30-6-15	635.78	\$ 95.00	\$ .16	\$ 100.00	\$ 381.00	\$ 1,335.00	\$ 1,435.00	\$ 2.26		
0-4	Otero	5-12-10	644.60	\$ 97.00	\$ .16	\$ 100.00	\$ 387.00	\$ 1,354.00	\$ 1,454.00	\$ 2.26		
0-5	Otero	9-12-10	640.00	\$ 96.00	\$ .16	\$ 100.00	\$ 384.00	\$ 1,344.00	\$ 1,444.00	\$ 2.26		
0-6	Otero	16-12-10	640.00	\$ 96.00	\$ .16	\$ 100.00	\$ 384.00	\$ 1,344.00	\$ 1,444.00	\$ 2.26		
0-5	Otero	2,16-11-9	852.00	\$ 128.00	\$ .18	\$ 150.00	\$ 511.00	\$ 1,789.00	\$ 1,939.00	\$ 2.28		
0-3	Otero	2,13-22-14	1,277.56	Withdrawn								
0-4	Otero	15,22-22-14	1,280.00	Withdrawn								
0-5	Otero	26,34-22-14	1,280.00	Withdrawn								
0-6	Otero	35,36-22-14	1,280.00	Withdrawn								
0-7	Otero	2,16-22-15	1,266.64	\$ 190.00	\$ .15	\$ 190.00	\$ 760.00	\$ 2,660.00	\$ 2,850.00	\$ 2.25		
0-8	Otero	23,24-22-15	1,280.00	\$ 192.00	\$ .15	\$ 192.00	\$ 768.00	\$ 2,688.00	\$ 2,880.00	\$ 2.25		
0-9	Otero	25,31-22-15	1,268.40	\$ 190.00	\$ .15	\$ 190.00	\$ 761.00	\$ 2,664.00	\$ 2,854.00	\$ 2.25		
0-10	Otero	32,36-22-15	1,280.00	\$ 192.00	\$ .15	\$ 192.00	\$ 768.00	\$ 2,688.00	\$ 2,880.00	\$ 2.25		

Tract	County	Loc SE	Acres	Bid			Rentals			Value	
				Min.	Acres	Total	5 yr	10 yr	Rental Bid	Per Acre	
T-2	Lincoln	11,12,14-7-10	720.00	\$ 108.00	\$ .50	\$ 360.00	\$ 432.00	\$ 1,512.00	\$ 1,872.00	\$ 2.60	
T-6	Otero	25,26-23-14	1,280.00	\$ 192.00	\$ .15	\$ 198.00	\$ 768.00	\$ 2,688.00	\$ 2,886.00	\$ 2.25	
T-7	Otero	12,13-24-14	880.00	\$ 132.00	\$ .21	\$ 187.00	\$ 528.00	\$ 1,848.00	\$ 2,035.00	\$ 2.31	
T-8	Otero	32-23-15 5-24-15	1,230.62	Rejected below min. bid							
T-16	Dona Ana	7,18-26-2W	1,261.46	Withdrawn							
T-17	Lincoln	11,12,14-7-10	720.00	Rejected (Improper application)							
T-18	Otero	20,29-24-15	1,280.00	\$ 192.00	\$ .25	\$ 323.33	\$ 768.00	\$ 2,688.00	\$ 3,011.00	\$ 2.35	
T-19	Otero	30,31-24-15	1,246.12	Withdrawn							
T-20	Otero	32-24-15 5-25-15	1,240.67	\$ 186.00	\$ 1.20	\$ 1,487.00	\$ 744.00	\$ 2,605.00	\$ 4,092.00	\$ 3.30	
T-21	Otero	12-25-14	640.00	Withdrawn							
T-22	Otero	7,8-25-15	1,286.32	Withdrawn							
T-23	Otero	16-25-15	640.00	Withdrawn							
T-17	Otero	31,32-23-14	1,272.32	\$ 190.85	\$ .21	\$ 261.00	\$ 763.00	\$ 2,671.00	\$ 2,932.00	\$ 2.30	
T-18	Otero	33,34-23-14	1,280.00	\$ 192.00	\$ .20	\$ 261.00	\$ 768.00	\$ 2,688.00	\$ 2,949.00	\$ 2.30	
T-19	Otero	35,36-23-14	1,280.00	\$ 192.00	\$ .20	\$ 261.00	\$ 768.00	\$ 2,688.00	\$ 2,949.00	\$ 2.30	
T-20	Otero	9,11,16-24-12	1,193.12	\$ 179.00	\$ .20	\$ 238.62	\$ 716.00	\$ 2,506.00	\$ 2,745.00	\$ 2.30	
T-21	Otero	7,8-24-15	1,277.16	\$ 192.00	\$ .19	\$ 241.00	\$ 768.00	\$ 2,688.00	\$ 2,929.00	\$ 2.29	
T-22	Otero	16,17-24-15	1,280.00	\$ 192.00	\$ .24	\$ 301.00	\$ 768.00	\$ 2,688.00	\$ 2,989.00	\$ 2.34	
T-23	Otero	18,19-24-15	1,280.68	\$ 192.10	\$ .19	\$ 241.00	\$ 768.00	\$ 2,689.00	\$ 2,930.00	\$ 2.29	
					<u>1.972</u>						
T-2	Dona Ana	2,16-25-1W	1,278.24	\$ 191.74	\$ .40	\$ 510.00	\$ 767.00	\$ 2,684.00	\$ 3,194.00	\$ 2.50	
T-3	Dona Ana	36-25-1W 2-25-2W	1,276.00	\$ 191.40	\$ 3.33	\$ 4,249.09	\$ 766.00	\$ 2,680.00	\$ 6,929.00	\$ 5.43	
T-4	Dona Ana	2,4,5-26-1W	1,180.30	\$ 177.05	\$ .96	\$ 1,133.09	\$ 708.00	\$ 2,479.00	\$ 3,612.00	\$ 3.06	
T-5	Dona Ana	8,9,10,16-26-1W	1,280.00	\$ 192.00	\$ .97	\$ 1,241.60	\$ 768.00	\$ 2,688.00	\$ 3,930.00	\$ 3.07	
T-6	Dona Ana	32,36-26-1W	1,280.00	\$ 192.00	\$ .40	\$ 510.00	\$ 768.00	\$ 2,688.00	\$ 3,198.00	\$ 2.50	
T-7	Dona Ana	1,2-26-5	962.68	\$ 144.40	\$ .33	\$ 320.00	\$ 578.00	\$ 2,022.00	\$ 2,342.00	\$ 2.43	
T-8	Dona Ana	3,16-26-5	892.36	\$ 133.85	\$ .50	\$ 446.57	\$ 535.00	\$ 1,874.00	\$ 2,320.00	\$ 2.60	
T-10	Otero	18,19,30,32-26-6	862.40	\$ 129.36	\$ .78	\$ 675.00	\$ 517.00	\$ 1,811.00	\$ 2,486.00	\$ 2.88	

Tract	County	Loc SE	Acres	Min.	Acres	Bid Total	Rentals		Value		Per Acre
							5 yr	10 yr	Rental Bid		
0-17	Otero	26,28,33-11-9									
		32-11-9	320.77	\$ 48.12	\$ 1.09	\$ 350.00	\$ 192.00	\$ 673.00	\$ 1,023.00		\$ 3.19
0-18	Otero	15-12-9	640.00	\$ 96.00	\$ .55	\$ 350.00	\$ 384.00	\$ 1,344.00	\$ 1,694.00		\$ 2.65
T-9	Otero	36-25-13									
		15-26-13	1,280.00	\$ 192.00	\$ 2.10	\$ 2,688.88	\$ 768.00	\$ 2,688.00	\$ 5,377.00		\$ 4.20
T-10	Otero	16-26-13	640.00	\$ 96.00	\$ 2.10	\$ 1,344.44	\$ 384.00	\$ 1,344.00	\$ 2,688.00		\$ 4.20
T-1	Dona Ana	16,32-27-3	167.43	\$ 25.11	\$ .64	\$ 107.00	\$ 100.00	\$ 351.00	\$ 458.00		\$ 2.74
T-2	Dona Ana	2,16-28-1W	1,275.68	\$ 191.35	\$ .57	\$ 727.00	\$ 765.00	\$ 2,679.00	\$ 3,406.00		\$ 2.67
T-3	Dona Ana	32,36-28-1W	1,240.00	\$ 186.00	\$ .57	\$ 707.00	\$ 744.00	\$ 2,604.00	\$ 3,311.00		\$ 2.67
T-4	Dona Ana	2,16-29-1W	1,020.08	\$ 153.01	\$ .57	\$ 581.00	\$ 612.00	\$ 2,142.00	\$ 2,723.00		\$ 2.67
T-13	Otero	35-12-10	640.00	\$ 96.00	\$ .61	\$ 390.57	\$ 384.00	\$ 1,344.00	\$ 1,735.00		\$ 2.71
T-14	Otero	36-12-10									
		14-13-10	487.16	\$ 73.07	\$ .61	\$ 297.57	\$ 292.00	\$ 1,023.00	\$ 1,320.00		\$ 2.71
T-15	Socorro	2-5-6	637.24	\$ 63.72	\$ .18	\$ 111.57	\$ 255.00	\$ 892.00	\$ 1,004.00		\$ 1.58
0-20	Otero	13,25-24-11									
		29-24-12	1,040.00	\$ 156.00	\$ 3.75	\$ 3,900.00	\$ 624.00	\$ 2,184.00	\$ 6,084.00		\$ 5.85
0-21	Otero	26,35-24-11	1,200.00	\$ 180.00	\$ 3.25	\$ 3,900.00	\$ 720.00	\$ 2,520.00	\$ 6,420.00		\$ 5.35
0-22	Otero	5,17-24-12	1,257.17	\$ 188.58	\$ .56	\$ 700.00	\$ 754.00	\$ 2,640.00	\$ 3,340.00		\$ 2.66
0-23	Otero	36-25-10	640.00	\$ 96.00	\$ .16	\$ 100.00	\$ 384.00	\$ 1,344.00	\$ 1,444.00		\$ 2.26
0-24	Otero	11,14-25-12	160.00	\$ 24.00	\$ .63	\$ 100.00	\$ 96.00	\$ 336.00	\$ 4.36		\$ 2.73
0-25	Otero	16-25-13	640.00	\$ 96.00	\$ .63	\$ 400.00	\$ 384.00	\$ 1,344.00	\$ 1,744.00		\$ 2.73
0-26	Otero	19,32-25-13									
		18-26-13	782.74	\$ 117.41	\$ 3.19	\$ 2,500.00	\$ 470.00	\$ 1,644.00	\$ 4,144.00		\$ 5.29
T-1	Dona Ana	21,22,27,34-22-1W	1,280.00	\$ 192.00	\$ .20	\$ 261.67	\$ 768.00	\$ 2,688.00	\$ 2,950.00		\$ 2.30
T-2	Dona Ana	2,16-29-2W	1,022.24	\$ 153.34	\$ .52	\$ 531.56	\$ 613.00	\$ 2,146.00	\$ 2,678.00		\$ 2.62
0-51	Sierra	36-13S-1W	640.00	\$ 64.00	\$ .31	\$ 200.00	\$ 256.00	\$ 896.00	\$ 1,096.00		\$ 1.71
0-52	Sierra	36-13S-2W	640.00	\$ 64.00	\$ .31	\$ 200.00	\$ 256.00	\$ 896.00	\$ 1,096.00		\$ 1.71
0-53	Sierra	32-14-2	640.00	\$ 64.00	\$ .16	\$ 100.00	\$ 256.00	\$ 896.00	\$ 996.00		\$ 1.56
T-2	Otero	23-18-13	40.00		Withdrawn						
T-3	Otero	36-24-11	640.00	\$ 96.00	\$ 2.06	\$ 1,318.40	\$ 384.00	\$ 1,344.00	\$ 2,662.00		\$ 4.16
T-4	Otero	32-24-12	640.00	\$ 96.00	\$ 2.06	\$ 1,318.40	\$ 384.00	\$ 1,344.00	\$ 2,662.00		\$ 4.16

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
T-5	Otero	15,36-26-11 13,32,36-26-12 35-24-11; 10,14,15 24,31-25-12	1,038.48	\$ 155.77	\$ 2.06	\$ 2,139.27	\$ 623.00	\$ 2,181.00	\$ 4,320.00	\$ 4.16
T-6	Otero	36-24-12	640.00	\$ 96.00	\$ 2.06	\$ 1,318.40	\$ 384.00	\$ 1,344.00	\$ 2,662.00	\$ 4.16
T-7	Otero	32-25-11	640.00	\$ 96.00	\$ 2.06	\$ 1,318.40	\$ 384.00	\$ 1,344.00	\$ 2,662.00	\$ 4.16
T-8	Otero	2-25-12	637.54	\$ 95.63	\$ 2.06	\$ 1,313.34	\$ 383.00	\$ 1,339.00	\$ 2,653.00	\$ 4.16
T-9	Otero	16-25-12	640.00	\$ 96.00	\$ 2.06	\$ 1,318.40	\$ 384.00	\$ 1,344.00	\$ 2,662.00	\$ 4.16
T-10	Otero	17-25-12	640.00	\$ 96.00	\$ 2.06	\$ 1,318.40	\$ 384.00	\$ 1,344.00	\$ 1,662.00	\$ 4.16
T-11	Otero	18-25-12	644.20	\$ 96.63	\$ 2.06	\$ 1,327.06	\$ 387.00	\$ 1,353.00	\$ 2,680.00	\$ 4.16
T-12	Otero	36-25-12	640.00	\$ 96.00	\$ 2.06	\$ 1,318.40	\$ 384.00	\$ 1,344.00	\$ 2,662.00	\$ 4.16
T-13	Otero	32-25-12	640.00	\$ 96.00	\$ 2.06	\$ 1,318.40	\$ 384.00	\$ 1,344.00	\$ 2,662.00	\$ 4.16
O-14	Dona Ana	2,16-27-2W	1,281.56	Withdrawn						
O-15	Dona Ana	2,16-27-3W	1,278.52	Withdrawn						
O-16	Dona Ana	16-27-4W	640.00	Withdrawn						
O-50	Otero	36-11-9 2-12-9	960.24	\$ 144.04	\$ .68	\$ 650.00	\$ 576.00	\$ 2,016.00	\$ 2,666.00	\$ 2.78
O-51	Otero	16-14-11	640.00	\$ 96.00	\$ .23	\$ 150.00	\$ 384.00	\$ 1,344.00	\$ 1,494.00	\$ 2.33
O-52	Otero	32-14-11	640.00	\$ 96.00	\$ .86	\$ 550.00	\$ 384.00	\$ 1,344.00	\$ 1,894.00	\$ 2.96
T-3	Socorro	36-4-1 2-5-1	1,280.00	\$ 128.00	\$ .17	\$ 213.80	\$ 512.00	\$ 1,792.00	\$ 2,006.00	\$ 1.57
T-4	Socorro	2-4-6	400.12	Tie Bid						
O-10	Otero	2-15-10	40.00	\$ 6.00	\$ 2.50	\$ 100.00	\$ 24.00	\$ 84.00	\$ 184.00	\$ 4.60
T-7	Otero	12-14-9	640.00	\$ 96.00	\$ .17	\$ 110.00	\$ 384.00	\$ 1,344.00	\$ 1,454.00	\$ 2.27
T-8	Otero	36-14-9	640.00	\$ 96.00	\$ .17	\$ 111.00	\$ 384.00	\$ 1,344.00	\$ 1,455.00	\$ 2.27
T-9	Otero	28-14-10	120.00	\$ 18.00	\$ 2.09	\$ 251.20	\$ 72.00	\$ 252.00	\$ 503.00	\$ 4.19
T-10	Otero	16-16-10	640.00	\$ 96.00	\$ .18	\$ 113.00	\$ 384.00	\$ 1,344.00	\$ 1,457.00	\$ 2.28
T-1	Dona Ana	2,16-18-3W	1,283.02	\$ 192.45	\$ .15	\$ 192.45	\$ 770.00	\$ 2,695.00	\$ 2,887.00	\$ 2.25
T-2	Dona Ana	32-18-3W	640.00	\$ 96.00	\$ .16	\$ 100.00	\$ 384.00	\$ 1,344.00	\$ 1,444.00	\$ 2.26
T-3	Dona Ana	32-28-1	640.00	\$ 96.00	\$ .56	\$ 358.40	\$ 384.00	\$ 1,344.00	\$ 1,702.00	\$ 2.66
T-4	Dona Ana	16-29-1	381.83	\$ 57.27	\$ .29	\$ 109.00	\$ 229.00	\$ 802.00	\$ 911.00	\$ 2.39

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
T-2	Socorro	13,16,24-4-6	960.00	\$ 96.00	\$ .16	\$153.60	\$384.00	\$1,344.00	\$1,498.00	\$1.56
T-3	Socorro	32,36-4-6	1,080.00	\$108.00	\$ .16	\$172.80	\$432.00	\$1,512.00	\$1,685.00	\$1.56
0-1	Dona Ana	32-21-1W	640.00	\$ 96.00	\$ .35	\$225.00	\$384.00	\$1,344.00	\$1,569.00	\$2.45
0-2	Dona Ana	32-22-1	640.00	Withdrawn						
0-3	Dona Ana	16,18-22-1W	1,112.64	\$166.90	\$ .20	\$225.00	\$668.00	\$2,337.00	\$2,562.00	\$2.30
0-4	Dona Ana	21,22,27,34-22-1W	1,280.00	Withdrawn						
0-5	Dona Ana	36-22-1W	640.00	Withdrawn						
0-6	Dona Ana	28-22-2W	320.00	\$ 48.00	\$ .63	\$200.00	\$192.00	\$ 672.00	\$ 872.00	\$2.73
0-1	Dona Ana	2-22-1W,34-22-1W	1,222.16	\$183.32	\$ .15	\$183.32	\$733.00	\$2,566.00	\$2,750.00	\$2.25
0-2	Dona Ana	19,20,22-1W	1,117.09	\$167.56	\$ .15	\$167.56	\$670.00	\$2,346.00	\$2,513.00	\$2.25
0-3	Dona Ana	29,30-22-1W	1,273.18	\$190.98	\$ .15	\$190.98	\$764.00	\$2,674.00	\$2,865.00	\$2.25
0-4	Dona Ana	31,32-22-1W	1,273.18	\$190.98	\$ .15	\$190.98	\$764.00	\$2,674.00	\$2,865.00	\$2.25
0-5	Dona Ana	2,3,13-22-2W	1,282.48	\$192.37	\$ .21	\$270.00	\$769.00	\$2,693.00	\$2,963.00	\$2.31
0-6	Dona Ana	22,23-22-2W	1,280.00	\$192.00	\$ .28	\$360.00	\$768.00	\$2,688.00	\$3,048.00	\$2.38
0-7	Dona Ana	24,25-22-2W	1,280.00	\$192.00	\$ .31	\$400.00	\$768.00	\$2,688.00	\$3,088.00	\$2.41
0-8	Dona Ana	26,27-22-2W	1,280.00	\$192.00	\$ .33	\$420.00	\$768.00	\$2,688.00	\$3,108.00	\$2.43
0-16	Otero	2-15-10	40.00	\$ 6.00	\$2.50	\$100.00	\$ 24.00	\$ 84.00	\$ 184.00	\$4.60
T-1	Dona Ana	32-20-2W	640.00	\$ 96.00	\$2.37	\$1,516.80	\$384.00	\$1,344.00	\$2,861.00	\$4.47
T-3	Otero	6,7-26-6	947.76	\$142.16	\$ .25	\$240.40	\$569.00	\$1,991.00	\$2,231.00	\$2.35
0-3	Dona Ana	16,32-18-2W	1,280.00	\$192.00	\$ .31	\$400.00	\$768.00	\$2,688.00	\$3,088.00	\$2.41
0-4	Dona Ana	36-18-3W	600.00	\$ 90.00	\$ .33	\$200.00	\$360.00	\$1,260.00	\$1,460.00	\$2.43
0-16	Otero	6,10,16-24-13	1,145.25	Withdrawn						
0-17	Otero	14,15-24-13	1,280.00	\$192.00	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25
0-18	Otero	32,35-24-13	1,040.00	Withdrawn						
0-19	Otero	2,3-25-11	700.28	\$105.04	\$ .15	\$105.04	\$420.00	\$1,470.00	\$1,575.00	\$2.25
0-20	Otero	16,21-25-11	1,280.00	\$192.00	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25
0-21	Otero	25,36-25-11	1,441.92	\$216.29	\$ .15	\$217.00	\$865.00	\$3,028.00	\$3,245.00	\$2.25
0-22	Otero	2,16-25-12	1,277.54	Withdrawn						
0-23	Otero	8,9-25-12	1,280.00	\$192.00	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25
0-24	Otero	32-25-12	1,080.00	Withdrawn						
0-25	Otero	17,18-25-12	1,284.20	Withdrawn						
0-26	Otero	1,2-25-14	1,279.52	\$191.93	\$ .15	\$192.00	\$768.00	\$2,687.00	\$2,879.00	\$2.25
0-27	Otero	4,5-25-14	1,279.84	\$191.98	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value		
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre	
0-28	Otero	6,8-25-14	1,274.59	\$191.19	\$ .15	\$192.00	\$765.00	\$2,677.00	\$2,869.00	\$2.25	
0-29	Otero	15,16-25-14	1,280.00	\$192.00	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25	
0-30	Otero	25,36-25-14	1,280.00	\$192.00	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25	
0-31	Otero	2,15-26-11	1,000.00	\$150.00	\$ .15	\$150.00	\$600.00	\$2,100.00	\$2,250.00	\$2.25	
0-32	Otero	16,32,36-26-11	1,149.85	\$172.48	\$ .15	\$173.00	\$690.00	\$2,415.00	\$2,588.00	\$2.25	
0-33	Otero	2,3-26-15	1,280.00	Withdrawn							
0-34	Otero	16,32-26-15	816.42	Withdrawn							
0-35	Otero	25,36-26-15	918.44	Withdrawn							
					<u>1 9 7 0</u>						
T-2	Dona Ana	2,16-28-1	1,278.72	\$191.81	\$ .25	\$322.22	\$767.00	\$2,685.00	\$3,007.00	\$2.35	
T-3	Otero	2,5-26-6	1,310.12	\$196.52	\$ .26	\$335.00	\$786.00	\$2,751.00	\$3,086.00	\$2.36	
T-4	Otero	3,4-26-6	1,309.84	\$196.48	\$ .26	\$335.00	\$786.00	\$2,751.00	\$3,086.00	\$2.36	
T-1	Dona Ana	17,18-26-2W	1,261.46	\$189.22	\$ .17	\$214.45	\$757.00	\$2,649.00	\$2,864.00	\$2.27	
T-2	Dona Ana	16,32-26-2W	1,280.00	\$192.00	\$ .20	\$256.00	\$768.00	\$2,688.00	\$2,944.00	\$2.30	
T-3	Dona Ana	27,28,30,35,36 26-2W	1,120.00	\$168.00	\$ .21	\$235.20	\$672.00	\$2,352.00	\$2,587.00	\$2.31	
T-4	Dona Ana	1,2-26-3W	1,147.76	\$172.16	\$ .16	\$182.50	\$689.00	\$2,411.00	\$2,593.00	\$2.26	
T-5	Dona Ana	12,13-26-3W	1,280.00	\$192.00	\$ .16	\$204.80	\$768.00	\$2,688.00	\$2,893.00	\$2.26	
T-6	Dona Ana	15,16-26-26-3W	960.00	\$144.00	\$ .18	\$172.80	\$576.00	\$2,016.00	\$2,189.00	\$2.28	
T-7	Dona Ana	32,36-26-3W	1,280.00	\$192.00	\$ .18	\$230.40	\$768.00	\$2,688.00	\$2,918.00	\$2.28	
T-8	Dona Ana	2,16-26-4W	1,211.36	\$181.70	\$ .16	\$193.82	\$727.00	\$2,544.00	\$2,738.00	\$2.26	
T-9	Dona Ana	2,16-27-1W	1,275.00	\$191.25	\$ .21	\$267.75	\$765.00	\$2,678.00	\$2,945.00	\$2.31	
T-10	Dona Ana	2,16-27-3W	1,278.52	\$191.78	\$ .17	\$217.35	\$767.00	\$2,685.00	\$2,902.00	\$2.27	
T-11	Dona Ana	36-25-3	640.00	\$ 96.00	\$ .21	\$136.57	\$384.00	\$1,344.00	\$1,481.00	\$2.31	
T-12	Dona Ana	1,3-26-5	1,295.04	Withdrawn							
T-13	Dona Ana	4,7-26-5	816.02	\$122.40	\$ .15	\$125.57	\$490.00	\$1,714.00	\$1,840.00	\$2.25	
T-14	Dona Ana	32,36-26-5	695.48	\$104.32	\$ .17	\$118.23	\$417.00	\$1,460.00	\$1,578.00	\$2.27	
T-15	Dona Ana	21,36-27-2	680.00	\$102.00	\$ .21	\$142.80	\$408.00	\$1,428.00	\$1,571.00	\$2.31	
T-16	Dona Ana	2,16-29-3 16-29-4	763.92	\$114.59	\$ .22	\$168.06	\$458.00	\$1,604.00	\$1,772.00	\$2.32	
41	Otero	13,23,25,28-23-12	800.00	Withdrawn							
42	Otero	33,36-23-12	1,295.20	Withdrawn							
43	Otero	2,16-23-13	1,280.60	Withdrawn							
44	Otero	31,32-23-13	1,282.81	Withdrawn							
45	Otero	35,36-23-13	1,120.00	Withdrawn							

