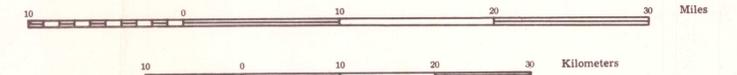


# GEOLOGIC MAP OF MARICOPA COUNTY, ARIZONA

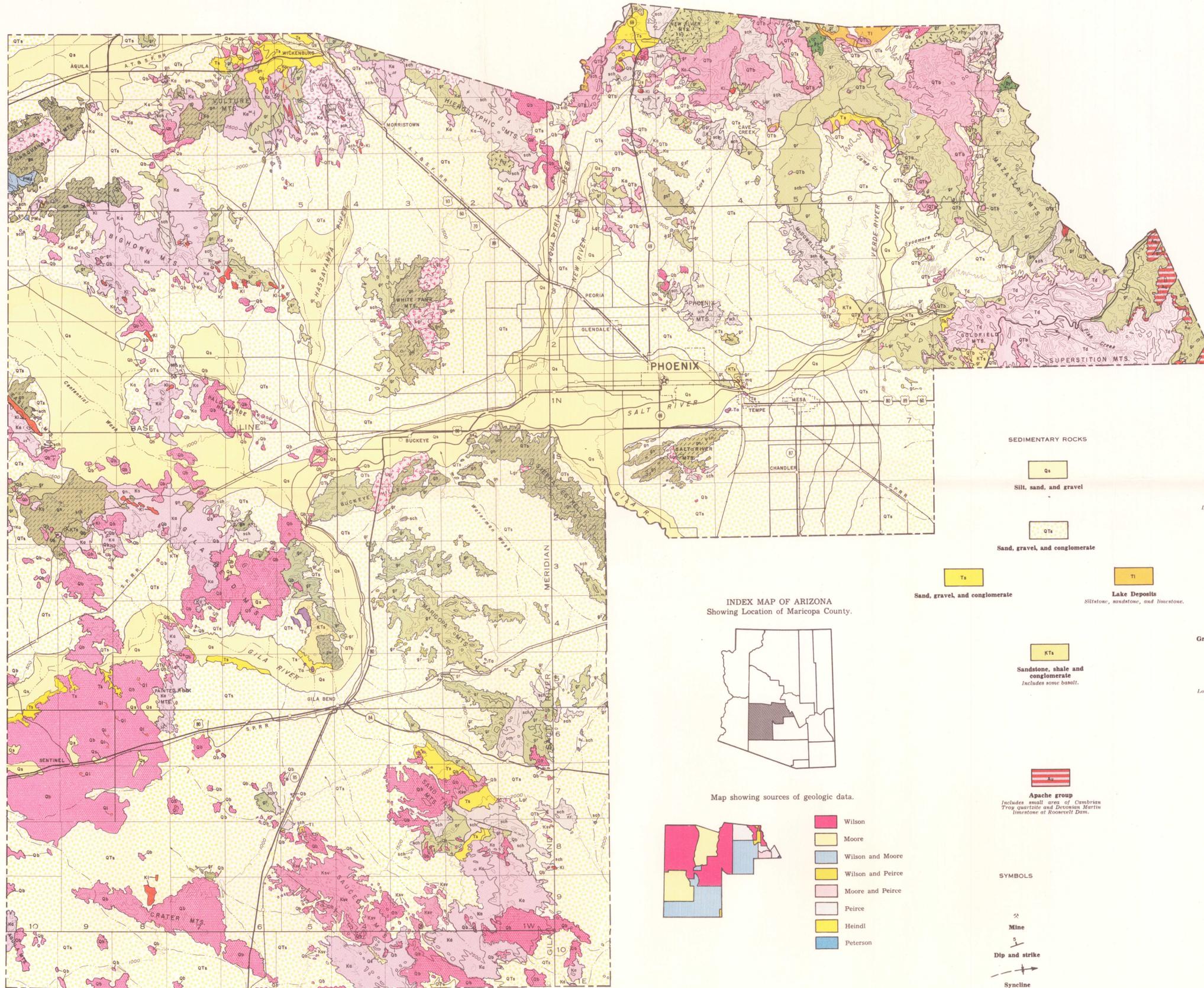
PREPARED BY THE  
**ARIZONA BUREAU OF MINES**  
**UNIVERSITY OF ARIZONA**  
TUCSON, ARIZONA

BY  
Eldred D. Wilson, Richard T. Moore, and H. Wesley Peirce with  
additional data from maps by L. A. Heindl and D. W. Peterson,  
U. S. Geological Survey.  
Base materials furnished by U. S. Geological Survey.

Scale  $\frac{1}{75,000}$



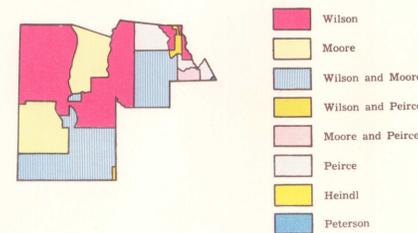
Contour interval 500 feet  
datum is mean sea level  
1957



INDEX MAP OF ARIZONA  
Showing Location of Maricopa County.



Map showing sources of geologic data.



SEDIMENTARY ROCKS

Qs

Silt, sand, and gravel

Qts

Sand, gravel, and conglomerate

Ts

Sand, gravel, and conglomerate

Kts

Sandstone, shale and conglomerate

Includes some basalt.

Ap

Apache group

Includes small area of Cambrian Troy quartzite and Devonian Martin limestone at Roosevelt Dam.

SYMBOLS

Mine

Dip and strike

Syncline

Anticline

IGNEOUS ROCKS

Qb

Basalt

Locally includes tuff and gravel.

Qtb

Basalt

Locally includes tuff and gravel.

Tb

Andesite

Granite and related crystalline rocks

Kg

Andesite

Locally includes tuff and conglomerate.

Kr

Rhyolite

Ksv

Sauceda volcanics

Includes rhyolite, tuff, and andesite. Locally contains volcanic glass.

gr

Granite and related crystalline rocks

gp

Diorite porphyry

px

Pyroxenite

rr

Red Rock rhyolite

METAMORPHIC ROCKS

Ql

Dikes and plugs

Mainly basaltic in composition.

Td

Dacite

Includes dacite tuff and agglomerate.

Kl

Dikes and plugs

Rhyolitic to andesitic in composition.

Kv

Sauceda volcanics

Includes rhyolite, tuff, and andesite. Locally contains volcanic glass.

