Josephine   Alemeda

File No. C-35

PROSPECT CARDS

Code No.

Property Name Almeda Mine

Property Owner Wes Perrin, Galice, Ore.

Submitted by

Location: State Oregon

County Josephine

Mining D. Galice

T 34 S R 8 W Sec. 13

Followup Recom.

Later Review Recom.

Examined by

Company

Date

Where filed

Metals

Cu	✓	
Mo		
Pb		
Zn		
Ag	✓	
Au	✓	
Fe		
Mn		
Cr		
Ni		
W		
U		
Re		
P_2O_5		
K_2O		
Sn		
Be		
Coal		
Hg		
Other	Ba	

Production Metal

AMS Quad

Other Quad

Production

	None	10^2	10^3	10^4	10^5	50^5	10^6
TONS							

Geology

Host Rock contact of meta seds & Rogue Volcanics

Mineralization

Type massive $BaSO_4$ with diss sulfides

Trend

Ore $BaSO_4$, cpy, py, sphal.

Gangue $BaSO_4$

Alteration

Type

Extent

Bibliography

USGS

USBM

Other Libbey, lots of data

Remarkes: classic volcanogenic mineralization types, trouble with mining at the Almeda due to Scenic Rivers act.

Field Time

None

1 Day

1 Week

1 Mo

+1 Mo

Follow-up Recom.

File No. 6-1

PROSPECT CARDS

Code No.

Property Name Almeda Mine

Property Owner

Submitted by

Location: State Oregon

County Josephine

Mining D. Galice

18 mi. from Merlin, 15 mi. from Leland
16 m NW ↗ T 33S R 8 W Sec.

Followup Recom. yes

Later Review Recom.

Examined by

Company

Date

Where filed

Metals
Cu
Mo
Pb
Zn
Ag
Au X
Fe
Mn
Cr
Ni
W
U
Re
P_2O_5
K_2O
Sn
Be
Coal
Hg
Other

Production Metal

AMS Quad

Other Quad

Production

	None	10^2	10^3	10^4	10^5	50^5	10^6
TONS							

Geology

Host Rock slate

Qtz. porphyry intrusive dike

Mineralization

Type disseminated

Trend

Ore Sulfides (Au-Ag bearing)

Gangue

Alteration

Type

Extent

Bibliography

USGS

USBM

Other

Remarkes: possible low grade - large tonnage deposit

Field Time
None
1 Day
1 Week
1 Mo
+1 Mo

Follow-up Recom.

Wallace, Idaho
October 1, 1953

FILE MEMORANDUM

OREGON, JOSEPHINE COUNTY
ALAMEDA MINE * Au, Cu.

Mr. C. F. Herbert, president of Alaska Copper Corporation, a company formed mutually by Herbert and his partner and Transcontinental Resources, a Canadian promotional organization, is currently diamond drilling the Alameda gold property near the town of Merlin in Josephine County, Oregon. This property which has a small production record of both gold and gold-copper ores forms a large wreath in greenstones and schists of the Galice formation in the old metamorphic area of southwest Oregon. To date, Herbert tells me at a meeting in Seattle on September 21, that their diamond drilling has indicated two veins of .2 to 1.5 oz. intersections across widths of 5' to 6', somewhat separated from the low grade copper-gold siliceous ore mined in earlier operations. He says that so far they are quite disappointed with the findings and that there does not seem to be as much mineralization as encountered. We will keep an eye on this property.

Respectfully submitted,

M. W. COX

ALMEDA MINE

Galice district
Josephine County

H. P. Holsworth, of Seattle, expects to pump out his Oregon Almeda mine, flooded since 1942. Prior to that time he was shipping siliceous gold ore to the Tacoma smelter, and he expects to resume when materials and labor are available.

From Engineering and Mining Journal
Vol. 146, No. 9
September 1945
Page 130.

