TOMO ITO
CONSULTING MINING GEOLOGIST AND METALLURGIST
1902 HAVEMEYER LANE
REDONDO BEACH, CALIFORNIA 90278
TELEPHONE (213) 376-3635

A PRELIMINARY REPORT

HACKBERRY SILVER MINE

MOJAVE COUNTY, ARIZONA

Northern Az. Minerals
Tom Roberts
P.O. Box 3371 757-3020
Kingman, Az.
86401

Prepared for:

August 25, 1969

Mr. N. M. Hughes

NICK HUGHES
6094 CARLSBAD AVE.
LAS VEGAS, NEVADA 89110

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INTRODUCTION

The Hackberry Silver Mine is owned by The Eleven Western States Development Company, N. W. Hughes, President. The property comprises 12 patented claims, located principally in Sections 21 and 28, T. 23 N., R. 14 W., Peacock Mining District, Mojave County, Arizona (please refer to claim map, Appendix I).

The center of the property is less than 5 miles from a loading ramp on a siding in Hackberry, and water, power, and telephone is available in the area of the town and the ranch as shown in Figure B. Kingman is approximately 35 miles away where supplies, good accommodations, good trucklines, and transportation including a commercial airline, are available. Industrial and mining supplies are available in Las Vegas, 135 miles distance(Figure A).

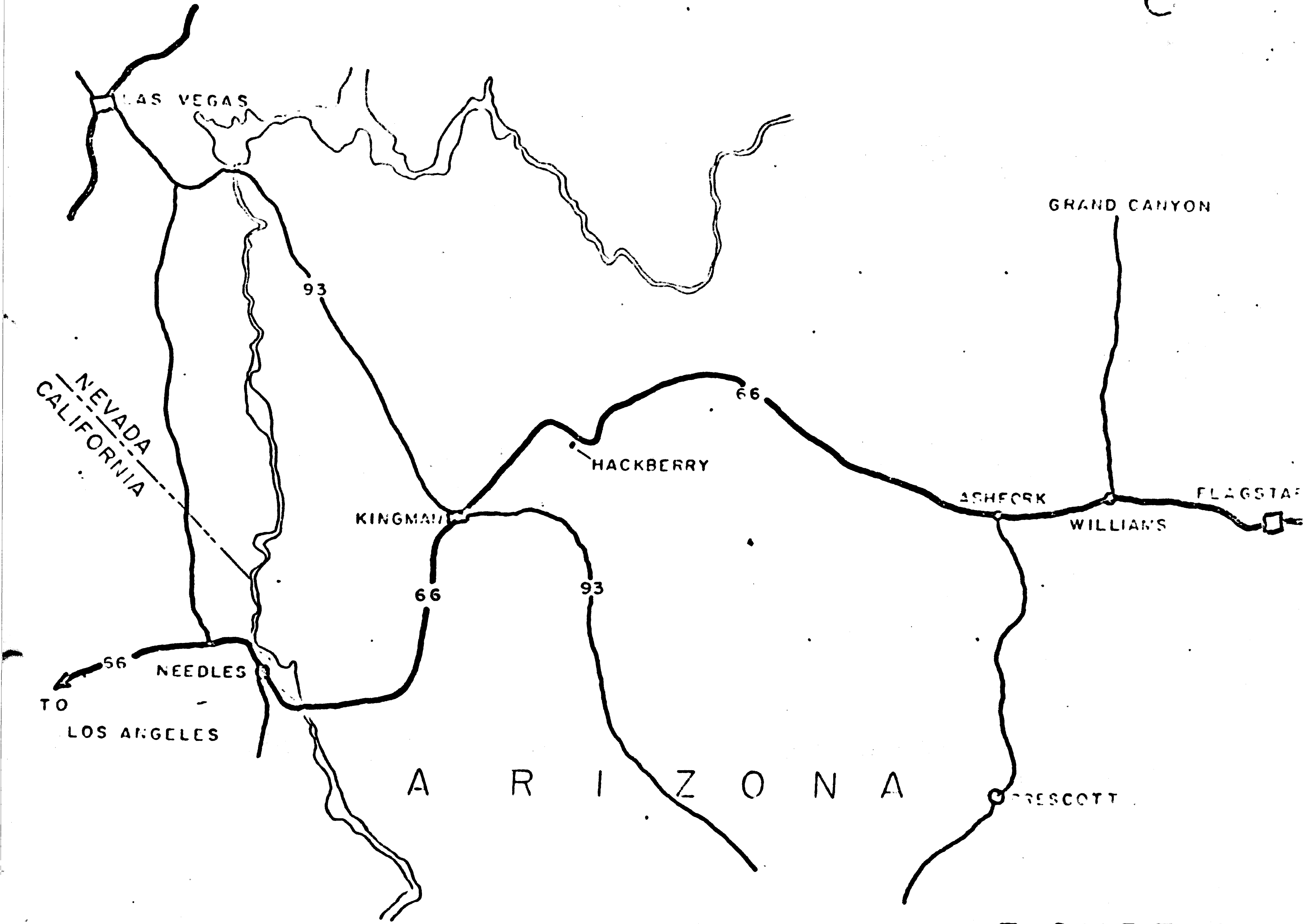
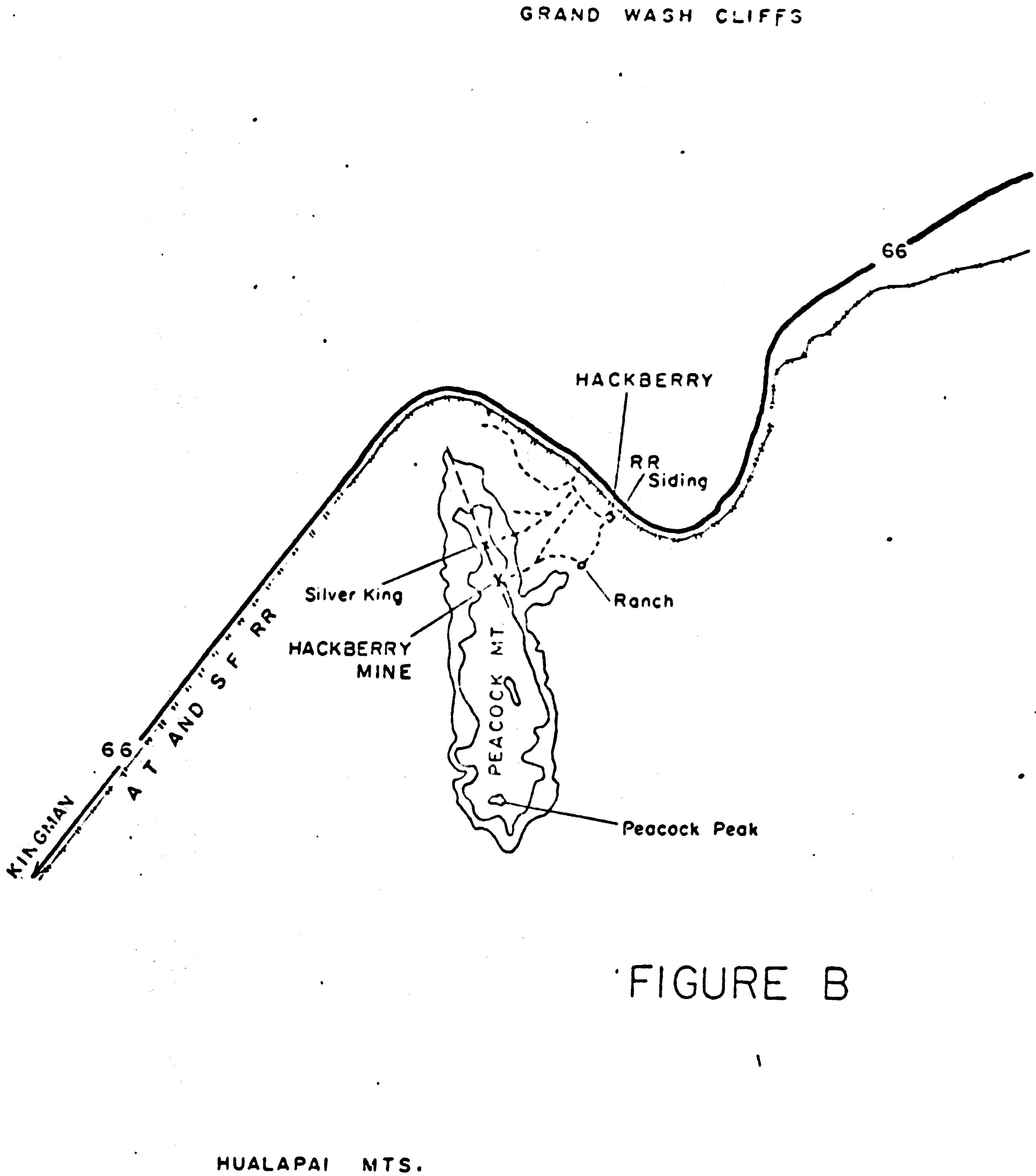