PMu

Shale, quartzite, and limestone

mq

Mazatzal quartzite

sch

Schist

Locally includes diorite, rhyolite, and gneiss.

gs

Greenstone

Predominantly altered volcanics.

gn

Granite gneiss

QUATERNARY

TERTIARY

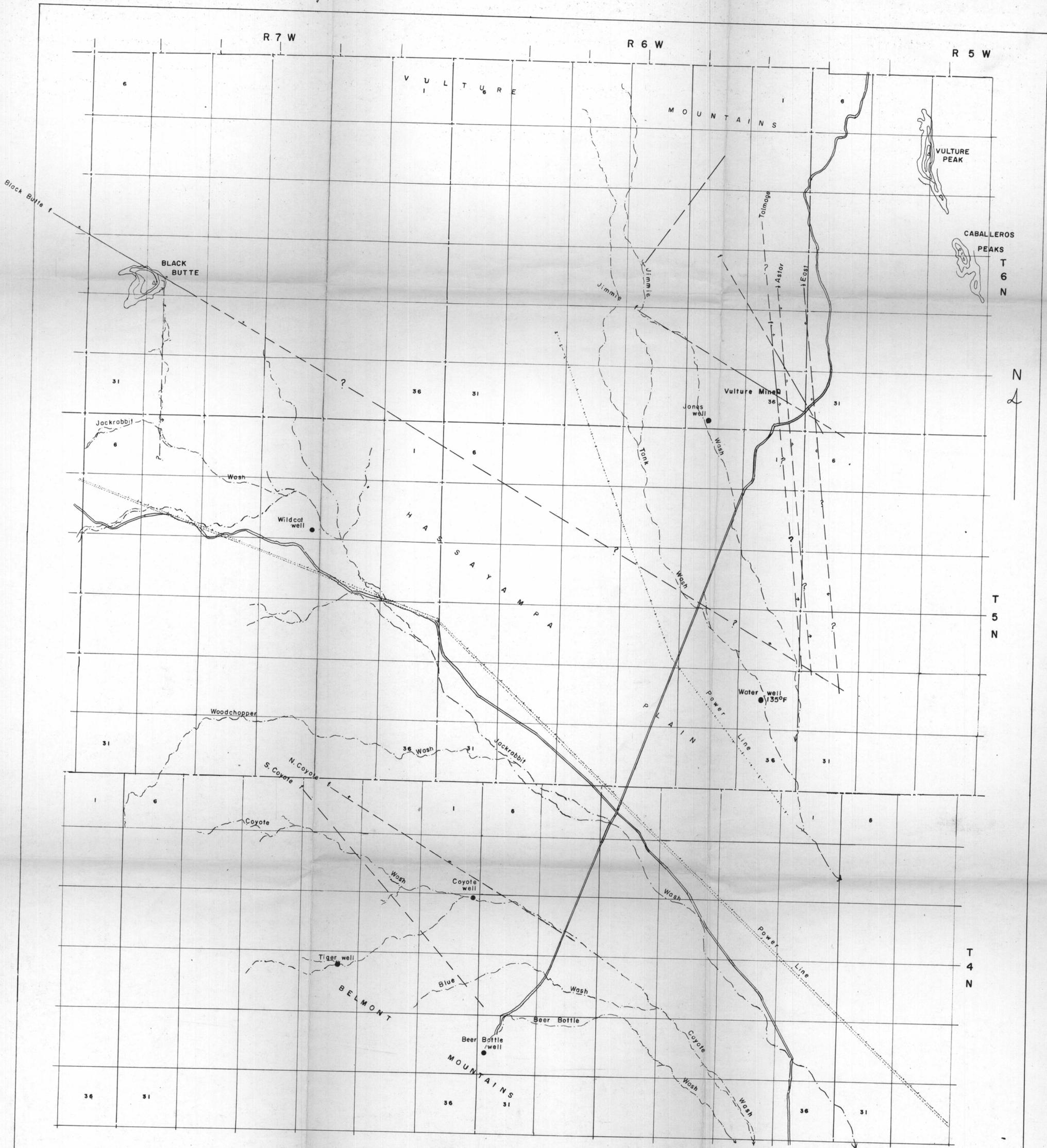
LARAMIDE

CRETACEOUS

PALEOZOIC AND MESOZOIC UNDIVIDED

YOUNGER PRECAMBRIAN

OLDER PRECAMBRIAN



GRESHAM GEOPHYSICAL CORPORATION

A GEOTHERMAL STUDY

GEOLOGICAL RECONNAISSANCE OF THE  
HASSAYAMPA PLAIN & ADJACENT AREAS  
MARICOPA COUNTY, ARIZONA

SCALE 1:62500

1 2 3 mi.

