



CONTACT INFORMATION  
Mining Records Curator  
Arizona Geological Survey  
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Tucson, Arizona 85701  
602-771-1601  
<http://www.azgs.az.gov>  
[inquiries@azgs.az.gov](mailto:inquiries@azgs.az.gov)

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*Standard Slab Co  
 Box 4400  
 Reno, NV 89595*

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
		<i>132984</i>

(Always obtain signature of addressee or agent)

I have received the article described above.

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*E. S. Conell*

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*Standard Slab Co.*

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NOV 8 1974

RETURN  
TO



RECEIVED

ESSEX INTERNATIONAL, INC

1704 W. GRANT RD

TUCSON, ARIZONA 85705

# SPEED MEMO

STANDARD SLAG  
CORE FILE

To JOHN HARMON Mgr. Dir.  
STANDARD SLAG Co.

At P.O. Box 4400  
Reno, Nevada, 89595

Subject GRAY EAGLE DATA

Date 10-28-74

1. Items with enclosed are the following:

- (1) 19 Sections (2) 1 Topo Blue Line scale 1"=100'
- (3) Topo blue line dashed underground wks. Scale 1"=100'
- (4) Colored polygon map (5) Topo Blackline showing claim boundary, scale 1"=100'

Please acknowledge receipt of the

PLEASE REPLY TO  Signed

At

above by signing & dating in the space provided below & return to the attached address this copy. Sorry for the delay in sending the data but things have been hectic here lately.

*E. James Heinrich*

Above received:

by:

Date

Signed

SENDER'S COPY

October 23, 1974

Mr. John Harmon, Mgr. Director  
Standard Slag Company  
P.O. Box 4400  
Reno, Nevada 89595

Re: Termination of Negotiations  
Gray Eagle Property  
Siskiyou County, Calif.

Dear John:

This letter is to inform you that Essex has decided not to pursue the negotiations on your Gray Eagle prospect in California, which were initiated by Robert Holt who is no longer with Essex.

The decision is not one based on the merits of the property but rather a basic change in Essex's corporate policy. We have only two on-going projects at this time.

It has been a pleasure getting acquainted with you again after all these years and I am sorry that we were unable to generate this into a project.

It is my hope to put the pieces together again and perhaps in the future we will be able to joint venture a project, if not Gray Eagle, maybe another.

Under separate cover I am enclosing the data you sent us. Thank you again for the courtesies extended.

Very truly yours,

E. Grover Heinrichs  
Assistant Manager of Exploration

EGH:td

cc: P.W. O'Malley  
D. Letizia

1721 E. Mountain St.  
Pasadena, CA 91104  
September 24, 1974

*Ref 10/19/74  
Happy camp my best.  
Tom File Siskon  
Siskiyou County Calif  
Eagle*

Mr. H. B. Chessher, Jr.  
Siskon Corporation  
P. O. Box 889  
Reno, Nevada 89504

**SXM**

**OCT 8 1974**

Dear Mr. Chessher:

**RECEIVED**

In response to your letter with enclosure of Dave Walker's, asking permission to continue to store diamond drill cores in our powder magazine, I am at a loss to know just what magazine you have in mind. Our powder magazine is stored to its capacity with mine equipment placed there prior to our flooding the mine. If you have reference to the cap or detonator magazine which is relatively small in size, I have no objection to this at all if it will answer your purpose. Apparently Mr. Walker and Mr. Smith see no objection to these being stored where you have them to date.

You not only have my permission for temporary storage of these cores, but I wish you every success in your current diamond drill program on your property adjacent to Elkhorn. I have been a great admirer of your father-- H. B. Chessher Sr. and was sorry to learn of his demise. I also enjoyed Sherm Snyder very much and would extend greetings to him if he is still alive and you see him.

Yours very truly,

*Bob E. Tally*

cc. A. B. Henningsen  
M. Smith  
D. D. Walker

*P/C 10/14/74  
R. E. Holt of Essex ✓*

October 23, 1974

Mr. John Harmon, Mgr. Director  
Standard Slag Company  
P.O. Box 4400  
Reno, Nevada 89595

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Gray Eagle Property  
Siskiyou County, Calif.

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Under separate cover I am enclosing the data you sent us. Thank you again for the courtesies extended.

Very truly yours,



E. Grover Heinrichs  
Assistant Manager of Exploration

EGH:td

cc: P.W. O'Malley  
D. Letizia

## REPORT ON THE GRAY EAGLE MINE

### Siskiyou County, California

#### INTRODUCTION

Information on the Gray Eagle Mine in Siskiyou County, California, was examined by D.P. Bellum and J.K. Jones on August 28 and 29, 1974, in the office of Standard Slag Company at 900 Industrial Way, Sparks, Nevada. Standard Slag has an option on the Gray Eagle property from the owner, Siskon Corporation of Reno, Nevada, involving \$1250 per month advance royalties and a 7½% net smelter royalty.

#### DEVELOPMENT

During World War II Newmont mined 463,466 tons from which were recovered an average of 3.17% copper and .013 ounce gold per ton. Newmont mined by selective room and pillar methods and left a substantial amount of lower grade copper mineralization above, below, and adjacent to their stopes. Bear Creek Mining Company drilled a row of exploration holes of 500 to 1200 feet east of the Newmont orebody and encountered mineralization, but apparently the indicated orebody was not of sufficient size to justify continued interest. In 1967, 1968, and 1969 Standard Slag drilled 26 holes totalling 7575 feet of ore drilling spaced on 200 foot centers.

#### ORE RESERVES

Standard Slag drilling has developed 3,041,000 tons at a grade of 1.27% copper, and extending the orebody to the Bear Creek hole indicates the possibility of an additional 3,258,000 tons. About 90% of the copper in the developed ore reserve is contained in a relatively high grade portion of the orebody and could be mined at an average grade of 1.72% copper using a 1.00% cut-off grade.

Standard Slag has considered mining the orebody by open pit methods with a stripping ratio ranging from 7.48 to 12.18 to 1, depending on the cut-off grade. Although ore is known to continue to the east the drilling program was stopped because ore was too deep to be mined by open pit methods. However, it appears that Standard Slag has been very conservative in determining grade of their ore reserve. Some high grade assays have been excluded for various reasons, and core recovery from ore zones was not good. The possibility is raised that the orebody could be mined by underground methods and therefore depth of mineralization would become less critical.

## GEOLOGY

The orebody occurs in volcanics rocks which have been strongly metamorphosed and altered. No age dates are known in the area, but the rocks probably are Jurassic age or older. The orebody represents a type of deposit known as "massive sulfide" which typically is much smaller than a porphyry copper but can be considerably higher in grade. Mineralization consists of layered bands of pyrite, chalcopyrite, and quartz. Very little raw data was examined, but some core is available in Sparks, Nevada and at the property, and some underground workings are open

## RECOMMENDATIONS

A good chance exists at Gray Eagle for development of a 6-million ton orebody at a grade of 1.5 to 2% copper that could be mined by trackless, underground, room and pillar methods. Exploration potential for additional ore is present, but it must be recognized that orebodies of this type seldom reach the size of porphyry copper deposits. Preliminary evaluation by D.P. Bellum indicates that underground mining would be feasible if sufficient ore can be developed.

Negotiations should be undertaken to obtain an option on the property and reduce the 7½% royalty payable to Siskon Corporation. A RFA is being prepared to cover the first six months of the exploration and development program. If results are encouraging, additional money will be needed in 1975 for further development drilling and underground work. Weather conditions probably will prohibit efficient exploration activity from mid-November or early December until late March.

  
J.K. Jones

JKJ:td  
attachment

GRAY EAGLE CALIFORNIA PROJECT

PROJECTED COSTS

October 1974 thru March 1975

1. Property Payments		
\$1250 per month for 6 months = \$7,500		\$ 7,500
2. Drilling		
6 core holes totalling 7500 feet @ \$15/foot		112,500
3. Drill Site Preparation, Roads		4,000
4. Storage, Supplies		
Core racks, rental of storage space, core splitter, sample bags, core boxes, sample shipment and packaging		6,000
5. Surveying		
Survey old drill holes, establish new drill sites, grid system, claim corners		5,000
6. Transportation		
Rental pickup @ \$500/mo for 3 months		1,500
7. Assaying		
Determinations for Au, Ag, Cu on drill core		12,000
8. Labor		
1 helper, 3 months @ \$800 = \$2,400		<u>7,200</u>
Watchman, 6 months @ \$800 = 4,800		
	Total	<u>\$155,700</u>

MEMO TO FILE

September 20, 1974

SUBJECT: Gray Eagle Negotiations  
Standard Slag Co.

Grover Heinrichs and I met with Mr. John Harmon, Vice President, and Servio Jaramillo, Chief Engineer of the Standard Slag Company in Reno, Nevada on Sept. 18, 1974. We found them very congenial and willing to negotiate on the property. They are about to start work putting an iron mine into production near Lovelock, Nevada which will require about \$20,000,000. This is a very large project for them and is part of the reason they are not going ahead on the Gray Eagle.

We probed several ways for making a deal on the property:

1. \$1.5 million purchase; or
2. 60-40 joint venture with Essex having controlling interest, with both parties putting up their share of the financing; or
3. 60-40 joint venture with Essex's control, with Essex supplying the financing and recovering 150% of their investment out of 90% of the net cash flow.

In any event, Essex would be the operator and would have the right to purchase all of Standard Slag's share of the copper.

There are no work, time, or payment commitments contemplated at this time.

We discussed the onerous 7.5% NSR held by Siskon Corporation and it was agreed that it had to be reduced or purchased, but that nothing should be done until we had made a deal.

It is highly probable that the royalty can be purchased outright; however, they may want a lesser cash settlement and retain a small royalty in perpetuity similar to the Elkhorn proposal.

For a first meeting things went well, and I fully anticipate that a satisfactory deal can be made on this property.

REH:td

cc: H. Lanier



November 11, 1974

Mr. S.M. Jaramillo  
Operations Superintendent  
Western Division  
The Standard Slag Company  
P.O. Box 4400  
Reno, Nevada

Dear Mr. Jaramillo:

Enclosed you will find items 1 and 2 as listed in your letter of Nov. 5, 1974. My apologies for not including these items in the original shipment to you on Oct. 28. For some reason these data became separated from the others and I have been tearing what little hair I have remaining trying to find them. Fortunately I have done so, and I have been saved from a very embarrassing situation.

As you can imagine, things are still a little confused here at the Essex office because of the recent traumatic events. We all hope that things will be back on track in the near future.

Please acknowledge receipt of these two maps by signing and dating in the space provided on the attached copy of this letter.

Very truly yours,

E. Grover Heinrichs  
Assistant Manager of Exploration

EGH:td  
enclosures

\_\_\_\_\_  
S.M. Jaramillo

\_\_\_\_\_  
Date

# The Standard Slag Company

GENERAL OFFICES - WESTERN DIVISION  
POST OFFICE BOX 4400, RENO, NEVADA

November 5, 1974

Essex International, Inc.  
1704 West Grant Road  
Tucson, Arizona 85705

Attention: Mr. E. Grover Heinrichs

Dear Mr. Heinrichs:

Enclosed is the copy of the Speed Memo that listed the maps and sections of the Gray Eagle Copper Mine returned to us.

We have revised our list of the data we sent to Mr. Ken Jones and the following documents are missing:

1. 1 Print of Gray Eagle "Surface Geology, scale 1"=1000', October 25, 1966 by D. Norman and W. Longwill, Bear Creek Mining Co.
2. 1 cross-section 9,900 E.

We would like to have back these documents as soon as possible.

Yours very truly,

*S. M. Jaramillo*

S. M. Jaramillo  
Operations Superintendent  
Western Division

cc: Mr. J. R. Harmon

SMJ:blk

SXM  
NOV 8 1974  
RECEIVED

# SPEED MEMO

To JOHN HARMON Mgr. Dir. P.O. Box 4400  
STANDARD SLAG Co. At Reno, Nevada, 89595  
Subject GRAY EAGLE DATA Date 10-28-74

Herewith enclosed are the following:

- (1) 19 Sections (2) 1 Topo Blue Line scale 1"=100'
- (3) Topo blue line dashed underground wks. Scale 1"=100'
- (4) Colored polygon map (5) Topo Blackline showing claim boundary, scale 1"=100'

Please acknowledge receipt of the

PLEASE REPLY TO  Signed

At

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*E. G. ...*

Above received:

Date November 5, 1974

Signed

by: Sergio M. Jaramilla

REPLIER—RETURN THIS COPY

MEMO TO FILE

By: D.P. Bellum  
Sept. 3, 1974

NOTES ON GREY EAGLE PROPERTY

The Grey Eagle data were reviewed on August 28 and 29 at the Standard Slag office at 900 Industrial Way, Reno, by Ken Jones and D. Bellum. These notes supplement a report prepared by Ken Jones regarding examination.

- Location: Approximately 5 miles north of Happy Camp in northwestern California.
- Ownership: The property is owned by Siskon Corporation of Reno and Standard Slag has a 20-year operating lease (summary of lease is attached).
- Property: The property is located in the Happy Camp Mining District of Siskiyou County, Calif. and consists of 16 patented claims covering the presently drilled orebody and 70 unpatented claims surrounding the patented claim.
- Terrain and Climate: The property is located at an elevation of 2500 to 2900 feet and the orebody dips under a ridge. The annual precipitation ranges between 50 and 60 inches per year and the monthly mean daily temperature ranges between 37° and 70°. Average monthly data are included.
- History: The property was operated by Newmont between 1943 and 1945. Approximately 463,000 tons of ore were mined from underground operation and processed through a 500 TPD concentrator that was moved from Nevada City, Calif. Mining ceased concurrently with World War II. Records indicate that 29,364,000 lbs. of copper and 6,208 oz. of gold were recovered. A cursory examination of the mill records indicates that the mill recovery was in the range of 85% to 87% which would indicate that the grade of the ore milled was approximately 3.7% copper. Reports also indicated that the mill had inadequate grinding capacity to maximize the recovery and concentrate grade. The mine

History - continued

records and subsequent drilling indicate that Newmont hi-graded the deposit. The mining method was room and pillar and the stope maps indicate relatively wide spans between pillars and a high extraction rate, probably in the range of 70% to 80%.

Present Ore Reserves:

Standard Slag and several previous lessees have conducted drilling to determine the limits of the orebody. There are 24 holes at 200 to 300 feet centers which indicate an ore reserve of 3 million tons. In addition there are two holes drilled by Bear Creek, 800 to 1500 feet east of the drilled reserve with intercepts of plus 1.0% copper. Projections to these holes indicate possible additional reserves of 3 million tons. The massive sulfide orebody is roughly 700 feet by 1200 feet and ranges from 20 to 90 feet thick. The orebody strikes approximately east-west and dips 10% to 25% to the north.

Standard Slag has planned to mine the drilled reserves by open pit and did not drill between the known reserves and the Bear Creek holes because any ore in this area would have too high a stripping ratio to be economic. The reserves developed by Standard Slag are as follows:

	<u>Ore Tons</u> <u>(000)</u>	<u>Grade</u> <u>% Cu</u>	<u>Pounds Cu</u> <u>(000)</u>	<u>% of</u> <u>Total Cu</u>
+ 1.00 Cu	1,948	2.40%	94,837	90%
1.00% to 0.70% Cu	169	0.84	2,831	3%
0.70% to 0.40% Cu	357	0.47	3,380	3%
0.40% to 0.20% Cu	<u>567</u>	<u>0.33</u>	<u>3,715</u>	<u>4%</u>
Total	3.041	1.72%	104,763	100%

The tons of waste corresponding to the total tons of ore (3,041,000) was 22,744,000 with a 7.48/1.0 stripping ratio. With the cut-off of 1.0% the tons of waste are increased to 23,716,000 by the amount of excluded ore.

Present Ore Reserves - continued

The 463,000 tons mined by Newmont are excluded by deduction from the computed reserves. The reserves indicated in the enclosed memo from Gaylord to Harmon, May 5, 1970, have been arbitrarily reduced by 463,000 of 3.0% Cu. There is no justification to arbitrarily reduce the grade to compensate for the mining because the mining preceded the drilling and therefore the mined ore was not sampled by the drilling. A cursory examination of the drill logs indicates that of the 11 holes intersecting the stoped area, 4 appeared to have intersected open ground, 4 intersected high grade ore that was probably in the pillars, and 3 intersected waste pillars. A further study should be made of this problem but for the present no grade adjustments should be made for mine-out ore grade.