AS VEGAS
93
NEVADA
CALIFORNIA
GRAND CANYON
66
HACKBERRY
KINGMA
ASHFORK
FLAGSTA
WILLIAMS
66
93
56
NEEDLES
TO
LOS ANGELES
ARIZONA
ESCOTT

FIGURE A



GRAND WASH CLIFFS
66
HACKBERRY
RR Siding
Silver King
Ranch
HACKBERRY MINE
PEACOCK MT
Peacock Peak
66
AT AND SF RR
KINGMAN
HUALAPAI MTS.

FIGURE B

The patented lode claims include most of the original claims of the old Hackberry Consolidated Mining Company, situated on the northeatern flank of the Peacock Mountains, about 3 airline miles west of Hackberry, which is on the main line of the Santa Fe Railway (please refer to Figure B). The center of the property is less than 4 miles from Highway 66.

Although past records are rather obscure, the Hackberry Mine was originally discovered about 1879, and it is reported to have produced about $3,000,000, mostly in silver. Activity ceased from about 1884 until 1914, when there was a period of exploration and development, with some production. A tremendous amount of underground development was carried out very systematically, as attested by the excellent underground map (Appendix IV). All this work ceased in 1920-21, the workings became flooded, and have remained inactive to this day. Recently, there are signs of activity on the Silver King properties adjoining the Hackberry to the north (please refer to Appendix II, Location map of the Silver King Group). With the exception of the vertical shaft, all the workings of the Hackberry mine are flooded and inaccessible. The vertical shaft appears to be in reasonably good condition and might be rehabilitated.

GENERAL GEOLOGY

The rocks of the district consist principally of pre-Cambrian granitic rock, cut by large masses of geologically later granite. The granite is mainly medium grained and porphyritic; weathered surfaces are usually light buff and occasionally reddish-brow. Dikes are prominent throughout the area; the larger ones are parallel to the predominent northwest-trending system of vein structures, but others of minor magnitude trend in various directions. Remnants of extrusive volcanic rocks of Tertiary or Quaternary age are found only along the northeastern margin of the area.