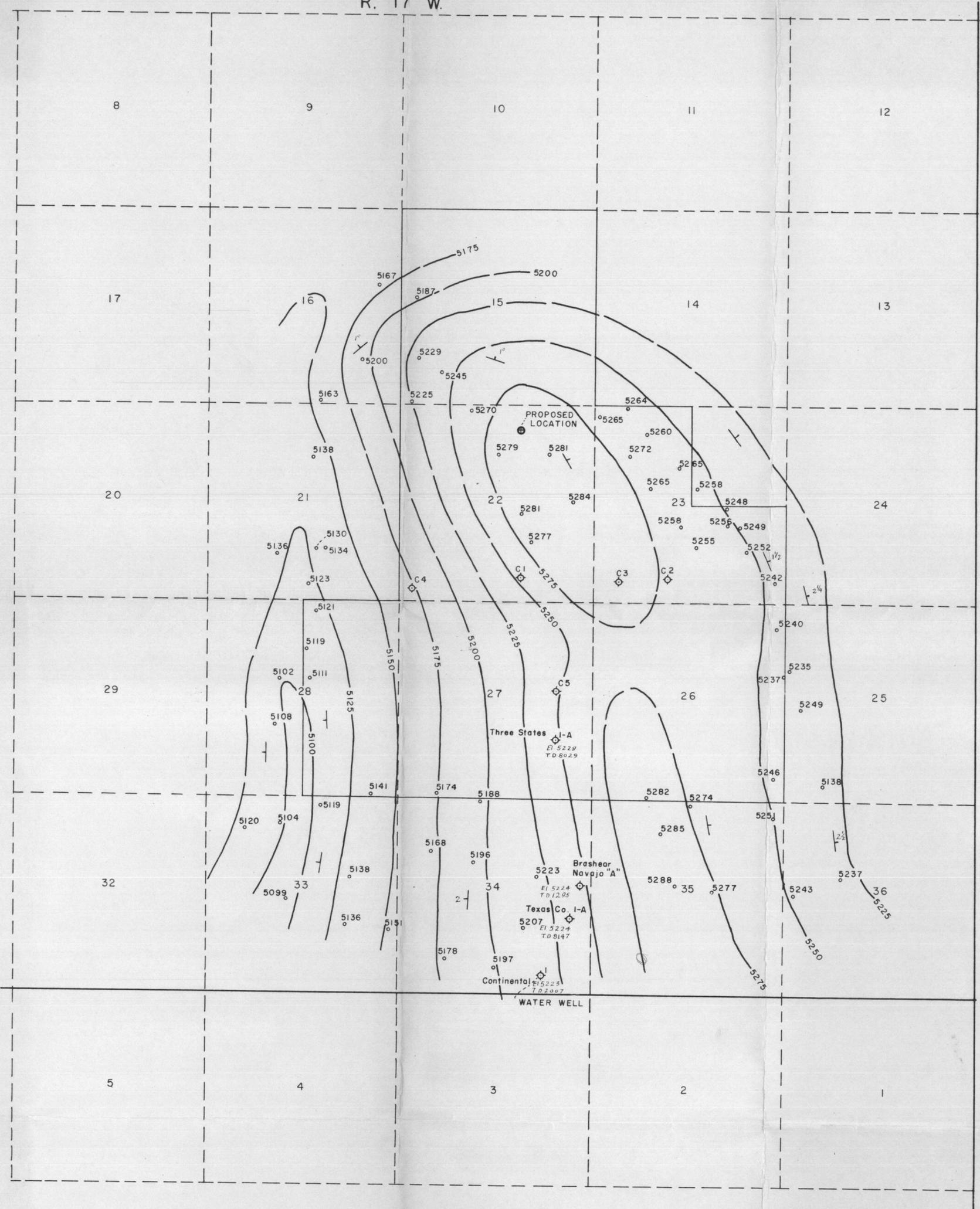
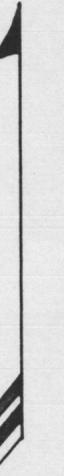
SILAS C. BROWN & ASSOCIATES      PHOENIX, ARIZONA

Silas C. Brown, Geologist, Registered & Certified



R. 17 W.

N



T. 31 N.

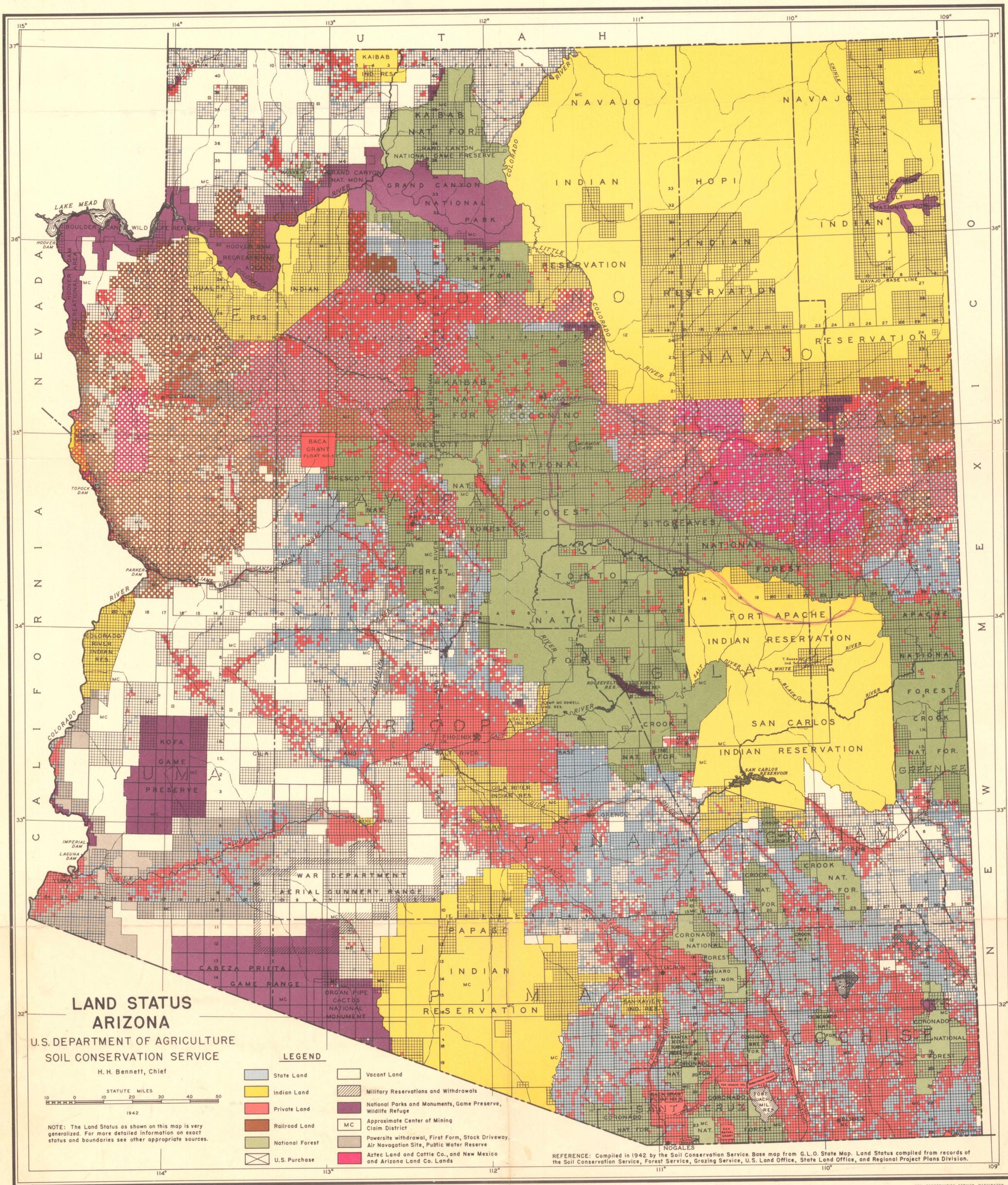
T. 30 N.