Gold and silver were not assayed routinely for the core drilling and there is some doubt about the accuracy of the assaying that was done. The indications are that the ore will average 0.3 to 0.4 oz silver and 0.01 to 0.02 oz gold.

Metallurgy:

A considerable amount of metallurgical testing was done by Newmont and by Galligher (for Standard Slag) to determine copper recovery, but little was done to recover gold and silver. Gold and silver were not considered to be of importance when the test work was done in 1943 and 1968, but with the increase in price these metals may make a substantial contribution.

The copper recovery in the Newmont and Galligher tests is consistently in the range of 93% to 96% with concentrate grades of 20% to 25% copper when the grind is at least 70% -200 mesh. The work indices for a -200 mesh grind range from 9.7 to 11.4. Tests indicate that a concentrate regrind section will be required if a satisfactory concentrate grade and copper recovery are obtained.

An analysis of the concentrate produced by the Galligher test work indicated that there possibly is sufficient zinc in the ore to be recovered, but the precious metal content is disappointing. The analysis is as follows:

Cu	22.0%	Se	.009	Zn	2.36
S	40.3	Te	.002	Au	0.04
Fe	34.8	Pl	.060	Ag	0.20

Comments and

Recommendations:

Gray Eagle is a relatively small deposit but because of the grade it has interesting possibilities, particularly if Essex participated in the development of Lights Creek and constructed a smelter on the West Coast.

The grade is sufficiently high to permit underground mining or open pit mining of present reserve, however, the terrain will probably make stripping of any additional reserves developed to the east prohibitive. Therefore, trackless room and pillar mining is probably the lowest cost and most likely mining method to be used if additional reserves can be developed.

I recommend that additional exploration be done to expand the proven ore reserves if a reasonable agreement can be negotiated with Standard Slag. The agreement between Standard Slag and Siskon requires a royalty based on 7½% net smelter return. Standard believes that this can be re-negotiated. The present agreement could have an adverse effect on the economics of an operation of this size.

I believe the exploration program should be conducted in three phases:

- (1) Surface drilling to develop additional ore reserves.
- (2) Rehabilitation and mapping of the underground workings to determine the continuity of the ore and the degree of faulting.
- (3) Drifting into areas of new ore development to determine the continuity and degree of faulting.

There is some indication that the ore is offset by faulting and this could cause mining problems in a trackless mining operation and could increase the mining costs. Underground exploration will provide better data on faulting and ore continuity than surface drilling, as well as providing information on ground conditions, stope spans, and support requirements.

cc: H. Lanier  
R. Holt  
K. Jones  
attachments

D.P. Bellum

## SUMMARY OF STANDARD SLAG-SISKON AGREEMENT

Siskon Corporation and Standard Slag Co.

Feb. 22, 1968

- Term: 20 years with option with 10-year extension.
- Owners Covenants: Warrants full ownership of patented claims but does not warrant full title to unpatented claims. Warrants that there are no liens or claims against potential claims but not against unpatented claims.
- Drilling Obligations: May 1, 1967 - Apr. 30, 1969: 600 feet drilling per quarter or pay Siskon \$1500 per quarter in lieu of drilling, such payments applicable to royalties.
- Royalties: 7½% net smelter or mint return on all ores, concentrates, metals, minerals, or products. Transportation costs of concentrates are deductible in net smelter return.
- Minimum Royalties: \$15,000 per year in \$1250 monthly payments - applicable to future production.
- Records: Separate and accurate records of ore shipped. Siskon to be furnished, upon request, all reports, data, maps, records, etc.
- Assessment: Standard Slag do all assessment work, unless agreement terminated 3 months prior to end of assessment period.
- Taxes: Standard Slag pays on property and improvements.
- Improvements: Improvements remain if lease is terminated. Standard Slag must maintain a watchman at Standard Slag.
- Liens, Claims, & Insurance: Standard Slag hold Siskon harmless from all claims.
- Assignment: Not assignable without Siskon consent.
- Termination: By Standard Slag only on 3 months notice.
- Default: Standard Slag has 30 days after written notice to correct default.

GREY EAGLE CLIMATIC DATA

1961 through 1969 (9 years)

<u>Month</u>	<u>Ave. Temp.</u>	<u>Ave. Precip.</u>	<u>High</u>	<u>Low</u>
Jan.	37	10.8	15.9	2.7
Feb.	44	5.4	10.6	1.2
March	47	6.4	12.8	0.3
April	52	3.1	9.4	0.2
May	60	1.4	3.6	0.1
June	68	0.4	1.0	0.0
July	74	0.3	1.2	0.0
Aug.	73	0.7	2.7	0.0
Sept.	67	0.5	1.2	0.0
Oct.	56	4.1	11.48	0.9
Nov.	46	8.9	14.7	1.8
Dec.	40	12.5	30.4	3.5

Data from Happy Camp Ranger Station  
Elev. 1165      Siskiyou County, Calif.

## STANDARD SLAG COMPANY

## INTER-OFFICE CORRESPONDENCE

TO: J. R. HarmonDATE: May 5, 1970FROM: G. B. Gaylord

COPIES TO:

SUBJECT: GRAY EAGLE - Estimated Ore Reserves

From the plan and cross sections designed early this year, it is estimated that the pit contains the following ore and waste:

Grade, % Cu	Ore Tons	Cu, Lbs.	Waste		W/O	
			Cu Yd.	Tons	Yd <sup>3</sup>	Tons
+0.20 Avge 1.27	3,041,313	76,982,931	9,476,689	22,744,053	3.12	7.48
+0.40 " 1.48	2,474,438	73,268,625	9,686,643	23,247,943	3.91	9.40
+0.60 " 1.63	2,150,313	70,289,975	9,806,689	23,536,053	4.56	10.95
+0.70 " 1.65	2,116,813	69,887,976	9,819,096	23,565,830	4.64	11.13
+1.00 " 1.72	1,947,688	67,056,876	9,881,735	23,716,164	5.07	12.18

In calculating the above quantities, factors of 10.0 cubic feet per ton of ore and 11.25 cubic feet per ton of waste were used. Allowance was made for mining by Newmont by deducting the reported 463,000 tons at the highest grades indicated by our sampling.

In addition to the above, the following ore and waste have been estimated as probable and possible.

	Tons	% Cu	Lbs Cu	Cu Yd Waste
Probable	673,588	0.94	12,659,018	810,852
Possible	2,381,000	0.99	47,188,200	
Possible	203,220	0.97	3,951,516	128,177
TOTAL	<u>3,257,808</u>	<u>0.99</u>	<u>63,798,734</u>	

Probable ore is principally in southern and western extensions. That estimated for a downfaulted block west of DD7 is considered quite conservative and may amount to several times the 132,750 tons allowed for it, based on an extension of 100 feet.

Most of the possible ore has been estimated in the east extension of the main ore-body and waste has not been estimated for this. It appears to be excessive for open pit mining.

*G. B. Gaylord*

GBG: mw

*Erney Esque*

# The Standard Slag Company

GENERAL OFFICES - WESTERN DIVISION  
POST OFFICE BOX 4400, RENO, NEVADA

November 13, 1974

Mr. E. Grover Heinrichs  
Assistant Manager of Exploration  
Essex International, Inc.  
1704 West Grant Road  
Tucson, Arizona 85705

Dear Mr. Heinrichs:

Today we have received the two missing documents you mentioned in your letter of November 11, 1974.

Please find enclosed a copy of your letter which I have signed and dated.

We certainly have appreciated your efforts in finding these documents. If in the future you need any information about this property, please let me know.

Yours very truly,

*S. M. Jaramillo*  
S. M. Jaramillo  
Operations Superintendent  
Western Division

cc: Mr. J. R. Harmon

Enclosure

SMJ:blk

# ESSEX

**ESSEX INTERNATIONAL, INC.**

1704 WEST GRANT RD., TUCSON, ARIZONA 85705  
PHONE (602) 624-7421

**November 11, 1974**

Mr. S.M. Jaramillo  
Operations Superintendent  
Western Division  
The Standard Slag Company  
P.O. Box 4400  
Reno, Nevada

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Please acknowledge receipt of these two maps by signing and dating in the space provided on the attached copy of this letter.

Very truly yours,

E. Grover Heinrichs  
Assistant Manager of Exploration

EGH:td  
enclosures

Sergio M. Jaramillo  
S.M. Jaramillo

November 13, 1974  
Date

MEMO TO FILE

By: D.P. Bellum  
Sept. 3, 1974

NOTES ON GREY EAGLE PROPERTY

The Grey Eagle data were reviewed on August 28 and 29 at the Standard Slag office at 900 Industrial Way, Reno, by Ken Jones and D. Bellum. These notes supplement a report prepared by Ken Jones regarding examination.

- Location: Approximately 5 miles north of Happy Camp in northwestern California.
- Ownership: The property is owned by Siskon Corporation of Reno and Standard Slag has a 20-year operating lease (summary of lease is attached).
- Property: The property is located in the Happy Camp Mining District of Siskiyou County, Calif. and consists of 16 patented claims covering the presently drilled orebody and 70 unpatented claims surrounding the patented claim.
- Terrain and Climate: The property is located at an elevation of 2500 to 2900 feet and the orebody dips under a ridge. The annual precipitation ranges between 50 and 60 inches per year and the monthly mean daily temperature ranges between 37° and 70°. Average monthly data are included.
- History: The property was operated by Newmont between 1943 and 1945. Approximately 463,000 tons of ore were mined from underground operation and processed through a 500 TPD concentrator that was moved from Nevada City, Calif. Mining ceased concurrently with World War II. Records indicate that 29,364,000 lbs. of copper and 6,208 oz. of gold were recovered. A cursory examination of the mill records indicates that the mill recovery was in the range of 85% to 87% which would indicate that the grade of the ore milled was approximately 3.7% copper. Reports also indicated that the mill had inadequate grinding capacity to maximize the recovery and concentrate grade. The mine

History - continued

records and subsequent drilling indicate that Newmont hi-graded the deposit. The mining method was room and pillar and the slope maps indicate relatively wide spans between pillars and a high extraction rate, probably in the range of 70% to 80%.

Present Ore

Reserves:

Standard Slag and several previous lessees have conducted drilling to determine the limits of the orebody. There are 24 holes at 200 to 300 feet centers which indicate an ore reserve of 3 million tons. In addition there are two holes drilled by Bear Creek, 800 to 1500 feet east of the drilled reserve with intercepts of plus 1.0% copper. Projections to these holes indicate possible additional reserves of 3 million tons. The massive sulfide orebody is roughly 700 feet by 1200 feet and ranges from 20 to 90 feet thick. The orebody strikes approximately east-west and dips 10% to 25% to the north.

Standard Slag has planned to mine the drilled reserves by open pit and did not drill between the known reserves and the Bear Creek holes because any ore in this area would have too high a stripping ratio to be economic. The reserves developed by Standard Slag are as follows:

	<u>Ore Tons</u> (000)	<u>Grade</u> % Cu	<u>Pounds Cu</u> (000)	<u>% of</u> <u>Total Cu</u>
+ 1.00 Cu	1,948	2.40%	94,837	90%
1.00% to 0.70% Cu	169	0.84	2,831	3%
0.70% to 0.40% Cu	357	0.47	3,380	3%
0.40% to 0.20% Cu	<u>567</u>	<u>0.33</u>	<u>3,715</u>	<u>4%</u>
Total	3.041	1.72%	104,763	100%

The tons of waste corresponding to the total tons of ore (3,041,000) was 22,744,000 with a 7.48/1.0 stripping ratio. With the cut-off of 1.0% the tons of waste are increased to 23,716,000 by the amount of excluded ore.

Present Ore Reserves - continued

The 463,000 tons mined by Newmont are excluded by deduction from the computed reserves. The reserves indicated in the enclosed memo from Gaylord to Harmon, May 5, 1970, have been arbitrarily reduced by 463,000 of 3.0% Cu. There is no justification to arbitrarily reduce the grade to compensate for the mining because the mining preceded the drilling and therefore the mined ore was not sampled by the drilling. A cursory examination of the drill logs indicates that of the 11 holes intersecting the stoped area, 4 appeared to have intersected open ground, 4 intersected high grade ore that was probably in the pillars, and 3 intersected waste pillars. A further study should be made of this problem but for the present no grade adjustments should be made for mine-out ore grade.

Gold and silver were not assayed routinely for the core drilling and there is some doubt about the accuracy of the assaying that was done. The indications are that the ore will average 0.3 to 0.4 oz silver and 0.01 to 0.02 oz gold.

Metallurgy:

A considerable amount of metallurgical testing was done by Newmont and by Galligher (for Standard Slag) to determine copper recovery, but little was done to recover gold and silver. Gold and silver were not considered to be of importance when the test work was done in 1943 and 1968, but with the increase in price these metals may make a substantial contribution.

The copper recovery in the Newmont and Galligher tests is consistently in the range of 93% to 96% with concentrate grades of 20% to 25% copper when the grind is at least 70% -200 mesh. The work indices for a -200 mesh grind range from 9.7 to 11.4. Tests indicate that a concentrate regrind section will be required if a satisfactory concentrate grade and copper recovery are obtained.

An analysis of the concentrate produced by the Galligher test work indicated that there possibly is sufficient ~~lead~~ <sup>Zinc</sup> in the ore to be recovered, but the precious metal content is disappointing. The analysis is as follows:

Cu	22.0%	Se	.009	Zn	2.36
S	40.3	Te	.002	Au	0.04
Fe	34.8	Pl	.060	Ag	0.20

Comments and

Recommendations: Gray Eagle is a relatively small deposit but because of the grade it has interesting possibilities, particularly if Essex participated in the development of Lights Creek and constructed a smelter on the West Coast.

The grade is sufficiently high to permit underground mining or open pit mining of present reserve, however, the terrain will probably make stripping of any additional reserves developed to the east prohibitive. Therefore, trackless room and pillar mining is probably the lowest cost and most likely mining method to be used if additional reserves can be developed.

I recommend that additional exploration be done to expand the proven ore reserves if a reasonable agreement can be negotiated with Standard Slag. The agreement between Standard Slag and Siskon requires a royalty based on 7½% net smelter return. Standard believes that this can be re-negotiated. The present agreement could have an adverse effect on the economics of an operation of this size.

I believe the exploration program should be conducted in three phases:

- (1) Surface drilling to develop additional ore reserves.
- (2) Rehabilitation and mapping of the underground workings to determine the continuity of the ore and the degree of faulting.
- (3) Drifting into areas of new ore development to determine the continuity and degree of faulting.

There is some indication that the ore is offset by faulting and this could cause mining problems in a trackless mining operation and could increase the mining costs. Underground exploration will provide better data on faulting and ore continuity than surface drilling, as well as providing information on ground conditions, stope spans, and support requirements.

cc: H. Lanier  
R. Holt ✓  
K. Jones  
attachments

D.P. Bellum

## SUMMARY OF STANDARD SLAG-SISKON AGREEMENT

Siskon Corporation and Standard Slag Co.

Feb. 22, 1968

- Term: 20 years with option with 10-year extension.
- Owners Covenants: Warrants full ownership of patented claims but does not warrant full title to unpatented claims. Warrants that there are no liens or claims against potential claims but not against unpatented claims.
- Drilling Obligations: May 1, 1967 - Apr. 30, 1969: 600 feet drilling per quarter or pay Siskon \$1500 per quarter in lieu of drilling, such payments applicable to royalties.
- Royalties: 7½% net smelter or mint return on all ores, concentrates, metals, minerals, or products. Transportation costs of concentrates are deductible in net smelter return.
- Minimum Royalties: \$15,000 per year in \$1250 monthly payments - applicable to future production.
- Records: Separate and accurate records of ore shipped. Siskon to be furnished, upon request, all reports, data, maps, records, etc.
- Assessment: Standard Slag do all assessment work, unless agreement terminated 3 months prior to end of assessment period.
- Taxes: Standard Slag pays on property and improvements.
- Improvements: Improvements remain if lease is terminated. Standard Slag must maintain a watchman at Standard Slag.
- Liens, Claims, & Insurance: Standard Slag hold Siskon harmless from all claims.
- Assignment: Not assignable without Siskon consent.
- Termination: By Standard Slag only on 3 months notice.
- Default: Standard Slag has 30 days after written notice to correct default.

