

## An Appraisal of the

H. E. Higgins Sulphur Prespect

Township 29N.      Range 23E  
Washoe County, Nevada

Foreword:

The property was examined at the request of Mr. Vern. W. Bailey and associates on June 2, 1966, in company with Messrs. Bailey and Ben Garraway of Portland, Oregon, and Mr. Farrel West of St. George, Utah.

In addition to field studies and travel of June 2, a half-day has been required to prepare maps, organize and complete this report.

Obviously, on the strength of a one day field examination, the work was reconnaissance in nature. The writer is satisfied with conclusions and recommendations, based on the limited study. No further study is advised.

The assistance of Mr. Hal F. Bonham, Jr., of the Nevada Bureau of Mines, is acknowledged. Mr. Bonham furnished interested parties with a copy of his "A New Cinnabar Locality in Washoe County, Nevada". The text and especially the regional map was of great help, and saved real time by eliminating the necessity of preparing a base map, for the control of field observations.

Purpose of Report:

To analyze this occurrence of elemental sulphur and to determine its economic possibilities were the purposes of this report.

Conclusions:

Throughout 9700 feet of trend, characterized by hot-spring action, interesting sulphur occurrences are limited to about 600 feet on the north end and perhaps 200 feet on the south extremity.

In these two areas elemental sulphur is in seams, not exceeding 12 inches in thickness, and in scattered pockets. The element is so distributed that even in these exceptional areas, mining in volume would support heads averaging less than 10%.

Any improvements, laterally and with depth are not expected.

Recommendations:

Neither further interest nor additional exploratory work is recommended.

Procedures:

4½ hours were spent in walking the trend B-C-A, shown on attached Plat B. The trend is characterized by a series of cuts and open pits. Observations were tied to the Nevada Bureau of Mines' map, mentioned above. Start and termination or reconnaissance traverse were measured from the intersection of roads, shown in the upper, left corner of Plat B, by automobile odometer.

Location:

With reference to Plat B, the deposit follows a trend through sections 4, 9 and 16 of Township 29 North, Range 23 East. The mining district is without name.

With reference to Plat A, the Higgins claims lie 16 miles, air line, south of Gerlach, Nevada. The county is Washoe, and the distance from paved highway #34 is ten miles over good desert road. Distance from Reno is 102 miles and two hours of travel time are required.

Plat A graphically indicates the travel approach.

General and Limiting Conditions:

- Access: Access is good; 10 miles of easy-grade desert road and 6 miles of paved highway, 16 in all, connect the property with Empire, and a spur on the Western Pacific Railroad.
- Power: No lines are near the property. Closest power has not been investigated.
- Water: Water is believed obtainable from deep wells in the flanking valley, but wells must be drilled.
- Timber: No timber exists in the region.
- Labor: Adequate lab or supply should be available in the general area.
- Climate: Extremely hot summers and cold winters with very little water must be expected.
- Taxes: mill sites, tailings disposal and other factors are not considered, herein, since the property is not being recommended.

Legal Title:

As scaled from submitted property maps, properties comprise, approximately 2000 acres. Partially surveyed for patent in November 1911, and completed in 1917, claims at that time were patented in the name of H.E. Higgins et al. The block has a north-south extent of 2.9 miles and an average width of 1.12 miles.

The name of Thomas A. Alberg, 1919 5th Avenue, Seattle, appearing on maps, may refer to the present owner, but this has not been checked.

Patent Number 336,675 and Survey Number 4,036 (as shown on submitted maps) covers the Azufre Placer, Black Sulphur Placer, Brimstone Placer and Blue Blazes Placer. Surveys were tied to U. S. Mineral Marker #231..

Patent Number 817,408 and Survey Number 4,323 (as shown on submitted maps) consists of the Higgins Placer, Fanny Placer, Cy Edwards Placer, Washoe Placer and San Eudido Placer.

Our failure to locate U.S.M.M. #231, during field studies, has prevented the placing of claim lines on attached Map B.

Whether annual taxes have been paid to date has not been investigated by the writer.