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
46	Otero	1,2-23-14	1,278.36	Withdrawn						
47	Otero	3,4,7-23-14	1,267.24	Withdrawn						
48	Otero	10,11-23-14	1,280.00	Withdrawn						
49	Otero	12,13-23-14	1,280.00	Withdrawn						
50	Otero	14,15-23-14	1,280.00	Withdrawn						
51	Otero	16,17-23-14	1,280.00	Withdrawn						
52	Otero	18,19-23-14	1,259.36	Withdrawn						
53	Otero	20,21-23-14	1,280.00	Withdrawn						
54	Otero	22,23-23-14	1,280.00	Withdrawn						
55	Otero	24,25-23-14	1,280.00	Withdrawn						
56	Otero	26,34-23-14	1,280.00	Withdrawn						
57	Otero	30,31-23-14	1,263.72	Withdrawn						
58	Otero	32,33-23-14	1,280.00	Withdrawn						
59	Otero	35,36-23-14	1,280.00	Withdrawn						
60	Otero	2,3-23-15	920.07	Withdrawn						
61	Otero	5,6-23-15	1,270.80	Withdrawn						
62	Otero	7,8,16-23-15	1,155.74	Withdrawn						
63	Otero	32,36-23-15	1,000.00	Withdrawn						
64	Otero	13,26-24-11	800.00	Withdrawn						
65	Otero	35,36-24-11	1,280.00	Withdrawn						
66	Otero	1,2,3,4-24-12	1,256.59	Withdrawn						
67	Otero	5,9-24-12	1,250.29	Withdrawn						
68	Otero	11,12,13,15-24-12	1,160.00	Withdrawn						
69	Otero	16,17-24-12	1,120.00	Withdrawn						
70	Otero	20,21-24-12	1,179.48	\$176.92	\$ .30	\$354.00	\$708.00	\$2,477.00	\$2,831.00	\$2.40
71	Otero	22,25,26,29 24-12	1,040.00	Withdrawn						
72	Otero	32,36-24-12	1,280.00	Withdrawn						
73	Otero	2,5-24-13	1,106.32	Withdrawn						
74	Otero	6,10,16-24-13	1,145.25	Withdrawn						
75	Otero	14,15-24-13	1,280.00	Withdrawn						
76	Otero	32,35,36-24-13	1,040.00	Withdrawn						
77	Otero	25-24-13 19-24-14	1,272.24	Withdrawn						
78	Otero	1,2-24-14	1,350.96	\$202.64	\$ .15	\$205.00	\$811.00	\$2,837.00	\$3,042.00	\$2.25
79	Otero	3,4,6-24-14	926.24	\$138.94	\$ .16	\$150.00	\$556.00	\$1,945.00	\$2,095.00	\$2.26
80	Otero	8,10-24-14	1,280.00	\$192.00	\$ .16	\$205.00	\$768.00	\$2,688.00	\$2,893.00	\$2.26
81	Otero	11,13-24-14	1,280.00	\$192.00	\$ .17	\$212.00	\$768.00	\$2,688.00	\$2,900.00	\$2.27
82	Otero	12,16,21-24-14	1,120.00	\$168.00	\$ .15	\$170.00	\$672.00	\$2,352.00	\$2,522.00	\$2.25



Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
83	Otero	20,30-24-14	1,272.64	\$190.90	\$ .16	\$207.00	\$764.00	\$2,673.00	\$2,880.00	\$2.26
84	Otero	22,23,24-24-14	1,280.00	\$192.00	\$ .16	\$207.00	\$768.00	\$2,688.00	\$2,895.00	\$2.26
85	Otero	28,29,33,36 24-14	920.00	\$138.00	\$ .17	\$155.00	\$552.00	\$1,932.00	\$2,087.00	\$2.27
86	Otero	31,32-24-14	1,272.64	\$190.90	\$ .16	\$205.00	\$764.00	\$2,673.00	\$2,878.00	\$2.26
87	Otero	36-25-10 32-25-11	1,280.00	Withdrawn						
88	Otero	2,3-25-11	700.28	Withdrawn						
89	Otero	16,21-25-11	1,280.00	Withdrawn						
90	Otero	35,36-25-11	1,441.92	Withdrawn						
91	Otero	2,16-25-12	1,277.54	Withdrawn						
92	Otero	8,9-25-12	1,280.00	Withdrawn						
93	Otero	10,11,14,15,24 31,32,25-12	1,080.00	Withdrawn						
94	Otero	17,18-25-12	1,284.20	Withdrawn						
95	Otero	2,36-25-13	1,133.93	Withdrawn						
96	Otero	16,19-25-13	701.88	Withdrawn						
97	Otero	1,2-25-14	1,279.52	Withdrawn						
98	Otero	4,5-25-14	1,279.84	Withdrawn						
99	Otero	6,8-25-14	1,274.59	Withdrawn						
100	Otero	15,16-25-14	1,280.00	Withdrawn						
101	Otero	25,36-25-14	1,280.00	Withdrawn						
102	Otero	2,5-26-6	1,310.12	\$196.52	\$ .17	\$222.72	\$786.00	\$2,751.00	\$2,974.00	\$2.27
103	Otero	3,4-26-6	1,309.84	\$196.48	\$ .17	\$222.72	\$786.00	\$2,751.00	\$2,974.00	\$2.27
104	Otero	3,7-26-6	947.76	Rejected not min. bid						
105	Otero	8,9,10,11,16 26-6	1,240.00	\$186.00	\$ .15	\$186.00	\$744.00	\$2,604.00	\$2,790.00	\$2.25
106	Otero	18,19,30,32 26-6	862.40	\$129.36	\$ .20	\$172.48	\$517.00	\$1,811.00	\$1,983.00	\$2.30
107	Otero	13,14,15,36 26-10	637.00	Withdrawn						
108	Otero	2,15-26-11	1,000.00	Withdrawn						
109	Otero	16,32,36-26-11	1,149.85	Withdrawn						
110	Otero	13,32,36-26-12	553.28	Withdrawn						
111	Otero	2,15,36-26-13	1,214.64	Withdrawn						
112	Otero	16,18,32-34 26-13	1,035.19	Withdrawn						
113	Otero	2,7,8,16-26-14	1,280.00	Withdrawn						

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
114	Otero	20,32,36-26-14	806.12	Withdrawn						
115	Otero	2,3-26-15	1,280.00	Withdrawn						
116	Otero	16,32-26-15	816.42	Withdrawn						
117	Otero	25,36-26-15	918.44	Withdrawn						
139	Dona Ana	2,16-28-1	1,278.72	\$191.81	\$ .17	\$217.38	\$767.00	\$2,685.00	\$2,902.00	\$2.27
T-1	Dona Ana	2,16-21-2W	1,281.68	\$192.25	\$ .27	\$341.57	\$769.00	\$2,692.00	\$3,033.00	\$2.37
T-7	Otero	21,22-12-9	1,280.00	\$192.00	\$ .27	\$339.33	\$768.00	\$2,688.00	\$3,027.00	\$2.37
T-8	Otero	21,22-12-10	1,120.00	\$168.00	\$ .15	\$168.00	\$672.00	\$2,352.00	\$2,520.00	\$2.25
T-9	Otero	23,24-12-10	1,042.20	\$156.33	\$ .20	\$212.00	\$625.00	\$2,188.00	\$2,400.00	\$2.30
T-10	Otero	25,26-12-10	1,046.56	\$156.98	\$ .15	\$156.98	\$628.00	\$2,198.00	\$2,355.00	\$2.25
T-11	Otero	27,28-12-10	1,280.00	\$192.00	\$ .24	\$301.57	\$768.00	\$2,688.00	\$2,990.00	\$2.34
T-12	Otero	33,34-12-10	1,160.00	\$174.00	\$ .27	\$311.57	\$696.00	\$2,436.00	\$2,748.00	\$2.37
T-13	Sierra	36-13-2W	640.00	\$ 64.00	\$ .20	\$127.82	\$256.00	\$896.00	\$1,024.00	\$1.60
T-1	Dona Ana	2,16-21-2W	1,281.68	Rejected BMB						
T-2	Dona Ana	12-21-2W	640.00	\$ 96.00	\$ .16	\$105.00	\$384.00	\$1,344.00	\$1,449.00	\$2.26
T-3	Dona Ana	20,21,22-21-2W	920.00	\$138.00	\$ .31	\$285.20	\$552.00	\$1,932.00	\$2,217.00	\$2.41
T-4	Dona Ana	27,34-21-2W	960.00	\$144.00	\$ .40	\$384.00	\$576.00	\$2,016.00	\$2,400.00	\$2.50
T-5	Dona Ana	32,36-21-2W	1,280.00	\$192.00	\$ .21	\$267.00	\$768.00	\$2,688.00	\$2,955.00	\$2.31
T-6	Dona Ana	2,16-21-3W	1,270.80	\$190.62	\$ .31	\$397.02	\$762.00	\$2,668.00	\$3,065.00	\$2.41
T-7	Dona Ana	21,22,32-21-3W	1,280.00	\$192.00	\$ .17	\$221.00	\$768.00	\$2,688.00	\$2,909.00	\$2.27
T-22	Otero	4-13-9	636.88	\$ 95.53	\$ .33	\$210.17	\$382.00	\$1,337.00	\$1,547.00	\$2.43
T-23	Otero	9-13-9	640.00	\$ 96.00	\$ .33	\$211.20	\$384.00	\$1,344.00	\$1,555.00	\$2.43
T-24	Otero	1,2-13-10	1,036.08	\$155.41	\$ .15	\$160.00	\$622.00	\$2,176.00	\$2,336.00	\$2.25
T-25	Otero	1,3,4-13-10	1,141.78	\$171.27	\$ .15	\$176.57	\$685.00	\$2,398.00	\$2,574.00	\$2.25
T-26	Otero	2,10,24,32-13-10	1,144.08	\$171.61	\$ .26	\$300.00	\$686.00	\$2,402.00	\$2,702.00	\$2.36
T-27	Otero	10,23-13-10	960.00	\$144.00	\$ .26	\$249.60	\$576.00	\$2,016.00	\$2,266.00	\$2.36
T-28	Otero	11,12-13-10	1,280.00	\$192.00	\$ .21	\$267.00	\$768.00	\$2,688.00	\$2,955.00	\$2.31
O-1	Dona Ana	19,30-21-2W	629.40	\$ 94.41	\$ .16	\$100.00	\$378.00	\$1,322.00	\$1,422.00	\$2.26
O-2	Dona Ana	23,24-21-3W	640.00	\$ 96.00	\$ .16	\$100.00	\$384.00	\$1,344.00	\$1,444.00	\$2.26
O-3	Dona Ana	25,36-21-3W	960.00	\$144.00	\$ .15	\$144.00	\$576.00	\$2,016.00	\$2,160.00	\$2.25
O-4	Dona Ana	2,16-22-1W	1,118.40	Withdrawn						
O-5	Dona Ana	18,19-22-1W	1,109.73	Withdrawn						

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
0-6	Dona Ana	20,21,22-22-1W	1,280.00	Withdrawn						
0-7	Dona Ana	27,34,36-22-1W	1,280.00	Withdrawn						
0-8	Dona Ana	29,30-22-1W	1,273.18	Withdrawn						
0-9	Dona Ana	31,32-22-1W	1,273.18	Withdrawn						
0-10	Dona Ana	2,3-22-2W	962.48	Withdrawn						
0-11	Dona Ana	10,16-22-2W	1,280.00	\$192.00	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25
0-12	Dona Ana	13,24-22-2W	960.00	Withdrawn						
0-13	Dona Ana	18,19-22-2W	1,098.06	\$164.71	\$ .15	\$164.71	\$659.00	\$2,306.00	\$2,471.00	\$2.25
0-14	Dona Ana	20,21-22-2W	1,120.00	\$168.00	\$ .15	\$168.00	\$672.00	\$2,352.00	\$2,520.00	\$2.25
0-15	Dona Ana	22,23-22-2W	1,280.00	Withdrawn						
0-16	Dona Ana	25,26-22-2W	1,280.00	Withdrawn						
0-17	Dona Ana	27,28-22-2W	960.00	Withdrawn						
0-18	Dona Ana	32,34-22-2W	960.00	\$144.00	\$ .15	\$144.00	\$576.00	\$2,016.00	\$2,160.00	\$2.25
0-19	Dona Ana	35,36-22-2W	1,280.00	\$192.00	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25
0-20	Dona Ana	35,36-22-3W	960.00	\$144.00	\$ .15	\$144.00	\$576.00	\$2,016.00	\$2,160.00	\$2.25
T-1	Dona Ana	1,2,12,36-26-4	1,149.24	\$172.39	\$ .17	\$197.57	\$690.00	\$2,414.00	\$2,611.00	\$2.27
T-1	Otero	9,10-12-9	640.00	\$ 96.00	\$ .16	\$102.00	\$384.00	\$1,344.00	\$1,446.00	\$2.26
T-2	Otero	34,35-12-9	800.00	\$120.00	\$ .15	\$122.00	\$480.00	\$1,680.00	\$1,802.00	\$2.25
T-3	Otero	36-12-9	640.00	\$ 96.00	\$ .23	\$148.57	\$384.00	\$1,344.00	\$1,493.00	\$2.33
T-4	Otero	32-12-10	640.00	\$ 96.00	\$ .33	\$211.57	\$384.00	\$1,344.00	\$1,556.00	\$2.43
T-5	Otero	2,3-13-9	955.33	\$143.30	\$ .15	\$146.00	\$573.00	\$2,006.00	\$2,152.00	\$2.25
T-6	Otero	2,11,12-13-9	958.06	\$143.71	\$ .21	\$197.57	\$575.00	\$2,012.00	\$2,210.00	\$2.31
T-7	Otero	10,11-13-9	960.00	\$144.00	\$ .15	\$146.00	\$576.00	\$2,016.00	\$2,162.00	\$2.25
T-8	Otero	15-13-10	320.00	\$ 48.00	\$ .46	\$147.57	\$192.00	\$ 672.00	\$ 820.00	\$2.56
T-9	Otero	15-13-10	320.00	\$ 48.00	\$ .52	\$167.57	\$192.00	\$672.00	\$ 840.00	\$2.62
T-1	Otero	13,14-13-9	1,280.00	\$192.00	\$ .15	\$194.00	\$768.00	\$2,688.00	\$2,882.00	\$2.25
T-2	Otero	16-13-9	640.00	\$ 96.00	\$ .21	\$135.60	\$384.00	\$1,344.00	\$1,480.00	\$2.31
T-3	Otero	21-13-9	640.00	\$ 96.00	\$ .16	\$102.00	\$384.00	\$1,344.00	\$1,446.00	\$2.26
T-4	Otero	23,24-13-9	1,280.00	\$192.00	\$ .15	\$194.00	\$768.00	\$2,688.00	\$2,882.00	\$2.25
T-5	Otero	9-13-10	640.00	\$ 96.00	\$ .33	\$208.80	\$384.00	\$1,344.00	\$1,553.00	\$2.43
T-6	Otero	16-13-10	640.00	\$ 96.00	\$ .33	\$208.80	\$384.00	\$1,344.00	\$1,553.00	\$2.43
7	Sierra	20-14-2W 14-15-2W	320.00	\$ 32.00	\$ .59	\$188.75	\$128.00	\$ 448.00	\$ 637.00	\$1.99
0-3	Dona Ana	19-25-2W	637.20	Withdrawn						

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
0-4	Dona Ana	26,36-25-2W	960.00	Withdrawn						
0-5	Dona Ana	29,30-25-2W	1,119.32	Withdrawn						
0-6	Dona Ana	31,32-25-2W	1,276.48	Withdrawn						
0-7	Dona Ana	2,5,6-25-3W	1,178.30	Withdrawn						
0-8	Dona Ana	9,11,16-25-3W	1,000.00	Withdrawn						
0-9	Dona Ana	23,24-25-3W	1,280.00	Withdrawn						
0-10	Dona Ana	25,36-25-3W	1,280.00	Withdrawn						
0-11	Dona Ana	30,32-25-3W	682.36	Withdrawn						
0-12	Dona Ana	32,36-25-4W	1,280.00	Withdrawn						
0-13	Dona Ana	7,18-26-2W	1,261.46	Withdrawn						
0-14	Dona Ana	16,32-26-2W	1,280.00	Withdrawn						
0-15	Dona Ana	27,28,30,35,36 26-2W	1,120.00	Withdrawn						
0-16	Dona Ana	1,2-26-3W	1,147.76	Withdrawn						
0-17	Dona Ana	12,13-26-3W	1,280.00	Withdrawn						
0-18	Dona Ana	15,16,26-26-3W	960.00	Withdrawn						
0-19	Dona Ana	32,36-26-3W	1,280.00	Withdrawn						
0-20	Dona Ana	2,16-24-4W	1,211.36	Withdrawn						
0-21	Dona Ana	2,16-27-1W	1,275.00	Withdrawn						
0-22	Dona Ana	2,16-27-3W	1,278.52	Withdrawn						
T-14	Otero	25,26-13-9	1,280.00	\$192.00	\$ .18	\$230.40	\$768.00	\$2,688.00	\$2,918.00	\$2.28
T-15	Otero	27,28-13-9	1,280.00	\$192.00	\$ .17	\$217.60	\$768.00	\$2,688.00	\$2,906.00	\$2.27
T-16	Otero	33,34-13-9	1,280.00	\$192.00	\$ .17	\$217.60	\$768.00	\$2,688.00	\$2,906.00	\$2.27
T-17	Otero	35-13-9	640.00	\$ 96.00	\$ .17	\$111.00	\$384.00	\$1,344.00	\$1,455.00	\$2.27
T-18	Otero	36-13-9	640.00	\$ 96.00	\$ .31	\$200.00	\$384.00	\$1,344.00	\$1,544.00	\$2.41
T-19	Otero	6,16,21,28 18-10	802.17	\$120.33	\$ .16	\$127.00	\$481.00	\$1,684.00	\$1,811.00	\$2.26
T-22	Otero	2,16-26-12	1,280.00	\$192.00	\$ .16	\$200.00	\$768.00	\$2,688.00	\$2,888.00	\$2.26
T-23	Sierra	16,21-16-2W	1,120.00	\$112.00	\$ .68	\$761.60	\$448.00	\$1,568.00	\$2,330.00	\$2.08
T-24	Sierra	22,23-16-2W	1,240.00	\$124.00	\$ .68	\$843.20	\$496.00	\$1,736.00	\$2,579.00	\$2.08
T-25	Sierra	25,36-16-2W	1,240.00	\$124.00	\$1.17	\$1,450.80	\$496.00	\$1,736.00	\$3,187.00	\$2.57
0-1	Otero	21,22-13-10	1,280.00	\$192.00	\$ .15	\$195.00	\$768.00	\$2,688.00	\$2,883.00	\$2.25
0-2	Otero	25-13-10	640.00	\$ 96.00	\$ .16	\$100.00	\$384.00	\$1,344.00	\$1,444.00	\$2.26
0-3	Otero	26,27-13-10	1,080.00	\$162.00	\$ .15	\$165.00	\$648.00	\$2,268.00	\$2,433.00	\$2.25
0-4	Otero	28-13-10 7-14-10	1,240.88	\$186.13	\$ .28	\$350.00	\$745.00	\$2,606.00	\$2,956.00	\$2.38