GREY EAGLE CLIMATIC DATA

1961 through 1969 (9 years)

<u>Month</u>	<u>Ave. Temp.</u>	<u>Ave. Precip.</u>	<u>High</u>	<u>Low</u>
Jan.	37	10.8	15.9	2.7
Feb.	44	5.4	10.6	1.2
March	47	6.4	12.8	0.3
April	52	3.1	9.4	0.2
May	60	1.4	3.6	0.1
June	68	0.4	1.0	0.0
July	74	0.3	1.2	0.0
Aug.	73	0.7	2.7	0.0
Sept.	67	0.5	1.2	0.0
Oct.	56	4.1	11.48	0.9
Nov.	46	8.9	14.7	1.8
Dec.	40	12.5	30.4	3.5

Data from Happy Camp Ranger Station

Elev. 1165 Siskiyou County, Calif.

*Jan. Feb. probably only months weather  
would interfere with exploration*

## STANDARD SLAG COMPANY

## INTER-OFFICE CORRESPONDENCE

TO: J. R. HarmonDATE: May 5, 1970FROM: G. B. Gaylord

COPIES TO:

SUBJECT: GRAY EAGLE - Estimated Ore Reserves

From the plan and cross sections designed early this year, it is estimated that the pit contains the following ore and waste:

Grade, % Cu	Ore Tons	Cu, Lbs.	Waste		W/O	
			Cu Yd.	Tons	Yd <sup>3</sup>	Tons
+0.20 Avge 1.27	3,041,313	76,982,931	9,476,689	22,744,053	3.12	7.48
+0.40 " 1.48	2,474,438	73,268,625	9,686,643	23,247,943	3.91	9.40
+0.60 " 1.63	2,150,313	70,289,975	9,806,689	23,536,053	4.56	10.95
+0.70 " 1.65	2,116,813	69,887,976	9,819,096	23,565,830	4.64	11.13
+1.00 " 1.72	1,947,688	67,056,876	9,881,735	23,716,164	5.07	12.18

In calculating the above quantities, factors of 10.0 cubic feet per ton of ore and 11.25 cubic feet per ton of waste were used. Allowance was made for mining by Newmont by deducting the reported 463,000 tons at the highest grades indicated by our sampling.

In addition to the above, the following ore and waste have been estimated as probable and possible.

	Tons	% Cu	Lbs Cu	Cu Yd Waste
Probable	673,588	0.94	12,659,018	810,852
Possible	2,381,000	0.99	47,188,200	
Possible	203,220	0.97	3,951,516	128,177
TOTAL	<u>3,257,808</u>	<u>0.99</u>	<u>63,798,734</u>	

Probable ore is principally in southern and western extensions. That estimated for a downfaulted block west of DD7 is considered quite conservative and may amount to several times the 132,750 tons allowed for it, based on an extension of 100 feet.

Most of the possible ore has been estimated in the east extension of the main ore-body and waste has not been estimated for this. It appears to be excessive for open pit mining.

*G. B. Gaylord*

GBG:rw

REPORT

on the

CLEAR CREEK PROSPECT

Siskiyou County, California

for

ESSEX GROUP, INC.

by

E. Grover Heinrichs

June 1979

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MISCELLANEOUS DATA AS LISTED	In Back Pocket
Induced Polarization Survey by Mining Geophysical Surveys Inc.	
U.S.G.S. Topo Map - Scale 1:62500 Ukonam Lake Quadrangle	
Klamath River Geology from California Geology, May 1978	
Composite Map - Scale 1" = 200'	
Forest Service Map - Scale 1/2" = 1 mile	
Davis Property, Calif. - Scale 1" = 200' Dated 9-16-38	

## CLEAR CREEK PROSPECT

### INTRODUCTION

During May 1979, Ramon Shannon, one of the three owners from Tucson, Arizona, asked me to review some data on a property known as Clear Creek Prospect for Essex in the anticipation that Essex would be willing to conduct an evaluation of the property and if favorably impressed, either lease or purchase the property. The property has never been visited by me, but the enclosed is a summation of the pertinent facts and data.

### LOCATION

The Clear Creek Prospect is located in Sections 12 and 13 of T. 15 N., R. 6 E., and Sections 7 and 18 of T. 15 N., R. 7 E., Humboldt Meridian, Siskiyou County, California, about a half mile west of the Klamath River and 21 miles south of the Oregon state line and 80 miles westerly by road of Yreka, California, the largest town and trading center in the immediate area.

### HISTORY AND DEVELOPMENT

A report allegedly copied by hand from the California Journal of Mines and Geology, Vol. 31, No. 3, 1935, page 303, states the following:

"Three patented claims are held under Mineral Survey M.S. 5155 and named 'San Francisco,' Hunter's Paradise,' and 'Jolly Joker,' all owned by the Estate of Reeves Davis, W. F. Davis, executor. Some gossen is present on the property; also large zones of schist mineralized with quartz seams and sulphides of iron and copper. Heavy iron oxide stains much of the area and a drilling and sampling program was planned to develop the gold, using large-scale power shovels."

Subsequent bulletins report the property was purchased by Alexander Walter Scott in 1939. The report states that production continued on a two-shift basis and gold was 'pegged' by the U. S. Government at \$35.00/oz.

The main workings are the Jolly Joker and Hunter's Paradise. Taxes during this period were \$39.96/yr., according to county records.

There are two shafts, one two-hundred foot tunnel leading to a 700' shaft, and several open cuts.

### CLIMATE, TOPOGRAPHY, GEOLOGY AND MINERALIZATION

The geology of the area of northern California from data reviewed reveals the following:

The property is located at the eastern edge of the Western Jurassic Belt. In this general area the contact of the Western Jurassic Belt and the Western Paleozoic and Triassic Belt parallels the Klamath River. Gold and silver, with some copper occurrences, are the primary minerals that have been produced from the area in the past. The terrain is described as narrow, steep-sloped canyons and heavily timbered. The climate is described by natives of the area as moderate in temperature with considerable rain (60 inches) during the winter months.

A good dirt road, maintained by the Forest Service, crosses through the claims and is of considerable help in gaining access to the area.

A serpentine, volcanic rock contact paralleling the length of the claim named Hunter's Paradise, and striking about N. 30° E., and the south end line area of the Jolly Joker, where a 600' wide gossan area occurs, appear to be the zones that interested the original prospectors as well as the Quintana geologists, who recently conducted an evaluation of the property.

### GEOPHYSICS

Quintana's apparent objective was to test the sulphide potential quickly and at depth by running an induced polarization survey over the area at a normal angle to the contact zone and several hundred feet either side of it.

An induced polarization (I.P.) was conducted during the month of Nov. 1979, by Mining Geophysical Surveys Inc., under contract to Quintana. A copy of the report is included herein, and herewith made a part of this report. A summary of the results of the I.P. survey are as follows:

A high amplitude (apparent high sulphide) zone was outlined in the volcanics. The zone has a background of 60 M/S, and peaks to a high of 100 M/S and is open-ended because of limited coverage to the north, west and south. A favorable drill target, testing to a depth of 350', has been outlined on Line two between electrodes C5 and C6.

The volcanic zone has a distinctive low resistivity pattern, having a spread of 60  $\Omega$  m. to 80  $\Omega$  m. at the serpentine contact to 10 m. at the south end line of the Jolly Joker Claim. The entire volcanic zone appears significantly mineralized based on the I.P. survey results. The serpentine rocks have a much higher resistivity with a spread of 80  $\Omega$  m. to 400  $\Omega$  m. and minor polarization values.

### PROPERTY

The property consists of 3 patented claims and 14 unpatented claims as listed below:

#### Patented Claims

Jolly Joker	MS 5155
Hunter's Paradise	" "
San Francisco	" "

#### Unpatented Claims

C.C.M.S. Fraction  
 C.C.M.S. No. 1  
 C.C.M.S. No. 2  
 C.C.M.S. Fraction No. 2  
 C.C.M.S. No. 3  
 C.C.M.S. Fraction No. 3  
 C.C.M.S. No. 4  
 C.C.M.S. No. 5  
 C.C.M.S. No. 6  
 C.C.M.S. No. 7  
 C.C.M.S. No. 8  
 C.C.M.S. No. 9  
 C.C.M.S. No. 10  
 C.C.M.S. No. 11

### CONCLUSIONS AND RECOMMENDATIONS

The volcanic rocks west of the serpentine contact, and particularly a zone halfway along the west side line of the Hunter's Paradise Claim, is a highly anomalous I.P. zone, indicating significant concentrations of iron pyrite; and a good possibility exists that some precious metal and copper values may be associated with the pyrite.

A visit to the property to evaluate the area possibilities, logistics, and pertinent problems is recommended. Also negotiations should immediately be initiated with the owners and a check of land titles to be undertaken to confirm or identify any possible land problems with third parties, including state and federal governments as well as individuals.

June 1979

E. Grover Heinrichs  
Manager of Exploration

INDUCED POLARIZATION AND

RESISTIVITY SURVEY

CLEAR CREEK PROSPECT

SISKIYOU COUNTY, CALIFORNIA

FOR

QUINTANA MINERALS CORPORATION

PROJECT 0830

*W. Gordon Wieduwilt*



INDUCED POLARIZATION AND  
RESISTIVITY SURVEY  
CLEAR CREEK PROSPECT  
SISKIYOU COUNTY, CALIFORNIA  
FOR  
QUINTANA MINERALS CORPORATION

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ACCOMPANYING THIS REPORT:

- 1 LOCATION MAP
- 2 PROFILES
- 2 GEOPHYSICAL PLAN MAPS: a) IP CONTOURS  
b) RESISTIVITY CONTOURS

DISTRIBUTION:

ORIGINAL & 2 COPIES: Pete Dunn, Tucson

INDUCED POLARIZATION AND  
RESISTIVITY SURVEY  
CLEAR CREEK PROSPECT  
SISKIYOU COUNTY, CALIFORNIA  
FOR  
QUINTANA MINERALS CORPORATION

INTRODUCTION:

During the period of October 29 through November 4, 1978 an induced polarization and resistivity survey was performed on the titled property. The field survey was under the direction of Thomas Kane, technician; the report and interpretation by W. Gordon Wieduwilt, geophysicist for Mining Geophysical Surveys, Inc.

Quintana's interest in a geophysical test program was limited to providing some measure of the sulfide potential of the titled property. A gradient array was suggested as the most rapid reconnaissance IP method of coverage. Accordingly, a gradient grid was laid out to sample volcanic rocks along a contact adjacent to serpentine. In addition, two short-spaced dipole-dipole lines were to provide a) a sample in detail of any anomalous IP trend in the gradient data, and b) a sample of the sulfide potential at a prospect site east of the gradient grid.

SUMMARY:

A high amplitude IP anomaly of  $100 \text{ ms}^+$  has been outlined by the gradient survey. The anomaly suggests possible multiple

lens-like trends about 150' thick at a depth of 50'± occurring in the volcanics near and parallel to the serpentine contact. The volcanics themselves appear to have an overall high IP response of 60 ms± below a depth of 30'-50', suggesting possible widespread sulfides indigenous to the volcanics. The serpentines have no anomalous IP characteristics and show a background IP response of 10 ms±. The volcanic-serpentine contact has a near vertical to steep E'ly dip. Serpentine rocks are indicated to extend to depth possibly in excess of 400' E'ly adjacent to the contact.

The test line #1 east of the gradient array indicates an anomalous IP response in a thin surface layer of high resistivity rock 20' to 35' thick. Below that depth background IP response of 5 ms± is encountered. Weak IP response in possible dike-like trends is noted off the north and south ends of the line. No quantitative measure of these trends can be made from the incomplete coverage.

DETAILED REVIEW OF IP-RESISTIVITY DATA:

LINE 1, "a" = 100'

A three layer IP-resistivity characteristic occurs on this line with contact or near-vertical tabular zones at each end of the line.

The three-layer characteristic indicates anomalous IP response of 50 ms in a thin surface layer of high resistivity material of 3000 ohmmeters+. This surface layer is approximately 35' thick

in the southern half of the line, thinning to the north to a contact near electrode  $C_6$ . North of electrode  $C_6$  and at depth under the surface layer is a low background IP response of  $5 \text{ ms}^\pm$  associated with a low resistivity zone of approximately 150 ohmmeters. A small apparent dike-like IP trend of 15-20 ms with relatively high resistivity occurs 250' north of  $C_7$ . A quantitative description of this zone is not made on the limited evidence as is true of a similar dike-like trend 150'+ south of electrode  $C_1$ , where weak IP response of 15-20 ms occurs associated with relatively high resistivity rock. These dike-like trends have no apparent relationship to the layered characteristics. An increase in resistivity to greater than 1000 ohmmeters occurs at depth below  $360'^\pm$  forms the third layer. No significant change in the IP response is noted for this deep layer; however, a larger dipole should test these deeper interpretation characteristics.

LINE 2, "a" = 200'

This profile tests the anomalous IP response trend outlined by the gradient array. A two-layer characteristic is expressed in the data terminated to the east by a buried contact in the vicinity of electrode  $C_3$ .

The layer characteristics suggest a low (background) IP response of 8-10 ms in a high resistivity surface layer to a depth of  $50' \pm$  with local variations in thickness of 25' or less. Below that depth and west of a buried contact at electrode  $C_3$  occurs a large zone of anomalous IP response of 60-80 ms in 10 to

20 ohmmeter rock. Within this extensive IP response (sulfide?) system occurs a lens-like trend of IP response in excess of 100 ms. This trend is estimated at a depth of 50'+ and about 400' across. The thickness of the lens-like trend is in the order of 150'-200'.

East of the IP-resistivity contact at electrode C<sub>3</sub> a high resistivity rock of 300 ohmmeters<sup>+</sup> and low IP response of 10 ms<sup>+</sup> extends to a depth of 400' approximately. It is possible the contact dips E'ly and a dip effect is reflected in the depth estimate east of the contact. The contact represents the volcanic-serpentine contact as seen in the gradient array data. The resistivity layer west of the contact could reflect the water table in altered volcanic rocks, with a high sulfide content below the oxidized zone.

#### GRADIENT GRID

The gradient array data is practically self-explanatory. The IP and resistivity contrasts across the volcanic-serpentine contact provides a clear geophysical expression of a geologic phenomenon. Highlights of the contour pattern suggest lens or cigar-shaped zones of high IP response within a broad high response associated with the low resistivity volcanic rock. The high resistivity, low IP response east of the contact reflects the serpentine.

The gradient grid data is limited to a two-dimensional picture of the electrical properties in the grid area. Therefore, the dipole-dipole profile (Line 2) is required to provide control

of the electrical properties in the third dimension, and a quantitative description of these characteristics.

SURVEY PROCEDURE:

The induced polarization and resistivity measurements are made in the time-domain mode of operation using a DCS IPR-2 receiver and EGC model 45A transmitter and power supply with a capability of transmitting a maximum of 10 amps of current to the ground. A conventional system of measurements which uses a time cycle of 2.0 seconds "on" and 2.0 seconds "off" - 2.0 seconds "on" and 2.0 seconds "off" (current reversed) was employed.

The commencement of the measurement of the secondary voltage is delayed by 0.45 seconds to avoid coupling and other transient effects. The integration is performed during the period from 0.45 to 1.10 seconds after the cessation of current.

To conform to a standard presentation, the integral time constant is adjusted to give induced polarization readings equivalent to those obtained with transmitter cycles of 3.0 seconds "on" and 3.0 seconds "off", with integration of the secondary voltage during the first second of the "off" period.

Throughout the survey a conventional inline dipole-dipole array was used. Measurements were made for dipole separation factors "n" of 1/2 and 1 to 6. The potential electrodes occupied positions on both sides of the current-electrode spread, thereby

providing a line coverage of approximately nine times the dipole length for a standard line of seven electrodes. The total length of line is determined by the number of spreads or additional current-electrodes used.