The Nevada Bureau refers to H. Hawton and El Hand, both of Reno, as last known claimants, on the basis of locations made in 1951.

Observed in the field were locations as recent as April 10, 1966.

#### History of Property and District:

According to the U. S. Bureau of Mines, claims were first located in 1909. Patent Surveys in 1911 and 1917 appear to be connected with this period. The same source reports that claims were later located in 1931, but whether these were relocations or adjoining locations is unknown.

Claims have constantly been staked throughout the 50's and to today. Were the property of interest, a title search would be mandatory.

The property has, apparently, always remained a prospect. No record of appreciable sulphur production exists.

#### Geology:

##### General:

Mineralization follows a line of weakness in Pleistocene sediments, deposited at the time of old Lake Lahontan, which covered about 8000 square miles of Nevada at the conclusion of the last glacial period.

##### Rock Types:

According to Bonham's sketch map of the area, Lahontan deposits are in fault contact with very old, Triassic or Jurassic metamorphosed sediments, consisting of phyllite and quartzite in the southeast corner of the map, and directly east of the mineralized trend; and encroach on Miocene sediments and volcanic tuffs, in the northeast portion of the area.

Lahontan sediments consist of flattly bedded, dark, conglomerates (or fan detritus or gravel); scattered patches and remnants of white bedded clastics overlies the gravels. The lightness of the material suggests diatomite.

#### Structure:

Starting in the south half of the southeast quarter of section 4, structure can be traced through section 9 into the center of the north half of the north half of section 16. The distance amounts to 6960 feet or 1.3 miles. Width appears to average about 100 feet, increasing perhaps to 200 feet locally. Trending N15E-S15W, the line of structure can be traced from B, through C, to C' on attached Plat B.

Note that the zone appears to align itself with a fault, cutting through Miocene sediments and tuffs, starting 2 miles northeast of first observed mineralization. Heavy alteration and silicification have been observed by the Nevada Bureau of Mines, flanking the fault and in Miocene rocks.

Offset from B-C-C' observe the structure in the southeast quarter of section 16 at A. Continuity between the two could not be established. An 'en echelon' arrangement is suggested.

#### Mineralization:

The entire zone is soft, rotten and characterized by solfataric odor. It has all of the appearances of a recent fumarole, with what appear to be encrustations of alum (potassium-aluminum sulphate) and related salts. Fragments of rotten sedimentary rocks, suggesting brecciation, are probably only the gravel of the effected host rock. The fresh solfataric odor and the reported existence of an hot spring, flanking the trend, suggests recent hot-spring activity.

Observed throughout were masses of fibrous to bbladed gypsum, (calcium sulphate). Persistent but scattered throughout the northern portion of the structure, gypsum became dominant, proceeding south.

Mixed with the gypsum for about 600 feet of trend at the north end are weak seams and scattered pockets of yellow elemental sulphur, closely associated with gypsum from B to C. But from C to C' and to the road, a distance of 4900 feet, mineralization is dominantly gypsum, possibly some alum, with only slight traces and suggestions of sulphur.

At the south limit of the of the overall trend and in the offset member, the final 200 feet carry good sulphur in seams up to 12 inches in thickness. Widths of sulphur zones for both areas will not exceed 30 feet.

Cinnabar, the sulphide of mercury, has been reported for the trend by the Nevada Bureau of Mines, as shown on Plat B. Occurrences are low grade; they were not confirmed in the course of this examination.

#### Geological Conclusions:

Structure, traceable for  $4\frac{1}{2}$  miles with pronounced low-temperature mineralization filling its southerly  $1\frac{1}{2}$  miles, and silicification and alteration tied to its northern one half mile, provides a possible objective for future exploration; but the south portion is without attraction and only the northern one half mile might merit future study.

The close association of elemental sulphur with gypsum, especially in hand specimens, suggests that sulphur has been derived from gypsum, a calcium sulphate, by reduction, in one of several possible ways.