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
O-5	Otero	32-13-10	520.00	\$ 78.00	\$ .58	\$300.00	\$312.00	\$1,092.00	\$1,392.00	\$2.68
O-6	Otero	36-13-10	640.00	\$ 96.00	\$ .16	\$100.00	\$384.00	\$1,344.00	\$1,444.00	\$2.26
T-20	Otero	6,7,8,18-17-9	946.99	\$142.05	\$6.11	\$5,786.10	\$568.00	\$1,988.00	\$7,775.00	\$8.21
T-21	Otero	9,16,19,20-17-9	1,000.00	\$150.00	\$6.11	\$6,110.00	\$600.00	\$2,100.00	\$8,210.00	\$8.21
T-22	Otero	30,36-17-9	800.00	\$120.00	\$ .28	\$223.13	\$480.00	\$1,680.00	\$1,903.00	\$2.38
T-23	Otero	2,11,14-18-9	812.12	\$121.82	\$ .62	\$503.51	\$487.00	\$1,705.00	\$2,209.00	\$2.72
T-24	Otero	36-18-9	640.00	\$ 96.00	\$4.11	\$2,630.40	\$384.00	\$1,344.00	\$3,974.00	\$6.21
T-25	Otero	36-19-8	640.00	\$ 96.00	\$ .50	\$320.00	\$384.00	\$1,344.00	\$1,664.00	\$2.60
T-31	Sierra	32-13-2	640.00	Withdrawn						
T-32	Sierra	9,17-14-2W	1,280.00	\$128.00	\$ .42	\$539.00	\$512.00	\$1,792.00	\$2,331.00	\$1.82
T-33	Sierra	18,19-14-2W	1,125.48	\$112.55	\$ .42	\$474.00	\$450.00	\$1,575.00	\$2,049.00	\$1.82
T-34	Sierra	32-14-2	640.00	Withdrawn						
<u>1 9 6 9</u>										
T-1	Dona Ana	27,32-23-2W	1,000.00	\$150.00	\$ .15	\$150.00	\$600.00	\$2,100.00	\$2,250.00	\$2.25
T-2	Dona Ana	33,34,36-23-2W	160.00	\$174.00	\$ .16	\$190.00	\$696.00	\$2,436.00	\$2,626.00	\$2.26
T-3	Dona Ana	2-23-3W	640.80	\$ 96.12	\$ .16	\$101.00	\$384.00	\$1,345.00	\$1,446.00	\$2.26
T-4	Dona Ana	36-23-3W	640.00	\$ 96.00	\$ .16	\$101.00	\$384.00	\$1,344.00	\$1,445.00	\$2.26
T-5	Dona Ana	3,4,9,16-23-4W	800.00	\$120.00	\$ .15	\$120.00	\$480.00	\$1,680.00	\$1,800.00	\$2.25
T-6	Dona Ana	6,7-23-4W	1,258.40	\$188.76	\$ .15	\$188.76	\$755.00	\$2,643.00	\$2,831.00	\$2.25
T-7	Dona Ana	18,19-23-4W	1,072.82	\$160.92	\$ .15	\$160.92	\$644.00	\$2,253.00	\$2,414.00	\$2.25
T-8	Dona Ana	20,21,27,28,32 23-4W	1,080.00	\$162.00	\$ .20	\$220.00	\$648.00	\$2,268.00	\$2,488.00	\$2.30
T-9	Dona Ana	30,31-23-4W	1,256.96	\$188.54	\$ .19	\$240.00	\$754.00	\$2,639.00	\$2,879.00	\$2.29
T-10	Dona Ana	33,34,35-23-4W	680.00	\$102.00	\$ .91	\$618.80	\$408.00	\$1,428.00	\$2,047.00	\$3.01
T-11	Dona Ana	2,10-24-1W	1,117.82	\$167.67	\$ .16	\$176.00	\$671.00	\$2,348.00	\$2,524.00	\$2.26
T-12	Dona Ana	2,4,5,6-24-2W	1,241.81	\$186.27	\$ .18	\$2.25	\$745.00	\$2,608.00	\$2,834.00	\$2.28
T-13	Dona Ana	13,14,16-24-2W	1,120.00	\$168.00	\$ .19	\$210.00	\$672.00	\$2,352.00	\$2,562.00	\$2.29
T-14	Dona Ana	32,36-24-2W	1,280.00	\$192.00	\$ .18	\$235.00	\$768.00	\$2,688.00	\$2,923.00	\$2.28
T-15	Dona Ana	2,5-24-3W	927.08	\$139.06	\$ .15	\$139.06	\$556.00	\$1,947.00	\$2,086.00	\$2.25
T-16	Dona Ana	8,16-24-3W	960.00	\$144.00	\$ .15	\$144.00	\$576.00	\$2,016.00	\$2,160.00	\$2.25
T-17	Dona Ana	17,20-24-3W	960.00	\$144.00	\$ .15	\$144.00	\$576.00	\$2,016.00	\$2,160.00	\$2.25
T-18	Dona Ana	25,29,30-24-3W	738.70	\$110.81	\$ .15	\$110.81	\$443.00	\$1,551.00	\$1,662.00	\$2.25
T-19	Dona Ana	30-24-3W								
T-20	Dona Ana	6,8,18,22-24-4W 31,32-24-3W	1,045.27 981.60	\$156.79 \$147.24	\$ .15 \$ .19	\$156.86 \$190.00	\$627.00 \$589.00	\$2,195.00 \$2,061.00	\$2,352.00 \$2,251.00	\$2.25 \$2.29

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5-yr	10 yr	Rental Bid	Per Acre
T-21	Dona Ana	36-24-3W	640.00	\$ 96.00	\$ .16	\$100.00	\$384.00	\$1,344.00	\$1,444.00	\$2.26
T-22	Dona Ana	2,3-24-4W	961.76	\$144.26	\$ .91	\$875.21	\$577.00	\$2,020.00	\$2,895.00	\$3.01
T-23	Dona Ana	5,9,10-24-4W	960.24	\$144.04	\$ .91	\$873.82	\$576.00	\$2,016.00	\$2,890.00	\$3.01
T-24	Dona Ana	11,14-24-4W	1,280.00	\$192.00	\$ .91	\$1,164.80	\$768.00	\$2,688.00	\$3,853.00	\$3.01
T-25	Dona Ana	16,17-24-4W	960.00	\$144.00	\$ .15	\$ 144.00	\$576.00	\$2,016.00	\$2,160.00	\$2.25
T-26	Dona Ana	19,20-24-4W	956.48	\$143.47	\$ .18	\$170.00	\$574.00	\$2,009.00	\$2,179.00	\$2.28
T-27	Dona Ana	23,25-24-4W	1,160.00	\$174.00	\$ .17	\$200.00	\$696.00	\$1,436.00	\$2,636.00	\$2.27
T-28	Dona Ana	26,27-24-4W	1,200.00	\$180.00	\$ .15	\$180.00	\$720.00	\$2,520.00	\$2,700.00	\$2.25
T-29	Dona Ana	28,29-24-4W	1,280.00	\$192.00	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25
T-30	Dona Ana	30,32-24-4W	1,274.24	\$191.14	\$ .15	\$191.14	\$765.00	\$2,676.00	\$2,868.00	\$2.25
T-31	Dona Ana	35,36-24-4W	1,280.00	\$192.00	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25
T-32	Dona Ana	2,5-25-3W	871.00	Withdrawn						
T-33	Dona Ana	6,9,11-25-3W	667.30	Withdrawn						
T-34	Dona Ana	16-25-3W	640.00	Withdrawn						
T-35	Dona Ana	23,24-25-3W	1,280.00	Withdrawn						
T-36	Dona Ana	25,36-25-3W	1,280.00	Withdrawn						
T-37	Dona Ana	30,32-25-3W	682.36	Withdrawn						
T-38	Dona Ana	2,3-25-4W	1,277.12	\$191.57	\$ .15	\$191.57	\$766.00	\$2,682.00	\$2,873.00	\$2.25
T-39	Dona Ana	10,15-25-4W	880.00	\$132.00	\$ .15	\$132.00	\$528.00	\$1,848.00	\$1,980.00	\$2.25
T-40	Dona Ana	16,21,22-25-4W	960.00	\$144.00	\$ .15	\$144.00	\$576.00	\$2,016.00	\$2,160.00	\$2.25
T-41	Dona Ana	32,36-25-4W	1,280.00	Withdrawn						
T-42	Dona Ana	1,2-26-3W	1,147.76	Withdrawn						
T-43	Dona Ana	12,13-26-3W	1,280.00	Withdrawn						
T-44	Dona Ana	15,16,26-26-3W	960.00	Withdrawn						
T-45	Dona Ana	32,36-26-3W	1,280.00	Withdrawn						
T-46	Dona Ana	2,16-26-4W	1,211.36	Withdrawn						
T-47	Dona Ana	5,6-26-4W	977.59	\$146.64	\$ .15	\$146.64	\$587.00	\$2,053.00	\$2,200.00	\$2.25
T-48	Dona Ana	7,8-26-4W	1,268.52	\$190.28	\$ .15	\$190.28	\$761.00	\$2,664.00	\$2,854.00	\$2.25
T-49	Dona Ana	2,16-27-2W	1,281.56	\$192.23	\$ .15	\$192.23	\$769.00	\$2,691.00	\$2,884.00	\$2.25
T-50	Dona Ana	2,16-27-3W	1,278.52	Withdrawn						
T-51	Dona Ana	1,2-27-4W	718.64	\$107.80	\$ .15	\$107.80	\$431.00	\$1,509.00	\$1,617.00	\$2.25
115	Sierra	32-15-2	640.00	\$ 64.00	\$ .28	\$179.20	\$256.00	\$ 896.00	\$1,075.00	\$1.68
0-55	Dona Ana	32-24-3	560.60	\$ 84.00	\$ .80	\$450.00	\$336.00	\$1,177.00	\$1,627.00	\$2.90
0-56	Dona Ana	16,32-26-4	1,044.56	\$156.68	\$ .62	\$650.00	\$627.00	\$2,194.00	\$2,844.00	\$2.72
T-15	Otero	36-17-8								
		32-17-9	1,280.00	\$192.00	\$5.30	\$6,784.00	\$768.00	\$2,688.00	\$9,472.00	\$7.40

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
T-16	Otero	36-18-8								
		32-18-9	960.00	\$144.00	\$4.00	\$3,840.00	\$576.00	\$2,016.00	\$5,856.00	\$6.10
T-17	Otero	3,10-18-9	1,012.24	\$151.84	\$1.50	\$1,521.00	\$607.00	\$2,125.00	\$3,646.00	\$3.60
T-18	Otero	21,32-18-9	960.00	\$144.00	\$1.72	\$1,652.50	\$576.00	\$2,016.00	\$3,669.00	\$3.82
T-19	Otero	16,32-19-9	1,280.00	\$192.00	\$ .53	\$678.40	\$768.00	\$2,688.00	\$3,366.00	\$2.63
T-20	Otero	2-20-8	734.68	\$110.20	\$7.03	\$5,167.00	\$441.00	\$1,543.00	\$6,710.00	\$9.13
T-21	Otero	16,36-20-8	1,280.00	\$192.00	\$3.26	\$4,167.00	\$768.00	\$2,688.00	\$6,855.00	\$5.36
T-22	Otero	16,36-20-9	1,280.00	Withdrawn before sale						
0-4	Sierra	13,36-14-1	800.00	\$ 80.00	\$ .13	\$100.00	\$320.00	\$1,120.00	\$1,220.00	\$1.53
0-5	Sierra	21,26-14-1W								
		29,32-14-1	920.00	\$ 92.00	\$ .11	\$100.00	\$368.00	\$1,288.00	\$1,388.00	\$1.51
0-6	Sierra	2,16-15-1	1,267.34	\$126.73	\$ .10	\$130.00	\$507.00	\$1,774.00	\$1,904.00	\$1.50
0-7	Sierra	32,36-15-1	1,280.00	\$128.00	\$ .10	\$130.00	\$512.00	\$1,792.00	\$1,922.00	\$1.50
0-8	Sierra	2,16-16-1	1,276.56	\$127.66	\$1.10	\$1,400.00	\$511.00	\$1,788.00	\$3,188.00	\$2.50
0-9	Sierra	22,23,27,28-16-1	480.00	\$48.00	\$1.25	\$ 600.00	\$192.00	\$ 672.00	\$1,272.00	\$2.65
0-10	Sierra	32,36-16-1	1,280.00	\$128.00	\$1.09	\$1,400.00	\$512.00	\$1,792.00	\$3,192.00	\$2.49
0-11	Sierra	2,4-16-1W	1,276.37	\$127.64	\$1.02	\$1,300.00	\$511.00	\$1,787.00	\$3,087.00	\$2.42
0-12	Sierra	3,26-16-1W	719.56	\$ 71.96	\$1.11	\$ 800.00	\$288.00	\$1,008.00	\$1,808.00	\$2.51
0-13	Sierra	5,6,8,9,28-16-1W	1,264.96	\$126.50	\$1.95	\$1,400.00	\$506.00	\$1,771.00	\$3,171.00	\$4.41
0-14	Sierra	16,22,26-16-1W	1,160.00	\$116.00	\$1.12	\$1,300.00	\$464.00	\$1,624.00	\$2,924.00	\$2.52
0-15	Sierra	27-16-1W	640.00	\$ 64.00	\$1.09	\$ 700.00	\$256.00	\$ 896.00	\$1,596.00	\$2.49
0-16	Sierra	34,36-16-1W	960.00	\$ 96.00	\$1.04	\$1,000.00	\$384.00	\$2,016.00	\$3,016.00	\$3.14
0-17	Sierra	2,3-17-1W	1,046.95	\$104.70	\$1.05	\$1,100.00	\$419.00	\$1,466.00	\$2,566.00	\$2.45
0-18	Sierra	5,8,9-17-1W	1,001.85	\$100.19	\$1:10	\$1,100.00	\$401.00	\$1,403.00	\$2,503.00	\$2.50
0-19	Sierra	10,15,16-17-1W	1,000.00	\$100.00	\$1.55	\$1,550.00	\$400.00	\$1,400.00	\$2,950.00	\$2.95
0-20	Sierra	32,36-17-1W	1,280.00	\$128.00	\$1.02	\$1,300.00	\$512.00	\$1,792.00	\$3,092.00	\$2.42
T-1	Dona Ana	2,16-25-2W	1,276.00	\$191.40	\$ .15	\$191.40	\$766.00	\$2,680.00	\$2,871.00	\$2.25
26	Otero	1,2-14-9	1,282.08	\$192.31	\$ .16	\$210.00	\$769.00	\$2,692.00	\$2,902.00	\$2.26
27	Otero	3,4-14-9	1,080.72	\$162.11	\$ .16	\$177.00	\$648.00	\$2,269.00	\$2,446.00	\$2.26
28	Otero	16-14-9	640.00	\$ 96.00	\$ .21	\$136.00	\$384.00	\$1,344.00	\$1,480.00	\$2.31
32	Sierra	1,2-15-2W	1,267.69	\$126.77	\$ .64	\$813.00	\$507.00	\$1,775.00	\$2,588.00	\$2.04
33	Sierra	3,5,6-15-2W	911.49	\$ 91.15	\$ .64	\$585.00	\$365.00	\$1,277.00	\$1,862.00	\$2.04
34	Sierra	7,8,11-15-2W	881.89	\$ 88.19	\$ .43	\$381.00	\$353.00	\$1,235.00	\$1,616.00	\$1.83
35	Sierra	12,13-15-2W	1,240.00	\$124.00	\$ .43	\$535.00	\$496.00	\$1,736.00	\$2,271.00	\$1.83
36	Sierra	16,18-15-2W	961.00	\$ 96.10	\$ .42	\$405.00	\$384.00	\$1,345.00	\$1,750.00	\$1.82

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
37	Sierra	24,25-15-2W	1,120.00	\$112.00	\$ .25	\$281.00	\$448.00	\$1,568.00	\$1,849.00	\$1.65
38	Sierra	32,36-15-2W	960.00	\$ 96.00	\$ .44	\$422.40	\$384.00	\$2,016.00	\$2,438.00	\$2.54
0-7	Otero	27,36-14-10	1,000.00	\$150.00	\$ .38	\$375.00	\$600.00	\$2,100.00	\$2,475.00	\$2.48
0-8	Otero	2,16-18-8	1,279.24	\$191.89	\$4.69	\$6,000.00	\$768.00	\$2,687.00	\$8,687.00	\$6.79
0-9	Otero	15,16-18-9	1,280.00	\$192.00	\$ .20	\$250.00	\$768.00	\$2,688.00	\$2,938.00	\$2.30
0-10	Otero	2,16-19-8	1,278.24	\$191.74	\$1.25	\$1,600.00	\$767.00	\$2,684.00	\$4,284.00	\$3.35
T-2	Dona Ana	2,16-26-5	1,287.88	\$193.18	\$ .15	\$193.18	\$773.00	\$2,705.00	\$2,898.00	\$2.25
T-3	Dona Ana	32,36-26-5	695.48	Withdrawn						
T-4	Dona Ana	2,6-26-2W	1,136.95	\$170.54	\$ .20	\$222.00	\$682.00	\$2,387.00	\$2,609.00	\$2.30
T-5	Dona Ana	32,36-26-4W	1,280.00	\$192.00	\$ .32	\$411.40	\$768.00	\$2,688.00	\$3,099.00	\$2.42
T-6	Dona Ana	32-28-3	640.00	\$ 96.00	\$1.86	\$1,191.40	\$384.00	\$1,344.00	\$2,535.00	\$3.96
42	Otero	16-15-11	640.00	\$ 96.00	\$ .16	\$100.00	\$384.00	\$1,344.00	\$1,444.00	\$2.26
44	Sierra	2,16-14-1	1,276.99	\$127.70	\$1.21	\$1,545.17	\$511.00	\$1,788.00	\$3,333.00	\$2.61
45	Sierra	32,36-14-1W	1,280.00	\$128.00	\$1.21	\$1,548.80	\$512.00	\$1,792.00	\$3,341.00	\$2.61
0-1	Dona Ana	2,16-22-3W	1,281.84	\$192.28	\$ .15	\$192.28	\$769.00	\$2,692.00	\$2,884.00	\$2.25
0-2	Dona Ana	18,19-22-3W	231.31	\$ 34.70	\$ .52	\$120.00	\$139.00	\$ 486.00	\$ 606.00	\$2.62
0-3	Dona Ana	21,28-22-3W	800.00	\$120.00	\$ .16	\$130.00	\$480.00	\$1,680.00	\$1,810.00	\$2.26
0-4	Dona Ana	31,32-22-3W	1,265.04	\$189.76	\$ .17	\$210.00	\$759.00	\$2,657.00	\$2,867.00	\$2.27
0-5	Dona Ana	33,34-22-3W	800.00	\$120.00	\$ .15	\$120.00	\$480.00	\$1,680.00	\$1,800.00	\$2.25
0-6	Dona Ana	4,6-23-3W	784.68	\$117.70	\$ .19	\$150.00	\$471.00	\$1,648.00	\$1,798.00	\$2.29
0-7	Dona Ana	7,30-23-3W	936.86	\$140.53	\$ .16	\$150.00	\$562.00	\$1,967.00	\$2,117.00	\$2.26
0-8	Dona Ana	32-23-3W	640.00	\$ 96.00	\$ .19	\$120.00	\$384.00	\$1,344.00	\$1,464.00	\$2.29
0-9	Dona Ana	2,36-23-4W	1,280.64	\$192.10	\$ .19	\$250.00	\$768.00	\$2,689.00	\$2,939.00	\$2.29
T-13	Sierra	32,33,36-11-1	809.33	\$ 80.93	\$3.62	\$2,930.00	\$324.00	\$1,133.00	\$4,063.00	\$5.02
T-14	Sierra	34,35,36-11-1W	580.54	\$ 58.05	\$3.63	\$2,108.00	\$232.00	\$ 813.00	\$2,921.00	\$5.03
T-15	Socorro	16,17-5-2	677.28	\$ 67.73	\$ .16	\$110.00	\$271.00	\$ 948.00	\$1,058.00	\$1.56
T-16	Socorro	32-5-2	640.00	\$ 64.00	\$ .16	\$100.00	\$256.00	\$ 896.00	\$ 996.00	\$1.56
0-1	Dona Ana	2,15-23-1W	887.03	\$133.05	\$ .15	\$133.05	\$532.00	\$1,863.00	\$1,996.00	\$2.25
0-2	Dona Ana	16-23-1W	640.00	\$ 96.00	\$ .16	\$100.00	\$384.00	\$1,344.00	\$1,444.00	\$2.26
0-3	Dona Ana	32,36-23-1W	1,280.00	\$192.00	\$ .17	\$212.67	\$768.00	\$2,688.00	\$2,901.00	\$2.27
0-4	Dona Ana	1,2-23-2W	1,278.56	\$191.78	\$ .16	\$207.18	\$767.00	\$2,685.00	\$2,892.00	\$2.26
0-5	Dona Ana	11,12-23-2W	800.00	\$120.00	\$ .18	\$142.12	\$480.00	\$1,680.00	\$1,822.00	\$2.28
0-6	Dona Ana	13,14,23-23-2W	960.00	\$144.00	\$ .17	\$160.00	\$576.00	\$2,016.00	\$2,176.00	\$2.27



Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
0-7	Dona Ana	24,26-23-2W	800.00	\$120.00	\$ .16	\$131.47	\$480.00	\$1,680.00	\$1,811.00	\$2.26
0-8	Dona Ana	27,32-23-2W	1,000.00	Withdrawn						
0-9	Dona Ana	33,34,36-23-2W	1,160.00	Withdrawn						
0-10	Dona Ana	2,10-24-1W	1,117.82	Withdrawn						
0-11	Dona Ana	15,16-24-1W	800.00	\$120.00	\$ .16	\$131.42	\$480.00	\$1,680.00	\$1,811.00	\$2.26
0-12	Dona Ana	17,18,21,22-24-1W	878.60	\$131.79	\$ .15	\$131.87	\$527.00	\$1,845.00	\$1,977.00	\$2.25
0-13	Dona Ana	32,36-24-1W	1,280.00	\$192.00	\$ .16	\$210.00	\$768.00	\$2,688.00	\$2,898.00	\$2.26
0-14	Dona Ana	2,16-25-1W	1,278.24	\$191.74	\$ .17	\$212.61	\$767.00	\$2,684.00	\$2,897.00	\$2.27
0-15	Dona Ana	31,32,33-251W	999.68	\$149.95	\$ .17	\$165.00	\$600.00	\$2,100.00	\$2,265.00	\$2.27
0-16	Dona Ana	36-25-1W	640.00	\$ 96.00	\$ .17	\$110.00	\$384.00	\$1,344.00	\$1,454.00	\$2.27
0-17	Dona Ana	2,4,5-26-1W	1,180.30	\$177.05	\$ .17	\$196.60	\$708.00	\$2,478.00	\$2,675.00	\$2.27
0-18	Dona Ana	8,9,10,16-261W	1,280.00	\$192.00	\$ .17	\$212.80	\$768.00	\$2,688.00	\$2,901.00	\$2.27
0-19	Dona Ana	32,36-26-1W	1,280.00	\$192.00	\$ .17	\$215.12	\$768.00	\$2,688.00	\$2,903.00	\$2.27
0-20	Dona Ana	2,16-27-3W	1,278.52	Withdrawn						
0-21	Dona Ana	1,2-27-4W	718.64	Withdrawn						
0-22	Dona Ana	16-27-4W	640.00	\$ 96.00	\$ .16	\$100.16	\$384.00	\$1,344.00	\$1,444.00	\$2.26
0-23	Dona Ana	2,16-27-5W	1,278.84	Withdrawn						
0-24	Dona Ana	32,36-27-5W	1,280.00	\$192.00	\$ .17	\$220.00	\$768.00	\$2,688.00	\$2,908.00	\$2.27
0-25	Dona Ana	2,16-28-3W	1,278.52	\$191.78	\$ .16	\$210.12	\$767.00	\$2,585.00	\$2,895.00	\$2.26
155	Sierra	2,10-14-2W	879.16	\$ 87.92	\$ .44	\$390.00	\$352.00	\$1,231.00	\$1,621.00	\$1.84
156	Sierra	6,7,8-14-2W	1,240.48	\$124.05	\$ .19	\$240.00	\$496.00	\$1,737.00	\$1,977.00	\$1.59
157	Sierra	14,15,22-14-2W	720.00	\$ 72.00	\$ .44	\$316.80	\$288.00	\$1,008.00	\$1,325.00	\$1.84
158	Sierra	28,34,35-14-2W	800.00	\$ 80.00	\$ .18	\$140.00	\$320.00	\$1,120.00	\$1,260.00	\$1.58
159	Sierra	32-14-2W	640.00	\$ 64.00	\$ .38	\$240.00	\$256.00	\$ 896.00	\$1,136.00	\$1.78
160	Sierra	16,32-14-3W	1,240.00	\$ 124.00	\$ .10	\$124.00	\$496.00	\$1,736.00	\$1,860.00	\$1.50
161	Sierra	36-14-3W	640.00	\$ 64.00	\$ .20	\$130.00	\$256.00	\$ 896.00	\$1,026.00	\$1.60
162	Sierra	2,18,32-15-3W	880.00	\$ 88.00	\$ .11	\$100.00	\$352.00	\$1,232.00	\$1,332.00	\$1.51
163	Sierra	32-16-2	640.00	\$ 96.00	\$ .37	\$235.00	\$384.00	\$1,344.00	\$1,579.00	\$2.47
164	Sierra	32-17-2	640.00	\$ 64.00	\$ .37	\$235.00	\$256.00	\$ 896.00	\$1,131.00	\$1.77
T-52	Dona Ana	16,32-20-1	1,280.00	\$192.00	\$ .61	\$786.40	\$768.00	\$2,688.00	\$3,474.00	\$2.71
T-53	Dona Ana	36-20-1	640.00	\$ 96.00	\$ .62	\$393.75	\$384.00	\$1,344.00	\$1,738.00	\$2.72
79	Lincoln	2,3,10,15,22 7-10	1,280.05	\$192.01	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25
80	Lincoln	3,15,21,23 7-10	786.57	\$117.99	\$ .15	\$117.99	\$472.00	\$1,652.00	\$1,770.00	\$2.25
81	Lincoln	24,25,26,27,28,31, 33,34-7-10	1,000.00	\$150.00	\$ .15	\$150.00	\$600.00	\$2,100.00	\$2,250.00	\$2.25
82	Lincoln	25,28,36-7-10	800.00	\$120.00	\$ .15	\$120.00	\$480.00	\$1,680.00	\$1,800.00	\$2.25

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
83	Lincoln	31,32,33-7-10	1,000.00	\$150.00	\$ .15	\$150.00	\$600.00	\$2,100.00	\$2,250.00	\$2.25
84	Lincoln	2,3-9-9	1,117.66	\$167.65	\$ .15	\$167.65	\$671.00	\$2,347.00	\$2,515.00	\$2.25
85	Lincoln	4,5,6,9-9-9	875.85	\$131.38	\$ .18	\$160.00	\$526.00	\$1,840.00	\$1,990.00	\$2.28
86	Lincoln	13,14-9-9	1,280.00	\$192.00	\$ .16	\$207.00	\$768.00	\$2,688.00	\$2,895.00	\$2.26
87	Lincoln	15,16,17-9-9	840.00	\$126.00	\$ .15	\$126.00	\$504.00	\$1,764.00	\$1,890.00	\$2.25
88	Lincoln	19,20,21,27, 28,30-9-9	717.80	\$107.67	\$ .15	\$107.67	\$431.00	\$1,508.00	\$1,615.00	\$2.25
89	Lincoln	23,24-9-9	1,280.00	\$192.00	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25
90	Lincoln	25,26,33,34-9-9	680.00	\$102.00	\$ .15	\$102.00	\$408.00	\$1,428.00	\$1,530.00	\$2.25
91	Lincoln	35,36-9-9	960.00	\$144.00	\$ .15	\$144.00	\$576.00	\$2,016.00	\$2,160.00	\$2.25
137	Otero	2-15-9								
		2-15-10	482.00	\$ 72.30	\$2.85	\$1,376.00	\$289.00	\$1,012.00	\$2,388.00	\$4.95
138	Otero	16-15-10	640.00	\$96.00	\$2.85	\$1,827.00	\$384.00	\$1,344.00	\$3,171.00	\$4.95
139	Otero	32,36-15-10	720.00	\$108.00	\$2.85	\$2,052.00	\$432.00	\$1,512.00	\$3,564.00	\$4.95
140	Otero	3,7,8-16-9	600.00	\$ 90.00	\$2.85	\$1,710.00	\$360.00	\$1,260.00	\$2,970.00	\$4.95
141	Otero	15,16-16-9	800.00	\$120.00	\$2.88	\$2,305.00	\$480.00	\$1,680.00	\$3,985.00	\$4.98
142	Otero	17,18,20-16-9	946.98	\$142.05	\$2.89	\$2,736.78	\$568.00	\$1,988.00	\$4,725.00	\$4.99
143	Otero	36-16-9	480.00	\$ 72.00	\$2.85	\$1,368.00	\$288.00	\$1,008.00	\$2,376.00	\$4.95
174	Sierra	2,4-15-1W	888.01	\$ 88.80	\$ .78	\$693.42	\$355.00	\$1,243.00	\$1,936.00	\$2.18
175	Sierra	5,6-15-1W	1,136.11	\$113.61	\$1.13	\$1,289.85	\$454.00	\$1,590.00	\$2,880.00	\$2.53
176	Sierra	7,8-15-1W	1,280.06	\$128.00	\$1.13	\$1,448.60	\$512.00	\$1,792.00	\$3,241.00	\$2.53
177	Sierra	9,16,17-15-1W	960.00	\$ 96.00	\$ .77	\$739.20	\$384.00	\$1,344.00	\$2,083.00	\$2.17
178	Sierra	18,19-15-1W	1,119.38	\$111.94	\$ .77	\$861.92	\$448.00	\$1,567.00	\$2,429.00	\$2.17
179	Sierra	20,21-15-1W	920.00	\$ 92.00	\$1.13	\$1,037.40	\$368.00	\$1,288.00	\$2,325.00	\$2.53
180	Sierra	28,29-15-1W	720.00	\$ 72.00	\$ .77	\$554.40	\$288.00	\$1,008.00	\$1,562.00	\$2.17
181	Sierra	30,31-15-1W	961.18	\$ 96.12	\$ .77	\$740.11	\$384.00	\$1,345.00	\$2,085.00	\$2.17
182	Sierra	32,33-15-1W	960.00	\$ 96.00	\$1.13	\$1,081.65	\$384.00	\$1,344.00	\$2,426.00	\$2.53
183	Sierra	36-15-1W	640.00	\$ 64.00	\$ .78	\$499.20	\$256.00	\$ 896.00	\$1,395.00	\$2.18
186	Socorro	2,16-3-3	1,284.04	\$128.40	\$ .11	\$141.21	\$514.00	\$1,798.00	\$1,939.00	\$1.51
0-18	Otero	16-15-9	640.00	\$ 96.00	\$1.88	\$1,200.00	\$384.00	\$1,344.00	\$2,544.00	\$3.98
0-19	Otero	36-15-9	640.00	\$ 96.00	\$2.73	\$1,750.00	\$384.00	\$1,344.00	\$3,094.00	\$4.83
T-1	Dona Ana	2,16,32-22-2	1,204.90	\$180.74	\$ .53	\$640.60	\$723.00	\$2,530.00	\$3,171.00	\$2.63
T-2	Dona Ana	36-22-2 2,11,21-22-3	1,171.12	\$175.67	\$ .53	\$622.89	\$703.00	\$2,460.00	\$3,083.00	\$2.63

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
T-3	Dona Ana	14,23-22-3								
		20-22-4	920.00	\$138.00	\$ .53	\$490.00	\$552.00	\$1,932.00	\$2,422.00	\$2.63
T-4	Dona Ana	2,36-23-2	1,280.38	\$192.06	\$ .53	\$682.75	\$768.00	\$2,689.00	\$3,371.00	\$2.63
T-5	Dona Ana	2,16-23-3	1,092.50	\$163.88	\$.54	\$585.49	\$656.00	\$2,295.00	\$2,880.00	\$2.64
T-6	Dona Ana	25,32-23-3	1,240.00	\$186.00	\$ .53	\$660.66	\$744.00	\$2,604.00	\$3,265.00	\$2.63
T-7	Dona Ana	16,32-24-1	1,280.00	Withdrawn						
T-8	Dona Ana	36-24-1								
		2,32-24-2	1,120.84	Withdrawn						
T-9	Dona Ana	2,11-24-3	800.32	\$120.05	\$ .53	\$427.40	\$480.00	\$1,681.00	\$2,108.00	\$2.63
T-10	Dona Ana	12,14,34-24-3	360.00	\$ 54.00	\$ .54	\$192.62	\$216.00	\$756.00	\$949.00	\$2.64
T-11	Dona Ana	16,36-24-3	1,280.00	\$192.00	\$ .53	\$681.39	\$768.00	\$2,688.00	\$3,369.00	\$2.63
T-12	Dona Ana	2,16-25-1(36-25	1,279.29	\$191.89	\$ .15	\$195.00	\$768.00	\$2,687.00	\$2,882.00	\$2.25
T-13	Dona Ana	2,16-25-2 <sup>-1</sup> )	1,247.16	\$187.07	\$ .53	\$666.66	\$748.00	\$2,619.00	\$3,285.00	\$2.63
T-14	Dona Ana	32,36-25-2	1,120.00	\$168.00	\$ .54	\$600.30	\$672.00	\$2,352.00	\$2,952.00	\$2.64
T-15	Dona Ana	1,2,11,12,16,								
		32-25-3	1,218.47	\$182.77	\$ .53	\$651.82	\$731.00	\$2,559.00	\$3,211.00	\$2.63
T-16	Dona Ana	2,36-26-1	1,238.14	\$185.72	\$ .54	\$662.62	\$743.00	\$2,600.00	\$3,263.00	\$2.64
T-17	Dona Ana	2,16-26-2	1,161.42	\$174.21	\$ .53	\$620.21	\$697.00	\$2,439.00	\$3,059.00	\$2.63
T-18	Dona Ana	32,36-26-2	1,276.82	\$191.52	\$ .53	\$680.88	\$766.00	\$2,681.00	\$3,362.00	\$2.63
T-19	Dona Ana	2,16,36-26-3	1,140.87	\$171.13	\$ .54	\$610.90	\$685.00	\$2,396.00	\$3,007.00	\$2.64
T-20	Dona Ana	2,10,14,15-27-1	1,278.88	\$191.83	\$ .53	\$681.77	\$767.00	\$2,685.00	\$3,367.00	\$2.63
T-21	Dona Ana	16,32-27-1	1,280.00	\$192.00	\$ .53	\$683.45	\$768.00	\$2,688.00	\$3,371.00	\$2.63
T-22	Dona Ana	36-27-1								
		32-27-2	1,280.00	\$192.00	\$ .53	\$684.50	\$768.00	\$2,688.00	\$3,373.00	\$2.63
T-23	Dona Ana	2,16-27-2	1,276.38	\$191.46	\$ .54	\$682.82	\$766.00	\$2,681.00	\$3,363.00	\$2.64
75	Sierra	1,2-12-1W	1,283.56	\$128.36	\$1.57	\$2,016.39	\$513.00	\$1,797.00	\$3,813.00	\$2.97
76	Sierra	3,4,9-12-1W	838.67	\$ 83.87	\$1.58	\$1,326.30	\$335.00	\$1,174.00	\$2,500.00	\$2.98
77	Sierra	10,11-12-1W	1,280.00	\$128.00	\$1.58	\$2,023.60	\$512.00	\$1,792.00	\$3,816.00	\$2.98
78	Sierra	12,13-12-1W	1,280.00	\$128.00	\$1.57	\$2,010.80	\$512.00	\$1,792.00	\$3,803.00	\$2.97
79	Sierra	14,15-12-1W	1,280.00	\$128.00	\$1.56	\$1,998.00	\$512.00	\$1,792.00	\$3,790.00	\$2.96
80	Sierra	16,17,20-12-1W	955.91	\$95.59	\$1.56	\$1,492.42	\$382.00	\$1,338.00	\$2,830.00	\$2.96
81	Sierra	21,22-12-1W	1,280.00	\$128.00	\$1.58	\$2,023.60	\$512.00	\$1,792.00	\$3,816.00	\$2.98
82	Sierra	23,24-12-1W	1,280.00	\$128.00	\$1.59	\$2,036.40	\$512.00	\$1,792.00	\$3,828.00	\$2.99
83	Sierra	25,26-12-1W	1,280.00	\$128.00	\$1.58	\$2,023.60	\$512.00	\$1,792.00	\$3,816.00	\$2.98
84	Sierra	27,28-12-1W	1,280.00	\$128.00	\$1.57	\$2,010.80	\$512.00	\$1,792.00	\$3,803.00	\$2.97
85	Sierra	29,30,31-12-1W	1,065.25	\$106.53	\$1.56	\$1,662.99	\$426.00	\$1,491.00	\$3,154.00	\$2.96
86	Sierra	32,33-12-1W	1,280.00	\$128.00	\$1.56	\$1,998.00	\$512.00	\$1,792.00	\$3,790.00	\$2.96
87	Sierra	34,35-12-1W	1,280.00	\$1.28	\$1.57	\$2,010.80	\$512.00	\$1,792.00	\$3,803.00	\$2.97

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
88	Sierra	36-12-1W								
		36-13-1W	1,280.00	\$128.00	\$1.56	\$1,998.00	\$512.00	\$1,792.00	\$3,790.00	\$2.96
89	Sierra	2,5-13-1W	1,268.81	\$126.88	\$1.56	\$1,980.55	\$508.00	\$1,777.00	\$3,757.00	\$2.96
90	Sierra	6,7-13-1W	801.98	\$ 80.20	\$1.56	\$1,252.29	\$321.00	\$1,123.00	\$2,375.00	\$2.96
91	Sierra	16,32-13-1W	1,280.00	\$128.00	\$ .10	\$131.00	\$512.00	\$1,792.00	\$1,923.00	\$1.50
92	Sierra	32,36-14-5W	1,280.00	\$128.00	\$ .10	\$128.00	\$512.00	\$1,792.00	\$1,920.00	\$1.50
93	Sierra	2,16-15-5W	1,296.24	\$129.62	\$ .10	\$129.62	\$518.00	\$1,814.00	\$1,944.00	\$1.50
94	Sierra	2,4,18-12-1	904.34	\$ 90.43	\$1.58	\$1,430.06	\$362.00	\$1,266.00	\$2,696.00	\$2.98
95	Sierra	16,21,27-12-1	960.00	\$ 96.00	\$1.59	\$1,527.60	\$384.00	\$1,344.00	\$2,872.00	\$2.99
96	Sierra	32,36-12-1	1,258.98	\$125.90	\$1.57	\$1,977.80	\$504.00	\$1,763.00	\$3,741.00	\$2.97
97	Sierra	2,10-13-1	958.40	\$ 95.84	\$ .18	\$ 175.00	\$383.00	\$1,341.00	\$1,516.00	\$1.58
98	Sierra	9,16-13-1	960.00	\$ 96.00	\$ .14	\$ 130.00	\$384.00	\$1,344.00	\$1,474.00	\$1.54
99	Sierra	32,36-13-1	1,280.00	\$128.00	\$ .10	\$ 130.00	\$512.00	\$1,792.00	\$1,922.00	\$1.50
T-54	Lincoln	32,36-6-9	1,280.00	\$128.00	\$ .26	\$335.00	\$512.00	\$1,792.00	\$2,127.00	\$1.66
T-55	Lincoln	36-6-10								
		16-7-10	1,134.08	\$170.11	\$ .23	\$260.84	\$680.00	\$2,381.00	\$2,642.00	\$2.33
T-56	Lincoln	8,27-6-11	800.00	\$120.00	\$ .23	\$184.00	\$480.00	\$1,680.00	\$1,864.00	\$2.33
T-57	Lincoln	32,35,36-6-11	879.14	\$131.87	\$ .23	\$202.20	\$527.00	\$1,846.00	\$2,048.00	\$2.33
0-41	Otero	2,16,28,33-11-9	1,052.00	\$157.80	\$ .20	\$210.00	\$631.00	\$2,209.00	\$2,419.00	\$2.30
0-42	Otero	36-11-9	960.24	\$144.04	\$ .15	\$145.00	\$576.00	\$2,016.00	\$2,161.00	\$2.25
		2-12-9								
0-43	Otero	1,2,24,25-11-9								
		6,17,18,19,20-11-10	1,274.06	\$191.11	\$ .15	\$195.00	\$764.00	\$2,675.00	\$2,870.00	\$2.25
0-44	Otero	11,12,16,22,27,32								
		11-9; 8-12-10	1,162.03	\$174.30	\$ .15	\$175.00	\$697.00	\$2,440.00	\$2,615.00	\$2.25
0-45	Otero	4,9,16-12-9	1,279.40	\$191.91	\$ .15	\$195.00	\$768.00	\$2,687.00	\$2,882.00	\$2.25
0-46	Otero	9,10,15-12-9	1,280.00	Withdrawn						
0-47	Otero	21,22-12-9	1,280.00	\$192.00	\$ .15	\$195.00	\$768.00	\$2,688.00	\$2,883.00	\$2.25
0-48	Otero	23,26-12-9	1,280.00	\$192.00	\$ .15	\$195.00	\$768.00	\$2,688.00	\$2,883.00	\$2.25
0-49	Otero	25,35-12-9	480.00	\$ 72.00	\$ .21	\$100.00	\$288.00	\$1,008.00	\$1,108.00	\$2.31
0-50	Otero	27-12-9	640.00	\$ 96.00	\$ .16	\$100.00	\$384.00	\$1,344.00	\$1,444.00	\$2.26
0-51	Otero	28,33-12-9	1,280.00	\$192.00	\$ .15	\$192.00	\$768.00	\$2,688.00	\$2,880.00	\$2.25
0-52	Otero	34,35-12-9	800.00	Withdrawn						
0-53	Otero	36-12-9								
		32-12-10	1,280.00	Withdrawn						
0-54	Otero	1,11,12-12-10	931.54	Withdrawn						
0-55	Otero	3,4-12-10	1,227.48	Withdrawn						

Tract	County	Loc SE	Acres	Min.	Acres	Bid	Rentals		Value	
						Total	5 yr	10 yr	Rental Bid	Per Acre
0-56	Otero	5,9-12-10	1,284.60			Withdrawn				
0-57	Otero	10,15-12-10	1,160.00			Withdrawn				
0-58	Otero	13,24,25-12-10	1,208.76			Withdrawn				
0-59	Otero	14,23-12-10	1,280.00			Withdrawn				
0-60	Otero	21,22,28-12-10	1,280.00			Withdrawn				
0-61	Otero	26,27-12-10	1,280.00			Withdrawn				
0-62	Otero	33,34-12-10	920.00			Withdrawn				
0-63	Otero	35-12-10	640.00			Withdrawn				
0-64	Otero	36-12-10	407.16			Withdrawn				
T-1	Dona Ana	2,16-28-1	1,278.72	\$191.81	\$ .15	\$191.81	\$767.00	\$2,685.00	\$2,877.00	\$2.25
T-2	Dona Ana	32-28-1								
		16-29-1	1,021.83	\$153.27	\$ .20	\$204.37	\$613.00	\$2,146.00	\$2,350.00	\$2.30
T-3	Dona Ana	2,16-28-2	1,279.10	\$191.87	\$ .64	\$819.62	\$767.00	\$2,686.00	\$3,505.00	\$2.74
T-4	Dona Ana	7,32-28-2								
		16-29-2	1,102.57	\$165.39	\$ .68	\$750.74	\$662.00	\$2,316.00	\$3,067.00	\$2.78
T-5	Dona Ana	36-28-2								
		2-29-2	1,280.00	\$192.00	\$ .64	\$820.20	\$768.00	\$2,688.00	\$3,508.00	\$2.74
34	Lincoln	2,16-6-9	1,382.12			Withdrawn				
35	Lincoln	3,4,5-6-11	1,160.00			Withdrawn				
36	Lincoln	9,16-6-11	1,120.00			Withdrawn				
37	Lincoln	2,3,10,15,22								
		7-10	1,280.05			Withdrawn				
38	Lincoln	15,20,21,22,23,24								
		7-10	1,258.34			Withdrawn				
39	Lincoln	28,30,31,32,33								
		7-10	1,138.59			Withdrawn				
40	Lincoln	1,3,4-7-11	1,221.73			Withdrawn				
41	Lincoln	2,3,16,20-7-11	1,240.55			Withdrawn				
42	Lincoln	5,6-7-11	1,243.25			Withdrawn				
43	Lincoln	7,8-7-11	1,281.55			Withdrawn				
44	Lincoln	18,19-7-11	1,079.19			Withdrawn				
45	Lincoln	21,22-7-11	760.00			Withdrawn				
46	Lincoln	26-7-11	320.00			Withdrawn				
47	Lincoln	2,36-8-8	1,278.40			Withdrawn				
48	Lincoln	2,13-8-9	1,280.00			Withdrawn				
49	Lincoln	16,31-8-9	1,254.73			Withdrawn				