Outcrops of pre-Cambrian schists and gneiss are quite prominent near the northern tip of the Peacock Mountains; in the east central section, pegmatite dikes can be found in great numbers. There are numerous small stocks and irregular bodies of the dark gabbro and associated diabase dikes, which are most likely differentiation facies of the granite stock which forms the bulk of the range.

Faulting is well expressed by a well-defined system of northwest-trending shear zones in which the veins occur. Two shear zones join at a Y in the vicinity of the main inclined shaft near the center of the Sunshine claim (refer to Appendices II and III). The sheared layers formed the channels along which were introduced the bulk of the ore minerals. The attitudes of these shear zones are relatively flat with a dip to the southwest; brecciation is pronounced. The prominent structures display an en echelon pattern; others show branching and considerable horsetailing near the north end of the Peacock range.

The principal shear zone can be traced from the South Hackberry claim, into the Sunshine where it branches, and the two continue northwesterly for a total of some 8,000 feet or more. The Hackberry dips more gently, about 40 degrees, and the Hillside (Silver King) appears to be steeper at about 55 degrees in the vicinity of the Silver King mine workings. These two structures can be traced easily, because the soft gouge material on the hangingwall side forms the saddles in the ridges along the strike.

ORE DEPOSITS

The ore shoots occur in quartz veins filling the wide shear zones. From surface indications and from available underground information, the oreshoots vary in shape, size, and occurrence. The ore zones may shift from one wall to the other, but past records favor the footwall, against a porphyritic dike which is frozen to the granitic footwall. Where the richest oreshoots occurred near the surface, this dike is heavily stained with iron oxides. Localization of orebodies may occur at intersections of forkings of veins, or where the strike changes, but these are not definite criteria. It can be noted, however, that most of the underground activity centers around the forking of the Hackberry vein and the "Hillside vein". At this time it cannot be established for certain, but it appears that the upper, or the Hillside vein has more potential than the Hackberry as they branch and continue northward. If this holds true, Hillside claims 1 and 2 become highly desirable extensions to the present claims; this may hold true for Dippers 3 and 4.

It is apparent also from surface indications and underground information that "Blind-lead" types of oreshoots do occur in the Hackberry. These had an only slight indication or perhaps none at the surface and orebodies opened up below. The writer feels that both the forking in the vein and blind laeds are responsible for the vast workings in the Hackberry Mine(please refer to Figures C-1 and C-2).

The ore minerals fall within 3 general groups: (1) oxidation products, (2) products of downward sulfide enrichment, and (3) primary (hypogene) minerals. Minerals of most interest here, of course, are those of silver and lead which are usually closely related. Visible or remaining surface indications do not suggest a strong "iron cap" or gossan providing the key to rich pockets due to secondary enrichment. There are reports of the discovery of "horn silver"(cerargyrite) in the early days. This silver chloride is definitely a product of oxidation and would be found near the surface. Surface deposits of any consequence must have been found in the trench-like remnants of surface diggings, along the strike from the main inclined shaft to just south of the old original shaft. Past records show that the silver-lead ratio is exceptionally high and obviously places this deposit in the category of a silver mine.

The only ore minerals now available are those found in the mine dumps. Minerals which can be identified megascopically, or by use of a hand-lense, are galena, argentiferous (silver-bearing) galena, pyrite, chalcopyrite, sphalerite, magnetite, limonite, and hematite. Although old production records show copper, the dump material show copper minerals only in minor amounts; this also applies to sphalerite, the zinc sulfide. The latter and chalcopyrite (copper sulfide) usually show a tendency to increase with depth.

THE HACKBERRY MINE

The structure is strong, within which occur oreshoots which, although somewhat irregular, are of the deep-seated type and can persist to considerable depth. Because surface ore indications are no longer visible, and underground workings are inaccessible, other information and data must determine the potentials of this property. Favorable data are as follows:

1) Extremely strong structures - the Hackberry and Hillside are very strong and persistent. These shear zones (zones of weakness) within which the oreshoots were emplaced, can be traced for several thousands of feet. Some offshoots may warrant investigation.

2) Ore samples on the dumps indicate deepseated type of ore minerals and should persist to depth.

3) Past production record of some $3,000,000, principally silver, which was recovered from the stoped area around the "old original shaft" shown on large Map Appendix I and the stoped area shown on map Appendix II.

4) Favorable high ratio of silver to lead content of the ore - from old shipping and production records.

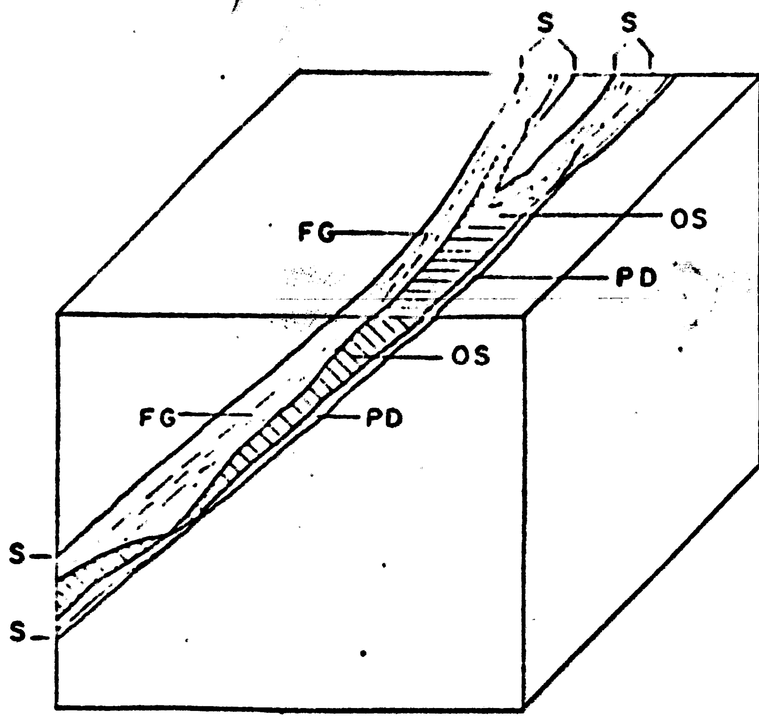


FIGURE C-1

APPROXIMATE MA
HACKBERRY ORE CH
AT FORKING OF SH
ZONE.