In short, indicated is the production of elemental sulphur by nature "working over" the original gypsum, a process not uncommon in the development of sulphur in salt domes and fumarolic occurrences. The sulphur, it is concluded, was not introduced directly by  $H_2S$  charged waters and gases. Improvements with depth would not be anticipated. Development along the trend is considered sufficient to indicate a very spotty distribution of sulphur. Material mined from open pit would be low grade and uneconomic.

#### Development:

The trend has been developed by pits and open cuts. However, our mapping was not in detail and feet of advance and volume of material mined cannot be reported.

Suffice it to say that applications for patent in 1917 note the existence of 202 pits, with value placed at \$4,292.

A number of bull-dozed trenches have crosscut, not only the mineralization, but also, areas of diatomaceous material, possibly and erroneously considered alteration by recent locators.

#### Samples:

Because of the lack of continuity and indicated negative economic possibilities, no samples were cut.

#### Ore Reserves:

The property is without ore reserves.

#### Treatment Methods: Cost Estimates:

Open pit mining, preceded by stripping, would be recommended if the property had any possibilities. Our negative conclusions eliminate the need of considering a mining method and its costs.

DAVID LE COUNT EVANS, CONSULTING GEOLOGIST

Metal Prices:

Engineering and Mining Journal, in April 1966, quotes 'Bright' sulphur and 'Dark' sulphur at \$36 and \$35 respectively, both per metric ton, and both FOB Gulf ports.

Profit or Loss:

Not considered because of the negative conclusions of this report.

Recapitulation:

Assuming continuous mineralization for the 600 and 200 feet of trend at either end, and a width of 30 feet, sulphur-bearing material would only amount to 16,000 tons or 14,500 metric tons, per ten feet of vertical depth. It is believed that mining below ten feet would be below the water table.

Despite the streaks of higher grade material at the south end, average grade, by estimation, should not exceed 10%. Such grade would only assure a gross value of \$3.58 per metric ton.

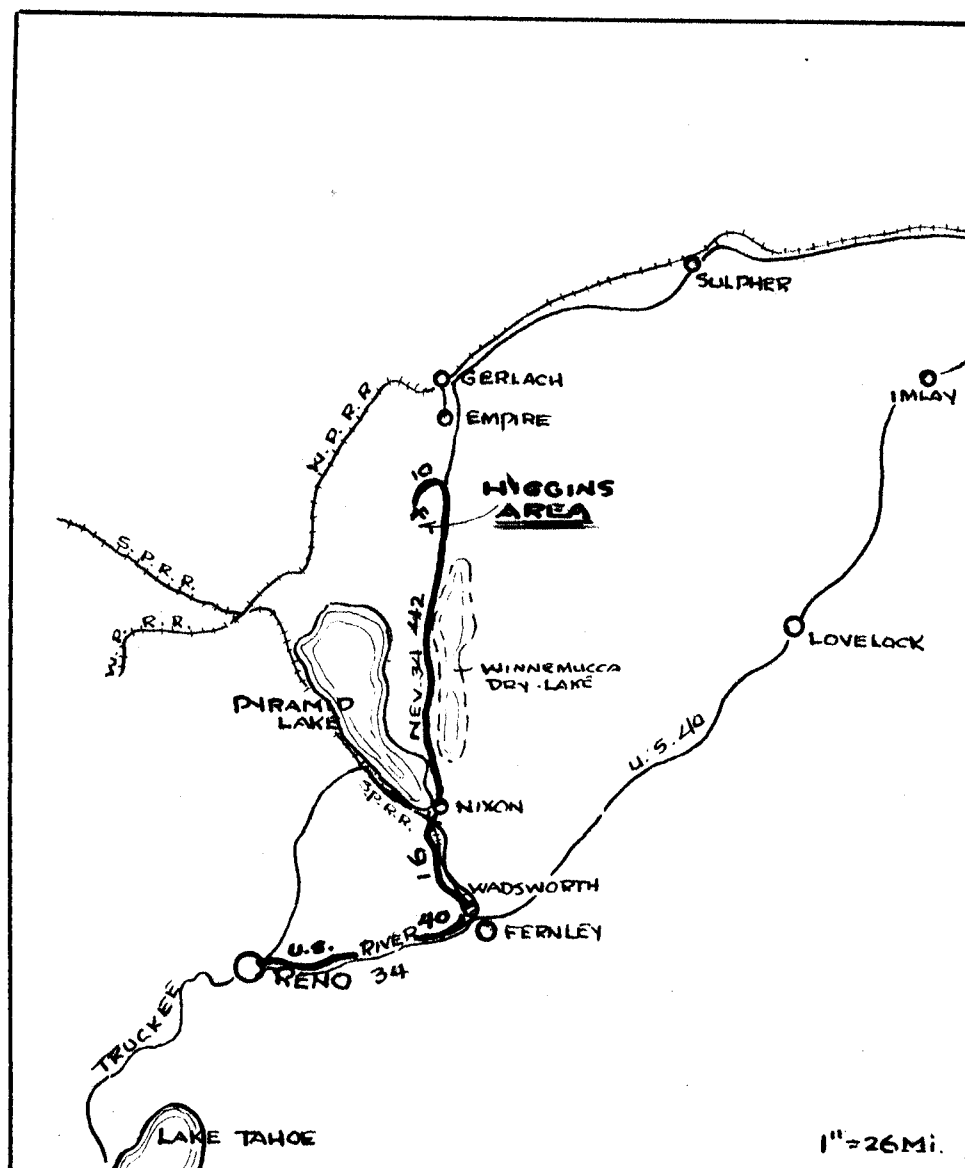
The small size of reserve and low grade, based on generous assumptions, are without any economic potential. The possibilities for improvement, laterally and with depth are poor, and the property cannot be recommended.