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Rental Bid	Value Per Acre
					Acres	Total	5 yr	10 yr		
50	Lincoln	32,36-8-9	1,280.00	Withdrawn						
51	Lincoln	7,8-8-10	1,120.64	Withdrawn						
78	Socorro	22,23,26,27,36 6-8	960.00	\$ 96.00	\$ .10	\$100.00	\$384.00	\$1,344.00	\$1,444.00	\$1.50
0-1	Dona Ana	36-28-1 2-29-1	1,280.00	\$192.00	\$ .86	\$1,100.00	\$768.00	\$2,688.00	\$3,788.00	\$2.96
0-45	Lincoln	2,16-7-9	1,280.00	\$192.00	\$ .47	\$600.00	\$768.00	\$2,688.00	\$3,288.00	\$2.57
0-46	Lincoln	32-7-9	641.40	\$ 96.21	\$1.71	\$1,100.00	\$385.00	\$1,347.00	\$2,447.00	\$3.82
T-19	Dona Ana	2,16-28-3W	1,278.52	Withdrawn						
T-20	Dona Ana	32,36-28-3W	1,280.00	\$192.00	\$ .15	\$195.00	\$768.00	\$2,688.00	\$2,883.00	\$2.25
0-4	Dona Ana	16-28-1W	640.00	Withdrawn before sale						
10	Socorro	32,36-3-6	1,280.00	\$128.00	\$ .20	\$250.00	\$512.00	\$1,792.00	\$2,042.00	\$1.60
11	Socorro	24,32,36-4-6	840.00	\$ 84.00	\$ .26	\$300.00	\$336.00	\$1,176.00	\$1,476.00	\$1.76

TABLE 12 - Work Sheets: Secondary Lease Evaluation Period

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
0-19	Otero	2,36-19-15	799.95	\$ 399.98	\$ .50	\$ 400.00	\$ 480.00	\$ 1,680.00	\$ 2,080.00	\$ 2.60
0-20	Otero	2-26-11	200.00	\$ 100.00	\$4.75	\$ 950.00	\$ 120.00	\$ 420.00	\$ 1,370.00	\$ 6.85
0-3	Sierra	2,9-13-1	958.40	\$ 479.20	\$ .50	\$ 480.00	\$ 383.00	\$ 1,342.00	\$ 1,822.00	\$ 1.90
0-4	Sierra	10,16-13-1	960.00	\$ 480.00	\$ .50	\$ 480.00	\$ 384.00	\$ 1,344.00	\$ 1,824.00	\$ 1.90
0-9	Otero	3-24-14	145.59	\$ 100.00	\$ .50	\$ 100.00	\$ 87.00	\$ 306.00	\$ 406.00	\$ 2.79
0-10	Otero	3-24-14	160.00	\$ 100.00	\$ .50	\$ 100.00	\$ 96.00	\$ 336.00	\$ 436.00	\$ 2.73
0-11	Otero	12,16,21-24-14	1,120.00	\$ 560.00	\$ .50	\$ 560.00	\$ 672.00	\$ 2,352.00	\$ 1,912.00	\$ 2.60
0-12	Otero	20,30-24-14	1,272.64	\$ 636.32	\$ .50	\$ 640.00	\$ 764.00	\$ 2,673.00	\$ 3,313.00	\$ 2.60
0-13	Otero	31,32-24-14	1,272.64	\$ 636.32	\$ .50	\$ 640.00	\$ 764.00	\$ 2,673.00	\$ 3,313.00	\$ 2.60
0-13	Lincoln	13-7-10	640.00	\$ 320.00	\$2.14	\$ 1,369.60	\$ 384.00	\$ 1,344.00	\$ 2,714.00	\$ 4.24
0-2	Lincoln	16,20,25,26,27, 33,34,36-9-9	1,240.00	\$ 620.00	<u>1 9 7 4</u> \$4.00	\$ 4,959.99	\$ 744.00	\$ 2,604.00	\$ 7,564.00	\$ 6.10
0-23	Otero	36-21-13								
		32-21-14	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60
0-24	Otero	2,16-21-14	1,426.08	\$ 713.04	\$ .50	\$ 715.00	\$ 856.00	\$ 2,995.00	\$ 3,710.00	\$ 2.60
0-25	Otero	36-21-14								
		32-21-15	1,280.00	\$ 640.00	\$2.73	\$ 3,500.00	\$ 768.00	\$ 2,688.00	\$ 6,188.00	\$ 4.83
0-26	Otero	2,9-21-15	1,429.94	\$ 714.97	\$ .50	\$ 715.00	\$ 858.00	\$ 3,003.00	\$ 3,718.00	\$ 2.60
0-27	Otero	16,36-21-15	1,200.00	\$ 600.00	\$6.25	\$ 7,500.00	\$ 720.00	\$ 2,520.00	\$10,020.00	\$ 8.35
0-28	Otero	1,2-22-13	1,280.28	\$ 640.14	\$ .50	\$ 645.00	\$ 768.00	\$ 2,689.00	\$ 3,334.00	\$ 2.60
0-29	Otero	32,36-22-13	1,120.00	\$ 560.00	\$ .50	\$ 560.00	\$ 672.00	\$ 2,352.00	\$ 2,912.00	\$ 2.60
0-30	Otero	4,8-22-14	1,119.05	\$ 559.53	\$4.29	\$ 4,800.00	\$ 671.00	\$ 2,350.00	\$ 7,150.00	\$ 6.39
0-31	Otero	6,7-22-14	1,249.52	\$ 624.76	\$2.32	\$ 2,900.00	\$ 750.00	\$ 2,624.00	\$ 5,524.00	\$ 4.42
0-32	Otero	9,16-22-14	1,280.00	\$ 640.00	\$5.47	\$ 7,000.00	\$ 768.00	\$ 2,688.00	\$ 9,688.00	\$ 7.57
0-33	Otero	17,29-27-14	720.00	\$ 360.00	\$4.44	\$ 3,200.00	\$ 432.00	\$ 1,512.00	\$ 4,712.00	\$ 6.54
0-34	Otero	18,30-22-14	706.00	\$ 353.00	\$3.54	\$ 2,500.00	\$ 424.00	\$ 1,483.00	\$ 3,983.00	\$ 5.64
0-35	Otero	31-22-14	628.36	\$ 314.18	\$3.82	\$ 2,400.00	\$ 377.00	\$ 1,320.00	\$ 3,720.00	\$ 5.92
0-36	Otero	32,33-22-14	1,280.00	\$ 640.00	\$3.28	\$ 4,200.00	\$ 768.00	\$ 2,688.00	\$ 6,888.00	\$ 5.38
0-37	Otero	13,14,23,24,25 23-12	840.00	\$ 420.00	\$ .50	\$ 420.00	\$ 504.00	\$ 1,764.00	\$ 2,184.00	\$ 2.60
0-38	Otero	28,32-23-12	976.32	\$ 488.16	\$ .50	\$ 490.00	\$ 586.00	\$ 2,050.00	\$ 2,540.00	\$ 2.60
0-39	Otero	33,36-23-12	1,295.20	\$ 647.60	\$ .50	\$ 650.00	\$ 777.00	\$ 2,720.00	\$ 3,370.00	\$ 2.60
0-40	Otero	2,16-23-13	1,280.60	\$ 640.30	\$ .50	\$ 645.00	\$ 768.00	\$ 2,689.00	\$ 3,334.00	\$ 2.60
0-41	Otero	32,35-23-13	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60

Tract	County	Loc SE	Acres	Min.	Bid		Rentals			Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre	
0-42	Otero	31,36-23-13	1,282.81	\$ 641.41	\$ .50	\$ 645.00	\$ 770.00	\$ 2,694.00	\$ 3,339.00	\$ 2.60	
0-43	Otero	1,2-23-14	1,278.36	\$ 639.18	\$ .50	\$ 640.00	\$ 767.00	\$ 2,685.00	\$ 3,325.00	\$ 2.60	
0-44	Otero	3,4,7-23-14	1,267.24	\$ 633.62	\$ .50	\$ 635.00	\$ 760.00	\$ 2,661.00	\$ 3,296.00	\$ 2.60	
0-45	Otero	10,11-23-14	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60	
0-46	Otero	12,13-23-14	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60	
0-47	Otero	14,15-23-14	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60	
0-48	Otero	16,17-23-14	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60	
0-49	Otero	18,19-23-14	1,259.36	\$ 629.68	\$ .50	\$ 630.00	\$ 756.00	\$ 2,645.00	\$ 3,275.00	\$ 2.60	
0-50	Otero	20,21-23-14	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60	
0-51	Otero	22,23-23-14	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60	
0-52	Otero	24,26,36-23-14	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60	
0-53	Otero	27,28-23-14	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60	
0-54	Otero	29,30-23-14	1,271.40	\$ 635.70	\$ .50	\$ 640.00	\$ 763.00	\$ 2,670.00	\$ 3,310.00	\$ 2.60	
0-55	Otero	2,3-23-15	1,280.48	\$ 640.24	\$ .50	\$ 645.00	\$ 768.00	\$ 2,689.00	\$ 3,334.00	\$ 2.60	
0-56	Otero	5,6-23-15	1,270.80	\$ 635.40	\$ .50	\$ 640.00	\$ 762.00	\$ 2,669.00	\$ 3,309.00	\$ 2.60	
0-57	Otero	7,8-23-15	1,271.60	\$ 635.80	\$ .50	\$ 640.00	\$ 763.00	\$ 2,670.00	\$ 3,310.00	\$ 2.60	
0-58	Otero	16,23-23-15	800.00	\$ 400.00	\$ .50	\$ 400.00	\$ 480.00	\$ 1,680.00	\$ 2,080.00	\$ 2.60	
0-59	Otero	32,36-23-15	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60	
0-60	Otero	13,25-24-11	720.00	\$ 360.00	\$ .50	\$ 360.00	\$ 432.00	\$ 1,512.00	\$ 1,872.00	\$ 2.60	
0-61	Otero	26,35-24-11	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60	
0-62	Otero	36-24-11 32-24-12	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60	
0-63	Otero	1,2,3,12,13 24-12	1,277.67	\$ 638.84	\$ .50	\$ 640.00	\$ 767.00	\$ 2,683.00	\$ 3,323.00	\$ 2.60	
0-64	Otero	4-15-24-12	1,299.42	\$ 649.71	\$ .50	\$ 650.00	\$ 780.00	\$ 2,729.00	\$ 3,379.00	\$ 2.60	
0-65	Otero	16,22,24,25,26 24-12	1,200.00	\$ 600.00	\$ .50	\$ 600.00	\$ 720.00	\$ 2,520.00	\$ 3,120.00	\$ 2.60	
0-66	Otero	29,36-24-12	960.00	\$ 480.00	\$ .50	\$ 480.00	\$ 576.00	\$ 2,016.00	\$ 2,496.00	\$ 2.60	
0-67	Otero	2,5-24-13	1,266.32	\$ 633.16	\$ .50	\$ 635.00	\$ 760.00	\$ 2,659.00	\$ 3,294.00	\$ 2.60	
0-68	Otero	6,10,16-24-13	1,145.25	\$ 572.63	\$ .50	\$ 575.00	\$ 687.00	\$ 2,405.00	\$ 2,980.00	\$ 2.60	
0-69	Otero	25,32-24-13	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60	
0-70	Otero	35,36-24-13 16,21-24-14	1,120.00	\$ 560.00	\$ .50	\$ 560.00	\$ 672.00	\$ 2,352.00	\$ 2,912.00	\$ 2.60	
0-71	Otero	4-24-14	592.16	\$ 296.08	\$ .50	\$ 300.00	\$ 355.00	\$ 1,244.00	\$ 1,544.00	\$ 2.60	



Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
0-72	Otero	6-24-14	145.77	\$ 100.00	\$ .50	\$ 100.00	\$ 87.00	\$ 306.00	\$ 406.00	\$ 2.60
0-73	Otero	6-24-14	83.86	\$ 100.00	\$ .50	\$ 100.00	\$ 50.00	\$ 176.00	\$ 276.00	\$ 2.60
0-74	Otero	6-24-14	118.03	\$ 100.00	\$ .50	\$ 100.00	\$ 71.00	\$ 248.00	\$ 348.00	\$ 2.60
0-75	Otero	19,22,35,36 24-14	1,152.24	\$ 576.12	\$ .50	\$ 580.00	\$ 691.00	\$ 2,420.00	\$ 3,000.00	\$ 2.60
0-76	Otero	8,17-24-15	1,122.52	\$ 561.26	\$ .50	\$ 565.00	\$ 674.00	\$ 2,357.00	\$ 2,922.00	\$ 2.60
0-77	Otero	2,5-24-15	1,276.46	\$ 638.23	\$ .50	\$ 640.00	\$ 766.00	\$ 2,681.00	\$ 3,321.00	\$ 2.60
0-78	Otero	31,32-24-15	1,243.60	\$ 621.80	\$ .50	\$ 625.00	\$ 746.00	\$ 2,612.00	\$ 3,237.00	\$ 2.60
0-79	Otero	36-24-15	640.00	\$ 320.00	\$ .50	\$ 320.00	\$ 384.00	\$ 1,344.00	\$ 1,664.00	\$ 2.60
0-80	Otero	36-25-10 21-25-11	960.00	\$ 480.00	\$ .50	\$ 480.00	\$ 576.00	\$ 2,016.00	\$ 2,496.00	\$ 2.60
0-81	Otero	32-25-11	640.00	\$ 320.00	\$ .50	\$ 320.00	\$ 384.00	\$ 1,344.00	\$ 1,664.00	\$ 2.60
0-82	Otero	2,9,10,11,14,15 25-12	1,117.54	\$ 558.77	\$ .50	\$ 560.00	\$ 671.00	\$ 2,347.00	\$ 2,907.00	\$ 2.60
0-83	Otero	16,17-25-12	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60
0-84	Otero	18,24,31-25-12	764.20	\$ 382.10	\$ .50	\$ 385.00	\$ 459.00	\$ 1,605.00	\$ 1,990.00	\$ 2.60
0-85	Otero	32,36-25-12	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60
0-86	Otero	2-25-13	667.72	\$ 333.86	\$ .50	\$ 335.00	\$ 401.00	\$ 1,402.00	\$ 1,737.00	\$ 2.60
0-87	Otero	2,12,15-25-14	1,119.52	\$ 559.76	\$ .50	\$ 560.00	\$ 672.00	\$ 2,351.00	\$ 2,911.00	\$ 2.60
0-88	Otero	24,32,33-25-14	880.00	\$ 440.00	\$ .50	\$ 440.00	\$ 528.00	\$ 1,848.00	\$ 2,288.00	\$ 2.60
0-89	Otero	5-25-15	600.67	\$ 300.34	\$ .50	\$ 305.00	\$ 360.00	\$ 1,261.00	\$ 1,566.00	\$ 2.60
0-90	Otero	6,28-25-15	1,245.13	\$ 622.57	\$ .50	\$ 625.00	\$ 747.00	\$ 2,615.00	\$ 3,240.00	\$ 2.60
0-91	Otero	7,8-25-15	1,286.32	\$ 643.16	\$ .50	\$ 645.00	\$ 772.00	\$ 2,701.00	\$ 3,346.00	\$ 2.60
0-92	Otero	16,17-25-15	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60
0-93	Otero	18,20-25-15	1,245.83	\$ 622.92	\$ .50	\$ 625.00	\$ 748.00	\$ 2,616.00	\$ 3,241.00	\$ 2.60
0-94	Otero	21,32-25-15	1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$ 768.00	\$ 2,688.00	\$ 3,328.00	\$ 2.60
0-95	Otero	13,14,15,16,32 36-26-10	989.56	\$ 494.78	\$ .50	\$ 500.00	\$ 594.00	\$ 2,078.00	\$ 2,578.00	\$ 2.60
0-96	Otero	15,36-26-11 32,36-26-12	598.48	\$ 299.24	\$ .50	\$ 300.00	\$ 359.00	\$ 1,257.00	\$ 1,557.00	\$ 2.60
0-97	Otero	2,32,34,36 26-13	1,208.97	\$ 604.49	\$ .50	\$ 605.00	\$ 725.00	\$ 2,539.00	\$ 3,144.00	\$ 2.60

Tract	County	Loc SE	Acres	Min.	Bid		Rentals		Value	
					Acres	Total	5 yr	10 yr	Rental Bid	Per Acre
0-28	Lincoln	26,27,33,34,35 10-9	1,280.00	\$ 640.00	\$1.80	\$ 2,300.00	\$768.00	\$2,688.00	\$4,988.00	\$3.90
0-29	Lincoln	36-10-9	640.00	\$ 320.00	\$2.34	\$ 1,500.00	\$384.00	\$1,344.00	\$2,844.00	\$4.44
0-30	Otero	1,2,12,24,25,36 11-9	1,086.48	\$ 543.24	\$3.04	\$ 3,300.00	\$652.00	\$2,282.00	\$5,582.00	\$5.14
0-31	Otero	6,17,18,20 11-10	827.61	\$ 413.81	\$ .85	\$ 700.00	\$497.00	\$1,738.00	\$2,438.00	\$2.95
0-32	Otero	3,4-12-10	1,227.48	\$ 613.74	\$11.08	\$ 13,600.00	\$736.00	\$2,578.00	\$16,178.00	\$13.18
0-33		1,11,12-12-10	931.54	\$ 465.77	\$2.15	\$ 2,000.00	\$559.00	\$1,956.00	\$3,956.00	\$4.25
0-34	Otero	10,15-12-10	1,160.00	\$ 580.00	\$13.36	\$ 15,500.00	\$696.00	\$2,436.00	\$17,936.00	\$15.46
0-35	Otero	13,14-12-10	1,040.00	\$ 520.00	\$ 9.81	\$ 10,200.00	\$624.00	\$2,184.00	\$12,384.00	\$11.91
0-36	Otero	1,3,10,36-13-11	790.43	\$ 395.22	\$ .51	\$ 400.00	\$474.00	\$1,660.00	\$ 2,060.00	\$ 2.61
0-37	Otero	4,5,6,7-13-11	1,256.88	\$ 628.44	\$ .56	\$ 700.00	\$754.00	\$2,639.00	\$ 3,339.00	\$ 2.66
0-38	Otero	8,9,16,32-13-11	960.00	\$ 480.00	\$1.56	\$ 1,500.00	\$576.00	\$2,016.00	\$ 3,516.00	\$ 3.66
0-39	Otero	36-14-9	640.00	\$ 320.00	\$ 2.34	\$ 1,500.00	\$384.00	\$1,344.00	\$ 2,844.00	\$ 4.44
0-40	Otero	16-15-9	640.00	\$ 320.00	\$ 2.03	\$ 1,300.00	\$384.00	\$1,344.00	\$ 2,644.00	\$ 4.13
0-41	Otero	36-15-9	640.00	\$ 320.00	\$ 2.97	\$ 1,900.00	\$384.00	\$1,344.00	\$ 3,244.00	\$ 5.07
0-42	Otero	2-15-10	40.88	\$ 100.00	\$ 7.34	\$ 300.00	\$ 25.00	\$ 86.00	\$ 386.00	\$ 9.44
0-43	Otero	32,36-16-19(9,16-17-9)	\$1,040.00	\$ 520.00	\$ 2.21	\$ 2,300.00	\$624.00	\$2,184.00	\$ 4,484.00	\$ 4.31
0-44	Otero	6,7,8,18-17-9	\$ 946.99	\$ 473.50	\$ 1.37	\$ 1,300.00	\$568.00	\$1,987.00	\$ 3,287.00	\$ 3.47
0-45	Otero	19,20,30,36 17-9	\$1,000.00	\$ 500.00	\$ 2.40	\$ 2,400.00	\$600.00	\$2,100.00	\$ 4,500.00	\$ 4.50
0-8	Socorro	2,3-4-7	\$1,232.00	\$ 616.00	\$ .73	\$ 900.00	\$493.00	\$1,725.00	\$ 2,625.00	\$ 2.13
0-9	Socorro	4,5-4-7	\$ 921.90	\$ 460.95	\$ .68	\$ 625.00	\$369.00	\$1,291.00	\$ 1,916.00	\$ 2.08
0-5	Otero	13,15-22-14	\$1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$768.00	\$2,688.00	\$ 3,328.00	\$ 2.60
0-6	Otero	22,26-22-14	\$1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$768.00	\$2,688.00	\$ 3,328.00	\$ 2.60
0-7	Otero	34,35-22-14	\$1,280.00	\$ 640.00	\$ .50	\$ 640.00	\$768.00	\$2,680.00	\$ 3,328.00	\$ 2.60
0-8	Otero	36-22-14	\$ 640.00	\$ 320.00	\$ .50	\$ 320.00	\$384.00	\$1,344.00	\$ 1,664.00	\$ 2.60