(NOT TO SCALE)

S SHEAR ZONE
SS
OS ORE SHOOT
FG FAULT GOUGE, HIGHLY ALTE
PD PORPHYRY DIKE
BL BLIND LEAD

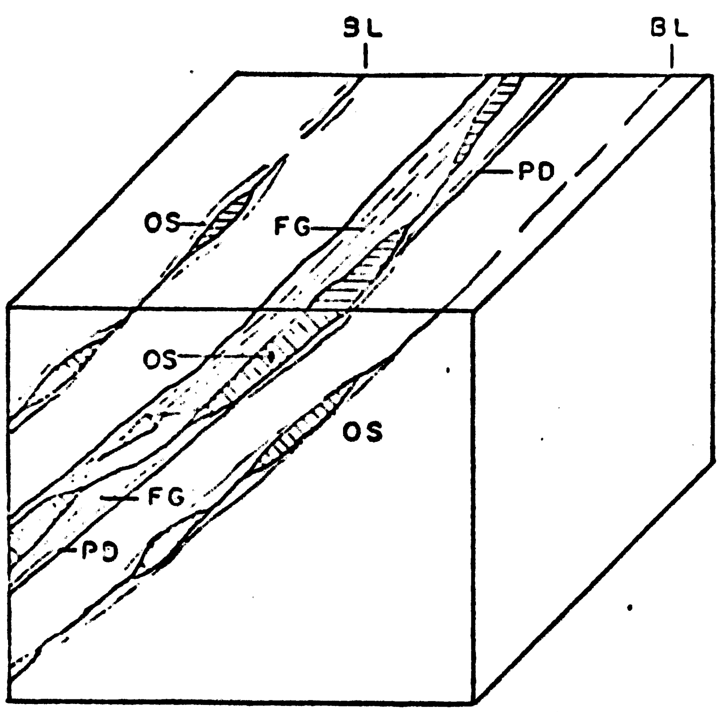


FIGURE C-2

BLOCK DIAGRAM
ILLUSTRATING:
1) EMPLACEMENT OF
ORESHOOTS IN SHEA
ZONE
2) POSSIBLE EN ECHE
(PARALLEL) STRUCTU
WITH ORE SHOOTS
3) POSSIBLE BLIND LE
ORE SHOOTS

5) Old mine map of the Hackberry Consolidated Mining Company, with an inclined shaft reaching a depth in excess of 900 feet (Appendix IV) - subsequent interest in the Middle Hackberry and the Silver King to the north along the extension.

6) Many hundreds of feet of drifts, crosscuts, raises, and winzes in the target area with very little stoping. Man-ways and ore-chutes constructed for ore removal.

7) A second entry into the main workings - the vertical shaft which connects with the 600ft. level near the old original inclined shaft. This is the only shaft which may be rehabilitated.

Less favorable conditions:

1) Extremely flat incline of the other two shafts - difficult to rehabilitate due to caving of hangingwall.

2) Great volume of water flooding the old workings.

It might be added that complete submergence of workings and timbers might prevent collapse in the workings. Air-slack of the fault gouge can be a problem. It is doubtful that the mine makes excessive water - otherwise the shafts and underground workings to 900 feet would not have been possible. Available water can always be utilized.

OBSERVATIONS AND CONCLUSIONS

The favorable conditions outweigh the less favorable conditions by a large margin. There is every indication that there is an orebody almost 900 feet deep, lying between the two inclined shafts, from which little ore has been stoped out. Although the structure is strong and wide, the width and the tenor (grade) of the ore is an unknown factor.

The ideal situation would be to inspect the underground workings and perform a thorough sampling job. To dewater and rehabilitate an old mine such as this is an expensive and tedious project. Although the main workings should be intact due to complete submergence, dewatering and the introduction of air may cause caving, due to the low incline and the altered clay-like gouge on the hangingwall.

The remaining solution is to plan a preliminary exploration by a core-drilling program. Many conditions and factors must be considered for this type of exploration such as:

1) Types and conditions of rocks to be drilled. Granitic rock should have no problems, but the shear zones will contain highly fractured material and the veins can be shattered. This can cause loss of circulation in drilling - even to the point of losing the hole. Core recovery can be very poor; however, structure can be determined by an experienced man, and this is most important.

2) Placement and spacing of holes - this is important in this instance in order to avoid the underground workings. every advantage should be taken to intersect other possible structures (please refer to Figure C-2). Spacing of holes or a pattern is required to conform to a systematic program. This preliminary series of holes is primarily to determine if a complete program of this kind is warranted.

3) Depth of holes for maximum effectiveness. Depth of the

holes is determined by the location and the target or targets. If a hole were to be drilled north of the fork of the 2 main structures, it should be so placed that it will cut both structures (please refer to A, B, C - Figure D, or possibly the condition in Figure C-2). Spacing of holes is required to intersect certain targets. To intersect the Hackberry vein at the 600ft. level, a vertical hole of little less than 400' plus the difference in elevation of the collars is necessary because the holes be on the high side of the mountain.