Respectfully submitted,

  
David LeCount Evans

Consulting Geologist,  
1700 Royal Drive,  
Reno, Nevada.

June 5, 1966.



# H. E. HIGGINS SULPHUR PROSPECT

WASHOE COUNTY, NEVADA

## INDEX MAP

DAVID LeCOUNT EVANS  
CONSULTING GEOLOGIST  
RENO, NEVADA. JUNE 2, 1966.



B

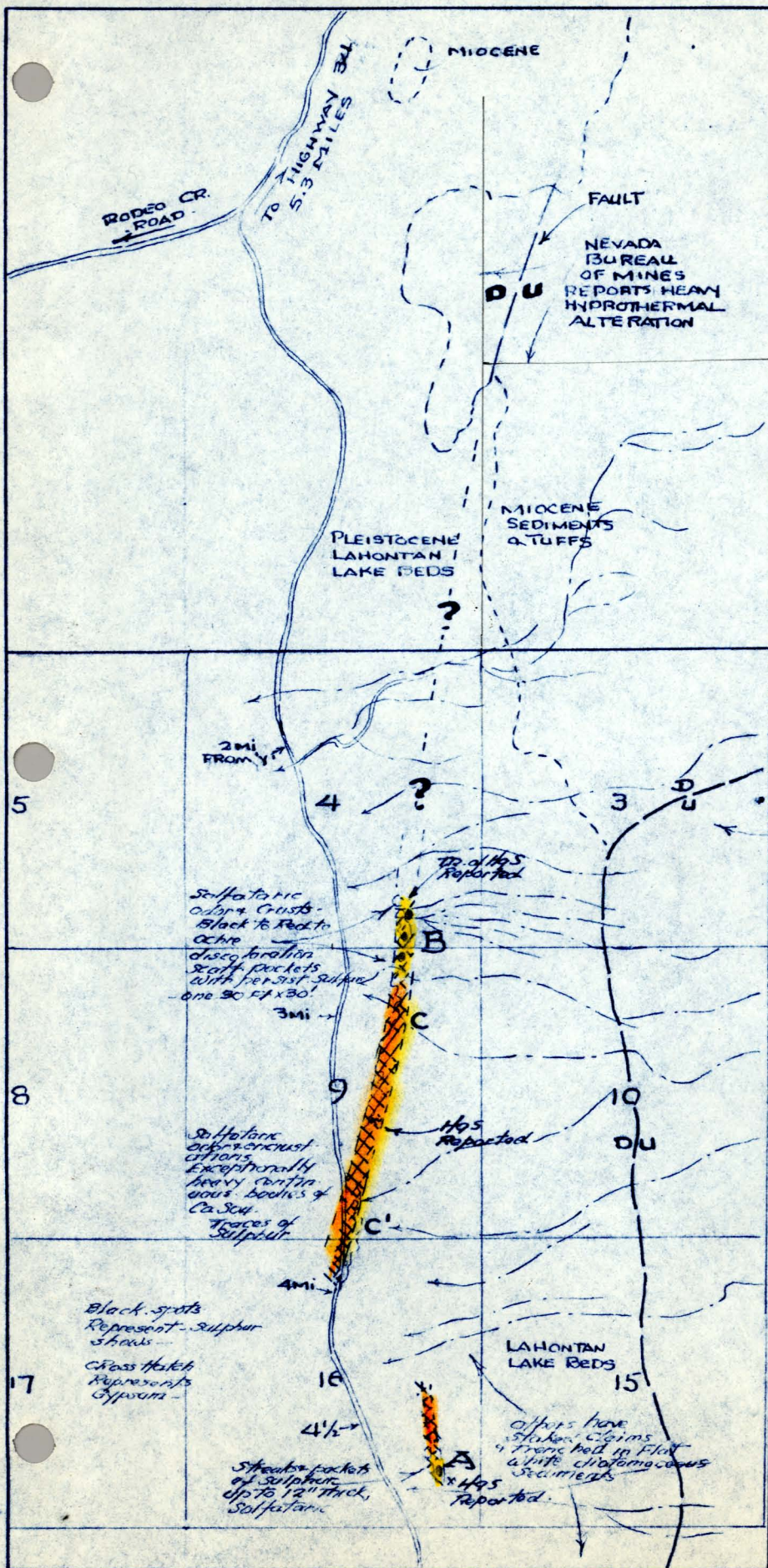
# H. E. HIGGINS SULPHUR PROSPECT

PATENTED CLAIMS  
IN SEC'S 49+16  
T29N, R23E  
NORTHERN LAKE RANGE  
WASHOE COUNTY, NEVADA  
1" = 2900'

## RECONNAISSANCE OBSERVATIONS

BY DAVID LeCOURT EVANS  
CONSULTING GEOLOGIST  
RENO, NEVADA. JUNE 2, 1966.

BASE MAP: COURTESY OF  
NEVADA BUREAU OF MINES





✓VERN W. BAILEY —

6602 N.E. TILLAMOOK ST.

Portland - Oregon.

97213

June 6, 1966

Mr. Vern W. Bailey,  
6602 N.E. Tillamook St.,  
Portland, Oregon 97213.

Dear Mr. Bailey:

Please find attached our report on the sulphur prospect examined last Thursday in the area just south of Gerlach, Nevada.

Note that for lack of a specific name I have used "H.E. Higgins", conforming to the ownership when claims were patented.

Recalled, too, is some discussion re: the petroleum picture in Railroad Valley, close to Ely, Nevada. My notes of about a year ago indicate that a dry hole was costing Pennington, the major operator, about \$100,000 and a completion close to \$150,000. Excessive costs must be attributed to the difficulties of servicing tests from Bakerfield, California.

Depths of tests vary from about 6300 feet to one close to 9500 feet. 7000 to 7500 feet might be considered 'par for the course'. Wells are completed in the porosity and permeability of sedimentary and volcanic members, lying unconformably beneath about 6000 feet of basin 'rubble'. Structure is narrow and pays are faulted. It is an hazardous picture but so was much of the northern MidContinent in the early days with its so-called 'sink-holes', thinness of pays, and volumes of sulphur water. Completions of 1000 BOPD of good gravity oil in a new frontier might still paint an attractive and challenging picture.