Apparent polarization response is in units of millivolt-seconds-per-volt, or milliseconds (ms), and apparent resistivity is in units of ohmmeters. The data from each line is plotted in quasi-section to facilitate presentation of data at all spacings used.

#### Data Acquisition:

A series of consecutive apparent induced polarization readings are obtained and entered in the field notes. Usually if three to five consecutive readings are of the same value, the average reading is considered acceptable. In areas where signal levels are not sufficient to override telluric noise, the readings will have considerable scatter. When this occurs, each reading is entered in the data sheet and also in a histogram form. The class interval for our histograms is five units or fifteen units, depending on the gain setting of the chargeability meter. Consecutive readings are acquired until the density of readings about a particular value results in a "bell-shaped" display. This shape indicates to the operator that a sufficient number of readings have been taken to produce a reasonably accurate value. In some areas where extremely large noise levels are encountered satisfactory histograms cannot always be obtained, particularly

at the large "n" values. No telluric noise was encountered during this survey and data quality is considered good to excellent.

Respectfully submitted,

*W. Gordon Wieduwilt*  
W. Gordon Wieduwilt  
Geophysicist



November 27, 1978

Tucson, Arizona

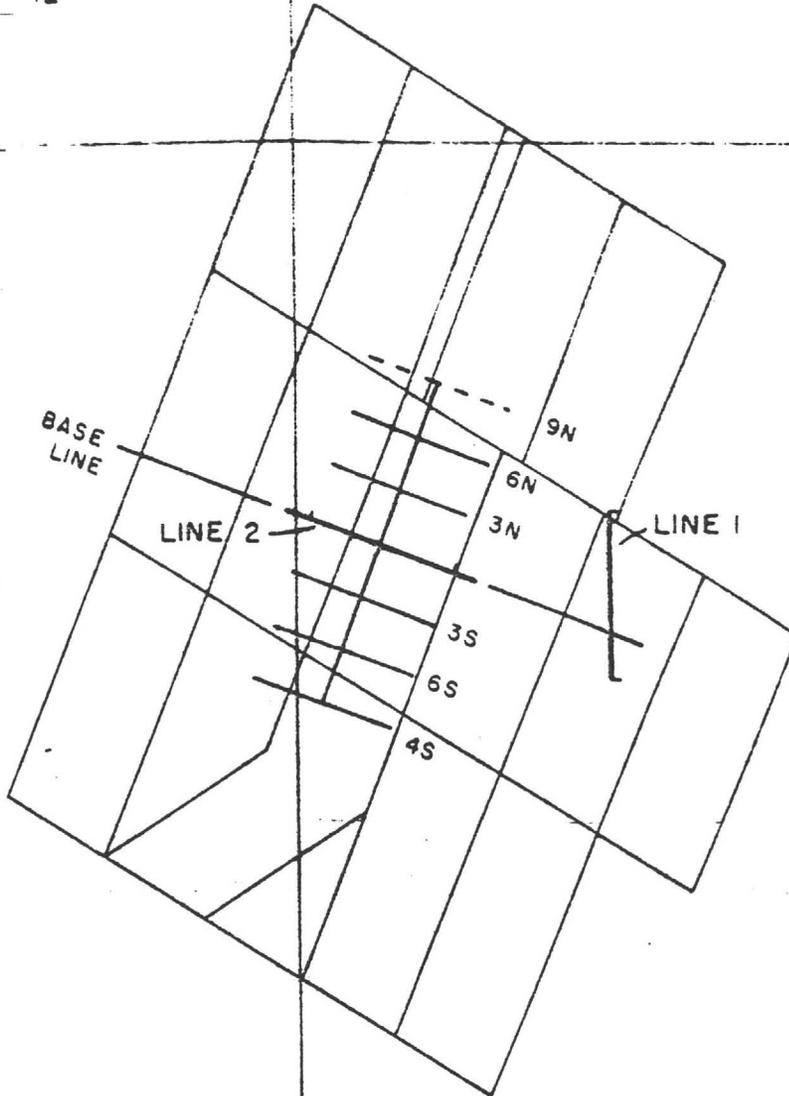
R 6 E R 7 E

12

7

T 15 N 13

18



SCALE 1" = 1000'

### I.P. and RESISTIVITY SURVEY

LOCATION MAP

CLEAR CREEK PROSPECT  
SISKIYOU COUNTY, CALIFORNIA

for

QUINTANA MINERALS CORP.

by

24

19

**mining**  
geophysical surveys



0830

Copy of A. Library 557.94  
 C157e 142  
 1913-14

Siskiyou County  
 Field work in September  
 1913

Substances	1913
Coal	\$1,500 00
Clays	250 00
Gold	*180,125 00
Mineral water	120,000 00
Quartzite stone	2,000 00
Silver	*1,228 00
Stone industry	4,883 00
<b>Total</b>	<b>\$309,986 00</b>

\*Production from dredging operations included in Stanislaus total.

**ELECTRICAL POWER PLANTS.**

The California-Oregon Power Company serves the following towns in Siskiyou County with cheap electrical power: Yreka, Montague, Hornbrook, Dorris, Ager, Hawkinsville, Thrall, Croy, Fort Jones, Oro Fino, Greenview, Walker, Etna, Weed, Sisson, Dunsmuir, and Castella.

The power plants are located at Fall Creek (capacity 2500 k.w.), Shasta River (380 k.w.), Klamath Falls (1500 k.w.), Gold Roy (2500 k.w.), Prospect (4750 k.w.), a total of 11,630 k.w. In addition to the plants mentioned, another is being installed on the Klamath River, near Fall Creek, with a capacity of 4000 k.w. and the system will then have a total generating capacity of 15,630 kilowatts.

**CHROME.**

Considerable float of chromite is found near the top of the Forest Mountains, in Sec. 13, T. 44 N., R. 8 W., Southern Pacific Railroad Company, owner; and in Sec. 18, T. 44 N., R. 7 W., Wm. Ramus and Carl Hill, Yreka, owners. The country rock is serpentine; the chromite is found in relatively small pieces. No development work has been done. Float of chromite is reported in the vicinity of the Dewey mine, about 10 miles southwest of Gazelle.

Bibl.: Bull. No. 38, pp. 272, 363.

**CLAY PRODUCTS.**

T. T. Garvey, of Yreka, owns a large bank of reddish colored clay, containing some minute quartz pebbles, in Sec. 27, T. 45 N., R. 7 W., M. D. M. A good quality of brick has been manufactured and used in Yreka.

Bibl.: Bull. No. 38, p. 257.

T. Hamilton, of Fort Jones, formerly made bricks from the surface clay from a deposit in Sec. 2, T. 43 N., R. 9 W.

Bibl.: Bull. No. 38, p. 257.

T. A. Reynolds, of Fort Jones, had an old brick kiln, using surface clay, from a deposit in Sec. 11, T. 43 N., R. 9 W.

Bibl.: Bull. No. 38, p. 257.

Peter Smith, of Etna, owns a bank of clay in Sec. 21, T. 42 N., R. 9 W., M. D. M. This deposit consists of 4 feet of clay of good quality, from which bricks were burned and used in buildings in Etna.

Bibl.: Bull. No. 38, p. 257.

J. Walker, of Greenview, has a deposit of grayish colored clay of good quality, located in Sec. 32, T. 43 N., R. 9 W., M. D. M.; a good grade of bricks manufactured at one time.

Bibl.: Bull. No. 38, p. 258.

**COAL.**

The coal deposits north of Yreka, in the vicinity of Hornbrook and Ager, have furnished a small amount of coal for domestic use for several years. It is a good grade of lignite, burns freely and leaves no clinkers.

The Black Butte Mountain Deposits near Ager, and the Kosh Creek deposits near Glazier along Kosh Creek in T. 38 N., R. 1 E., have not been developed at all.

The Siskiyou Coal Manufacturing Company's holdings near Hornbrook have been exploited by several open cuts along the croppings. The vein is 5 feet wide, with 30 inches of good lignite. Coal has been reported near Oak Bar, but is inferior in quality to the other deposits.

Bibl.: Report XI, p. 449.

**COPPER.**

The copper mines and prospects, while of recent development, are worthy of careful consideration, and are widely scattered over the central and northern portions of the county. The formations in which these deposits occur are either peridotite or gabbro, or a metamorphic schist overlying these eruptives, and several of the mountain peaks show the reddish-brown color which peridotite assumes in weathering. In the Happy Camp district, which has been noted for its placer gold production, there are several prospects of merit; and one property, the Grey Eagle, has been developed into a copper mine of considerable magnitude, with a large tonnage of ore blocked out.

Bibl.: Bull. No. 50, pp. 120-141.

Blue Ledge, owned by Blue Ledge Mining Company, of New York, is located in Sec. 21, T. 48 N., R. 11 W., M. D. M., in the Elliott mining district in the Siskiyou Mountain range and near the boundary line

**BET**ween California and Oregon. Elevation at mine is 4000 feet. **Hut-**  
**ton** is the nearest post office. The mine is connected by wagon road  
**with** Joe Bar, an old placer camp. The ore occurs in a north and  
**south** vein, dip vertical, its outcrop being traceable for 3000 feet; walls  
**are** micaceous schist. Ore consists of pyrite, chalcopyrite and other  
**sulphides** and oxides of iron and copper, the average value being above  
**6%** copper and \$5 per ton in gold. Two main tunnels 250 feet  
**apart** are connected by winzes and stopes; both show ore and have  
**intermediate** drifts showing over 150 feet in a solid body 40 feet wide  
**in** places. The workings comprise over 3000 feet of development. A  
**large** tonnage of ore blocked out. It is reported that the company has  
**planned** the erection of a smelter on the Applegate River.

Bibl.: Bull. No. 50, p. 128.

**Copper Queen**, in Sec. 3, T. 46 N., R. 7 W., in the Cottonwood min-  
ing district, 10 miles northwest of Hornbrook. Owners, J. D. and R.  
**Abbott**, of Yreka; comprises 20 acres on Hunter Creek; small ledge in  
**lime** and diorite-schist, 110-foot tunnel. Idle.

Bibl.: Bull. No. 50, p. 123.

**Davis**, in Sec. 12, T. 14 N., R. 6 E., in the Happy Camp mining  
district, 13 miles southwest of Happy Camp. Owner, R. Davis. Ledge  
**20** to 30 feet wide in schist and limestone; short tunnels; ledge not  
**found** in place as yet; strong gossan cropping, carrying some gold value;  
**banded** to J. D. Farish and eight men employed; F. H. Dakin, super-  
**intendent**; claims on Clear Creek.

**Gray Eagle** (formerly known as the *Dewey*), in Sec. 4, T. 17 N.,  
7 E., in the Happy Camp mining district, 8 miles northwest of  
Happy Camp. Owner, Incorporated Company, of New York;  
D. Farish, manager; Fred H. Dakin, superintendent; comprises 240  
**acres**, patented; on Indian Creek at an elevation of 2550 feet; a strong  
**vein** from 10 to 80 feet wide in schist with a northwest and southeast  
**strike** and a dip of 45° E.; ore shoot over 300 feet long, consisting of  
**chalcopyrite** and pyrite; eight tunnels from 50 to 600 feet in length, six  
having crosscuts and two on the ledge; and several hundred feet of drifts  
**and** raises; large tonnage blocked out; ore carries from 2½% to 18%  
**copper** and \$1.50 per ton in gold; strong gossan croppings on the sur-  
**face**, five men employed; property located in 1892 and sold to present  
company in 1908.

Bibl.: Bull. No. 50, p. 132.

**Lummer**, in Sec. 18, T. 40 N., R. 7 W., in Callahan mining dis-  
trict; owned by Mischler & Rollins, of Callahan. Claims worked to a  
limited extent by shallow shafts and open cuts; formation is serpen-  
tine, though the ore deposits are connected with dikes of quartz-

porphyry which have penetrated the serpentine; ore lies in irregular  
bodies, consisting of pyrrhotite and other sulphides, carrying copper;  
ore said to contain nickel. Idle.

Bibl.: Bull. No. 50, p. 123.

**Little**, in Sec. 12, T. 46 N., R. 12 W., in the Seiad mining district;  
10 miles west of Hamburg Bar. Owners, Little & Straisch; comprises  
60 acres, located in 1899; ledge 39 feet wide, with northwest and south-  
east strike and dip of 20° E.; in schist and limestone; 40-foot tunnel.  
Idle.

**Monarch**, in Sec. 7, T. 40 N., R. 7 W., Callahan mining district;  
owned by Monarch Copper Mining Company, of Callahan; 240 acres,  
patented; tunnels and shafts (shallow); sulphide ore. Idle.

Bibl.: Bull. No. 50, p. 124.

**Phillips**, in Sec. 6, T. 46 N., R. 12 W., in the Seiad mining dis-  
trict; 14 miles west of Hamburg Bar. Owner, S. Phillips; comprises  
40 acres, located in 1900; ledge 30 to 100 feet wide, with northwest  
and southeast strike and dip 35° E.; in schist and limestone; 110-foot  
tunnel; strong gossan cropping traceable for 1500 feet; only do assess-  
ment work.

**Polar Bear**, in Sec. 12, T. 40 N., R. 8 W., in the Callahan mining  
district; owned by Welkes & Sons; comprises one claim; ore bodies 6  
feet wide, consisting of chalcopyrite and pyrrhotite, in serpentine;  
200 tons extracted, said to carry 17% copper. Idle.

Bibl.: Bull. No. 50, p. 124.

**Preston Peak**, at head of South Fork of Indian Creek, 1½ miles north  
of Preston Peak; owned by Preston Peak Copper Mining Company;  
ledge 20 to 30 feet wide, in diorite; ores are pyrite and chalcopyrite;  
300-foot tunnel in ore; ore said to carry 12% copper with gold;  
one of the pioneer discoveries of the Siskiyou belt. Idle.

Bibl.: Bull. No. 50, p. 132.

**Plutus**, in Secs. 12 and 14, T. 40 N., R. 8 W., in Callahan mining  
district; owned by McCarter, of Callahan; comprises five claims; ore,  
(pyrrhotite with small percentage of copper); occurs in gabbro and ser-  
pentine. Idle.

Bibl.: Bull. No. 50, p. 123.

**Rainbow**, in Sec. 24, T. 40 N., R. 5 W., in the Mt. Eddy mining  
district, 4 miles southwest of Sisson; owned by Wood & Sheldon Lum-  
ber Company; comprises 300 acres; tunnels and open cuts; one tunnel  
400 feet long; ledge is 6 feet wide, in serpentine; ore is massive sul-  
phides; gossan croppings 100 to 600 feet wide are exposed for over

mile on a spur of Mt. Eddy, having a strike of  $70^{\circ}$  NW. and dip of  $60^{\circ}$ ; company's railroad near property; property was first worked for gold, thirty years ago. Idle.

Bibl.: Bull. No. 50, p. 125.

*Rothrop*, in Secs. 5, 6, 7 and 8, T. 43 N., R. 8 W., 4 miles northwest of Fort Jones; owned by George Henderson; comprises 15 claims; developed by shafts and tunnels; ledge 6 feet wide in serpentine; some of the ore is reported to carry 20% copper. Idle.

Bibl.: Bull. No. 50, p. 125.

*Shiner*, in Sec. 7, T. 46 N., R. 12 W., in the Seiad mining district; 12 miles west of Hamburg Bar. Owner, C. Shiner. Comprises 40 acres, at an elevation of 2000 feet; located in 1899; ledge 30 to 100 feet wide, with northwest and southeast strike and dip of  $30^{\circ}$  E., in schist and limestone; 80-foot tunnel; strong gossan cropping; ore is chalcopyrite. Only do assessment work.

*Tebbe*, in Sec. 32, T. 4 N., R. 9 W., in the Oak Bar mining district; 4 miles north of Oak Bar. Owner, G. A. Tebbe. Comprises 40 acres; ledge 30 feet wide in schist and limestone; 120-foot tunnel in ore. Idle.

*Welch*, in Sec. 1, T. 46 N., R. 12 W., in the Seiad mining district; 4 miles west of Hamburg Bar. Owner, E. Welch. Comprises 40 acres, located in 1899; ledge 30 feet wide, with northwest and southeast course and dip of  $40^{\circ}$  E.; in schist and limestone; two tunnels, 30 and 60 feet long; strong gossan cropping. Only do assessment work.