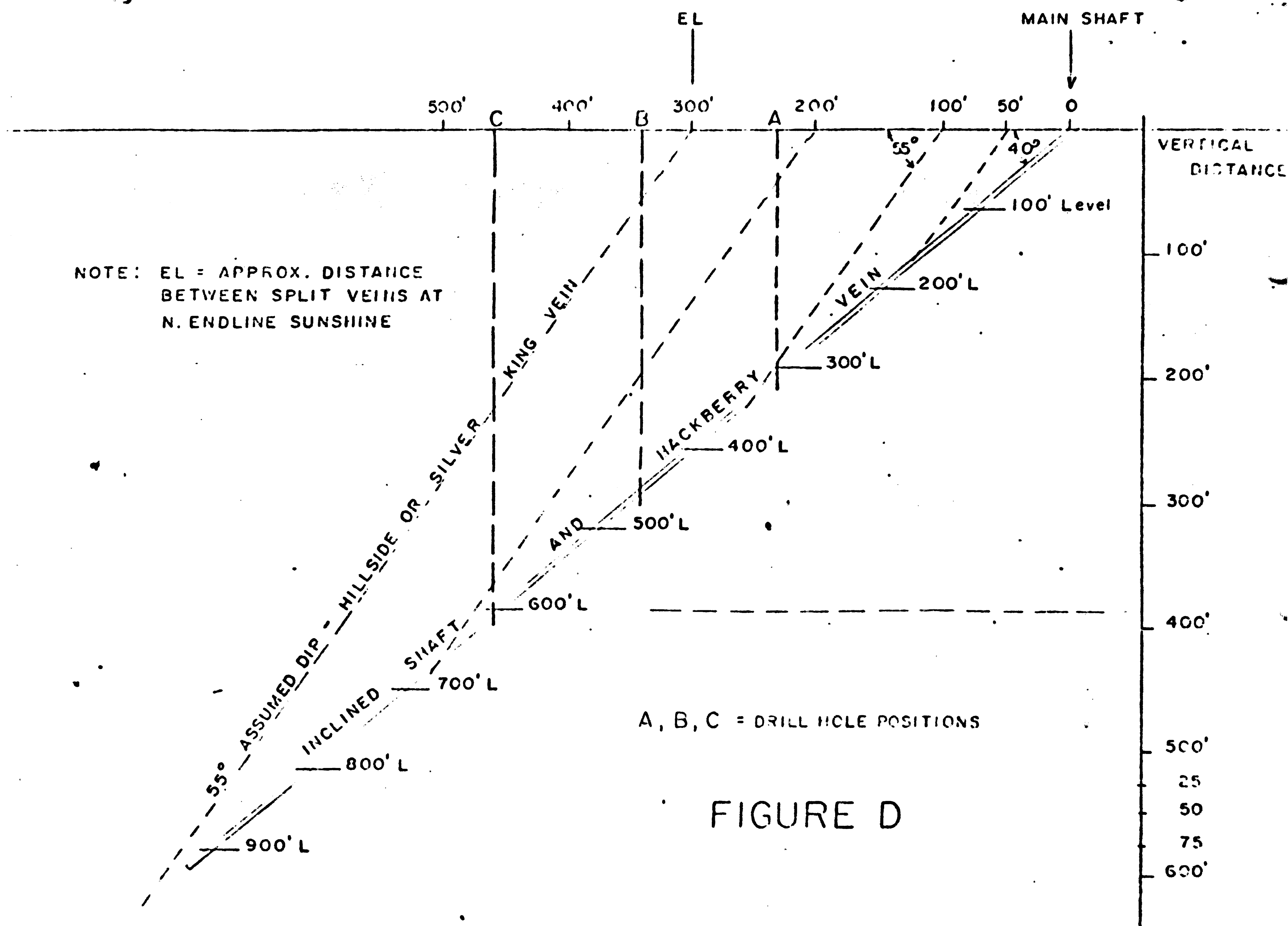
Sufficient number of holes must be drilled in the initial project to satisfactorily delineate the orebodies where the underground preparations were made to remove the ore. This is roughly the area bounded by the main inclined shaft to the north and the intersection of the vertical shaft with the original inclined shaft to the south (refer to Appendix IV). The main target should be within these boundaries and from a depth of the 200ft. level to the 600ft. level. Dependent upon the results of these holes, the next stage of the program should be planned.

1) Preliminary drilling to confirm existence of ore in the main target area.

2) A complete surface survey with topographic mapping with close contours for accurate control of drilling sites.

3) Second stage drilling program to delineate this area with certainty and expansion of area to the south and north.

4) Dewatering and rehabilitation of vertical shaft to make accessible all possible underground workings.



NOTE: EL = APPROX. DISTANCE BETWEEN SPLIT VEINS AT N. ENDLINE SUNSHINE

A, B, C = DRILL HOLE POSITIONS

FIGURE D

5) Systematic sampling and correlation of underground findings with drilling results.

6) Blocking out of ore and determination of the average tenor of ore. It will then be possible to calculate the reserves and the value.

7) Metallurgical tests for beneficiation of the ore.

8) Consideration and planning of operation.

RECOMMENDATIONS

1) Posting of adequate signs on property for protection - notice of non-responsibility, no trespassing, etc. Enclose all open holes on the property.