See also:

"Report on the Geology of the Almeda Mines" by J.H. Quiner and E.G. Kirkwood, 1922

"Geological Report on Alameda Mine, Merlin, Oregon." by D.B. Larson and H.C. Fisher, June,8, 1921.

Above reports filed in 'overflow' file drawer near spectrograph door.

The representative for the Almeda Consolidated Mines Company is Mr. A.C. Hough (atty) Tuffs Building, Grants Pass.

6/46

Almeda Mine
NAME

OLD NAMES

Gold and Silver
PRINCIPAL ORE

Barium, Silver
MINOR MINERALS

34 South — 8 West — 13
T R S

Josephine .... COUNTY

Galice .... AREA

800 feet .... ELEVATION

Road .... ROAD OR HIGHWAY

25 mile-Grants Pass; 15 miles Merlin .... DISTANCE TO SHIPPING POINT

PUBLISHED REFERENCES

Ore. Metal Mine Hdbk. 14-C
U.S.G.S. Bulletin (33a:24-25)
Mineral Resources of Oregon Vol. 1, No.5
p. 209 Oregon Bureau of Mines and Geology
Aug. 1914.

Diller, J.S. (Bulletin 546) 22-81

MISCELLANEOUS RECORDS

PRESENT LEGAL OWNER (S) .... Roy Hillis ....

Address .... Galice, Oregon ....

.... Seattle, Washington ....

OPERATOR .... P.R. Holdsworth ....

Name of claims	Area	Pat.	Unpat.

Name of claims	Area	Pat.	Unpat.

EQUIPMENT ON PROPERTY Mining equipment only

MI-21

DEPARTMENTAL RECORDS on file in	P'land	G.P.	Baker
REPORTS			
Almeda Mine, Engr. and Min. Jour. Vol. 146, No. 9			
Sept. 1945, page 130.	x		
See also: Report on the Geology of the Almeda Mines by			
J. H. Quiner and E. G. Kirkwood, 1922	x		
Geological Report on Almeda Mine by D. B. Larson	x		
and H. C. Fisher, June 8, 1921.			
(Above reports are filed in "overflow" file drawer			
near Spec. Lab. door)			
SHIPMENT AND ASSAY RECORDS			
Shipments gold ore 1942 ?			
MAPS			

Almeda Mine Josephine Co

Vol. 9, No. 12 THE ORE.-BIN 95
December 1947 Portland, Oregon

STATE DEPARTMENT OF GEOLOGY & MINERAL INDUSTRIES
Head Office: 702 Woodlark Bldg., Portland 5, Oregon

****

A RECONNAISSANCE BETWEEN THE ALMEDA AND SILVER PEAK MINES OF SOUTHWESTERN OREGON

By

H. M. Dole* and E. M. Baldwin*

In the latter part of July a reconnaissance traverse was made from the Almeda Mine on the Rogue River in northwestern Josephine County to the Silver Peak Mine, a few miles south of Riddle, in southern Douglas County. The area which this reconnaissance concerns is roughly 6 miles in width by 20 miles in length. It is a belt of greenstones bordered by Galice slates and volcanics on the east, and Dothan sediments on the west. Within the greenstones are masses of serpentine, rhyolite, and small diorite and related intrusives.

This reconnaissance was undertaken to find out how readily the mineralized zone of these two mines could be traced in the area between and, because of the similarity of mineralization at each mine, to see if the zones could be connected. Also, it was hoped that further information could be gained on the mineral deposits of the area and to ascertain if barite in commercial quantities were indicated.

Mining and prospecting have been carried on in this region for many years. One of the first geologic studies was published by J. S. Diller (1914). Later studies by P. S. Shenon (1933) and by W. R. Lowell (1942) have given additional details on the ore deposits. W. E. Caldwell and D. Sumner (1946) studied the copper content of the Silver Peak mine waters. A study of the Mt. Reuben area has been completed by E. A. Youngberg (1947). These should be consulted as a background for a better understanding of this region.