*Yellow Butte*, in Sec. 25, T. 40 N., R. 5 W., 15 miles from Montague, on the north slope of Mount Shasta; owned by Yellow Butte Mining Company; L. D. Ball, superintendent; vein is 5 feet wide, in schist and granite; strike north and south; dip  $60^{\circ}$  W.; ore is massive sulphide; tunnels and shafts. Idle.

Bibl.: Bull. No. 50, p. 126.

#### GOLD.

The main gold-bearing belt of Siskiyou County consists of metamorphic slates, granites, diorites, and limestones, with occasionally intrusive masses of porphyry, trap and syenite. This belt is from 5 to 12 miles in width and about 60 miles long, widening and narrowing at places on its line of strike, which varies from N.  $20^{\circ}$  to  $30^{\circ}$  E. In some places it is veined and seamed with stringers of quartz; in others it is soft, carrying tale in excess, with irregular bunches of quartz, rich in gold, designated in hydraulic mining as "seam diggings" and being easily worked with a stream of water under a heavy pressure head. In other localities on the belt, where the formation has been fissured,

or near the line of contact, quartz veins occur either singly or in groups, and as a rule are small, but rich in gold.

This belt is interrupted and broken at several points and is by no means prolific in auriferous quartz veins throughout its entire extent, nor do the same rocks prevail in all the quartz districts.

A striking feature of the occurrence of the auriferous veins is their relation to the culminating peaks of the mountain systems crossed by the belt, for they conform to the lines of foliation of the ranges, being especially noticeable in the Salmon Range, New River, Knownothing, Deadwood and Humbug districts. Quartz Valley and Oro Fino, on opposite sides of a minor isolated mountain, are the only exceptions to the rule indicated.

Salmon Mountain, composed of eruptive rocks, porphyries and granites, seems to have been a disturbing element, as auriferous rocks do not come to the surface for about 10 miles beyond. Reaching as far as the known southerly limit of this gold-bearing belt extends, and crossing it, a belt of argillaceous slate and porphyry, having a width of 2 miles, is encountered, and then a decided belt of serpentine from 3 to 6 miles in width is entered, traceable for several miles on its line of strike. A belt of micaceous schist is observed at Scott's Bar, and westerly from this point belts of granite, limestone, and syenite are alternately crossed, until another belt of auriferous slates is entered, which has been but slightly prospected.

#### DESCRIPTION OF MINING DISTRICTS.

##### Salmon River District.

This district, the largest in Siskiyou County, comprises its entire southwestern corner, and includes the drainage area of the Salmon River and its tributaries. Topographically, it is a tangle of mountain ridges separated by precipitous canyons and river gorges. A wagon road 43 miles in length connects Etna, in Scott Valley, with Forks of Salmon, a small town located at the junction of the North Fork of the Salmon River. All the fairly level land in the district consists of a few bars on the Salmon River and its branches, so that this section is practically dependent on supplies from the outside.

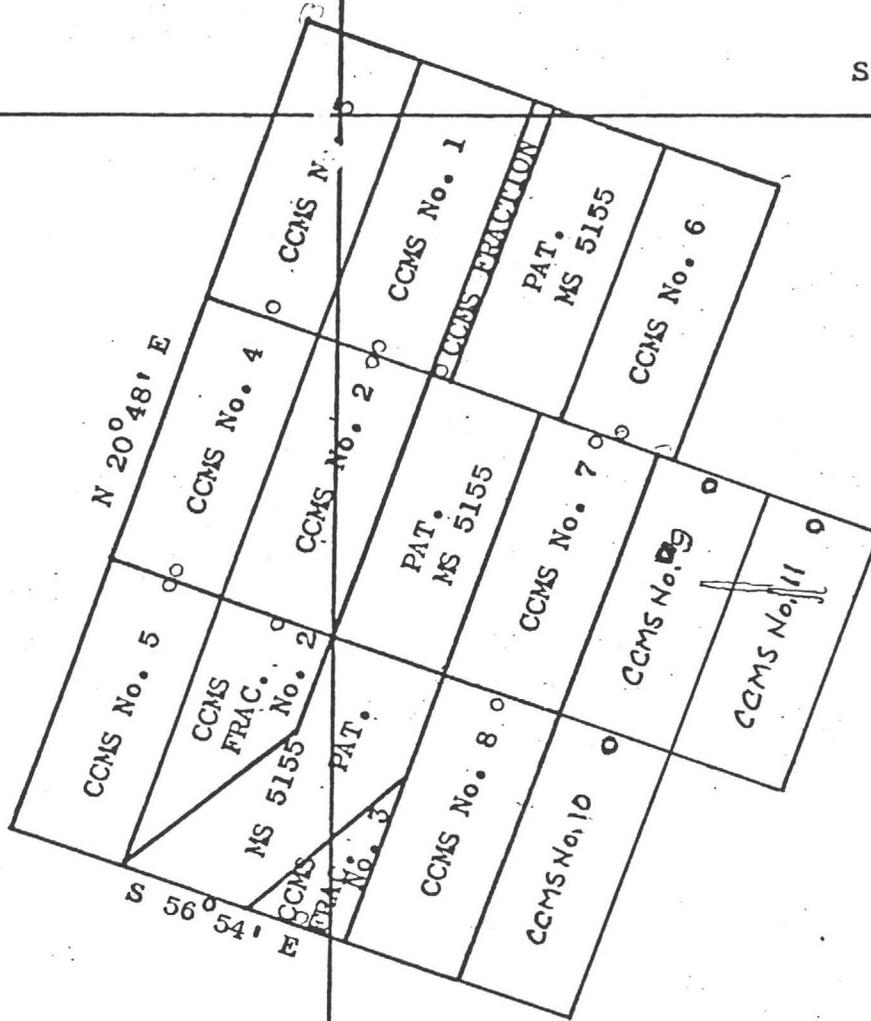
Its mining industry, which is much scattered, is diversified among the several branches of placer and quartz mining, the former being followed along the Salmon River and its two principal branches, and to a less extent in some of the smaller side canyons making up into the gold-bearing quartz belts; large deposits are still untouched on the main river and on the South Fork. It is in quartz mining, however, that the permanent value of the district is to be realized. The main gold-bearing rock belt of the county crosses through the middle of this section.

T 15 N, R 6 E  
HUMBOLDT MERIDIAN

T 15 N, R 7 E  
HUMBOLDT MERIDIAN

SEC. 12

SEC. 7



SEC. 13

SEC. 18

SEC. 24

SEC. 19

PRELIMINARY PLAT  
 CCMS MINING CLAIM GROUP  
 SITUATED IN  
 T 15 N, R 6 E, SEC. 12 & 13  
 T 15 N, R 7 E, SEC. 7 & 18  
 HUMBOLDT MERIDIAN  
 SISKIYOU COUNTY, CALIF.  
 SCALE: 1" = 1000' approx.  
 APRIL 1978

# 1934 Report of State Mineralogist

Calif. Jnl. Mines & Geol. V 31, #3, 1935, p 303

Paradise Group Comprises 460 Acres in Sec. 18  
Tn. 15N-R. 7E H.M. 10 miles S. West of Happy Camp.  
Held by the Estate of Reece Davis, W.F. Davis, Executor  
427 J Street Sacramento. Three of the Claims are  
patented under M.S. 5155, named San Francisco,  
Hunter's Paradise and Jolly Joker. Some gossan is  
found here; also large bodies of schist mineralized  
with quartz seams and sulphides of iron and copper.  
Practically all of the surface material is heavily  
stained by oxides of iron derived from these sulphides.  
According to W.F. Davis, the deposit was to be  
extensively drilled and sampled, in 1934, with the  
idea that it may contain enough gold to pay by  
mining on a large scale, with power shovels.

---

The patented portion of the Claims was purchased  
in 1939 by Alexander Walter Scott. He continued  
production ~~—~~ after the years when gold was pegged at the  
U.S. price of \$35.00 per ounce. At one period he was  
running two shifts - day & night - on the property. The  
main workings were on the Jolly Joker & Hunter's Paradise  
Claims (Lodes). The Siskiyou County tax for the  
past years were only \$39.96 per year. The acreage still  
has timber. A tributary of Clear Creek runs through  
the property. There are two shafts and one tunnel 200' long,  
leading to a 700' shaft. several open cuts.

Clear Creek Massive Sulfide Prospect An. Ag. Cu  
(3) Three patented & (14) Fourteen unpatented Claims.  
Siskiyou County California.

Property may be acquired, Subject to a 6% Royalty reserved by owners, On the following terms. 35.00 advance minimum royalty upon execution of the agreement and commit to spend a minimum of \$25,000 in exploration and/or development on the property during the first year of the agreement.

Lessee shall have the option to extend the agreement year to year by making the following commitments:

years 2 through 5 \$30,000 minimum advance royalty and \$40,000 expenditure in exploration & development each year.

years 6 through 10 \$60,000 minimum advance royalty each year.

After total royalty payments made equal \$455,000 and lessee has spent a total of \$185,000 in exploration & development the property shall belong to lessee subject to the 6% royalty reserved by the owners with no further obligation of minimum payments or work commitments.

If lessee shall elect not to make the minimum royalty payments and exploration expenditures during any option period as set out above, the property shall be returned to the owners with no interest retained by lessee.

Lessee will have no right or interest in timber on the property for the first five (5) years from date of formal agreement.

# KLAMATH RIVER GEOLOGY

Curley Jack Camp to Ti Bar

Siskiyou County, California

By  
ALBERT D. HARRIS, Geologist  
P.O. Box 306  
Clearlake Highlands, California





INDUCED POLARIZATION AND

RESISTIVITY SURVEY

CLEAR CREEK PROSPECT

SISKIYOU COUNTY, CALIFORNIA

FOR

QUINTANA MINERALS CORPORATION

PROJECT 0830

*W. Gordon Wieduwilt*



mining  
geophysical surveys inc



INDUCED POLARIZATION AND  
RESISTIVITY SURVEY  
CLEAR CREEK PROSPECT  
SISKIYOU COUNTY, CALIFORNIA  
FOR  
QUINTANA MINERALS CORPORATION

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ACCOMPANYING THIS REPORT:

- 1 LOCATION MAP
- 2 PROFILES
- 2 GEOPHYSICAL PLAN MAPS: a) IP CONTOURS  
b) RESISTIVITY CONTOURS

DISTRIBUTION:

ORIGINAL & 2 COPIES: Pete Dunn, Tucson

INDUCED POLARIZATION AND  
RESISTIVITY SURVEY  
CLEAR CREEK PROSPECT  
SISKIYOU COUNTY, CALIFORNIA  
FOR  
QUINTANA MINERALS CORPORATION

INTRODUCTION:

During the period of October 29 through November 4, 1978 an induced polarization and resistivity survey was performed on the titled property. The field survey was under the direction of Thomas Kane, technician; the report and interpretation by W. Gordon Wieduwilt, geophysicist for Mining Geophysical Surveys, Inc.

Quintana's interest in a geophysical test program was limited to providing some measure of the sulfide potential of the titled property. A gradient array was suggested as the most rapid reconnaissance IP method of coverage. Accordingly, a gradient grid was laid out to sample volcanic rocks along a contact adjacent to serpentine. In addition, two short-spaced dipole-dipole lines were to provide a) a sample in detail of any anomalous IP trend in the gradient data, and b) a sample of the sulfide potential at a prospect site east of the gradient grid.

SUMMARY:

A high amplitude IP anomaly of  $100 \text{ ms}^{\pm}$  has been outlined by the gradient survey. The anomaly suggests possible multiple

lens-like trends about 150' thick at a depth of 50'<sup>±</sup> occurring in the volcanics near and parallel to the serpentine contact. The volcanics themselves appear to have an overall high IP response of 60 ms<sup>±</sup> below a depth of 30'-50', suggesting possible widespread sulfides indigenous to the volcanics. The serpentines have no anomalous IP characteristics and show a background IP response of 10 ms<sup>±</sup>. The volcanic-serpentine contact has a near vertical-to steep E'ly dip. Serpentine rocks are indicated to extend to depth possibly in excess of 400' E'ly adjacent to the contact.

The test line #1 east of the gradient array indicates an anomalous IP response in a thin surface layer of high resistivity rock 20' to 35' thick. Below that depth background IP response of 5 ms<sup>±</sup> is encountered. Weak IP response in possible dike-like trends is noted off the north and south ends of the line. No quantitative measure of these trends can be made from the incomplete coverage.

DETAILED REVIEW OF IP-RESISTIVITY DATA:

LINE 1, "a" = 100'

A three layer IP-resistivity characteristic occurs on this line with contact or near-vertical tabular zones at each end of the line.

The three-layer characteristic indicates anomalous IP response of 50 ms in a thin surface layer of high resistivity material of 3000 ohmmeters+. This surface layer is approximately 35' thick

in the southern half of the line, thinning to the north to a contact near electrode  $C_6$ . North of electrode  $C_6$  and at depth under the surface layer is a low background IP response of  $5 \text{ ms}^{\pm}$  associated with a low resistivity zone of approximately 150 ohmmeters. A small apparent dike-like IP trend of 15-20 ms with relatively high resistivity occurs 250' north of  $C_7$ . A quantitative description of this zone is not made on the limited evidence as is true of a similar dike-like trend 150'+ south of electrode  $C_1$ , where weak IP response of 15-20 ms occurs associated with relatively high resistivity rock. These dike-like trends have no apparent relationship to the layered characteristics. An increase in resistivity to greater than 1000 ohmmeters occurs at depth below  $360'_{\pm}$  forms the third layer. No significant change in the IP response is noted for this deep layer; however, a larger dipole should test these deeper interpretation characteristics.

LINE 2, "a" = 200'

This profile tests the anomalous IP response trend outlined by the gradient array. A two-layer characteristic is expressed in the data terminated to the east by a buried contact in the vicinity of electrode  $C_3$ .

The layer characteristics suggest a low (background) IP response of 8-10 ms in a high resistivity surface layer to a depth of  $50'_{\pm}$  with local variations in thickness of 25' or less. Below that depth and west of a buried contact at electrode  $C_3$  occurs a large zone of anomalous IP response of 60-80 ms in 10 to

20 ohmmeter rock. Within this extensive IP response (sulfide?) system occurs a lens-like trend of IP response in excess of 100 ms. This trend is estimated at a depth of 50'+ and about 400' across. The thickness of the lens-like trend is in the order of 150'-200'.

East of the IP-resistivity contact at electrode C<sub>3</sub> a high resistivity rock of 300 ohmmeters<sup>±</sup> and low IP response of 10 ms<sup>±</sup> extends to a depth of 400' approximately. It is possible the contact dips E'ly and a dip effect is reflected in the depth estimate east of the contact. The contact represents the volcanic-serpentine contact as seen in the gradient array data. The resistivity layer west of the contact could reflect the water table in altered volcanic rocks, with a high sulfide content below the oxidized zone.

#### GRADIENT GRID

The gradient array data is practically self-explanatory. The IP and resistivity contrasts across the volcanic-serpentine contact provides a clear geophysical expression of a geologic phenomenon. Highlights of the contour pattern suggest lens or cigar-shaped zones of high IP response within a broad high response associated with the low resistivity volcanic rock. The high resistivity, low IP response east of the contact reflects the serpentine.

The gradient grid data is limited to a two-dimensional picture of the electrical properties in the grid area. Therefore, the dipole-dipole profile (Line 2) is required to provide control

of the electrical properties in the third dimension, and a quantitative description of these characteristics.

SURVEY PROCEDURE:

The induced polarization and resistivity measurements are made in the time-domain mode of operation using a DCS IPR-2 receiver and EGC model 45A transmitter and power supply with a capability of transmitting a maximum of 10 amps of current to the ground. A conventional system of measurements which uses a time cycle of 2.0 seconds "on" and 2.0 seconds "off" - 2.0 seconds "on" and 2.0 seconds "off" (current reversed) was employed.

The commencement of the measurement of the secondary voltage is delayed by 0.45 seconds to avoid coupling and other transient effects. The integration is performed during the period from 0.45 to 1.10 seconds after the cessation of current.