REYNOLDS MINING COMPANY

STRUCTURE MAP  
of the  
CHIMNEY ROCK LEASE  
San Juan Co., New Mexico

SCALE - 1" = 2000'  
C. I. = 25'

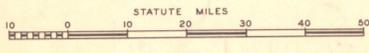
Silas C. Brown      Durango, Colorado  
March 1956



# LAND STATUS ARIZONA

U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

H. H. Bennett, Chief



1942

NOTE: The Land Status as shown on this map is very generalized. For more detailed information on exact status and boundaries see other appropriate sources.

## LEGEND

- |                 |   |
|-----------------|---|
| State Land      | Vacant Land   |
| Indian Land     | Military Reservations and Withdrawals   |
| Private Land    | National Parks and Monuments, Game Preserve, Wildlife Refuge                                |
| Railroad Land   | Approximate Center of Mining Claim District   |
| National Forest | Powersite withdrawal, First Form, Stock Driveway, Air Navigation Site, Public Water Reserve |
| U.S. Purchase   | Aztec Land and Cattle Co., and New Mexico and Arizona Land Co. Lands                        |

REFERENCE: Compiled in 1942 by the Soil Conservation Service. Base map from G.L.O. State Map. Land Status compiled from records of the Soil Conservation Service, Forest Service, Grazing Service, U.S. Land Office, State Land Office, and Regional Project Plans Division.

Southwest Region

SOIL CONSERVATION SERVICE, WASHINGTON, D. C.  
1921 JUNE 1949

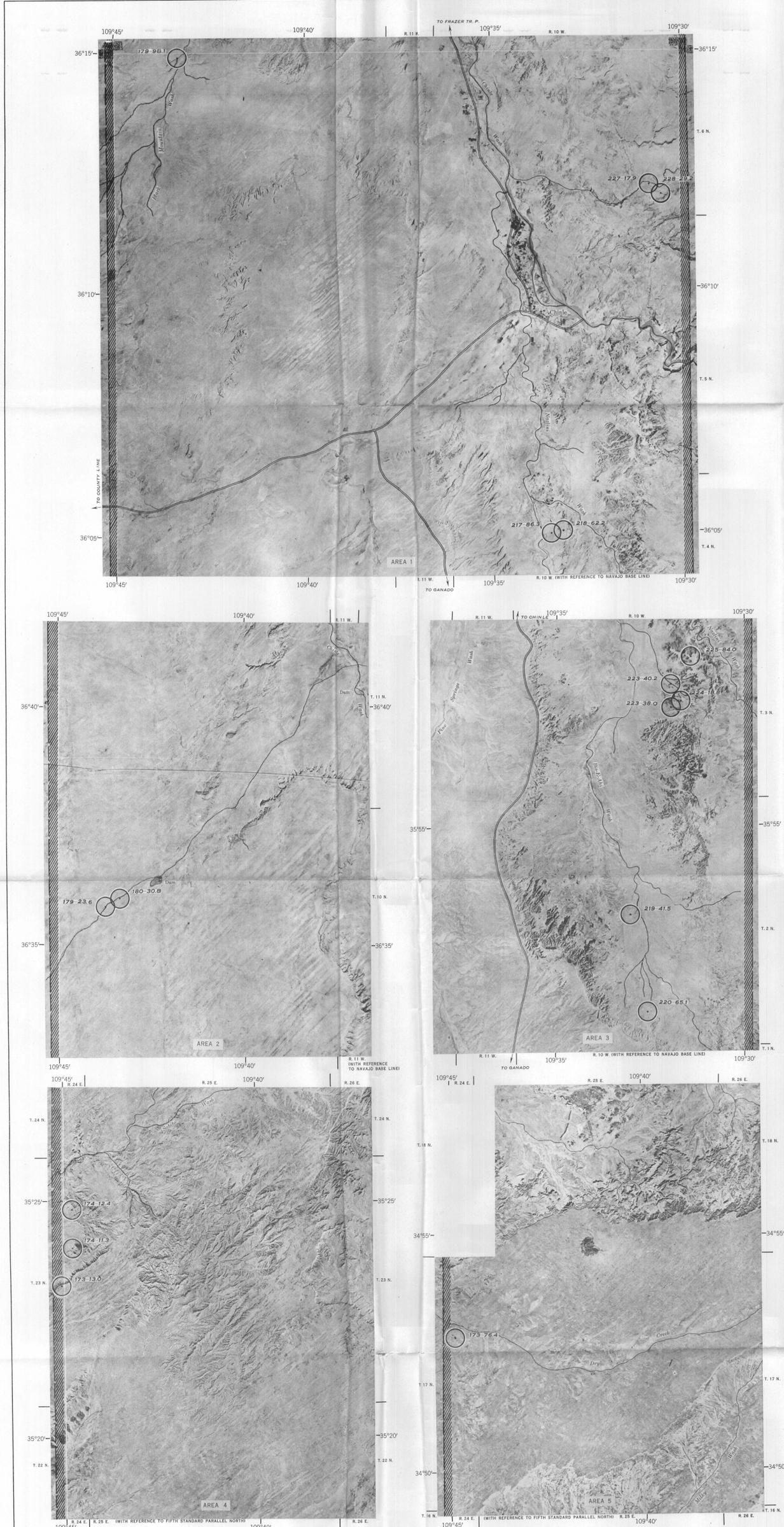
*Division 22,500,000 sq ft area*



Map by S. C. ...  
Orange Block  
± 68,000 Acre  
1/4" or 1/10,000 scale  
3-350 per Acre + 5% bill

ARIZONA

SITGREAVES



**AIRBORNE RADIOACTIVITY SURVEY OF THE PINTO-CHINLE AREA**  
APACHE COUNTY, ARIZONA  
By J. L. Neuschke

The accompanying maps show the results of an airborne radioactivity survey of approximately 1,700 square miles in Apache County, Ariz. Maps for five areas in which radioactivity anomalies were found are shown in detail. The survey was made by the U. S. Geological Survey, January 25 to February 4, 1954, as part of a cooperative program with the U. S. Atomic Energy Commission.