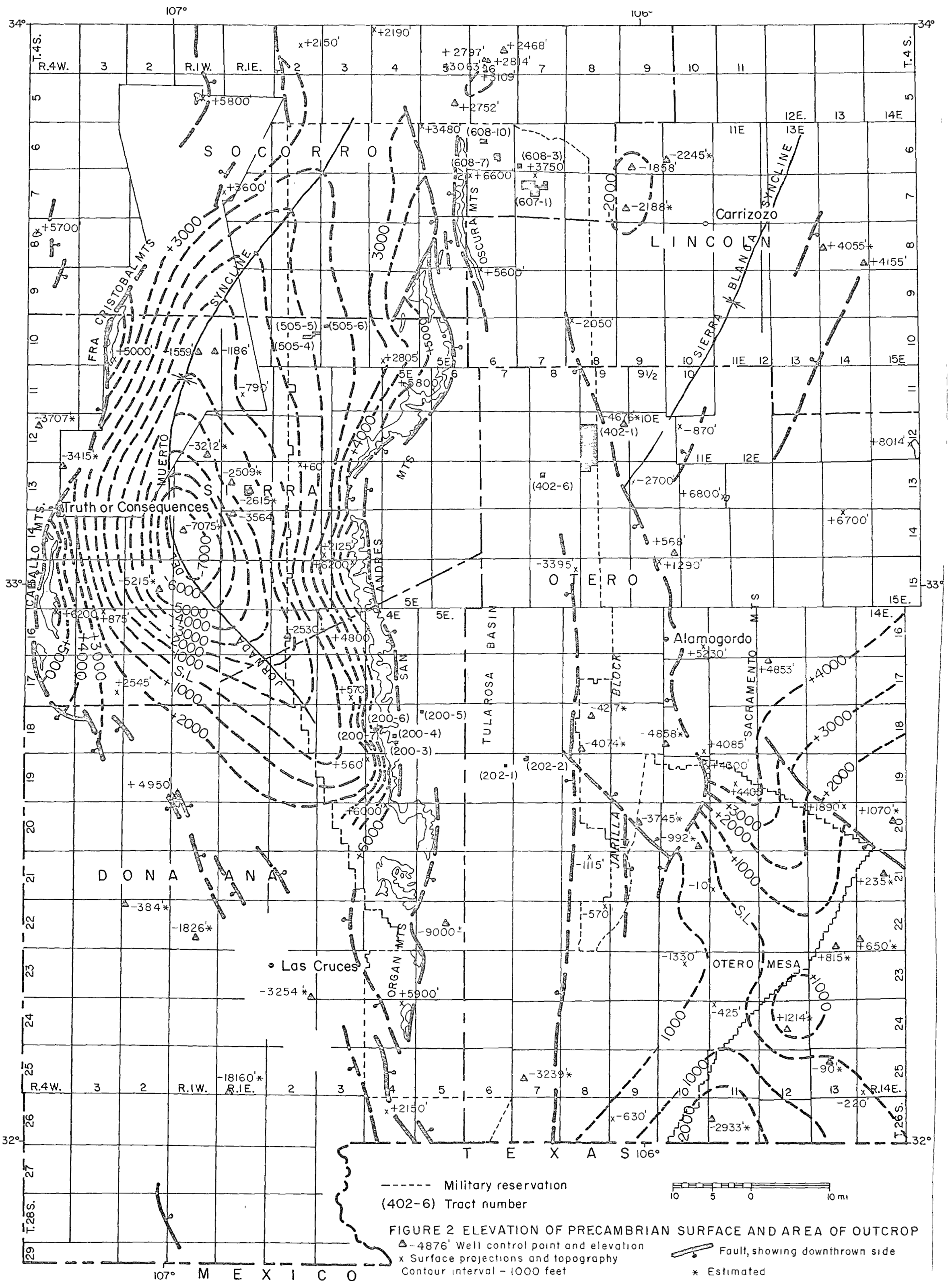
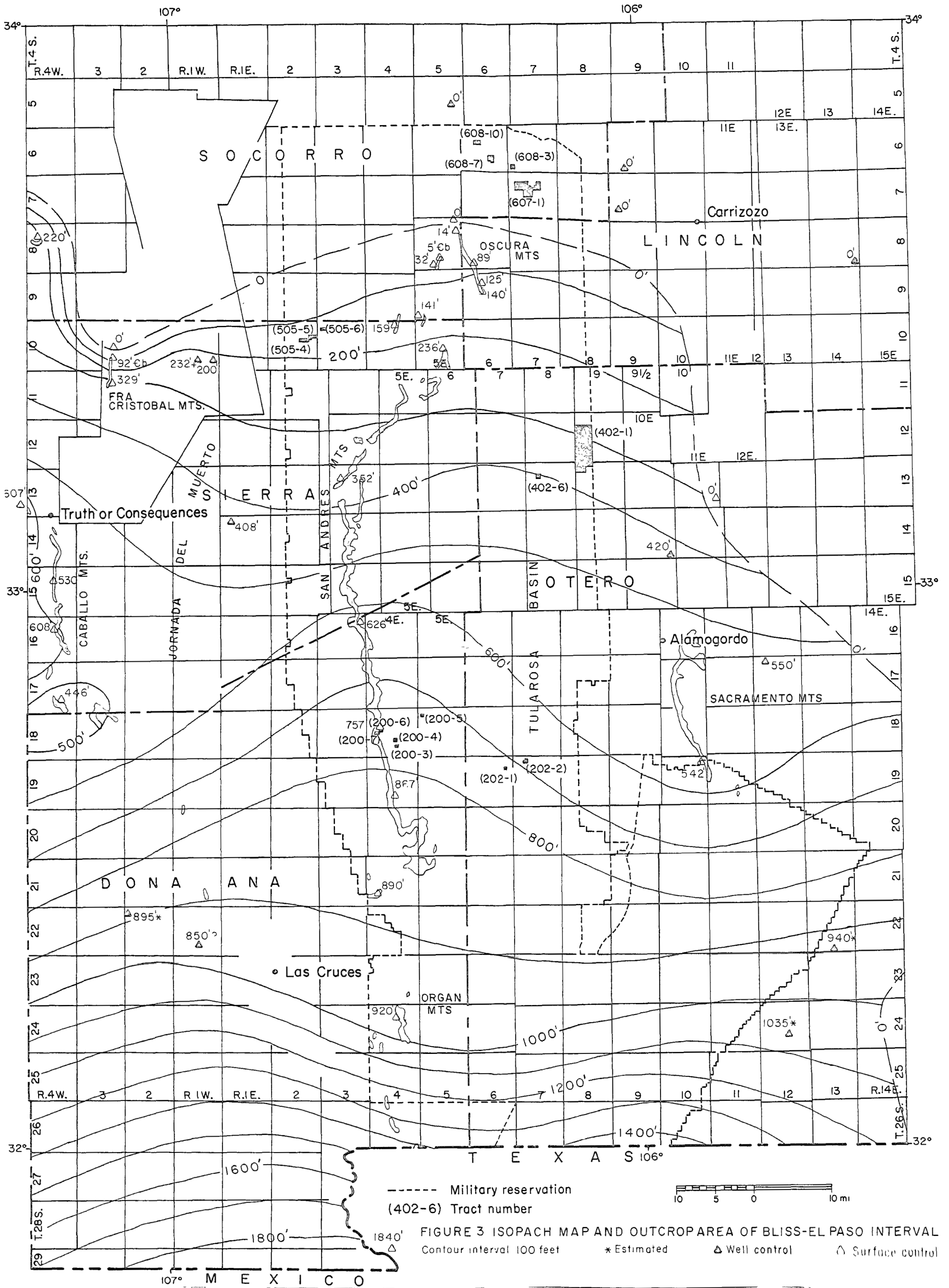
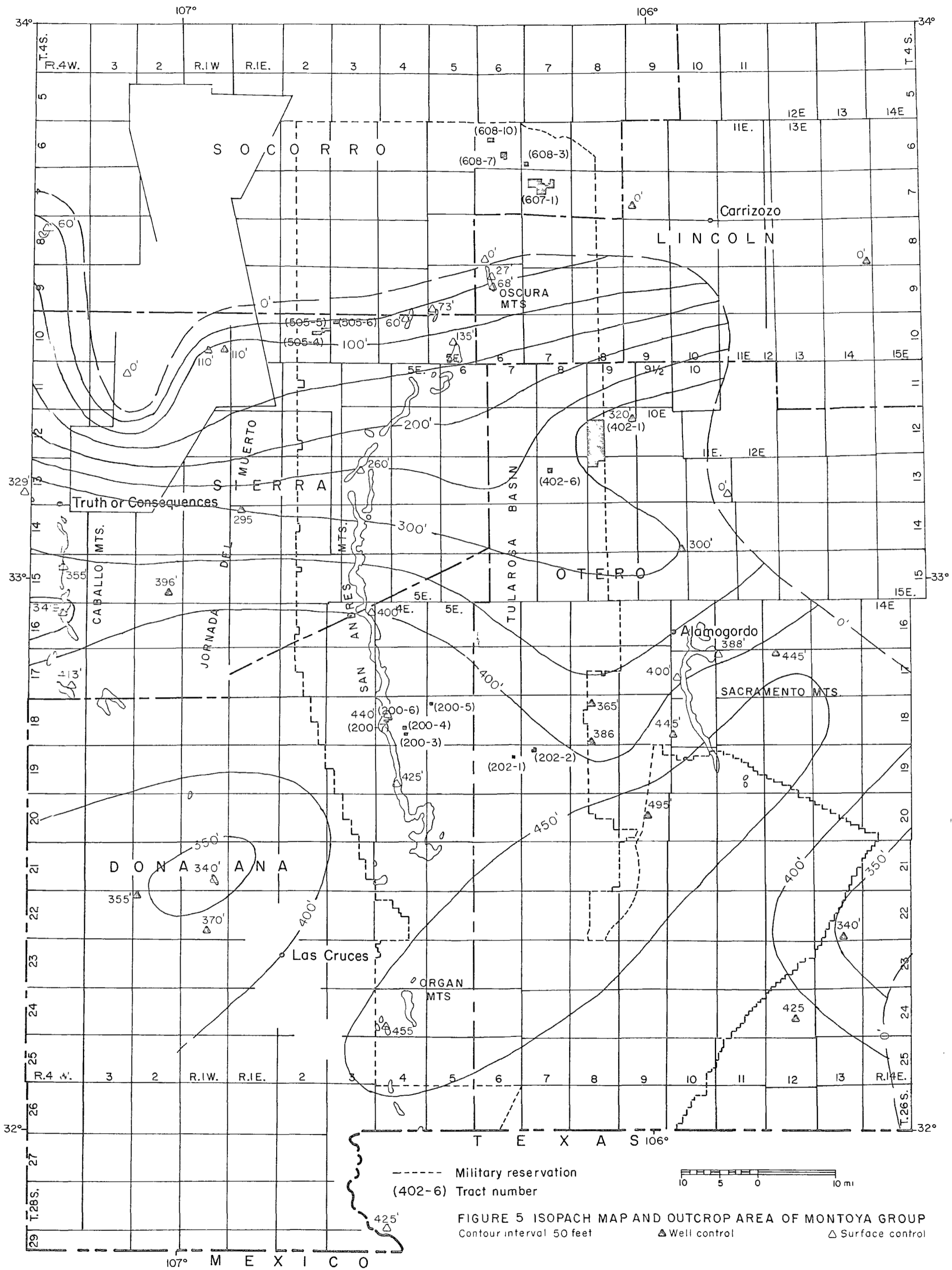
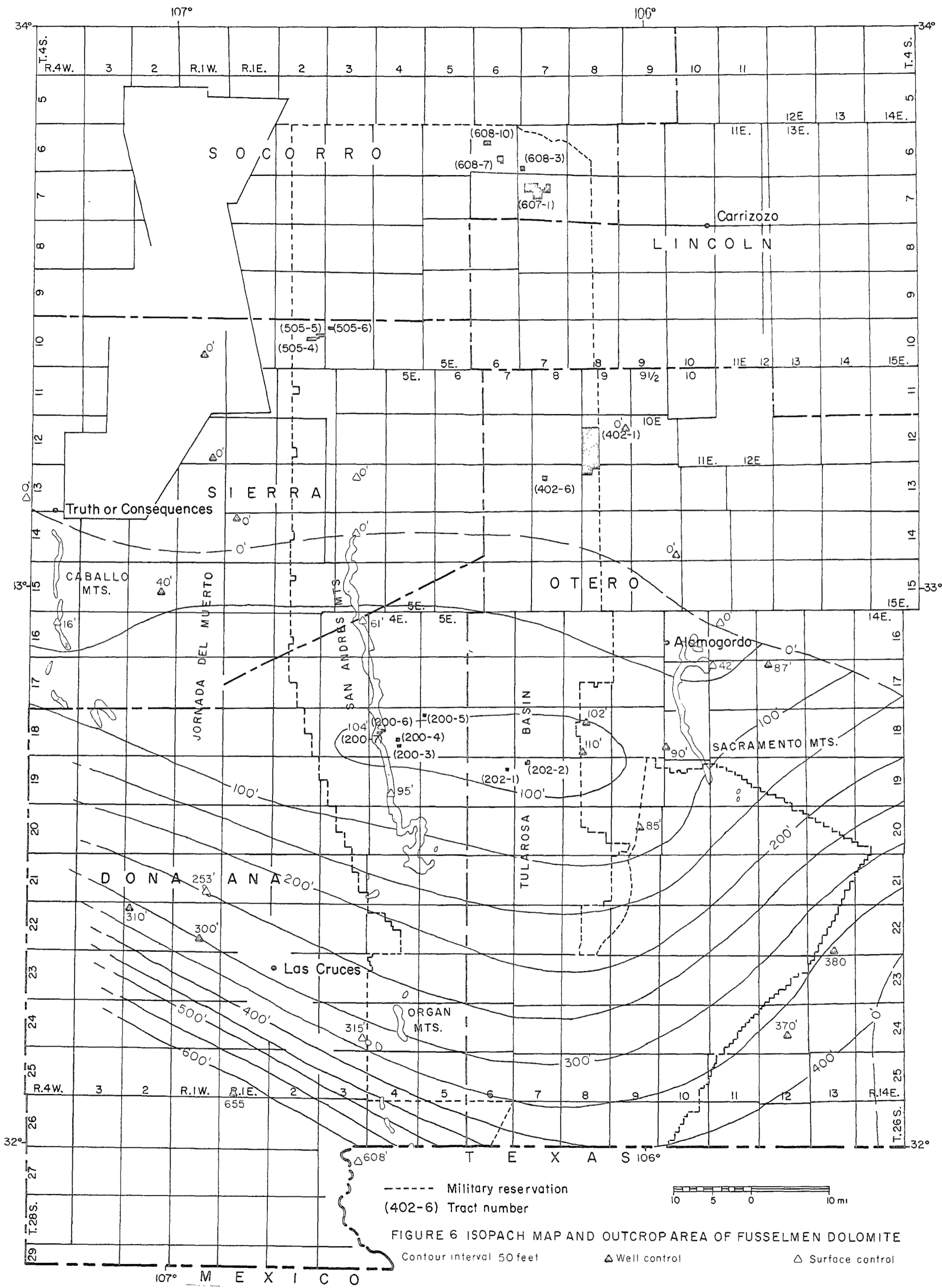


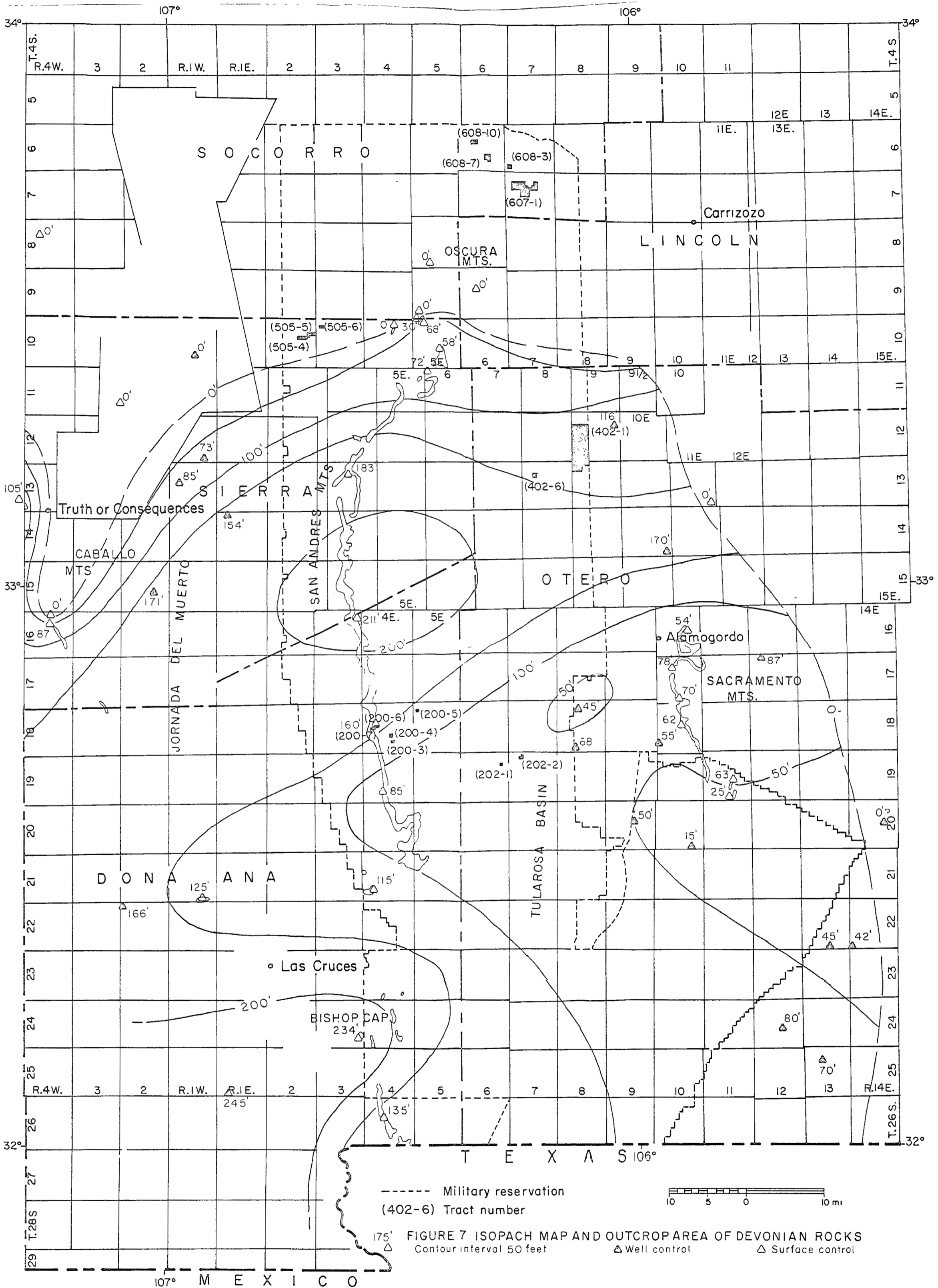
FIGURE 2 ELEVATION OF PRECAMBRIAN SURFACE AND AREA OF OUTCROP







- - - - - Military reservation  
 (402-6) Tract number  
 FIGURE 6 ISOPACH MAP AND OUTCROP AREA OF FUSSELMAN DOLOMITE  
 Contour interval 50 feet      Δ Well control      Δ Surface control