This opportunity to collaborate with you, Ben Cassaway and Farrel West has been very much appreciated. I did not want to 'muddy the water' on Thursday by discussing in detail my own prospects. Suffice it now to say that, if and when interested, my thinking revolves around Nevada tin possibilities, a planned program of systematic exploration to further extend the quick-silver trends of northern California, and a continued respect for the future of gold and the opportunities still extent in the dormant 'drift' mines of California. The first (tin) offers a real 'sleeper' in the Majuba Hill property which is available. The other two are recommended programs, the field work for which needs backing.

Sincerely,

David LeCount Evans

cc: Mr. Ben Cassaway  
Mr. Farrel West

SAN EMIDIO (see also Higgins Prospect)

Washoe County, Nevada.

This area is on the west flank of the Lake Range near its north end, mostly in the central part of T29N, R23E. The zone is covered by patented placer claims.

An altered zone is intermittently exposed for a distance of more than 7000 feet in a north south direction. This is on an alluvium covered slope some distance west of the linear front of the mountains. Pleistocene sediments and Lake Lahontan beds are exposed in a number of trenches, cuts and pits. The former range from sandstone to fine conglomerate; they are altered in all exposures. The Lake Lahontan sediments vary from silts to occasional conglomerates; they are flat lying and over-lie the altered rocks.

Sulphur is poorly exposed in a few places. It occurs as disseminated particles and irregular masses in a dark gray clay, siliceous sinter or opal. Crystalline gypsum is very common generally as a one foot layer or thicker layer on top of all ~~layered-material-~~ altered material. In some places it overlies the sulphur with a fairly sharp contact between the two minerals. Cinnabar is rather common in the altered material. The width of the zone has never been determined. The zone probably reflects a structurally aligned group of hot springs. Warm ground in a few places shows that some of these are still partly active.

Signs near the property state that the property is controlled by BASE MINERALS, INC, 512 Las Vegas Blvd., South, Las Vegas. There was no activity at the time of examination, but the company had drilled two very shallow holes.

12:45 -  
Dec 8 - 1966

- 2 ROOMS - Friday noon -

- Bill Charles - Calgary - ~~2 days~~ Canada.

~~Gus~~ ~~Waelingen~~  
~~Van Waelingen~~

~~on railroad~~

- Empire - gas -

Sulphur Project - Empire -

- Reno - tomorrow -

Bill introduced me to Van Waelingen - who arrived  
Reno - Friday noon - to examine Higgins Sulphur  
Area. He wanted me to go along with him & his  
associate - but from a Gas company.



Regretted I could not join them because of  
commitment in Marysville - Fri & Sat.

Told him I had examined property in Tama  
and had negative reaction - But since  
they were shipping - perhaps mining had  
opened it up. for a better look

Van Waelingen - said - that if they were interested -  
after seeing it - they might want me to  
inspect.

Made reservations for them at Riverside!



DEVELOPMENT & OPERATION OF OIL & MINING PROPERTIES

## Utah-Nevada Enterprises

FARREL WEST  
PHONE 673-4491

95 W. MONTEREY DRIVE  
ST. GEORGE, UTAH

Jim Garrison  
2717 SE Courtney  
Milwaukee Ore

654-1391

659-2494

- Portland -

spe

Texas

- Vonne Bailey -

Stephen

~~Former~~

- Carlach -

Bill -  
Johnston

recommends  
me.