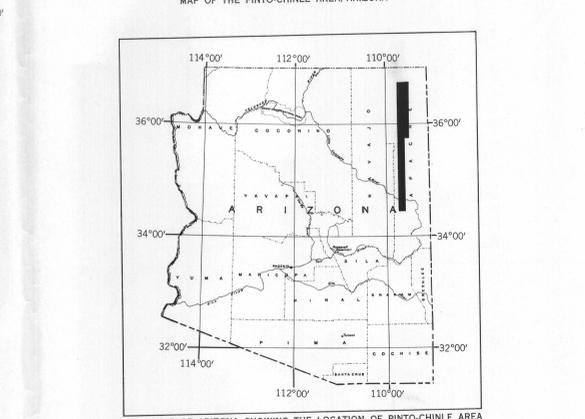
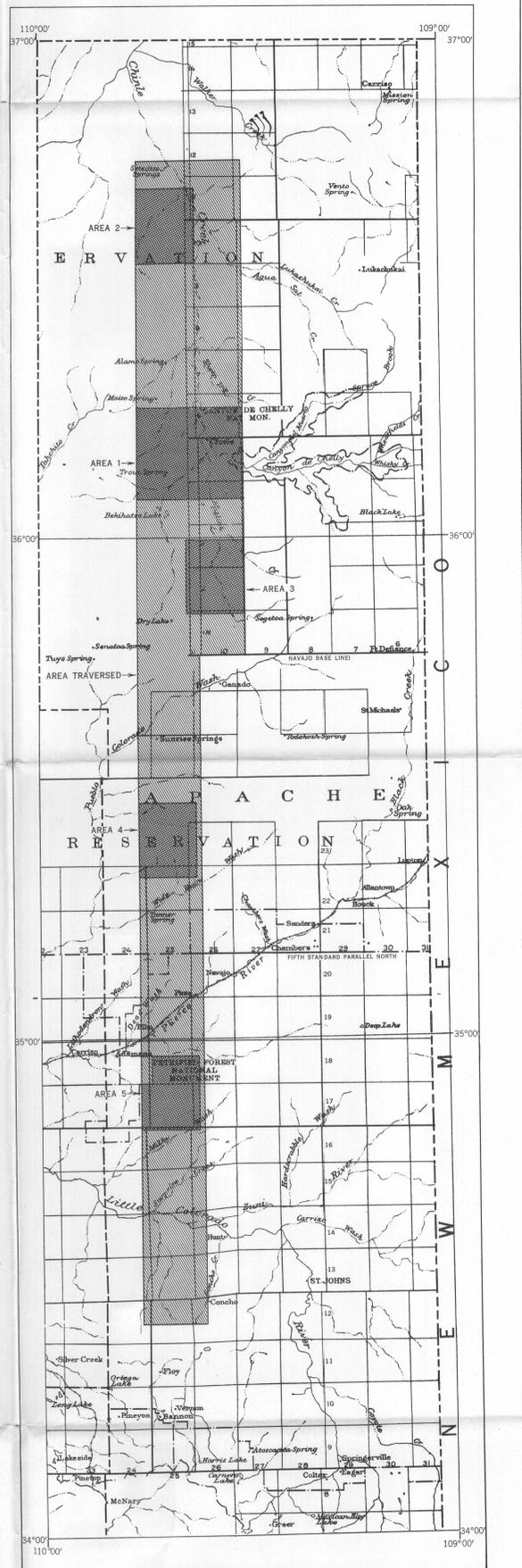
The survey was made with scintillation detection equipment. Parallel traverse lines, spaced at quarter-mile intervals were flown approximately 500 feet above the ground at an average air speed of 150 miles per hour. Aerial photographs were used for pilot guidance, and the flight path of the aircraft was recorded by a photostabilized continuous-strip-film camera. The distance of the aircraft from the ground was measured with a continuously recording radio altimeter.

At 500 feet above the ground the width of the zone from which anomalous radioactivity is measured varies with the intensity of radiation of the source; for strong sources the width is as much as 1,400 feet. Quarter-mile spacing of the flight paths of the aircraft should be adequate to detect anomalies from strong sources of radioactivity. However, small areas of considerable radioactivity midway between flight paths may not be noted.

The approximate locations of the radioactivity anomalies are shown on the accompanying map. The plotted position of these anomalies may be in error by as much as a quarter of a mile owing to errors in available base maps or to areas on the base maps as large as several square miles in which it is impossible to find and plot recognizable landmarks.

The present technique of airborne radioactivity measurement does not permit distinguishing between activity due to thorium and that due to uranium. An anomaly therefore may represent radioactivity due entirely to one or a combination of these elements.

It is not possible to determine the extent or radioactive content of the materials responsible for abnormal radioactivity. The information given on the accompanying maps indicates only those localities of greater-than-average radioactivity and therefore suggests areas in which uranium or thorium deposits are more likely to occur.



**AIRBORNE RADIOACTIVITY SURVEY OF THE PINTO-CHINLE AREA**  
APACHE COUNTY, ARIZONA



**EXPLANATION**

○ 217-86.3  
ANOMALY: greater-than-average radioactivity; number refers to flight line and position and not to intensity. The center of the circle is the approximate location of the airplane when the anomaly was recorded. The size of the circle itself is meaningless.