A review of the literature shows that the ore bodies are usually found in a steeply dipping greenstone series bounded on the east by the Galice formation and on the west by the Dothan formation, all of which are considered to be of Jurassic age. The regional trend in this area is N. 20° to 40° E. for both the formations and the schistosity. Most of the zones of mineralization conform with this trend. The Silver Peak Mine appears to be an exception for according to Shenon it occurs in a schistose part of the Dothan formation. The greenstone is a series of meta-andesites and metabasalts with intercalated silicified tuffs and some chert. Several shear zones parallel the general trend and the ore bodies; alteration of the wall rock is found in the more highly sheared zones.

The ore body that crops out at the Almeda Mine is locally known as the Big Yank lode. It follows close to the contact between perphyritic dacite and slates of the Galice formation. Diller (1914) states:

> "The contact between the slates and the igneous rock, with which the Big Yank lode is associated, may be traced for over 20 miles in a direction about N. 30° E. from Briggs Creek valley to Cow Creek at Reuben spur. Although the general course is maintained with considerable regularity, there are many small variations, and the contact dips to the southeast in the same general direction as the slates. The plane of contact is generally a fault plane and is for the most part followed by the lode. The contact is apparently most irregular and the quartz porphyry[1] most out by shearing planes in the vicinity of the ore bodies."

---

[1] Called "porphyritic dacite" by Shenon (1933).
*Geologists, State Department of Geology and Mineral Industries.

Most of the ore bodies south of the Almeda toward Briggs Creek do seem to follow the Galice-greenstone contact as pointed out by Diller. However, there is little evidence of mineralization along the contact farther north. At the Waite barite prospect on Rock Creek, the mineralized zone is at least 1000 feet west of the contact, and at Silver Peak, mineralization according to Shenon (1933) is within an altered part of the Dothan formation.

The ore occurs in shear zones. Such zones are common and the location of the ore bodies may therefore depend more on the location of the contributing intrusives rather than the location of the zones. For instance, the California tunnel (Wheeler tunnel) on Reuben Creek encountered numerous shear zones in its 7364 feet (Youngberg, 1947), few of which were mineralized.

Quartz diorite crops out at the Benton mine a few miles to the west of the projected trend of the Big Yank lode; porphyritic dacite was encountered in the Almeda mine. Other intrusives occur to the east and although none is known in the region between the Almeda and Silver Peak mines it is probable that they occur at depth.

Almeda Mine

Mineralization at the Almeda mine has been discussed in some detail by Shenon (1933). He reported two types of ore, the "siliceous gold-silver ore" and "copper ore with barite." Shenon (1933:30) described the latter ore as follows:

> "The ore from the higher-grade shoots is composed principally of barite, quartz, and sulphides. The barite was introduced into the intensely silicified porphyritic dacite before the sulphides, and locally it has almost completely replaced the quartz. The sulphides, in turn, have replaced the barite as well as the quartz. Some specimens clearly show veinlets of sulphides cutting coarse-grained barite. The sulphides include pyrite, chalcopyrite, galena, sphalerite, chalcocite, and covellite."

Lowell (1942:574) seems to differ as to the age of the barite. He stated:

> "In the Almeda and Silver Peak ore, barite replaces quartz and fills fractures in pyrite, chalcopyrite, and tetrahedrite.... Barite was deposited late in the mineralizing stage and was followed by sericite which is developed as shreds in fractures in barite."

Lenses of pink and gray massive barite, in several instances 4 to 8 feet in width, were found on the surface of the Big Yank lode up the hill behind the Almeda mine. Some barite was interspersed in the silicified rock from which the sulphides had been leached. The lode was traced to a point between 600 and 700 feet above the river at which point it was lost, presumably cut off by a low angle reverse fault similar to or the same as the fault noted by Hotz and Bell (unpublished map, U.S. Geological Survey) a short distance to the northwest. The massive lenses of barite appear to be podlike and might pinch out rapidly, nevertheless, a large tonnage is indicated. A sample assayed 37.36 percent $BaSO_4$.