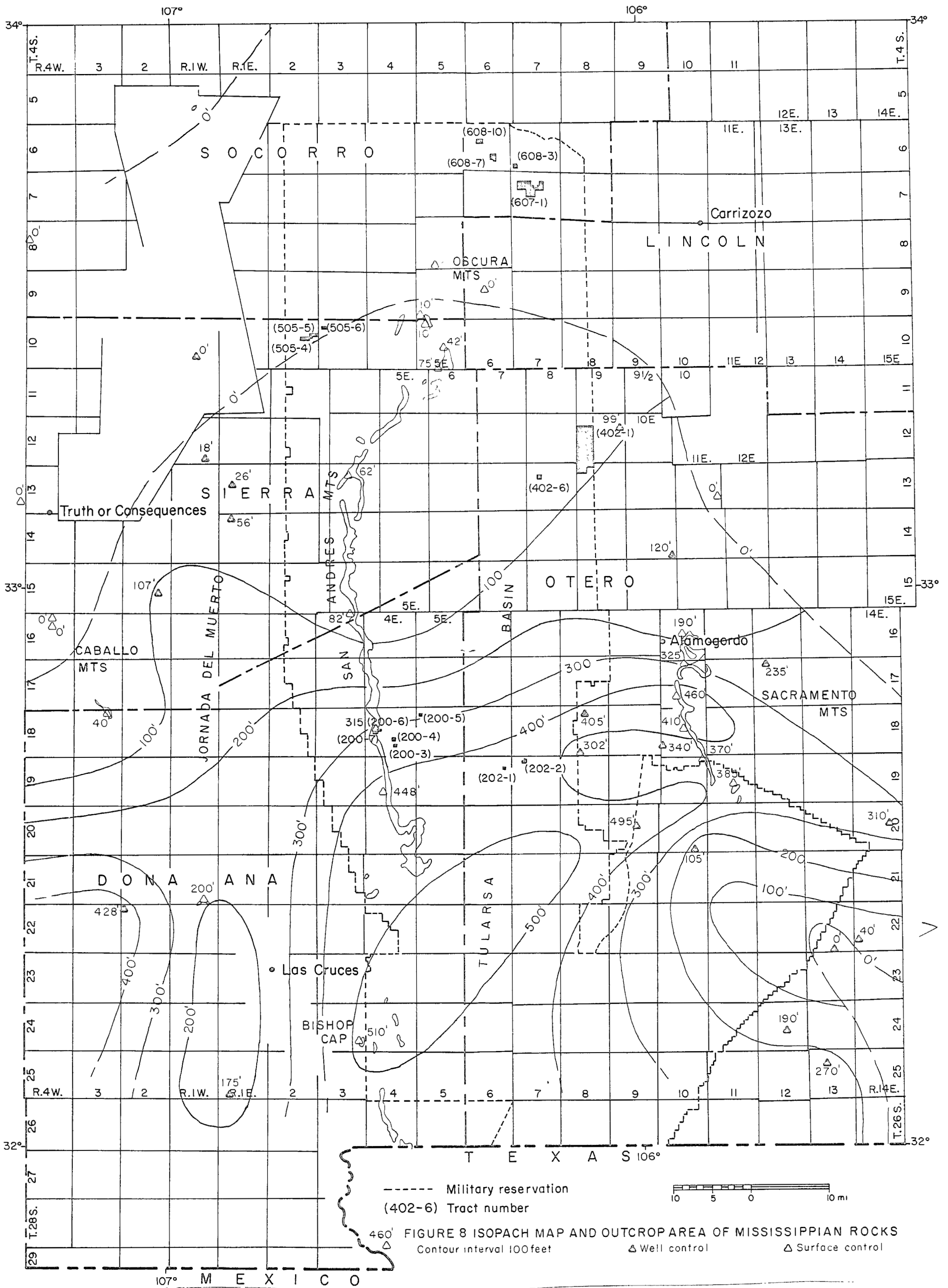


FIGURE 8 ISOPACH MAP AND OUTCROP AREA OF MISSISSIPPIAN ROCKS

Contour interval 100 feet      Δ Well control      Δ Surface control



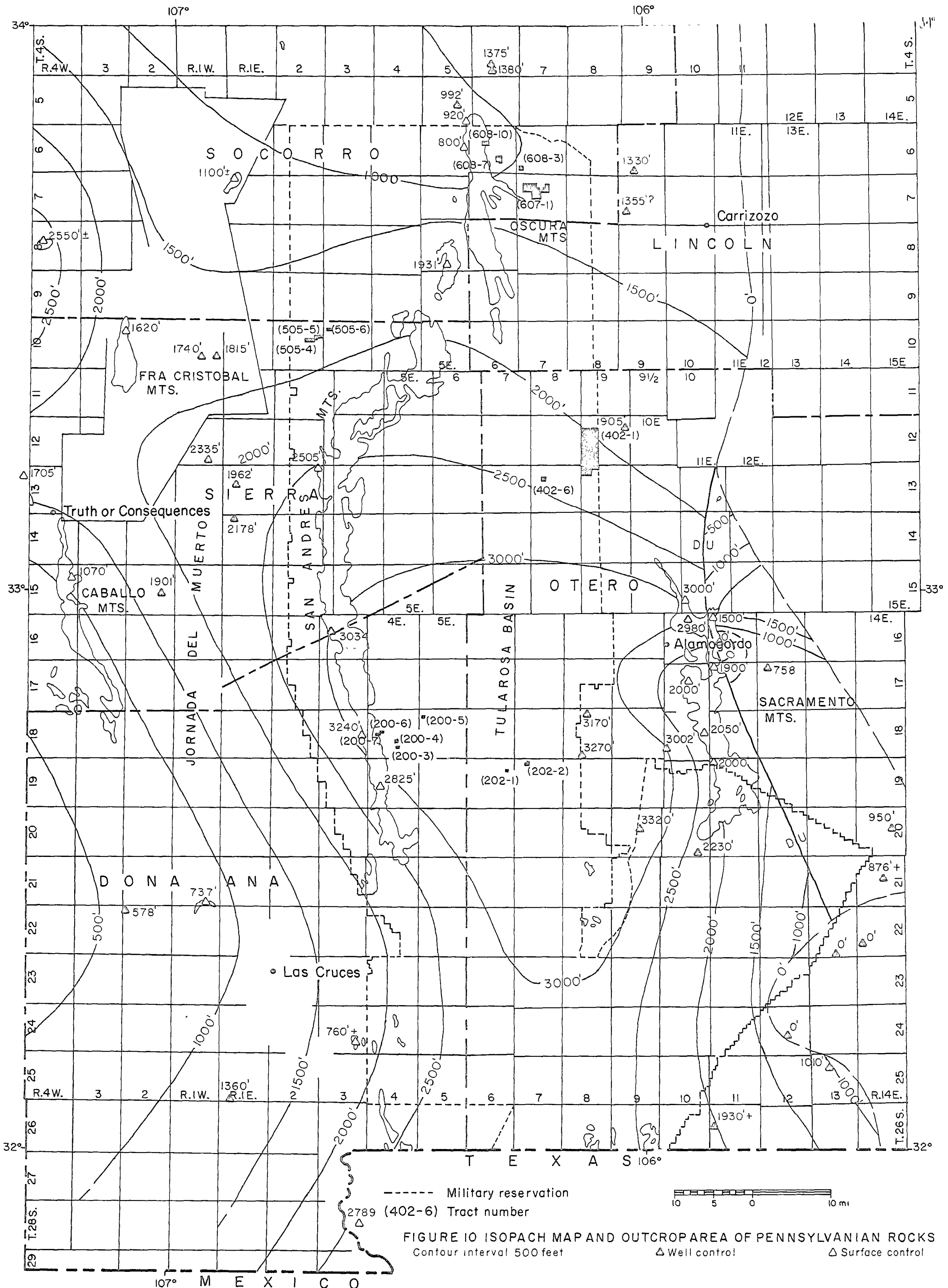
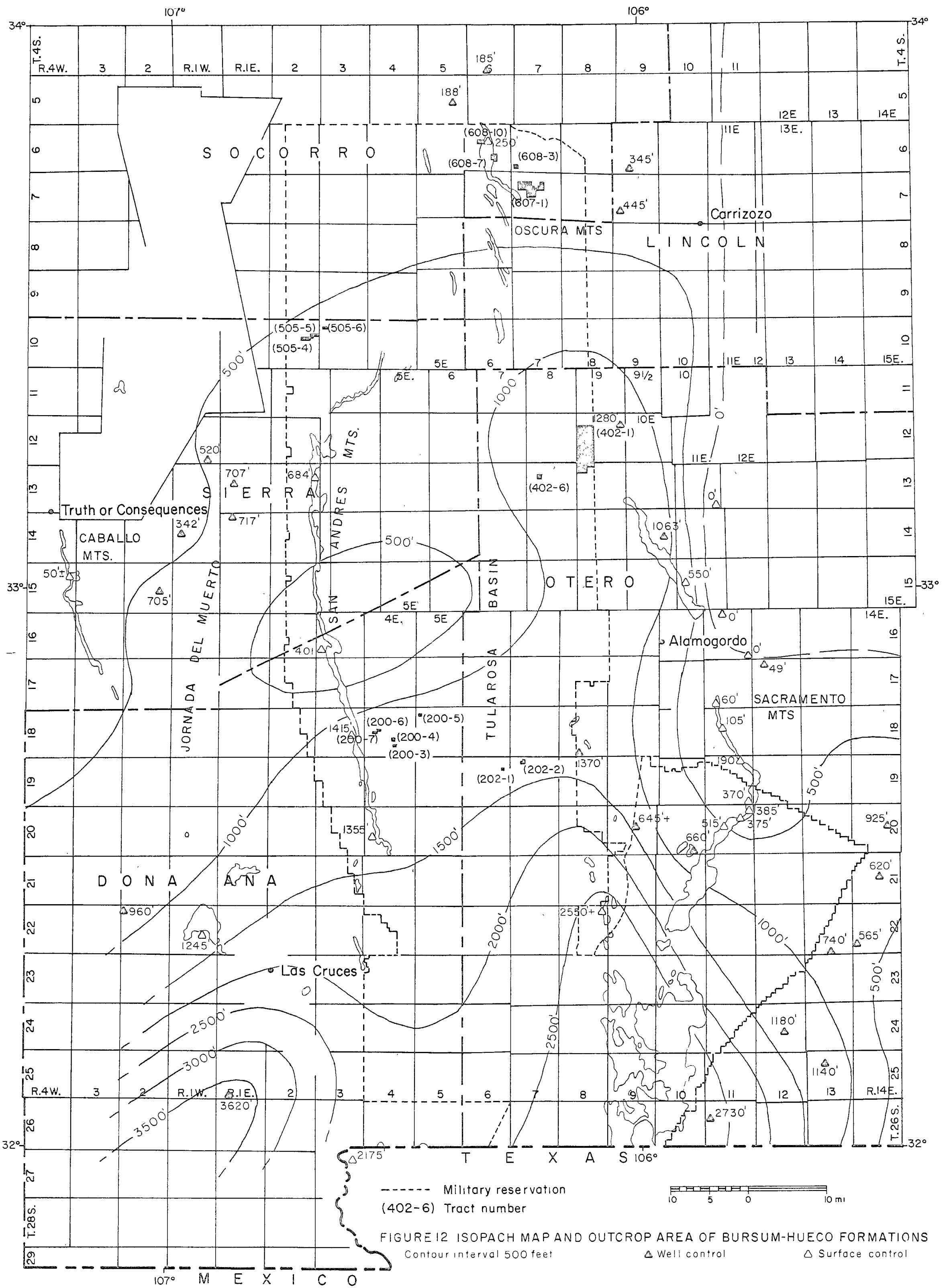


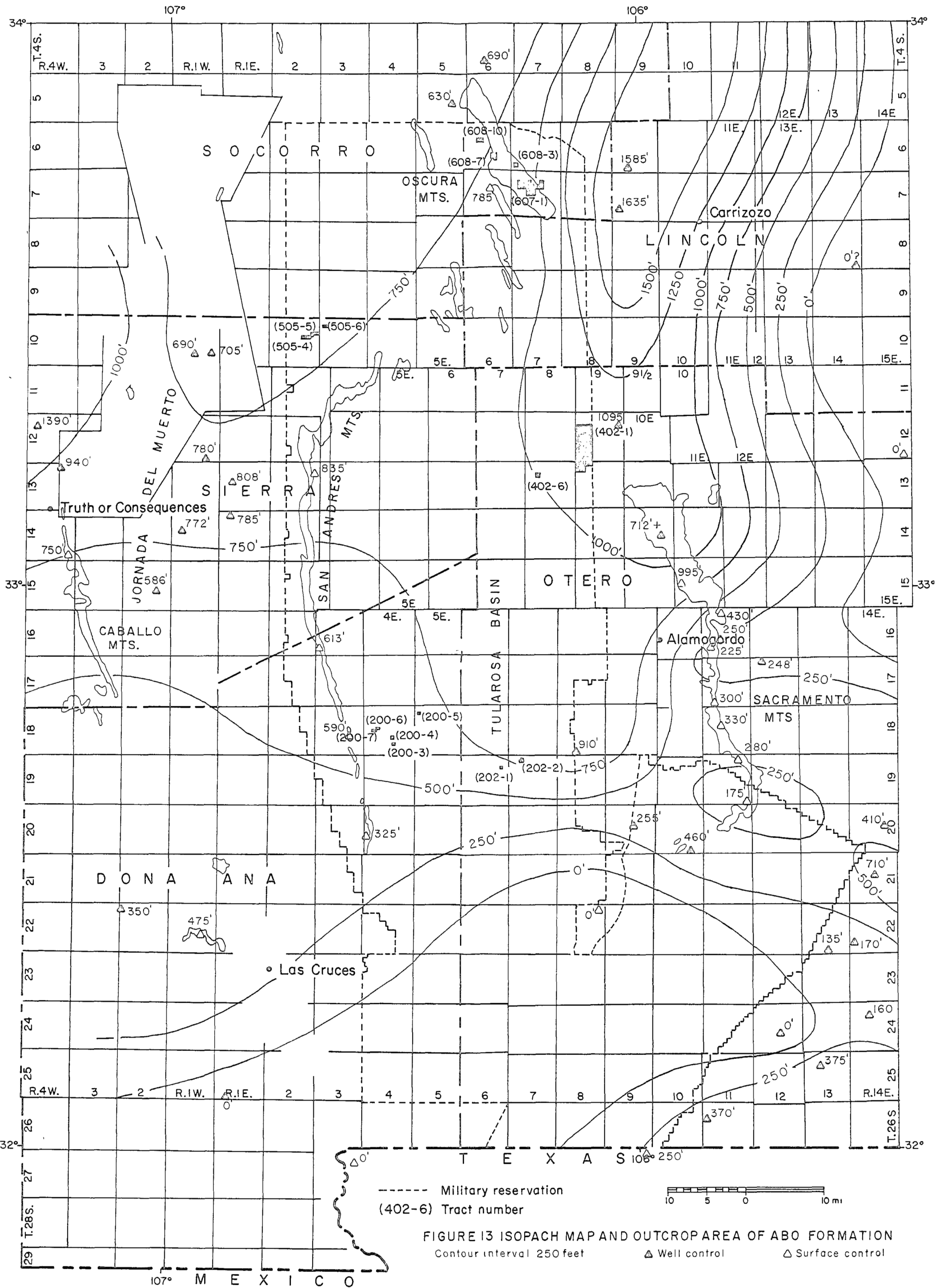
FIGURE 10 ISOPACH MAP AND OUTCROP AREA OF PENNSYLVANIAN ROCKS  
 Contour interval 500 feet

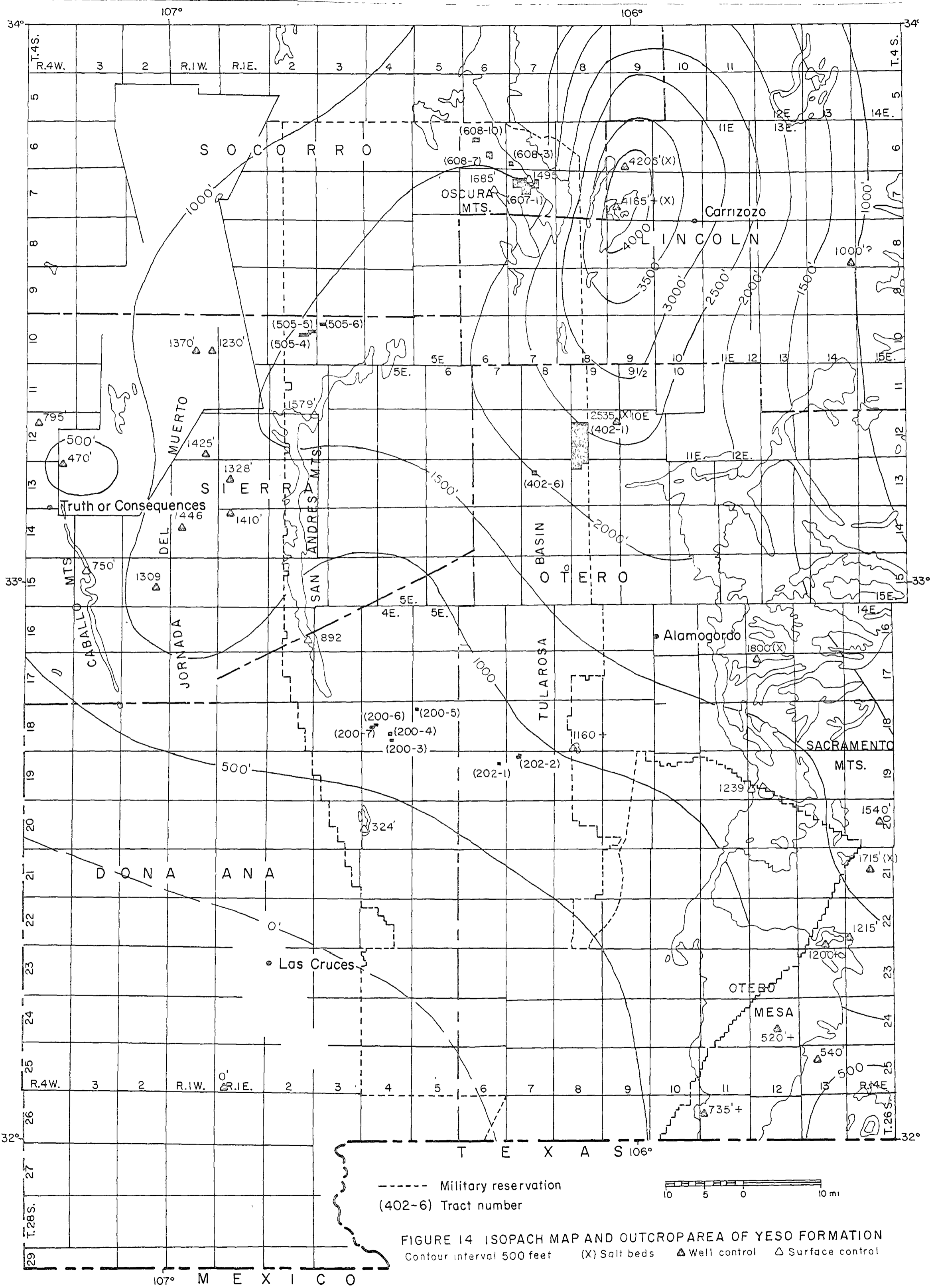
----- Military reservation  
 2789 (402-6) Tract number

△ Well control  
 △ Surface control

107° M E X I C O



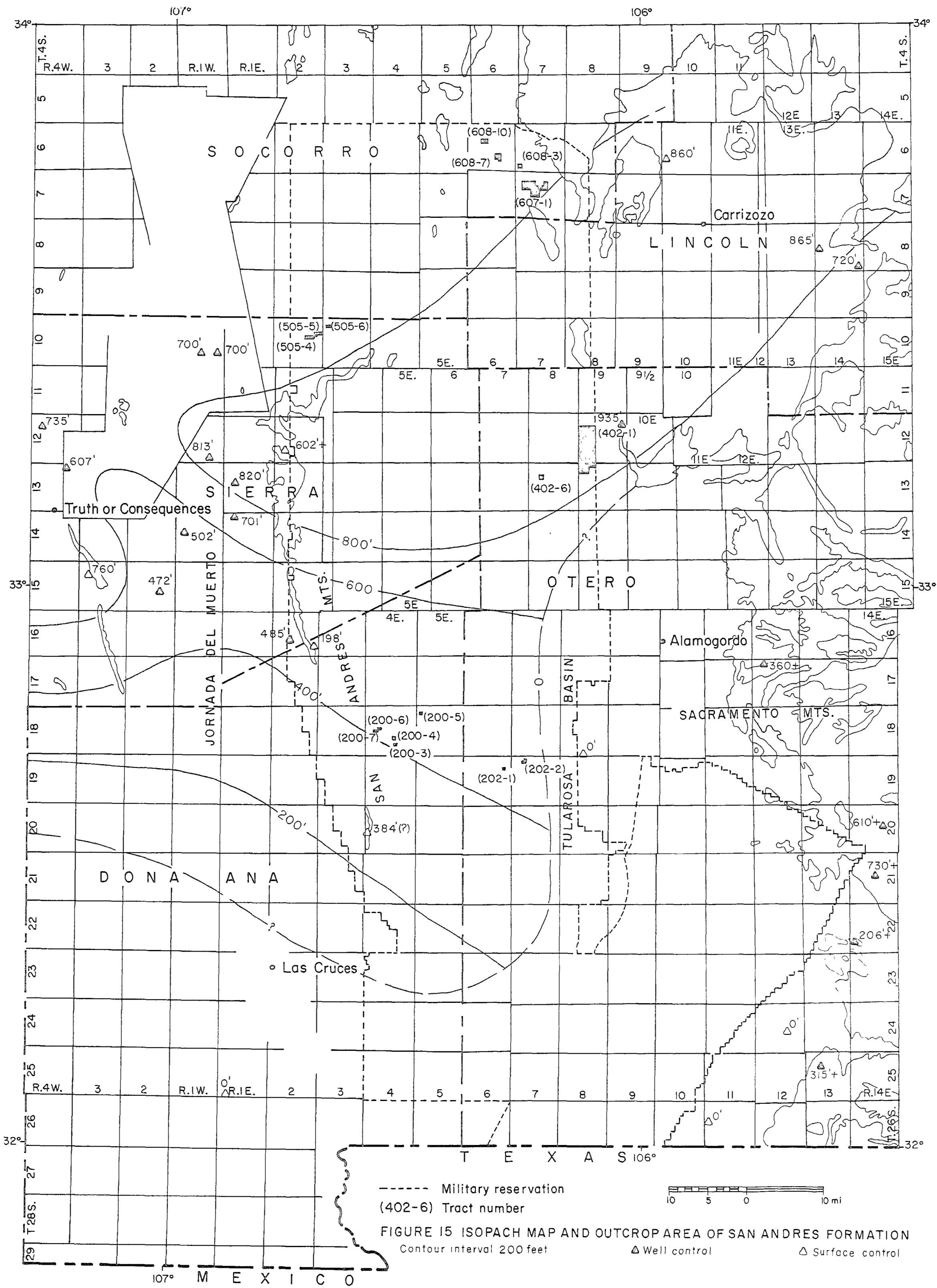




----- Military reservation  
 (402-6) Tract number



**FIGURE 14 ISOPACH MAP AND OUTCROP AREA OF YESO FORMATION**  
 Contour interval 500 feet (X) Salt beds ▲ Well control ▽ Surface control