▨ BOUNDARY OF AREA TRAVERSED



APPROXIMATE MEAN ELEVATION, 1954



APPROXIMATE MEAN ELEVATION, 1954



APPROXIMATE MEAN ELEVATION, 1954



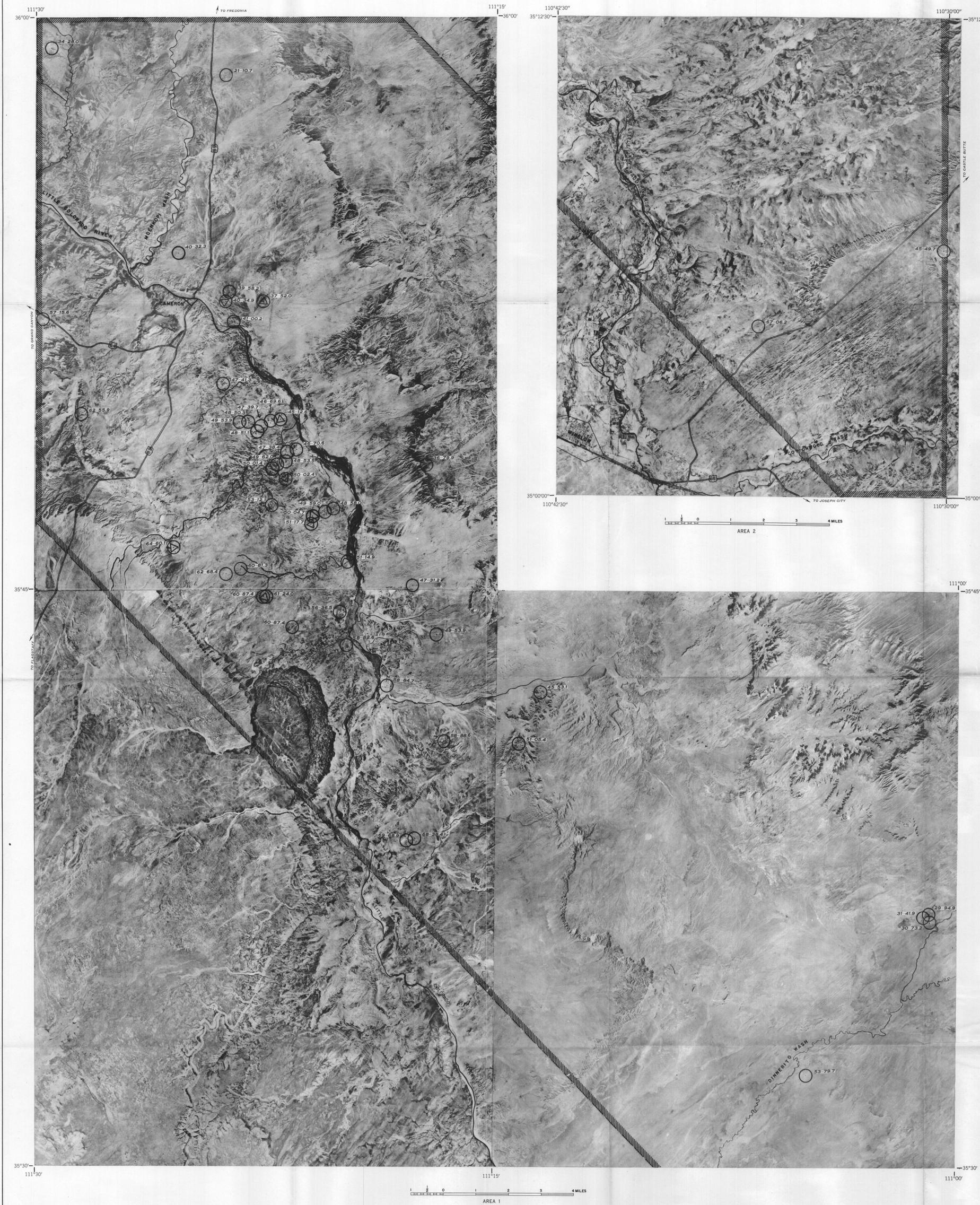
APPROXIMATE MEAN ELEVATION, 1954



APPROXIMATE MEAN ELEVATION, 1954



APPROXIMATE MEAN ELEVATION, 1954



AIRBORNE RADIOACTIVITY SURVEY OF THE PAINTED DESERT AREA,  
 COCONINO AND NAVAJO COUNTIES, ARIZONA  
 by J. L. Meuschke

The accompanying maps show the results of an airborne radiometric survey of 1,300 square miles of Coconino and Navajo Counties, Ariz. Maps for two areas in which radiometric anomalies were found are shown in detail. The survey was made by the U. S. Geological Survey, January 26 to February 24, 1954, as part of a cooperative program with the U. S. Atomic Energy Commission.

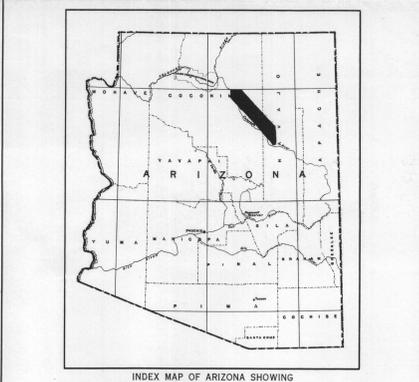
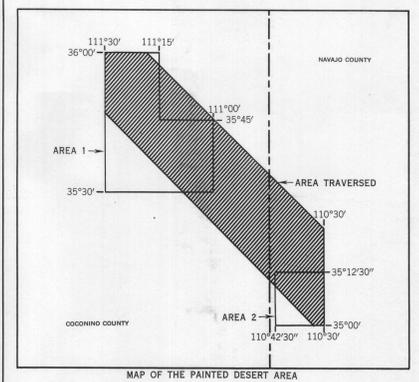
The survey was made with scintillation detection equipment. Parallel traverse lines, spaced at quarter-mile intervals, were flown approximately 500 feet above the ground at an average air speed of 150 miles per hour. Aerial photographs were used for pilot guidance, and the flight path of the aircraft was recorded by a generalizable continuous-strip film camera. The distance of the aircraft from the ground was measured with a continuously recording radio altimeter.

At 500 feet above the ground the width of the zone from which anomalous radioactivity is measured varies with the intensity of radiation of the source; for strong sources the width is as much as 1,000 feet. Quarter-mile spacing of the flight paths of the aircraft should be adequate to detect anomalies from strong sources of radioactivity. However, small areas of considerable radioactivity midway between flight paths may not be noted.

The approximate locations of the radiometric anomalies are shown on the accompanying maps. The plotted position of these anomalies may be in error by as much as a quarter of a mile owing to errors in available base maps or to areas on the base maps as large as several square miles in which it is impossible to find and plot recognizable landmarks.

The present technique of airborne radiometric measurement does not permit distinguishing between activity due to thorium and that due to uranium. An anomaly therefore may represent radioactivity due entirely to one or a combination of these elements.

It is not possible to determine the extent or radioactive content of the materials responsible for abnormal radioactivity. The information given on the accompanying maps indicates only those localities of greater-than-average radioactivity and therefore suggests areas in which uranium or thorium deposits are more likely to occur.