Almeda Mine-Grave Creek Valley

No mineralization was noted along the ridge between the Almeda mine and Grave Creek.

The contact of the greenstone and Galice formation showed little sign of mineralization along Grave Creek, although it is not well exposed. It is possible, however, that further prospecting would show some signs of mineralization in this intermediate area.

Waite prospect

A prospect, under lease to E. R. Waite, Grants Pass, is located in the NW¼ sec. 29, T. 33 S., R. 7 W., along the west side of Rock Creek valley and about 2½ miles by trail from a point where the Grave Creek road crosses Rock Creek. There is a preliminary report on this property in the files of the State Department of Geology and Mineral Industries.

Several short prospect tunnels and open cuts reveal a mineralized zone which contains barite, one lens being more than 4 feet in width. The deposit, like others in the greenstone, strikes N. 40° E. It lies at least 1000 feet west of the Galice-greenstone contact. One sample of barite contained .05 oz. gold, 2.80 ozs. silver and 91.34 percent $BaSO_4$. A sample (P-6194) from the lower tunnel by the trail contained .01 oz. gold, .10 percent copper, trace of lead, 2.05 percent zinc. A sample from a prospect pit a few hundred feet up the hill (P-6195) contained .10 oz. gold, 5.33 ozs. silver, 1.30 percent lead, .40 percent copper, .55 percent zinc, and 52.27 percent barium. More work is needed at this prospect to determine the amount of ore.

Cow Creek valley near Reuben Station and Koler

The greenstone-Galice contact in the vicinity of Cow Creek is irregular. The belt of greenstone broadens to the north. Although exposures were poor along both sides of the creek, the lack of established claims near the contact at Reuben Station points to a probable lack of mineralization in that region. A short distance to the north along the west side of Panther Butte and Grayback Mountain, a zone of mineralization has been found that if projected would reach a point a mile or so west of Reuben Station.

South Fork of Middle Creek to Grayback Mountain

A mineralized zone trends northeastward across the South Fork of Middle Creek valley from Panther Butte to and beyond Silver Peak. This belt of claims is near the west boundary of the greenstone mass and appears to follow a persistent shear zone. It does not form prominent outcrops and is difficult to find except for iron staining. A prospect tunnel driven by Al Glick and C. L. Cox along a quartz stringer is situated above the creek near the mineralized zone. The tunnel, about 75 feet long, trends S. 70° E. although it turns a little more to the south near the end of the drift. This quartz stringer is bearing across the greenstone belt and not following the shear zones; it may be along a cross fracture formed during the stage of deformation that caused shearing. Further inspection of this region and an examination of the other claims in this zone are needed.

Silver Peak

The mines in the vicinity of Silver Peak are described by Shenon (1933). Two of these, belonging to the Silver Peak Copper Company and the Umpqua Consolidated Mining Company, lie south of Silver Peak. The Golden Gate mine lies about half a mile north. The district is reached by a forest road that leaves the county road near Russell Creek. According to Shenon (1933:18):

> "The ore minerals occur as massive tabular bodies and disseminated in highly foliated schist. The two principal workings expose a zone of mineralized schist more than 100 feet wide. Across most of this zone sulphide minerals are rather sparsely distributed, but in at least two places bodies of nearly solid sulphide ore occur. * * * Normally the massive ore grades into schist with disseminated sulphides, but in some places, especially where the massive ore pinches, one or both walls are slickensided fault surfaces commonly lined with several inches of gouge.
>
> "The massive sulphide ore is distinctly banded, probably in part because the ore minerals have replaced schistose rocks and in part because the minerals were introduced along parallel fractures in the rock. The sulphides include pyrite, sphalerite, chalcopyrite, bornite, galena, tennantite, chalcocite, and covellite named in their relative order of their abundance. The last four mentioned occur in relatively small amounts....The gangue minerals are principally quartz, barite, and sericite."