To conform to a standard presentation, the integral time constant is adjusted to give induced polarization readings equivalent to those obtained with transmitter cycles of 3.0 seconds "on" and 3.0 seconds "off", with integration of the secondary voltage during the first second of the "off" period.

Throughout the survey a conventional inline dipole-dipole array was used. Measurements were made for dipole separation factors "n" of 1/2 and 1 to 6. The potential electrodes occupied positions on both sides of the current-electrode spread, thereby

providing a line coverage of approximately nine times the dipole length for a standard line of seven electrodes. The total length of line is determined by the number of spreads or additional current-electrodes used.

Apparent polarization response is in units of millivolt-seconds-per-volt, or milliseconds (ms), and apparent resistivity is in units of ohmmeters. The data from each line is plotted in quasi-section to facilitate presentation of data at all spacings used.

#### Data Acquisition:

A series of consecutive apparent induced polarization readings are obtained and entered in the field notes. Usually if three to five consecutive readings are of the same value, the average reading is considered acceptable. In areas where signal levels are not sufficient to override telluric noise, the readings will have considerable scatter. When this occurs, each reading is entered in the data sheet and also in a histogram form. The class interval for our histograms is five units or fifteen units, depending on the gain setting of the chargeability meter. Consecutive readings are acquired until the density of readings about a particular value results in a "bell-shaped" display. This shape indicates to the operator that a sufficient number of readings have been taken to produce a reasonably accurate value. In some areas where extremely large noise levels are encountered satisfactory histograms cannot always be obtained, particularly

at the large "n" values. No telluric noise was encountered during this survey and data quality is considered good to excellent.

Respectfully submitted,

  
W. Gordon Wieduwilt  
Geophysicist



November 27, 1978

Tucson, Arizona

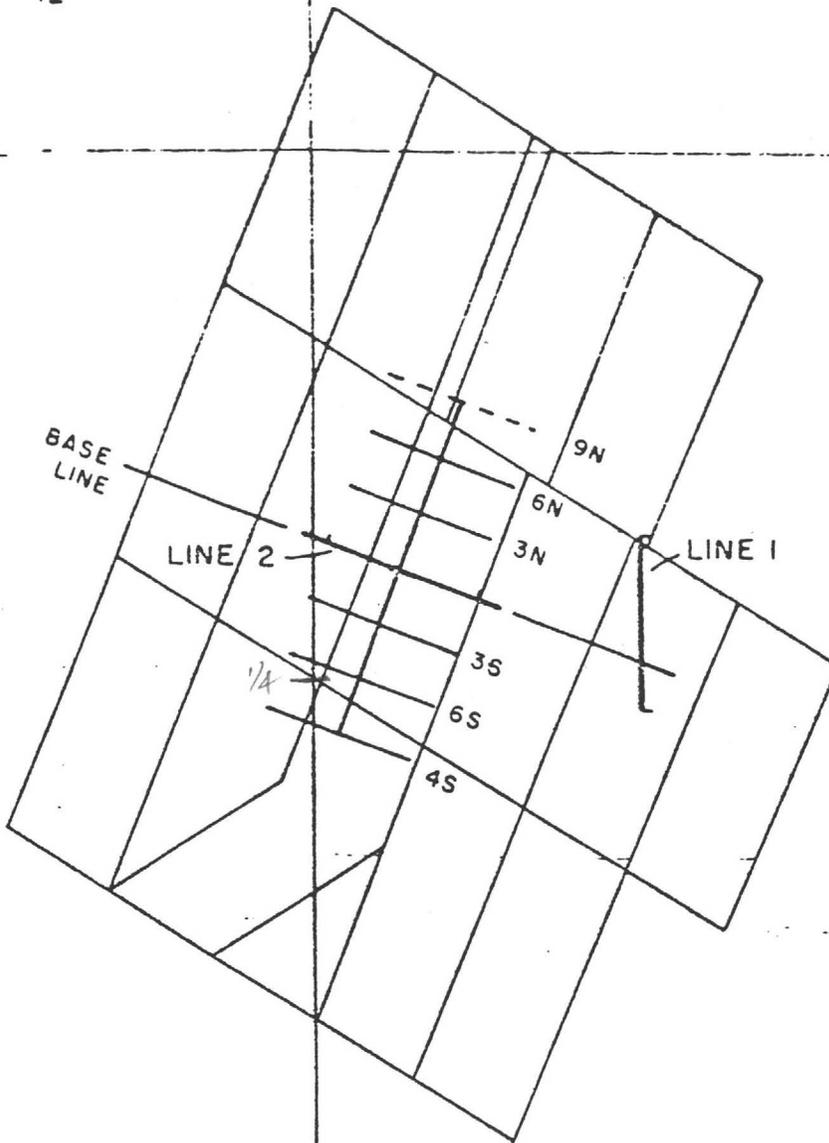
R 6 E R 7 E

12

7

T 15 N 13

18



SCALE 1" = 1000'

### I.P. and RESISTIVITY SURVEY

LOCATION MAP

CLEAR CREEK PROSPECT  
SISKIYOU COUNTY, CALIFORNIA

for  
QUINTANA MINERALS CORP.

by

24

19

**mining**  
geophysical surveys



0830



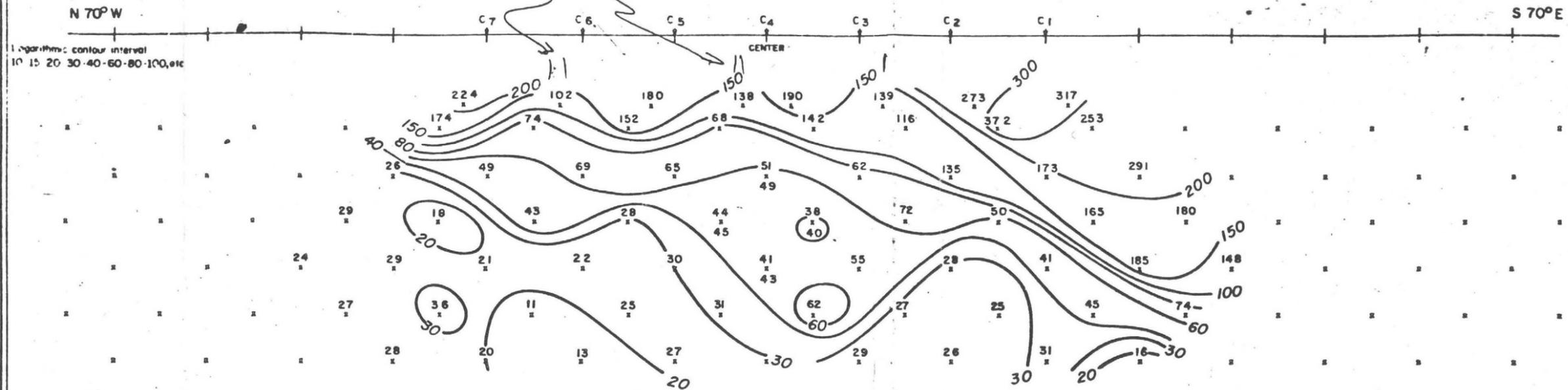


# TIME DOMAIN INDUCED POLARIZATION AND RESISTIVITY SURVEY

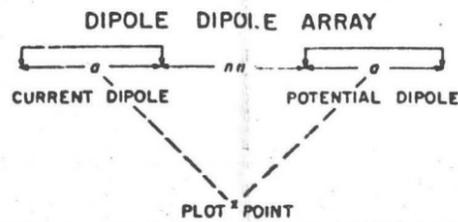
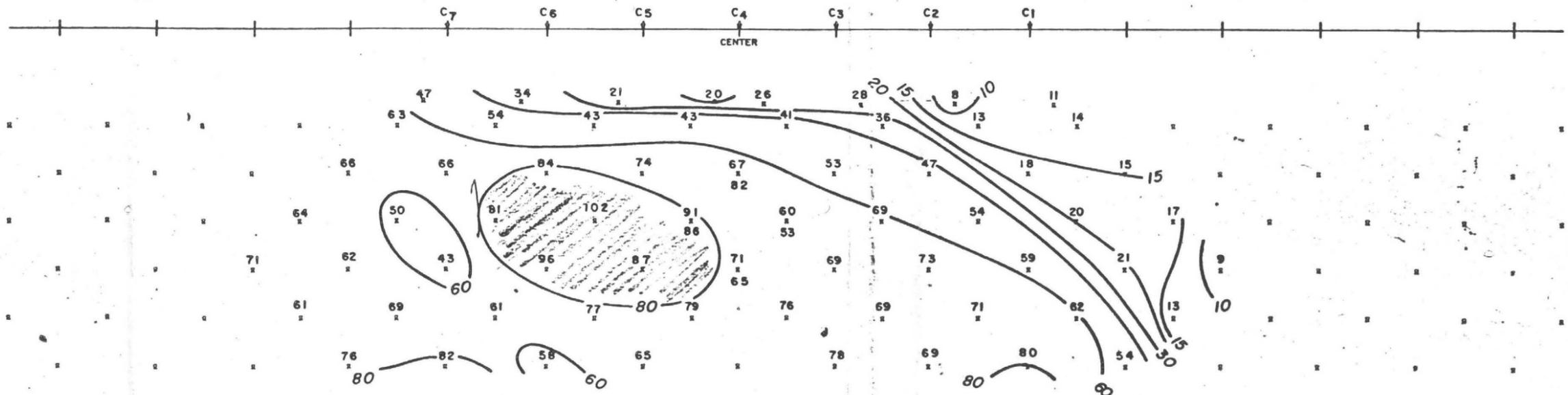
CLEAR CREEK PROJECT - SISKIYOU COUNTY, CALIFORNIA

FOR  
*possible low Resistivity  
 zones - VLF structure?* QUINTANA MINERALS CORP.

APPARENT RESISTIVITY  
 ohm meters



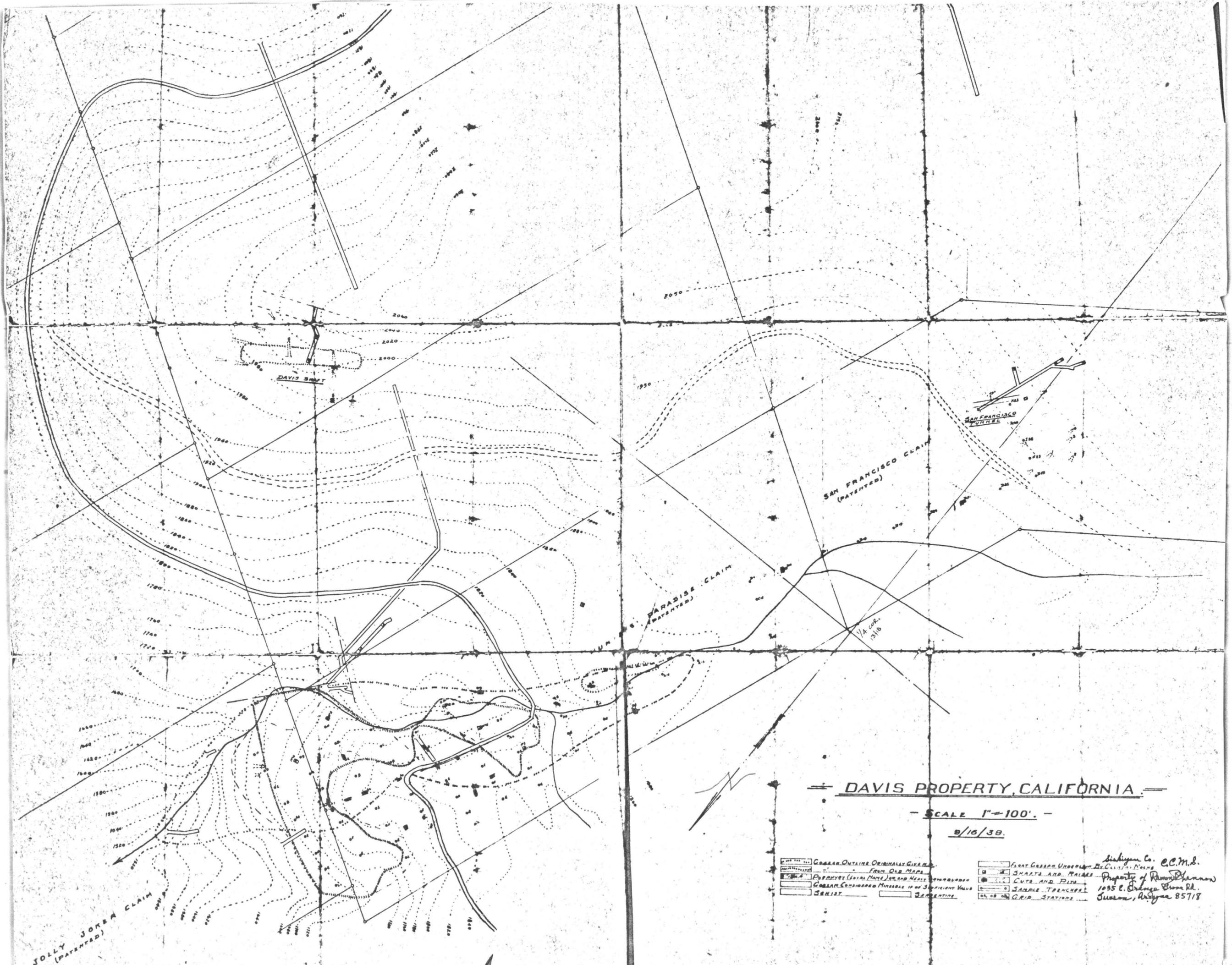
APPARENT POLARIZATION  
 millivolt seconds/volt



LINE ..... 2  
 LOOKING ..... N'y  
 DIPOLE  
 LENGTH ..... 200'  
 DATE: NOV. 3 / 1978

LEGEND  
 FENCE: ..... X  
 PIPELINE ..... |  
 POWERLINE ..... T  
 ROAD, RR ..... =

mining  
 geophysical surveys



**DAVIS PROPERTY, CALIFORNIA**

SCALE 1" = 100'

5/16/39

- |  |  |  |                         |
|--|--|--|-------------------------|
|  | CONTOUR OUTSIDE ORIGINAL CLAIM                 |  | FOOT CONTOUR UNDER 100' |
|  | CONTOUR FROM OLD MAPS                          |  | SHALES AND RAILS        |
|  | PORPHYRY (LOCAL MAPS) FOR HEAVY CONTOURING     |  | CUTS AND PITS           |
|  | COBBLE CONSIDERED MINEABLE IN OR NEAR VICINITY |  | SAMPLE TRENCHES         |
|  | SHALE  |  | GRID STATIONS           |
|  | SANDSTONE                                      |  |                         |

*Geological Co. C.C.M.S.  
 Property of Raymond Shannon  
 1055 E. Chicago Street  
 Tucson, Arizona 85718*