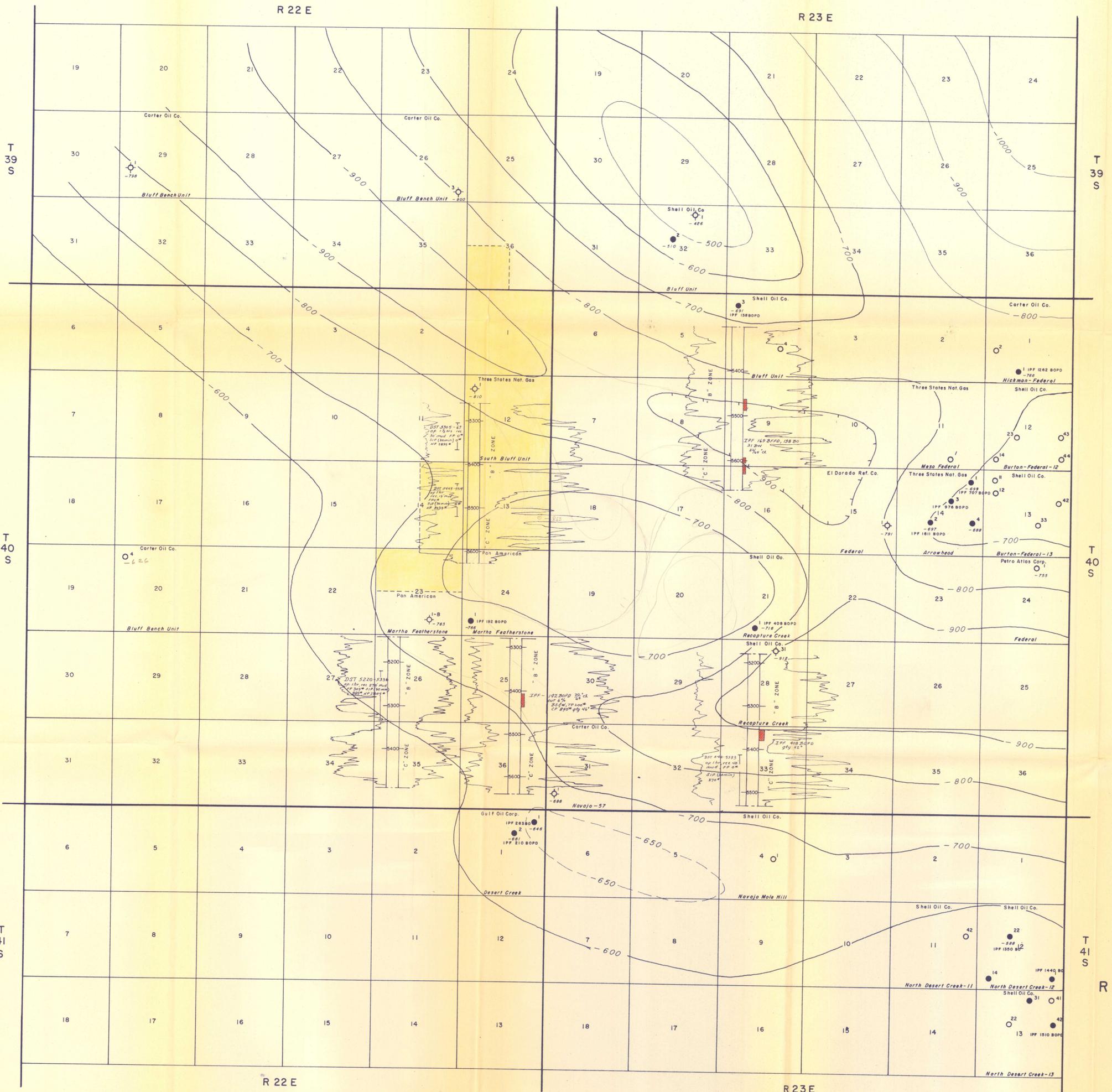
EXPLANATION

○ ANOMALY; greater-than-average radioactivity; number refers to flight line and position and not to intensity. The center of the circle is the approximate location of the airplane when the anomaly was recorded. The size of the circle itself is meaningless.