The order of mineralization as given by Lowell (1942:589) shows pyrite followed by quartz, then fracturing, sphalerite, more fracturing followed by tetrahedrite, tennantite, chalcopyrite, bornite and galena, more fracturing with barite and sericite the last of the hypogene minerals.

Considerable barite is present as lenses in the ore bodies uncovered in the mines. Some of this has disseminated sulphides which might be a hindrance for some uses of barite.

Several prospects are located in this mineralized belt to the southwest. A tunnel on the Silver Peak property, located at the head of a small tributary of the South Fork of Middle Creek, trends N. 40° E. and parallels the schistosity. Considerable exploration has been done as is shown by the size of the dump.

Although most of the ore bodies are in the greenstone, those at Silver Peak, according to Shenon (1933:16), are in the schistose part of the Dothan formation. He describes the schist as follows:

> "Near the Silver Peak mines the Dothan formation is composed principally of dark-gray to almost black thin-bedded schist and highly altered fine-grained argillite. Many of the Dothan rocks are so completely altered that it is difficult to differentiate them in the field from the altered greenstones. Near the ore bodies the schist is bleached to light gray or almost white, and, because of the abundance of sericite, has a talcose appearance. In addition, the ore-bearing schist commonly contains considerable quartz, barite, and disseminated sulphides."

Conclusions

Mineralized zones have been with few exceptions found within the greenstone mass. Diller indicated that the position of the Big Yank lode between Briggs Creek and the Almeda mine closely paralled the contact between the Galice formation and the greenstone; thus it is relatively easy to locate. However, it is difficult to prove that the ore bodies farther north are a direct continuation of this lode. Instead, they appear to be independent shear zones located in an echelon arrangement and situated progressively westward in the greenstone mass when traced northward to Silver Peak where they are in the Dothan formation. This generalization needs further checking. As was shown in the California (Wheeler) tunnel, several shear zones exist, few of which were mineralized. Thus it may be the location of the intrusive at depth, rather than the shear zone that determines the location and extent of mineralization.

With the exception of the Big Yank lode above the Almeda mine, the outcrops of the mineralized zones are not particularly prominent. Mineralized zones farther north were difficult to locate and had little on the surface to indicate their presence. In such rugged terrain, considerable time will be needed in which to locate claims and prospects as well as other existing mineralized zones.

At present, the Almeda and Silver Peak mines appear to have the largest and perhaps the most accessible deposits of barite. The barite appears to be but one phase of regional mineralization. The barite deposits might well be studied in conjunction with a study of the ore bodies. More work is needed, particularly in the area just south of the Almeda mine, between Grayback Mountain and Silver Peak, and perhaps for a few miles north of Silver Peak. All existing claims in this area should be visited.

Bibliography

Caldwell, W. E. and Sumner, D.,
1946 "The copper content of certain mine waters": Oregon State Dept. Geology and Mineral Industries Ore.-Bin, vol. 8, no. 12.

Diller, J. S.
1914 Mineral resources of southwestern Oregon: U.S. Geol. Survey Bull. 546.

Lowell, W. R.
1942 "The paragenesis of some gold and copper ores of southwestern Oregon": Economic Geology, vol. 37, no. 7.

the Oriole was active, an activity that has continued sporadically to the present. In 1908, 3000 feet of underground workings were driven at the Almeda and three quartz mines of the district produced $23,580 worth of metals. In 1910 the producing mines were the Oriole, Gold Road, Nesbit, and Sugar Pine, the Sugar Pine using a 10-stamp mill. In 1912 the Almeda smelter was operated for 30 days and for about the same length of time during the next year. The Almeda mine was worked in a small way during 1915-1916.