2) Initial drilling program
   a) Preliminary engineering - spotting of drill holes, etc.
   b) access roads to drill sites
   c) Storage facility for core samples

3) Drilling program
   a) On site supervision
   b) Outside Consultant-geologist

TENTATIVE PRELIMINARY BUDGET

Drilling - 7 to 8 holes, total 4,000' @ $10/ft	= $40,000.00
Mobilization & Demobilization chgs.	= $ 2,000.00
Time - approx. 8 mos.	
Preliminary engineering - site locations survey - 5 days max. + expenses	= $ 1,000.00
Access roads - Dozer work (estimate)	= $ 1,000.00
On-site supervision - 8 mos. @ $600/mo.	= $ 4,800.00
Consultant-geologist - 8 x $800/mo.	= $ 6,400.00
Samples - preparation and assays - 20 x $10	= $ 200.00
Core storage facility	= $ 500.00
Miscellaneous	= $ 1,000.00
Contingencies	= $10,000.00
Total*	= $66,650.00

*This can be trimmed to a more modest figure without reducing effectiveness too much.

The time element for the drilling may seem long, but most drillers estimate an average of 20ft. per day in unknown ground. This is also figured on the basis of one shift per day - they may elect to work 2 shifts, and 6 days per week. It can be seen that many of the estimates can be trimmed if the drilling time is reduced.

Respectfully submitted,

August 25, 1969

Tomo Ito

BRIEF TECHNICAL AND PROFESSIONAL BACKGROUND

Full Name: TOMO ITO
Address: 1902 Havemeyer Lane, Redondo Beach, CA 90278 (since '48)
Citizenship: U. S. A.
Birthdate: September 18, 1909
Birthplace: Oakland, California

Education: Pasadena High School & J.C. 1928
Stanford University - A.B. in Geology, 1932
Major - Ores and Ore Deposits
Graduate work in Ores and Mining & Metallurgy 1932-33 (two quarters)
U.C. Extension (night) - Petroleum Engineering, 1935

WORK EXPERIENCE

1928 & 1929 - Summers: Laboratory assistant, Assay Office, International Smelting Co., Inspiration, Arizona

1931 - Summer: Stanford Geological Survey - Intensive field course, 10 weeks - 15 units.

1933-34 - Consulting geologist for private party with large coal interests in the Price-Helper area, Utah

1934-40 - Metallurgist & and assistant to the superintendent of Mills Alloys, Inc., Los Angeles, California. Manufacturers of tungsten metal, alloys, and chemicals.
Consulting geologist, Nevada-Scheelite, Inc., subsidiary of Mills Alloys (Mining division)

1940-42 - Chief metallurgist and superintendent, Mills Alloys, Inc.
Consulting geologist and metallurgist - Nevada-Scheelite, Inc. - Mine and mill near Rawhide, Nevada.

1942-43 - Administrative assistant to the Project Director, War Relocation Authority, Poston, Arizona

1943-45 - Consultant in various fields of metallurgy and mining: mining and milling of tungsten ores; mining and processing of gilsonite - in Utah. Confidential research work in powder metallurgy of tungsten, in Nevada.

1945-48 - U.S. Vanadium Corp.(Union Carbide), Agents for Metals Reserve Corp., Salt Lake City, Utah - Analyst in chemical control laboratory (tungsten processing for stockpile)
7/20/46 - Transferred, at end of Government program, to new company facilities at Henderson, Nevada. Advanced from Jr. Chemist to Chemist; to Sr. Chemist, and to research metallurgist.

1948-50 - Self-employed as geological and metallurgical consultant for individuals and small corporations.

1950-51 - Metallurgist in charge of production, Pacific Metallurgical Products, Azusa, California.

1951-57 - Metallurgist and superintendent, Sun Valley Tungsten Company (Custom Mill), Sun Valley, California. Field geologist for the company.
Outside consultant as geologist and metallurgist.

1957 Six months - independent mine operator and geologic consultant in Baja California, Sonora, Mexico, and Southern Arizona.

1957-59 - Metallurgist in charge of construction and subsequent operation of 1,000-ton capacity manganese mill, Aguila, Arizona. Operated for Oro-Con, Inc., and Sunshine Mining Co. as a joint venture.
Field geologist - exploration and production for the operation.

1959 March-Sept. - Special consultant for Tungsten Refining Company, Phoenix, Arizona. Chemical plant construction and research work on new phases of metallurgy of tungsten, and liquid-liquid extraction of metals.

1959-Present - Independent mining geologist and metallurgist.

My principal work is in the inspection and evaluation of properties containing metallic and non-metallic minerals; metallurgical and beneficiation studies; market surveys; and feasibility studies. Experience in the following:

METALLICS

A) Antimony - Kern County, California; Wall Canyon and Manhattan districts, Nevada

B) Beryllium (Beryl) - Kingston Range, California; San Diego County, Calif; West central Arizona. Market survey on Beryllium and other "Exotics", for Western Rare Metals Corp.

C) Chromium (Chromite) - Del Norte, Humboldt, and San Luis Obispo Counties, California

D) Copper - Much of Arizona; California "Copper Belt"; Blythe-Parker area, Calif. Clinton, Montana. Baja California, Sonora, and Guerrero, Mexico. (Mine and mill evaluation for S.B. Mosher, Signal Oil & Gas - Ariz)

E) Gold -

a) Placer - Tertiary auriferous gravels of Northern California - Counties of Plumas, Sierra, Allegheny, etc.; Imperial and Inyo Counties (alluvial); Wickenburg (Rich Hill) and Big Bug areas, Arizona; Baja California (Tres Pinos), Mexico.

b) Lode - Mother Lode District, California; Mojave Desert areas, Calif.; Southwest Nevada; Eastern Oregon (Bourne and Sumpter); Montana; Western and Southern Arizona; Baja California, Sonora, Durango, Zacatecas, and Guerrero, Mexico.

F) Iron

a) Lode - Parker, Bouse, and Bill Williams River districts, Arizona; Riverside, San Bernardino, and Inyo Counties, California; Baja California, Mexico

b) "Placer"- near Salida, Colorado (glacial); near Kelso, California. Beach sands, northern Luzon, Philippines.