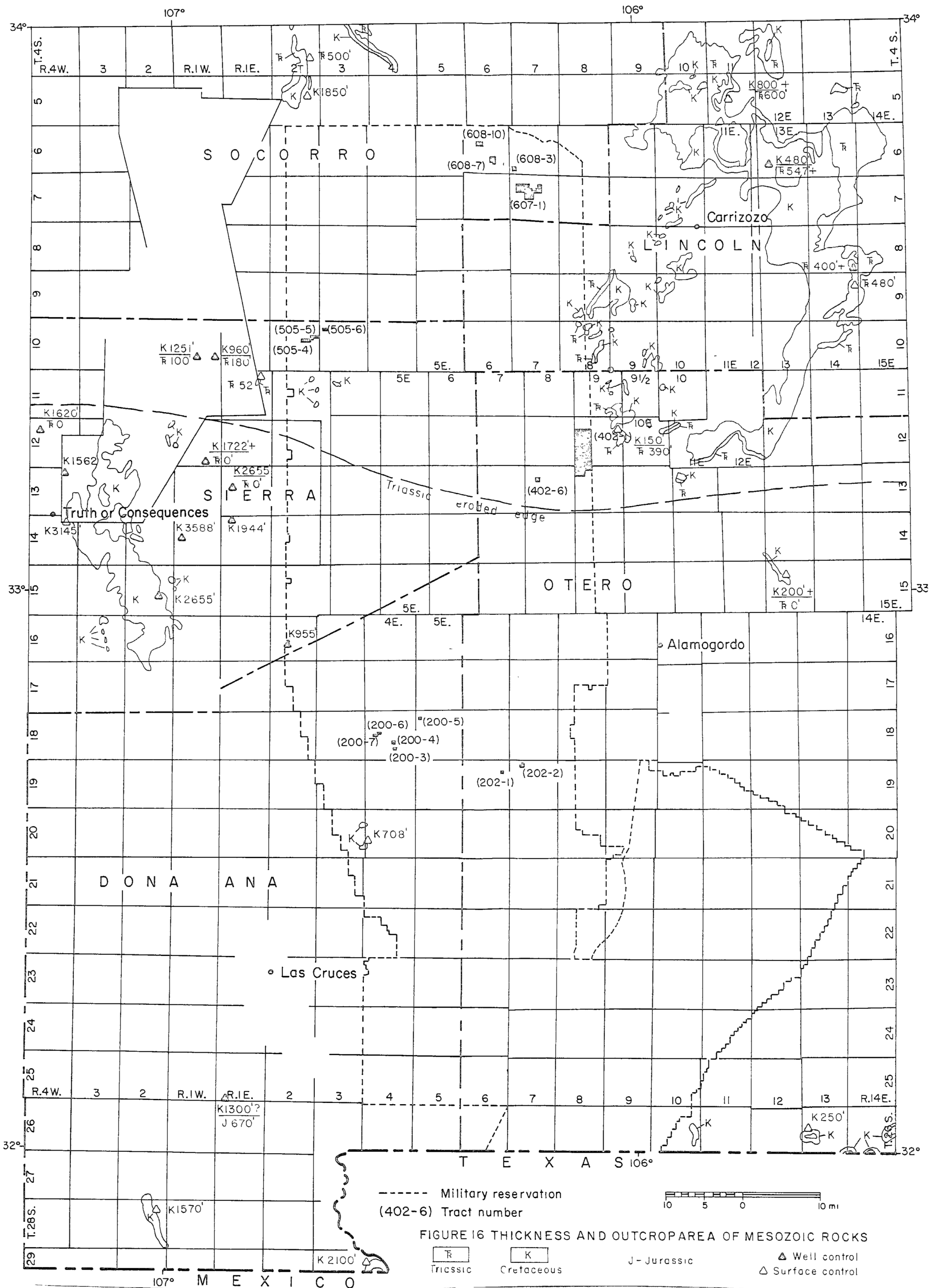
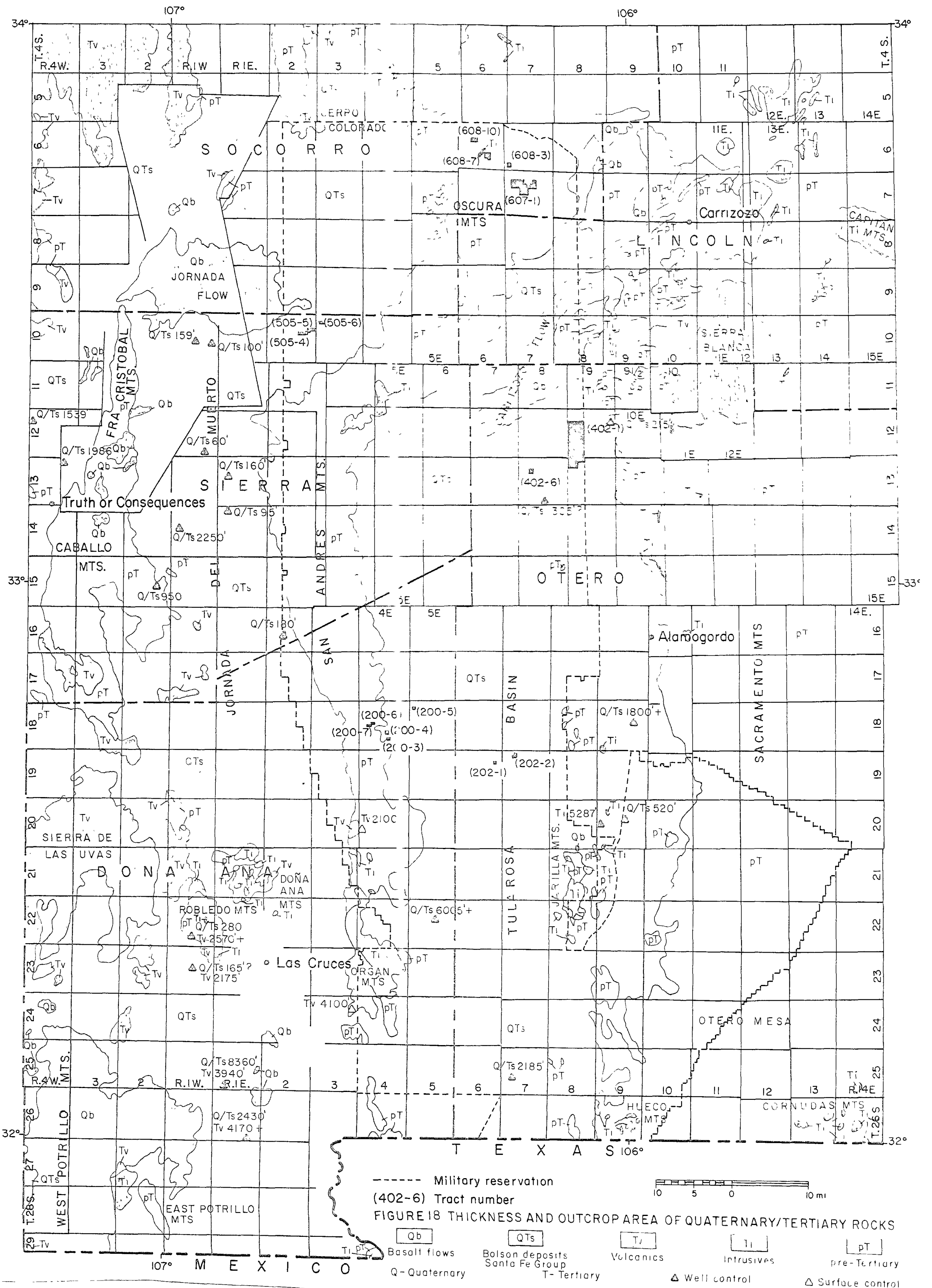


FIGURE 16 THICKNESS AND OUTCROP AREA OF MESOZOIC ROCKS

R Triassic  
 K Cretaceous  
 J - Jurassic  
 △ Well control  
 ○ Surface control



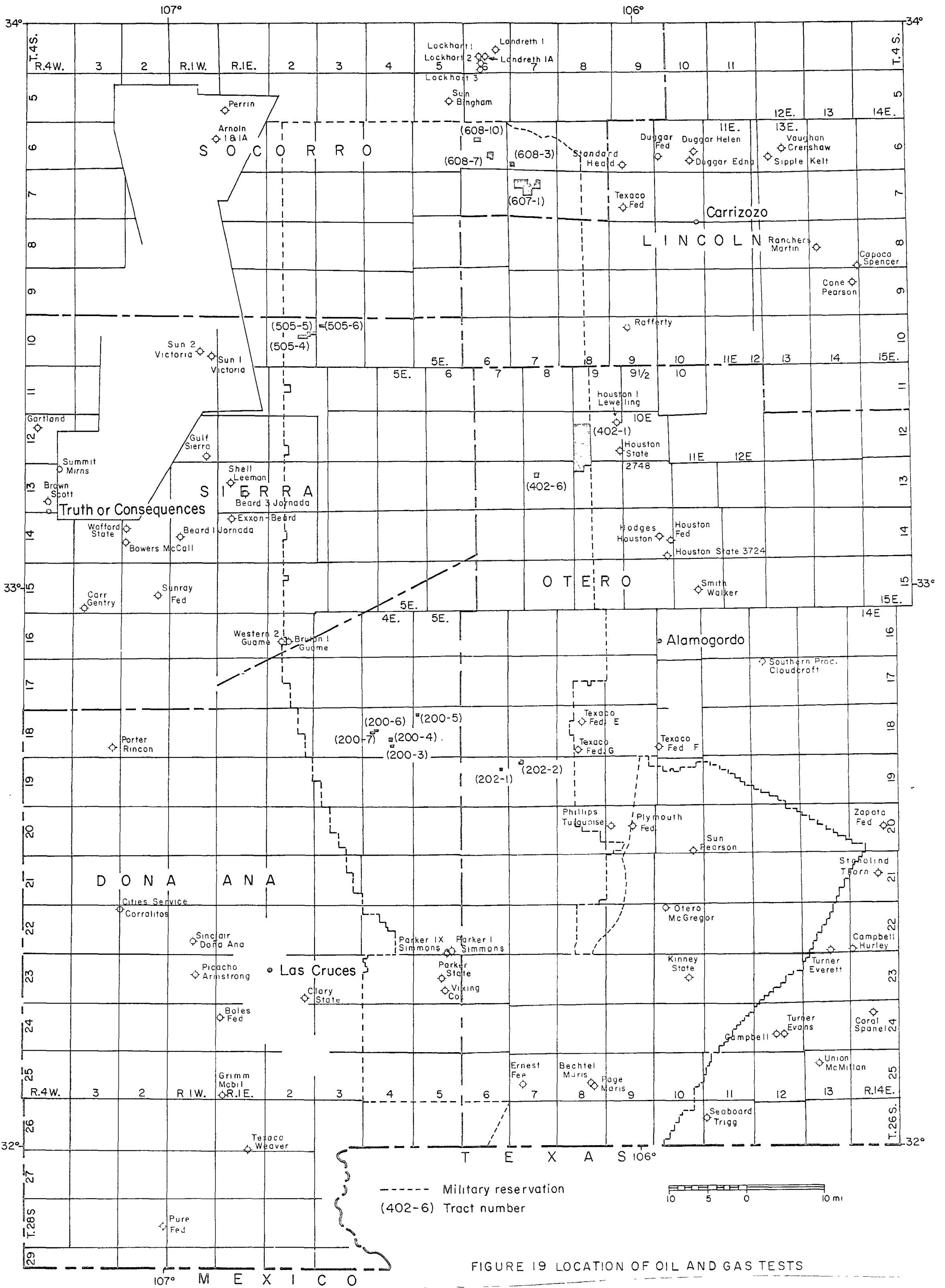
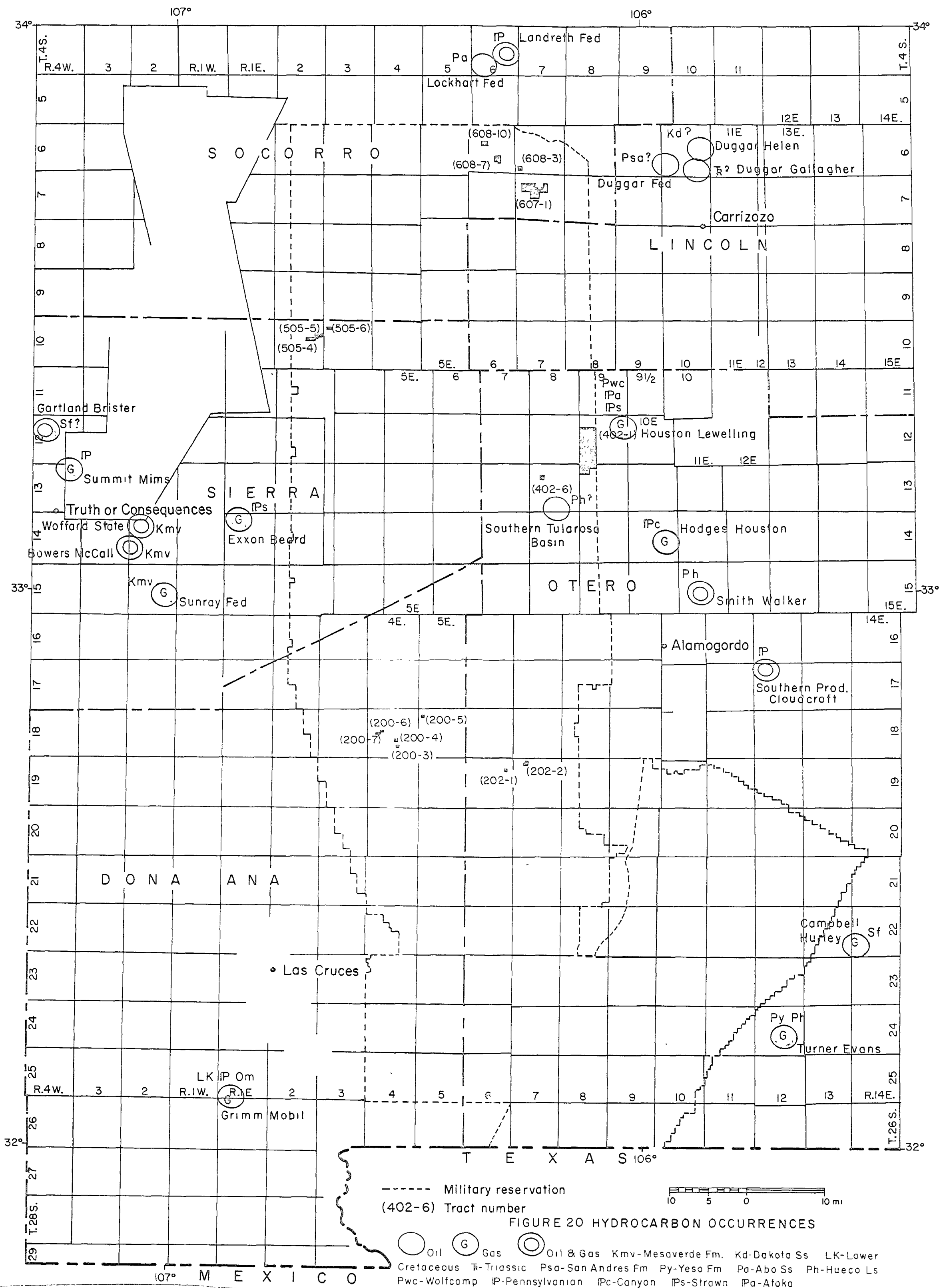


FIGURE 19 LOCATION OF OIL AND GAS TESTS

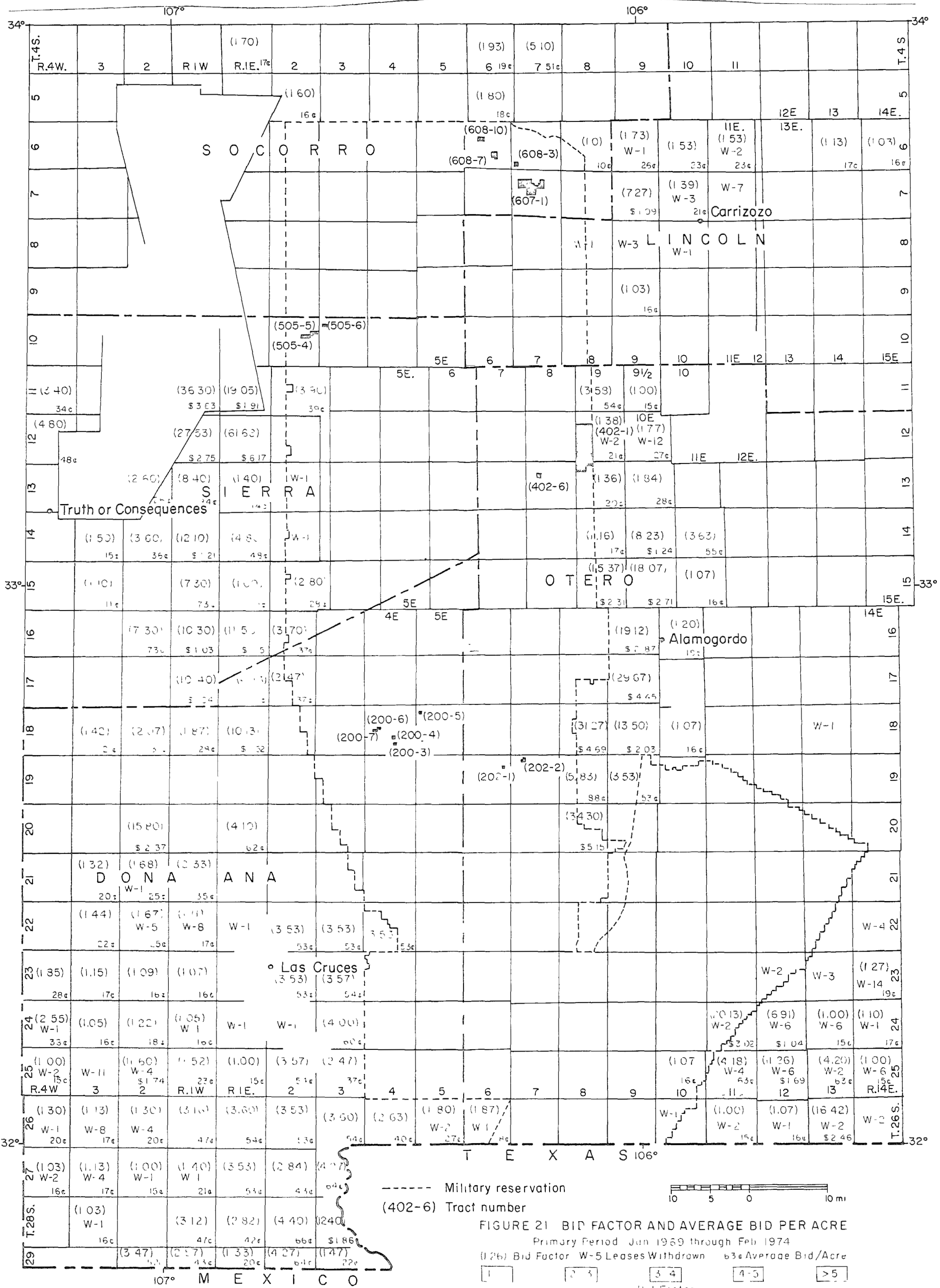


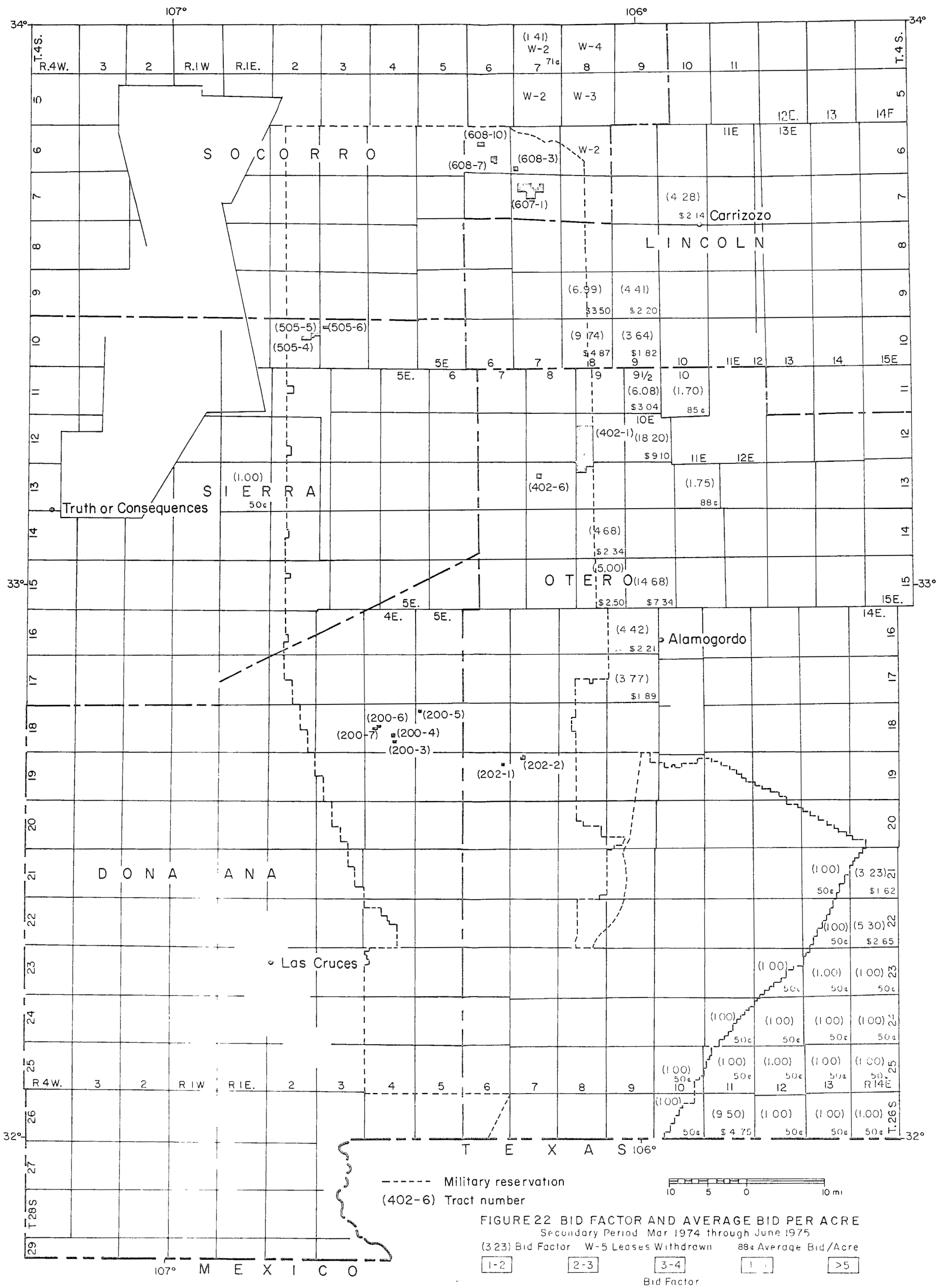


----- Military reservation  
 (402-6) Tract number

FIGURE 20 HYDROCARBON OCCURRENCES

- Oil
- ⊙ Gas
- ⊙ Oil & Gas
- Kmv-Mesaverde Fm.
- Kd-Dakota Ss
- LK-Lower Cretaceous
- T-Triassic
- Psa-San Andres Fm
- Py-Yeso Fm
- Pa-Abo Ss
- Ph-Huaco Ls
- Pwc-Wolfcamp
- IP-Pennsylvanian
- IPc-Canyon
- IPs-Strawn
- IPa-Atoka
- Sf-Fusselman Dol
- Om-Montoya Gp.





**FIGURE 22 BID FACTOR AND AVERAGE BID PER ACRE**  
 Secondary Period Mar 1974 through June 1975  
 (323) Bid Factor W-5 Leases Withdrawn 88¢ Average Bid/Acre