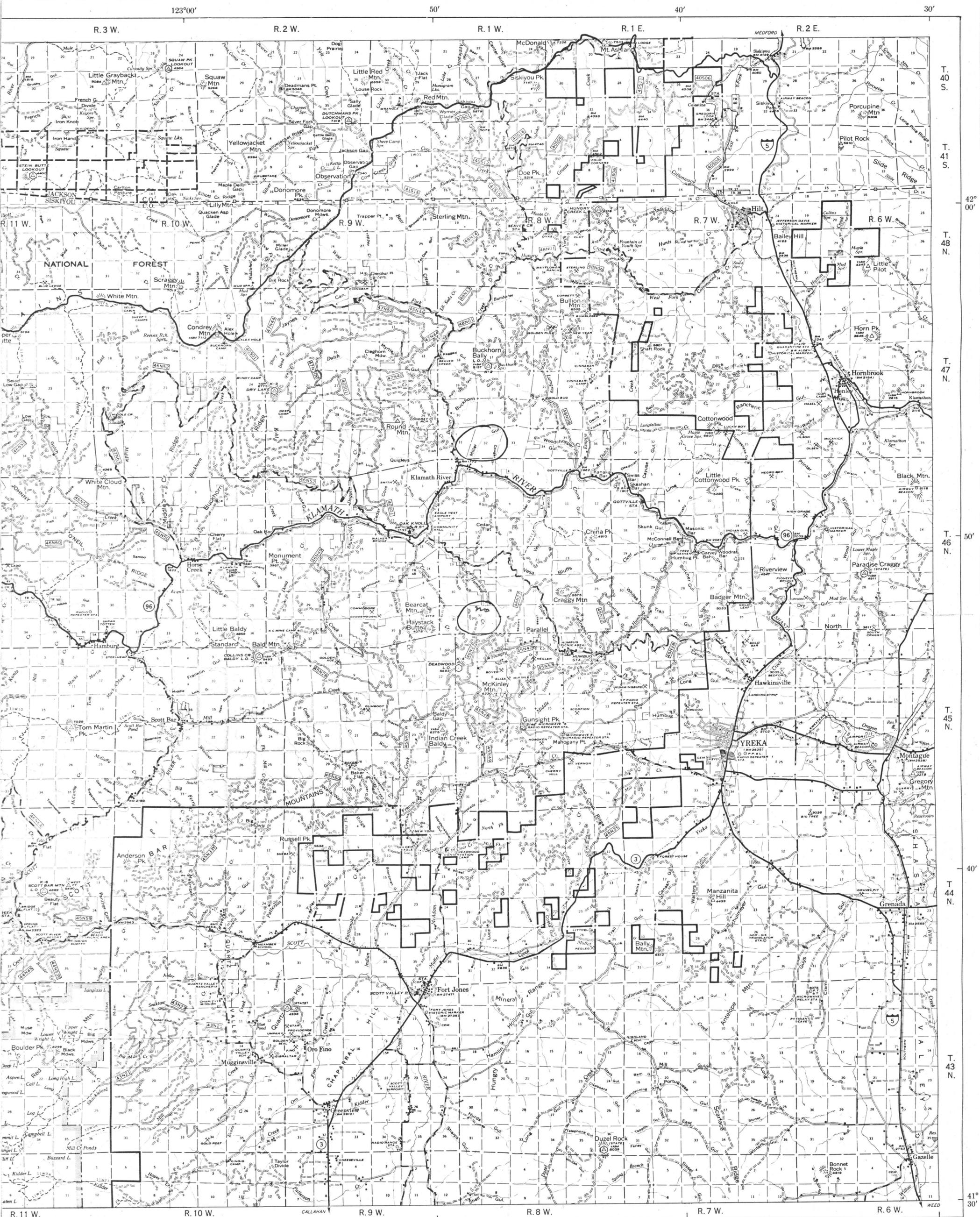
JOLLY JOKER CLAIM  
(PATENTED)

DAVIS SHOT

SAN FRANCISCO CLAIM  
(PATENTED)

PARADISE CLAIM  
(PATENTED)

1/4 COR.  
318



T. 40 S.  
 T. 41 S.  
 42° 00'  
 T. 48 N.  
 T. 47 N.  
 T. 46 N.  
 50'  
 T. 45 N.  
 T. 44 N.  
 40'  
 T. 43 N.  
 41° 30'

12+7  
Sec. 13+18  
Cor. 2

R6E

R7E

#1

JOKER

CCMS #1

CCMS #6

#6

NRDE

JOLLY (PAT.)

9N 80 M/S

70 M/S

JEAN JOKER (PAT.)

PERENNIAL STREAM 600 GAL./MIN. +/-

I.P./RESIST. CONTACT

6N

CCMS #2 #2

3N

1500' from S  
BISELINE N70W

NORTH

35

65  
70 M/S

HUNTER'S PARADISE (PAT.)

YUNTERS (PAT.)

13

14

18

CCMS FEAL #2

95

#2 frac.

SAN FRANCISCO (PAT.)

CCMS #7 #7

CCMS #9 #9

CCMS #1

T15N

FRANCISCO

SAN (PAT.)

Rd.

CCMS #8 #8

### COMPOSITE

CLEAR CREEK PROSPECT  
Siskiyou County, California

0 200 400'

Compass & Twp 7/78  
2000' of Barrino of QUINTANA

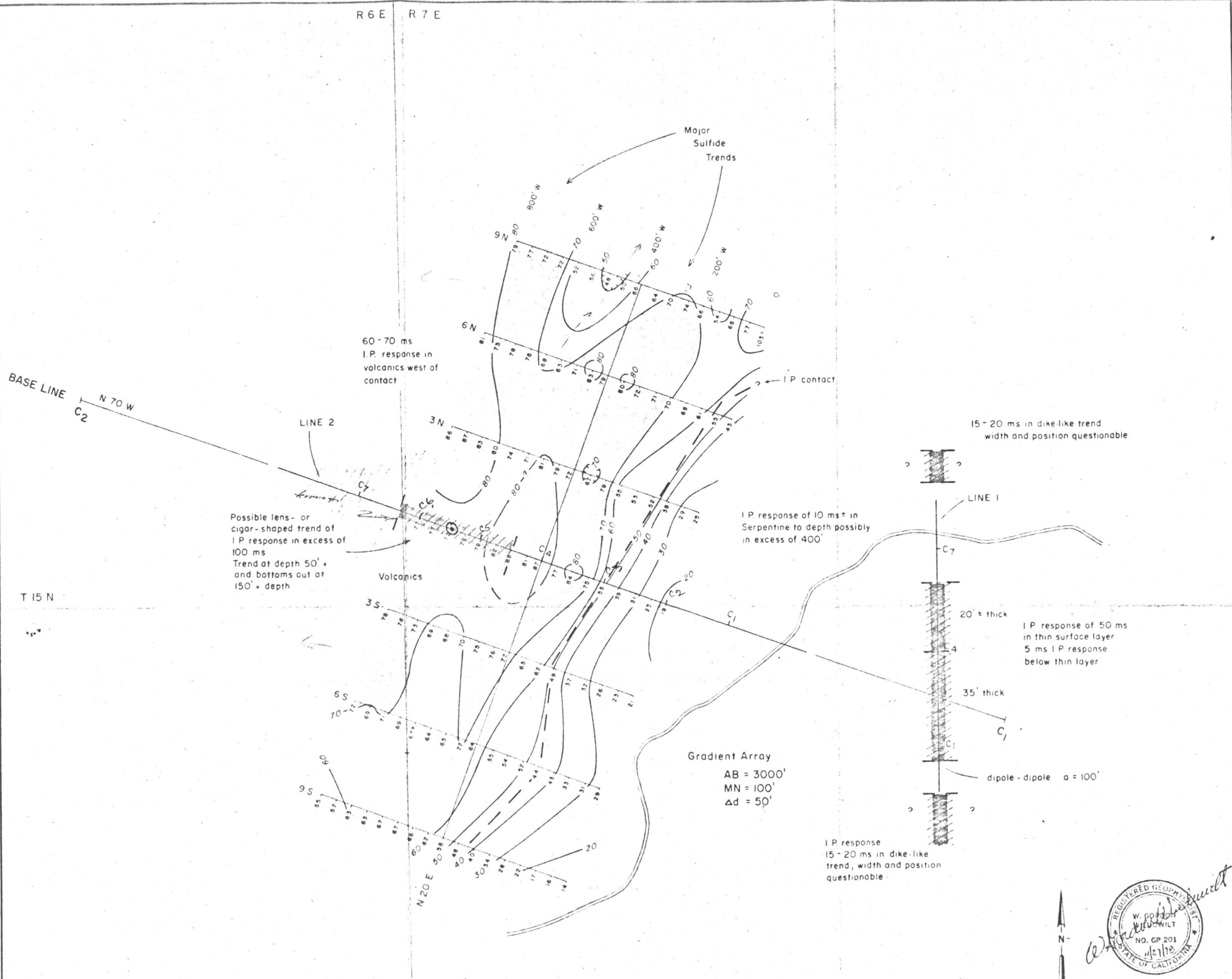
Contour Interval 40'

CARIN LINE

-  I.P. ANOMALOUS ZONE  
Light Red shaded area + 70 M/S  
Heavy shaded area + 100 M/S
-  I.P. by Weidewitt Nov. 1978
-  Gossan Zone

Revisions 6/79 by EGH.

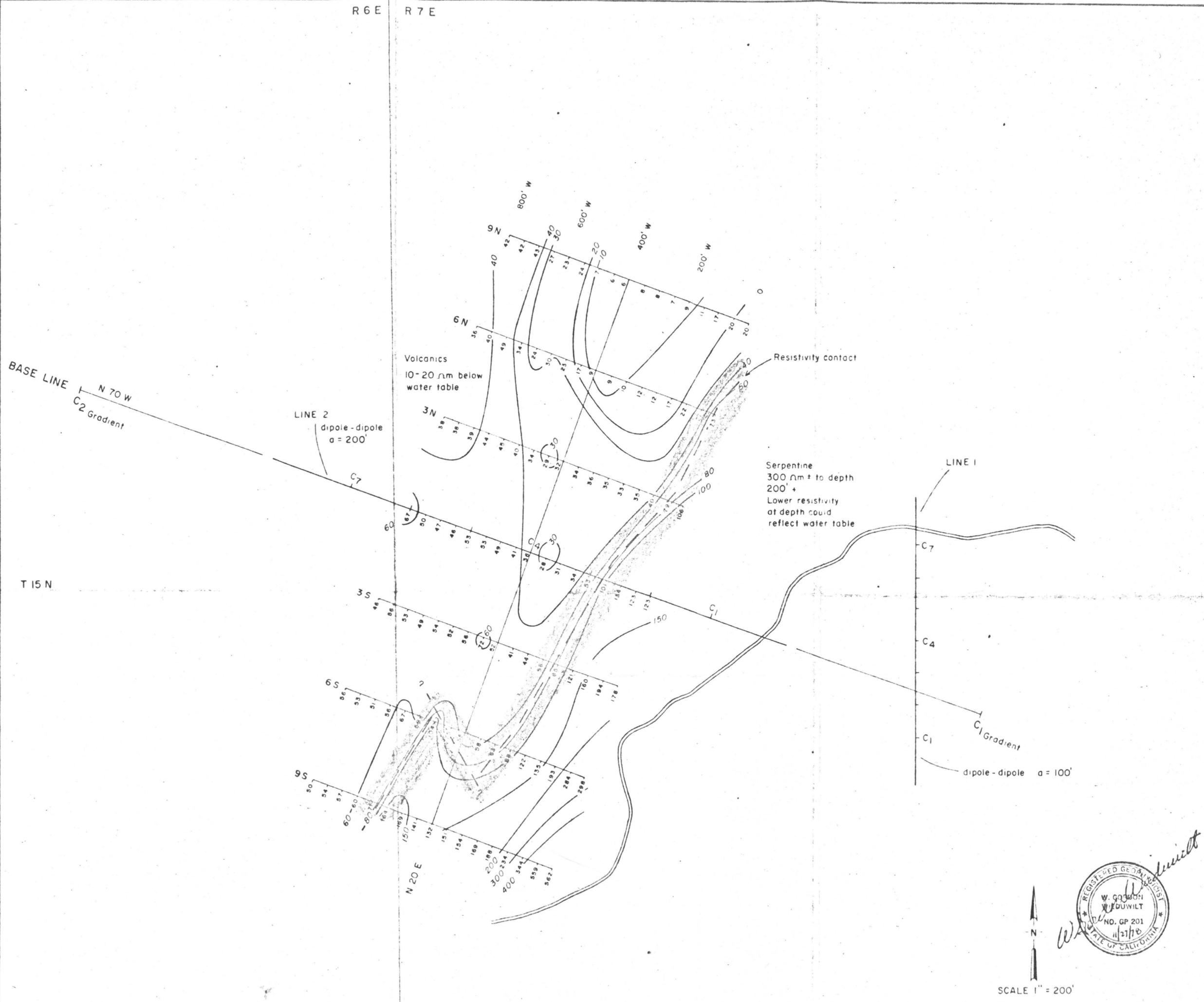
Quintana (Feb 7/78)



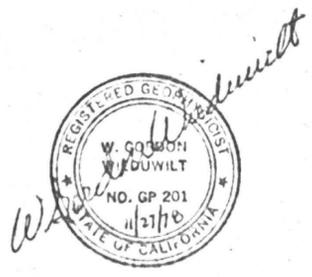
REGISTERED GEOPHYSICIST  
W. GORDON  
WILT  
NO. GP 201  
1/27/78  
STATE OF CALIFORNIA

SCALE 1" = 200'

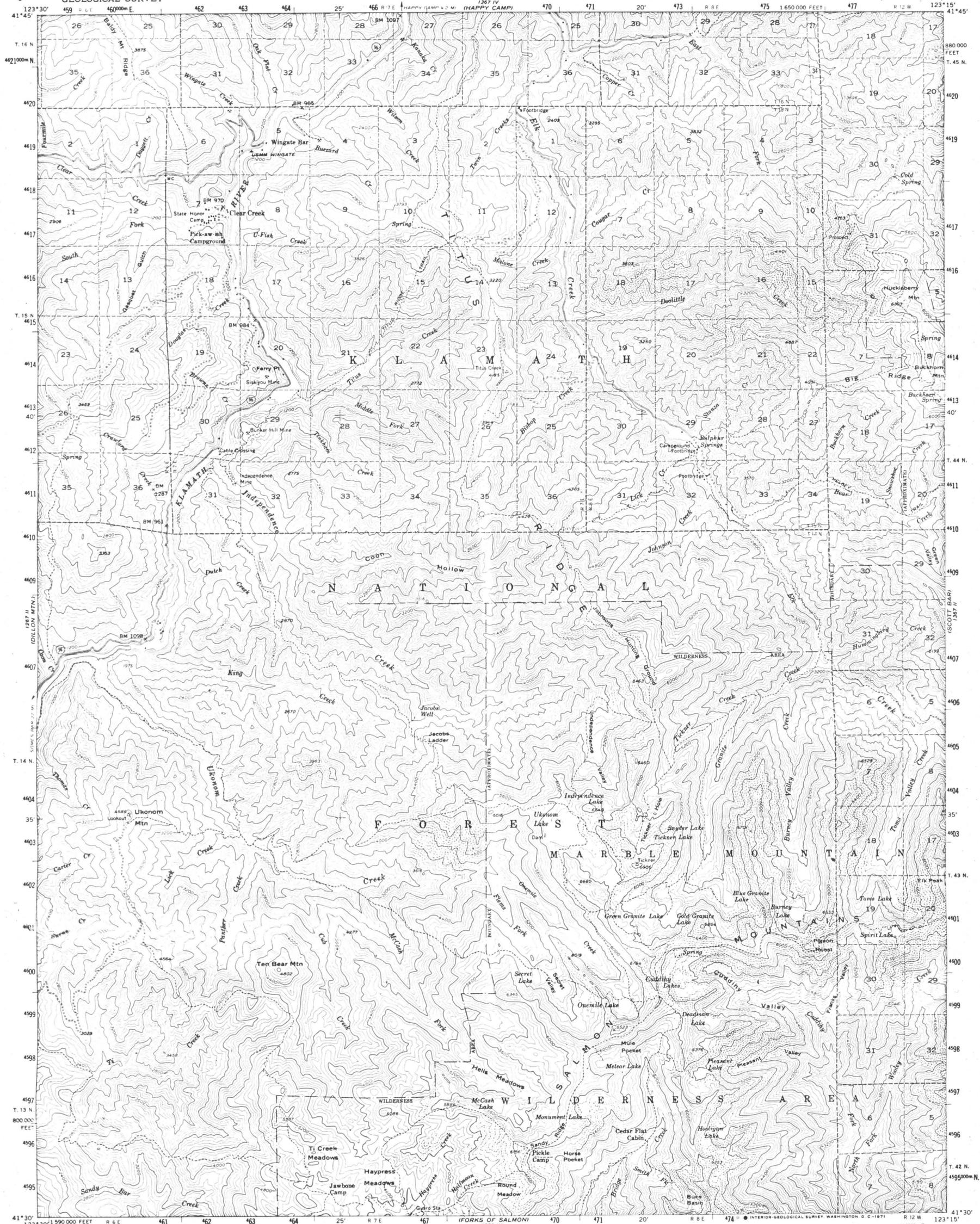
I.P. & RESISTIVITY SURVEY  
GEOPHYSICAL PLAN MAP  
INCLUDING GRADIENT I.P. CONTOUR MAP  
CLEAR CREEK PROSPECT  
SISKIYOU COUNTY, CALIFORNIA  
for  
QUINTANA MINERALS CORP.  
by