△ ANOMALY ASSOCIATED WITH KNOWN MINING OPERATIONS

▨ BOUNDARY OF AREA TRAVERSED

AIRBORNE RADIOACTIVITY SURVEY  
 OF THE PAINTED DESERT AREA  
 COCONINO AND NAVAJO COUNTIES  
 ARIZONA  
 1955

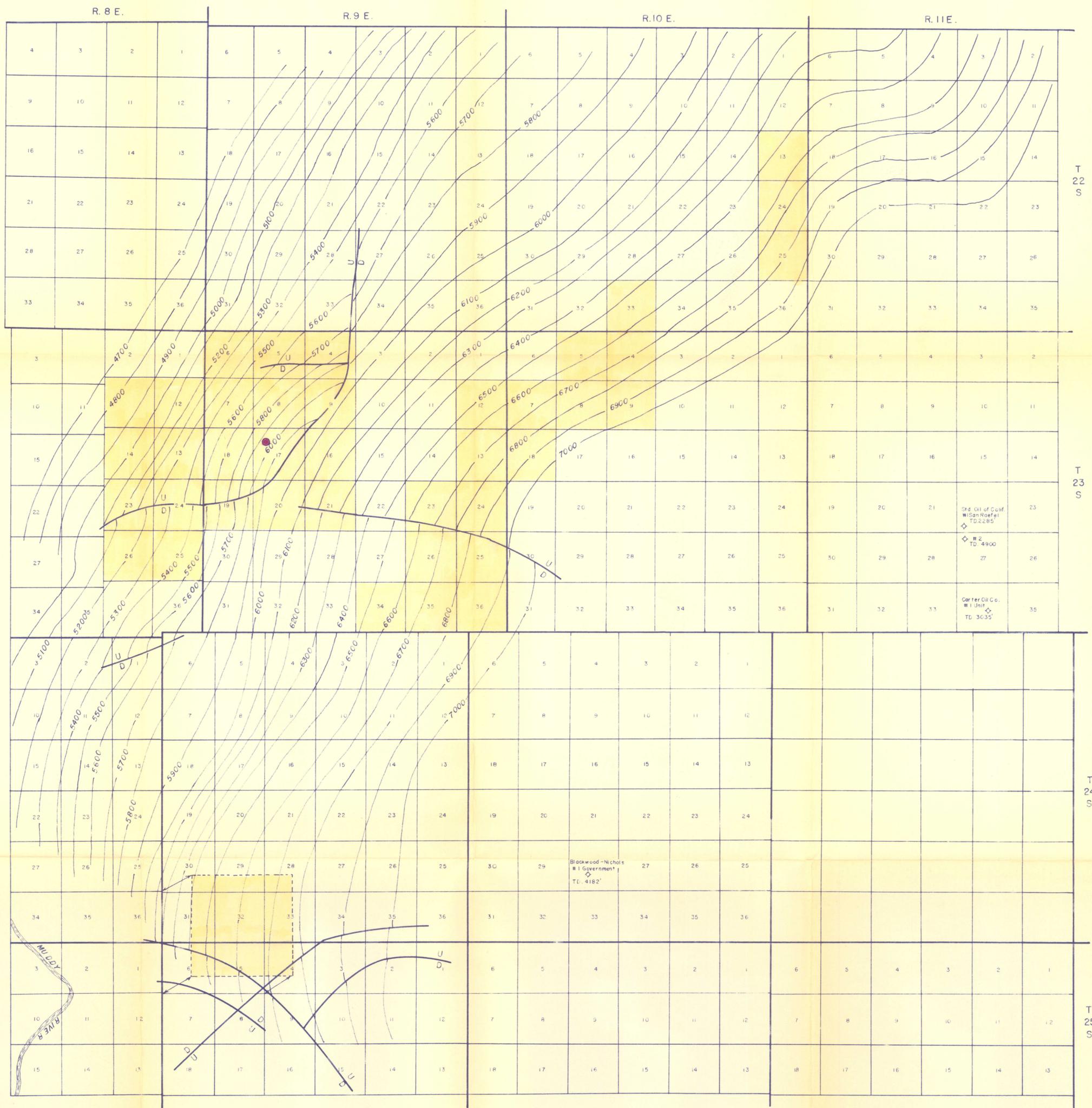


 Acreage Evaluated

**RENWAR OIL CORPORATION**  
 STRUCTURE CONTOUR MAP  
 WEST ANETH AREA  
 San Juan County, Utah  
 Scale 2" = 1 Mile  
 C. I. = 100 feet

SILAS C. BROWN & ASSOCIATES  
 S. C. Brown  
 R. E. Louth  
 A. Vitelli Jr.  
 Durango, Colorado  
 July, 1957

CONTOUR DATUM: TOP OF "B" ZONE, UPPER PARADOX MEMBER



LEASE BLOCK

DATUM: Base of Shinarump Conglomerate

REYNOLDS MINING CORPORATION  
OIL & GAS DIVISION

SURFACE STRUCTURE MAP

DEVILS CANYON AREA

Emery County, Utah

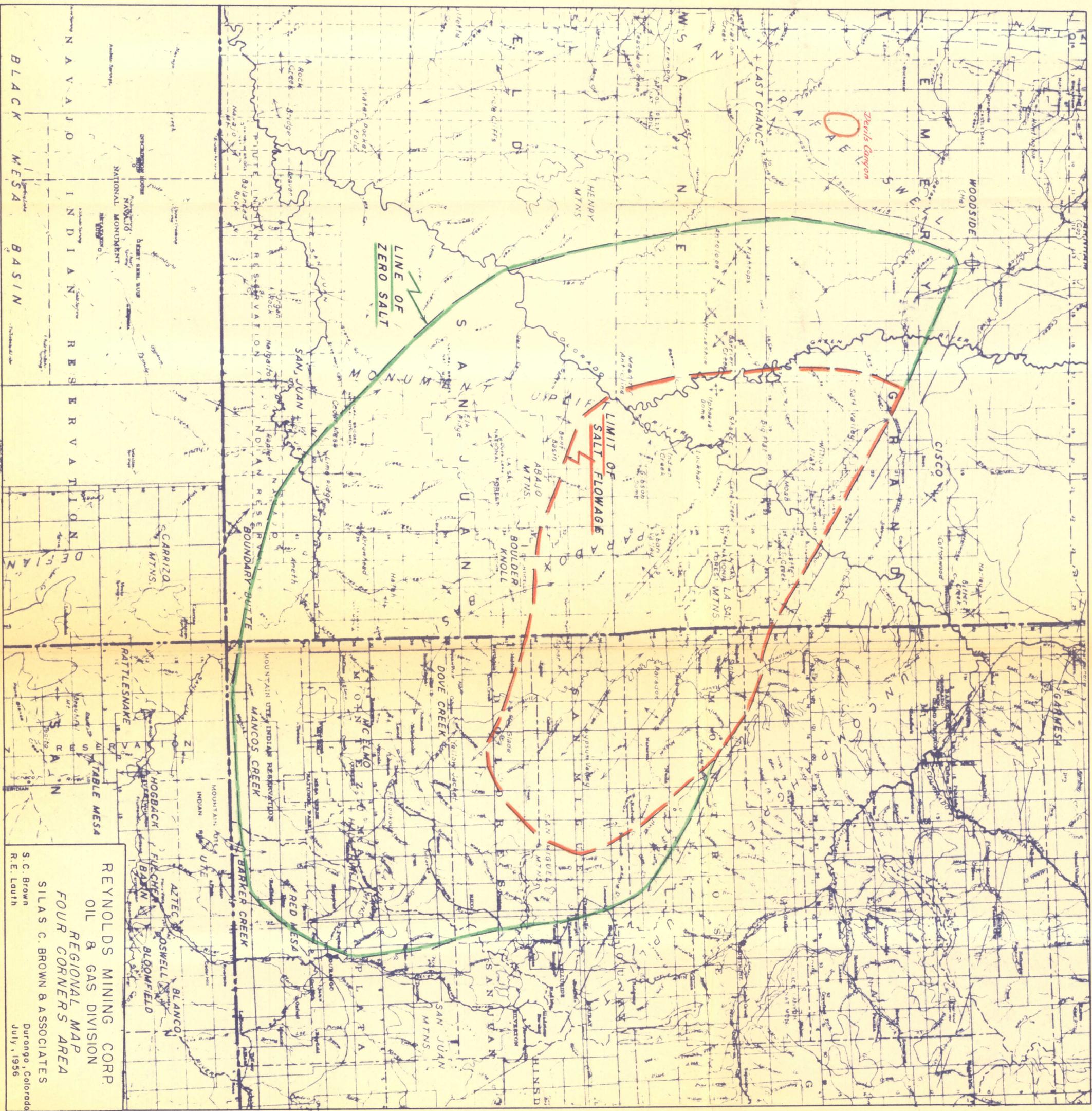
SCALE 1" = 1 mile  
C.I. = 100 feet

SILAS C. BROWN & ASSOCIATES

S.C. Brown  
R.E. Louth

Durango, Colorado  
July, 1956

EXHIBIT I



REYNOLDS MINING CORP.  
 OIL & GAS DIVISION  
 REGIONAL MAP  
 FOUR CORNERS AREA  
 SILAS C. BROWN & ASSOCIATES  
 S. C. Brown  
 R. E. Louth  
 Durango, Colorado  
 July, 1956