- Farrell West -

oil  
operator

St. George Rector

would call it  
out

Silvia Jean  
Motel

Called @ 11:41

Time - 1 -

De Gansway

Farrell West

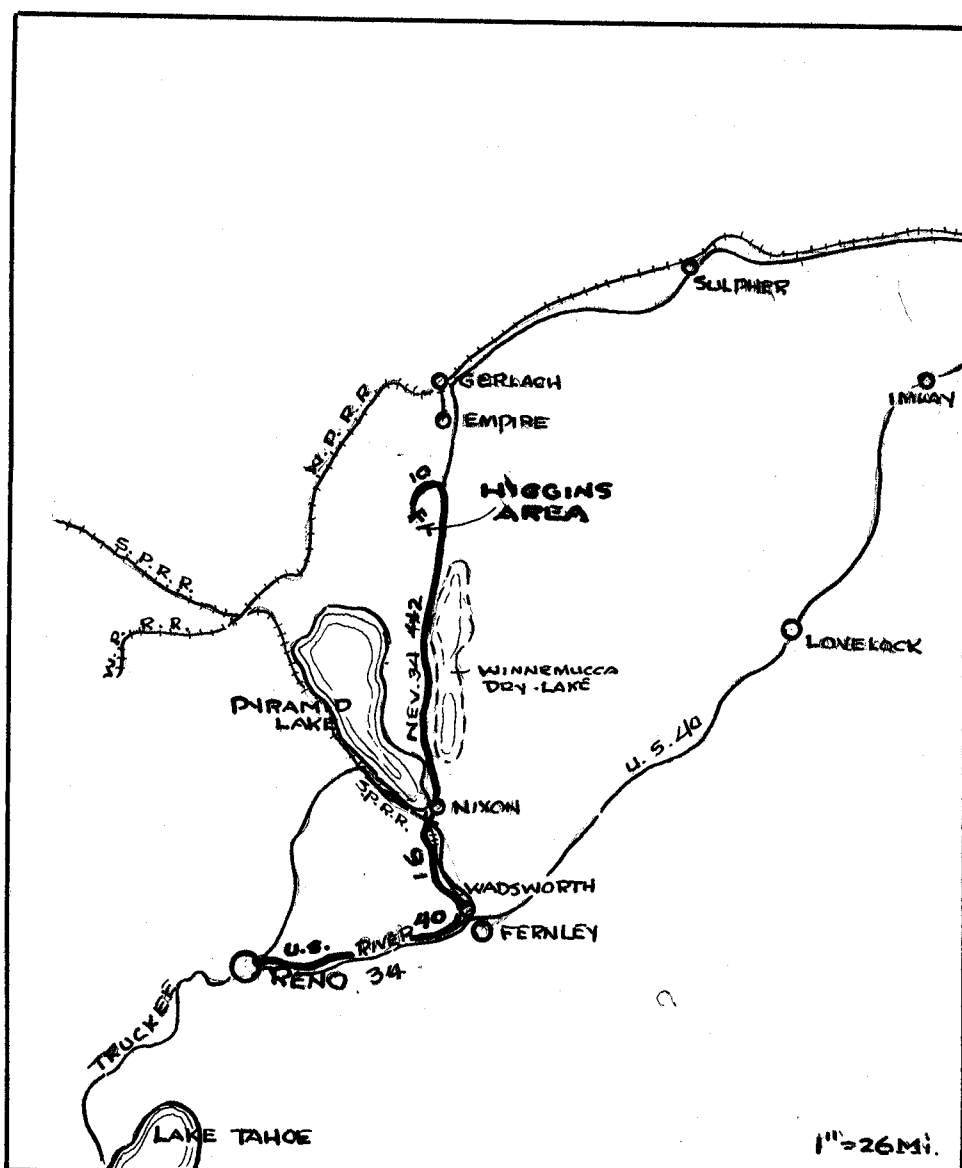
Vonne Bailey

Let Farrell

Nixon -

Carlach - 60 - 820  
in New York

A



# H. E. HIGGINS SULPHUR PROSPECT

WASHOE COUNTY, NEVADA

## INDEX MAP

DAVID LeCOURT EVANS  
CONSULTING GEOLOGIST  
RENO, NEVADA. JUNE 2, 1966.