G) Lead-Zinc-Silver - Clinton, Montana (Hera Exploration); Neihart, Montana; Stockton, Utah; Kingston, New Mexico; Tybo, Nevada; Silver Lake, Shoshone, and Death Valley Districts, California; Santa Rita Mts. and Huachucas, Arizona; Baja California, Chihuahua, Durango, Guerrero, and Sonora, Mexico

H) Manganese - Western and southwest Arizona; Blythe-Palo Verde area.

I) Mercury - Kern, Ventura, Santa Barbara, San Luis Obispo, Napa, and Sonoma Counties, California; Durango and Chihuahua, Mexico., Northern Spain.

J) Molybdenum - Baja California and Sonora, Mexico.

K) Tin - Kern County, California (Meek and Butler deposits) near Gorman.

L) Thorium - Placer near Big Bear Lake, California.

M) Titanium - "Black Sands" - Ilmenite and magnetite, Lang, California; Riverside and San Bernardino Cos.

N) Tungsten -

a) Wolframite & Hubnerite ("Brown ores") - near King-

b) Scheelite - Rawhide district(Nevada-Scheelite), Nevada; northwest Utah. Inyo, San Bernardino, Riverside, Kern, Tulare, Madera, and Fresno Counties, California. Baja California & Sonora, Mexico.

NON-METALLICS

A) Asbestos (chrysotile & amphibole) - Globe district, Arizona; Kern County, Calif. Baja California (amphibole), Mexico

B) Barite - Riverside, San Bernardino, Kern, and Tulare Counties, California; western Arizona. Sonora, Mexico.

C) Cinders, Volcanic - Inyo and Imperial Counties, Calif. Sonora and Baja California, Mexico

D) Clays
   a) Bentonitic
   b) Ceramic
   c) Industrial
   d) Miscellaneous

   Los Angeles, Riverside, San Bernardino, San Diego, Kern, Ventura, and Inyo Counties, California

E) Coal - Helper-Price and Bookcliffs districts, Utah

F) Gems - Pegmatites in San Diego County, California, and in Baja California, Mexico

G) Gilsonite - Myton-Roosevelt district, Utah

H) Limestone, Dolomite, and Marble - Riverside, San Bernardino, Kern, Inyo, Ventura, Tulare, Madera, and Fresno Counties

I) Perlite - near Kingman, Arizona

J) Phosphate Rock - near Paso Robles, California

K) Quartz - San Diego, Riverside San Bernardino, Inyo, and Kern Counties, California. Baja California, Mexico

L) Sand
   a) Glass Sand - Los Angeles, Ventura, and Riverside Counties. Baja California, Mexico
   b) Industrial Sand - Los Angeles, Ventura, Orange, and San Diego Counties

M) Talc - Death Valley, Silver Lake, Kingston districts; Tulare County, California

N) Sulfur - Baja California, Mexico, The Philippines

In compliance with the new State Law, I am a Registered Geologist, State of California, Certificate No. 1633.

TOWNSHIP 23N RANGE 14W
SECTION 28

BOOK 313

MAP 19

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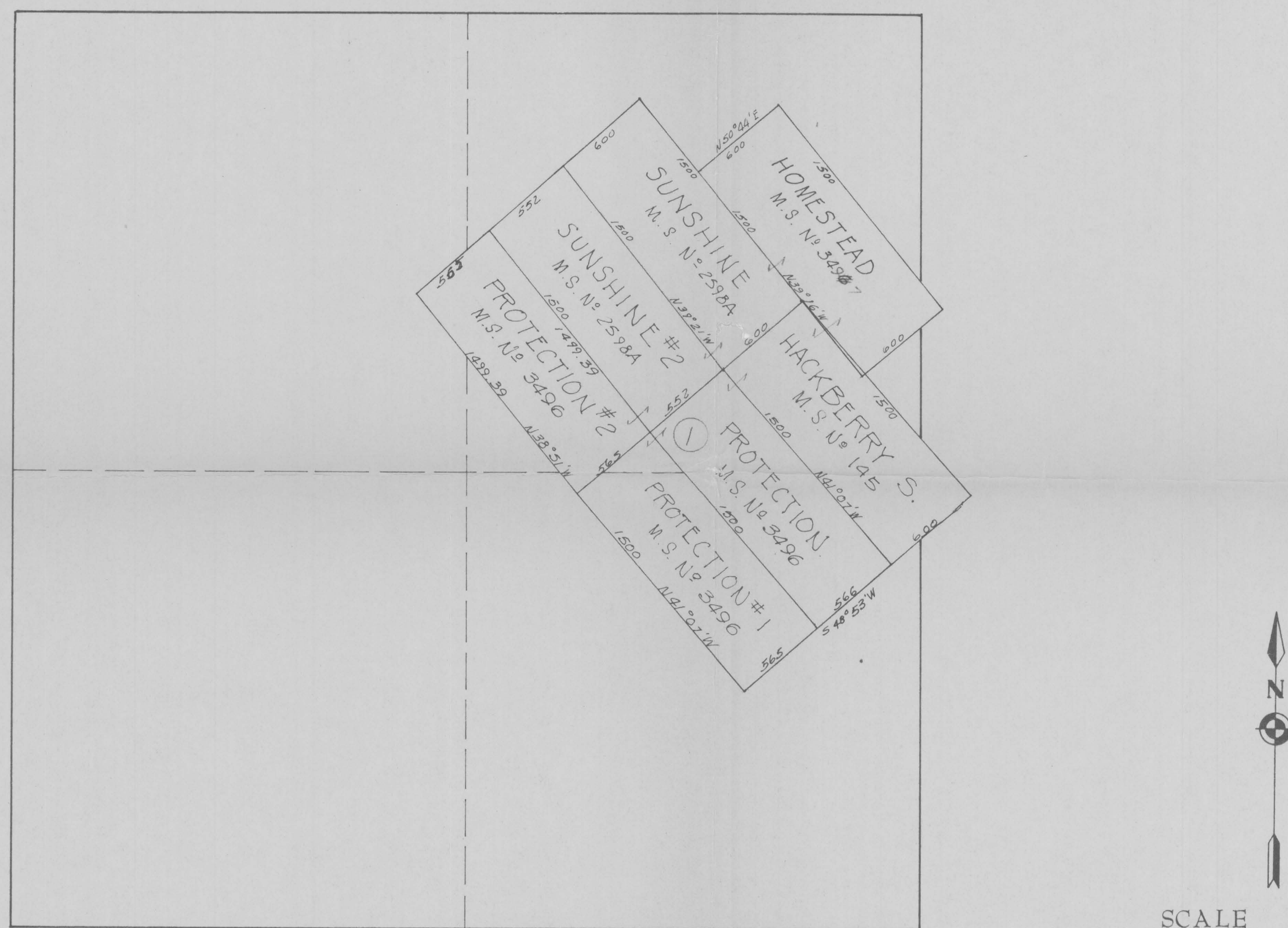