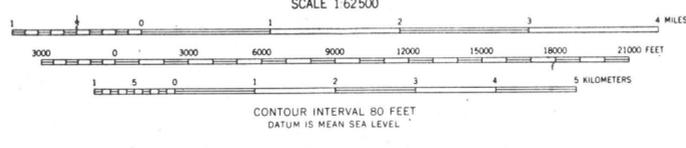
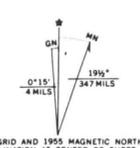
SCALE 1" = 200'



I.P. & RESISTIVITY SURVEY  
GEOPHYSICAL PLAN MAP  
INCLUDING GRADIENT RESISTIVITY CONTOUR MAP  
CLEAR CREEK PROSPECT  
SISKIYOU COUNTY, CALIFORNIA  
for  
QUINTANA MINERALS CORP.  
by



Maped, edited, and published by the Geological Survey  
Control by USGS and USC&GS  
Topography from aerial photographs by multiplex methods  
Aerial photographs taken 1951. Field check 1955  
Polyconic projection. 1927 North American datum  
10,000-foot grid based on California coordinate system, zone 1  
Dashed land lines indicate approximate locations  
Certain land lines are omitted in T. 13-14 N.-R. 6-7-E because of insufficient data  
Unchecked elevations are shown in brown  
1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue



ROAD CLASSIFICATION  
Light duty ————— Unimproved dirt - - - - -  
○ State Route

UKONOM LAKE, CALIF.  
N4130-W12315/15

FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR WASHINGTON, D. C. 20242  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

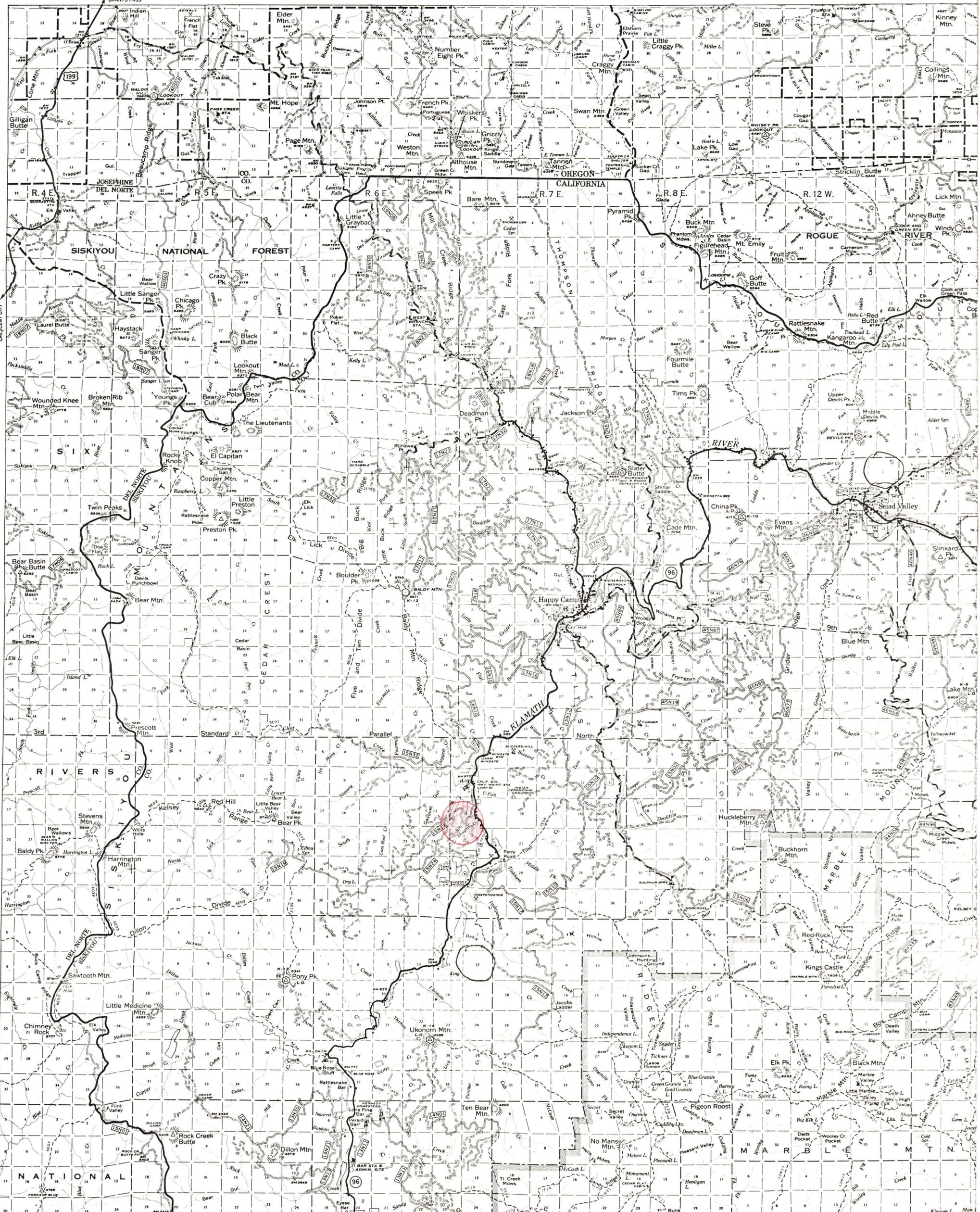
1955  
AMS 1367 III-SERIES V795

40' 123°30' 20' 10'

R. 8. W. R. 7. W. R. 6. W. R. 5. W. R. 4. W.

T. 40. S.  
T. 41. S.  
T. 18. N.  
T. 17. N.  
T. 16. N.  
T. 15. N.  
T. 14. N.  
T. 13. N.

Shaw 2000' elev



R. 4. E. R. 5. E. R. 6. E. R. 7. E. R. 8. E. R. 12. W.

40' 123°30' 20' 10'

# TIME DOMAIN INDUCED POLARIZATION AND RESISTIVITY SURVEY

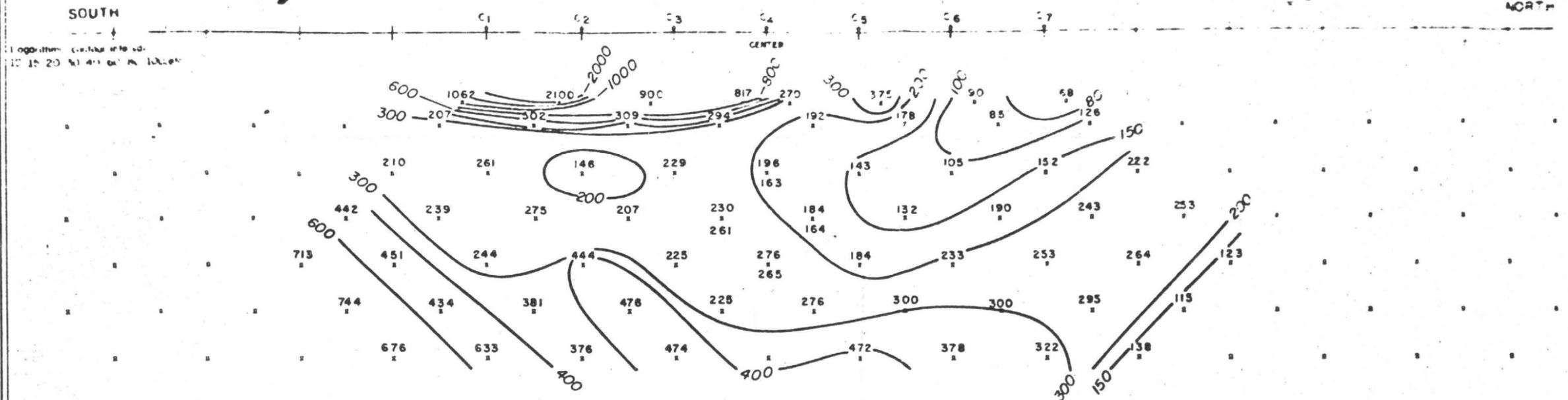
CLEAR CREEK PROJECT - SISKIYOU COUNTY, CALIFORNIA

FOR

QUINTANA MINERALS CORP.

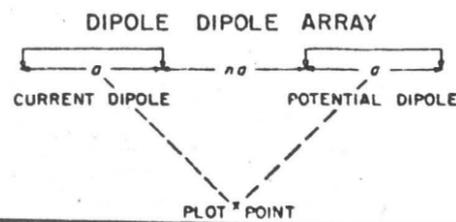
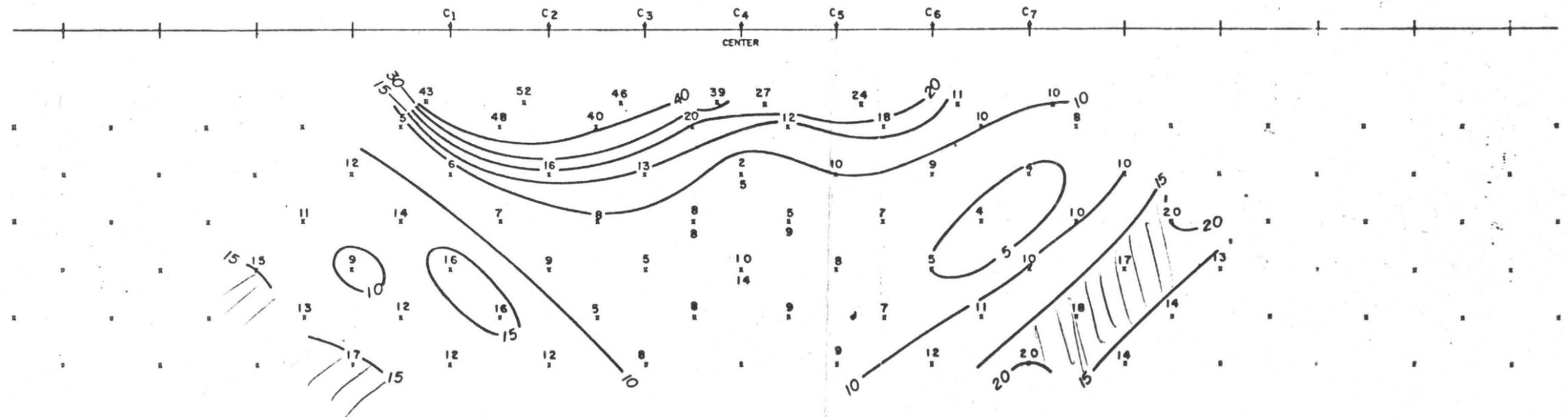
APPARENT RESISTIVITY

ohm meters



APPARENT POLARIZATION

millivolt seconds/volt



LINE..... 1  
 LOOKING..... WEST  
 DIPOLE LENGTH..... 100'  
 DATE. NOV. 1 /1978

LEGEND

FENCE..... X  
 PIPELINE..... ◊  
 POWERLINE..... T  
 ROAD, RR..... —+—+—

mining  
 geophysical surveys

# TIME DOMAIN INDUCED POLARIZATION AND RESISTIVITY SURVEY

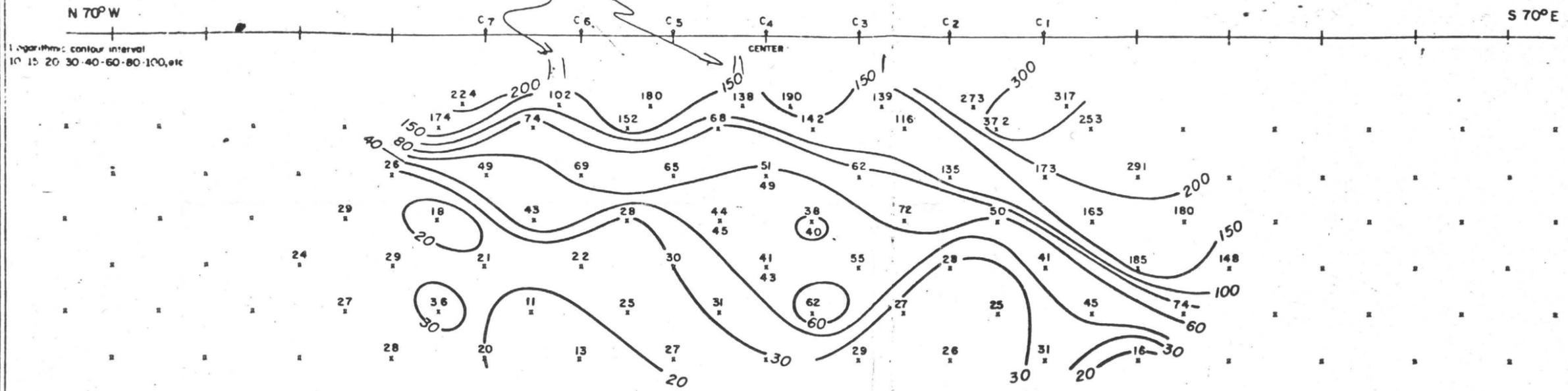
CLEAR CREEK PROJECT - SISKIYOU COUNTY, CALIFORNIA

FOR

*possible low resistivity zones - VLF structure?*  
 QUINTANA MINERALS CORP.

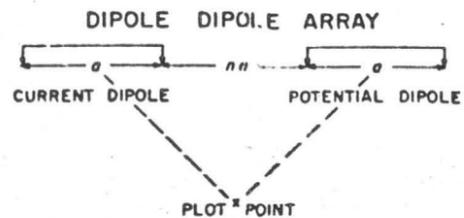
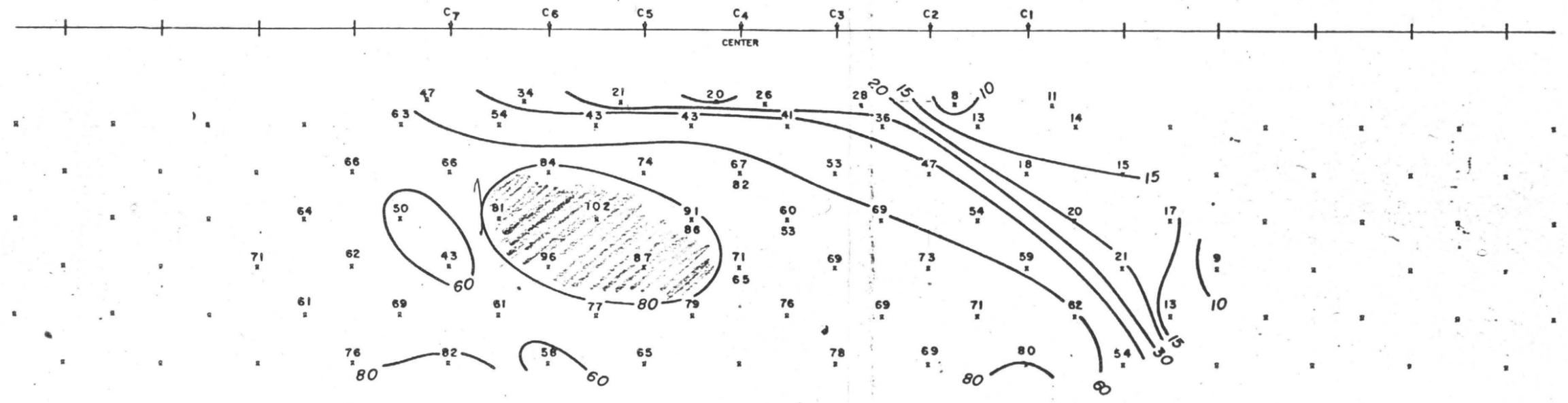
APPARENT RESISTIVITY

ohm meters



APPARENT POLARIZATION

millivolt seconds/volt



LINE ..... 2  
 LOOKING ..... N ly  
 DIPOLE LENGTH ..... 200'  
 DATE: NOV. 3 / 1978

LEGEND  
 FENCE: ..... X  
 PIPELINE ..... O  
 POWERLINE ..... T  
 ROAD, RR ..... + + + +

mining  
 geophysical surveys