B

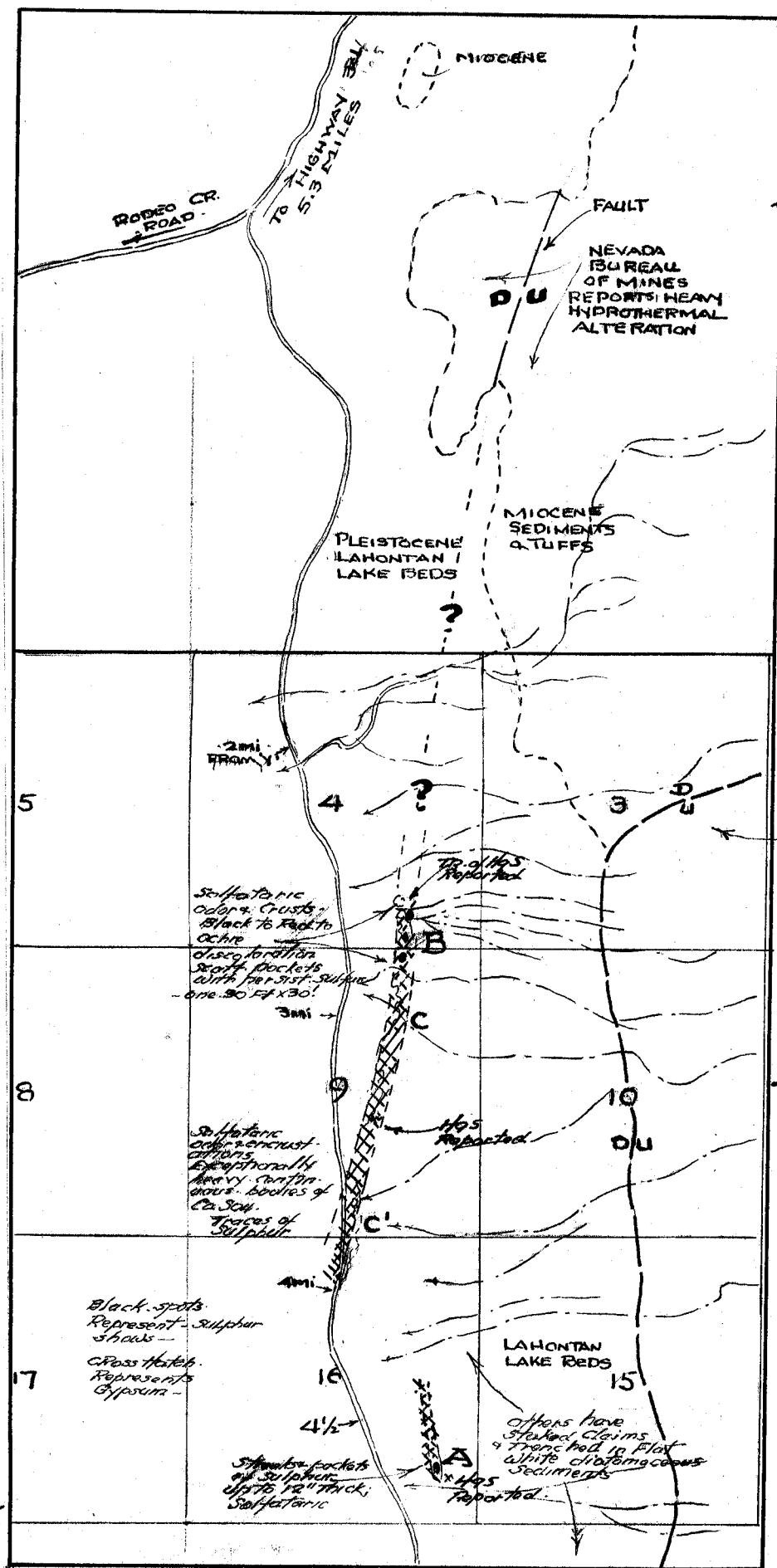
# H. E. HIGGINS SULPHUR PROSPECT

PATENTED CLAIMS  
IN SEC'S 49+16  
T29N, R23E  
NORTHERN LAKE RANGE  
WASHOE COUNTY, NEVADA  
1" = 2900'

## RECONNAISSANCE OBSERVATIONS

BY DAVID LeCOURT EVANS  
CONSULTING GEOLOGIST  
RENO, NEVADA. JUNE 2, 1966.

BASE MAP: COURTESY OF  
NEVADA BUREAU OF MINES



R23E



**R23E**