SCALE 1" = 600'

23N - 14W - 28

Aug. 30, 1979

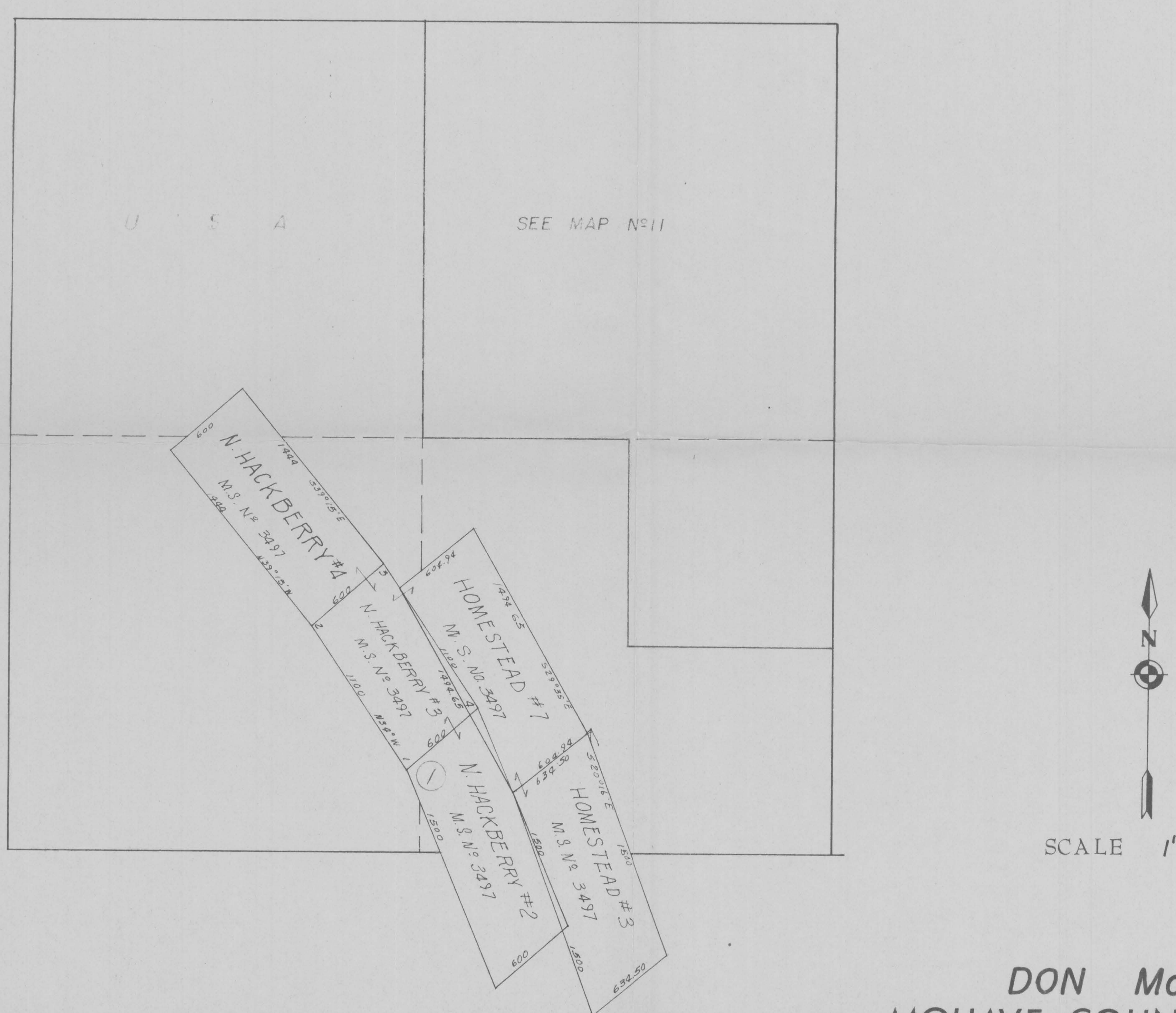
MOHAVE COUNTY ASSESSOR
1963

TOWNSHIP 23N RANGE 14W
SECTION 21

BOOK 313

MAP 16

CODE 0300



SCALE 1" = 600'

23N - 14W - 21

DON McCRALEY
MOHAVE COUNTY ASSESSOR
1963