During 1940 and 1941 the Benton mine was the largest underground mine in southern Oregon, and the development of new ore bodies is continuing. Interest in the Almeda has been revived by diamond drilling and by installation of a mill. The Bunker Hill or Robertson was also active during 1940 and 1941. In March 1941, the Robertson Brothers took out in just a few days a bunch of ore worth $20,480. The Black Bear, and some other lode mines are producing small amounts of ore (1942).

There were 18 placer properties and 7 underground mines in operation during 1941.

Favorable Areas for Prospecting:

The gold-bearing gravels of the old high channels have been fairly well located although it is possible that as the courses of these channels are plotted, "breaks" between the known areas may indicate additional gold-bearing gravels.

According to those who are familiar with the district, there are three "lodes" along which mineralization seems to have occurred. The most easterly is the Almeda, or as it is better known, the Big Yank ledge, having a trend slightly east of north. Next, to the west is the Chieftain "lode", cutting through the California claims. The most westerly is the General Grant "lode" that cuts through the Benton Mine. Whether these "lodes" exist as units with metallization throughout their lineal extent is not known, but the alignment of ore deposits and other evidence warrant a detailed study of the area.

ALMEDA MINE (gold, silver, copper) Galice area

The Almeda Mine is one of the well-known mines of the Galice area. Its principal period of operation was between 1908 and 1916, during which time production was valued at over a hundred thousand dollars. A matte smelter was operated at the property for a short time. Operations were suspended in 1916 and little work was done until 1940 when work was started under the direction of P. H. Holdsworth, who had been in charge of the property during early operations. Work was discontinued in the spring of 1942 because of inability to secure priorities on mining equipment.

Operator: P. H. Holdsworth, Galice, Oregon. L. A. Levensaker, Seattle, Wash.

Location: On the east bank of the Rogue River, about 4 miles north of Galice in the SE$\frac{1}{4}$ sec. 13, T. 34 S., R. 8 W.

The following information is reported by Shenon (33a:24-35):

"History and production: The Almeda Mine has been known for many years because of the great extent of the mineralization and because some fairly large masses within the mineralized zone contain enough gold and other metals to attract notice. Consequently, a small smelter was built in 1908, but no production was reported until 1911. From 1911 to 1916, 16,619 tons of ore that yielded 1,539.87 ounces of gold, 48,387 ounces of silver, and 259,800 pounds of copper was produced. A total of 7,197 pounds of lead was also reported as produced from 5,189 tons of ore during 1913, 1915, and 1916. No lead was reported in 1911, 1912, or 1914. The gross value of the ore produced, on the basis of these figures, is, in round numbers, $108,000.

"Development: The Almeda Mine is one of the most extensively developed mines in southwestern Oregon. A mineralized zone has been prospected for more than 1,000 feet along its strike and for about 900 feet vertically. Five adits have been driven, and a shaft with levels at intervals of 100 feet was sunk to a depth of about 450 feet below the Rogue River. The shaft is no longer accessible, but most of the workings above the river are open.

"General Geology: The Almeda Mine is near the contact of the Galice formation and a thick series of greenstone rocks. Near the contact both formations have been intruded by sill-like bodies of porphyritic dacite. At least six of these sill-like bodies are found in the Galice beds within a distance of 800 feet to the east of tunnel 1, and several of them are exposed in the greenstone rocks west of the Almeda Mine. All of the formations strike approximately north and are vertical or dip at very steep angles to the east or west.

"The Galice formation in the vicinity of the mine is composed principally of dark-colored argillite and slate which on the basis of fossils collected about 100 feet east of the mine have been assigned by Diller to the Jurassic period. The rocks are composed largely of subangular quartz and feldspar grains and sericite. The original minerals have clearly undergone considerable recrystallization, and near the ore bodies they are largely replaced by calcite and quartz and contain much disseminated pyrite.

"The greenstones consist of greatly altered even-grained and fragmental igneous rocks containing much secondary chlorite and epidote.

"The porphyritic dacite, where fresh, is a dark-colored rock with abundant large phenocrysts of dark-green hornblende, less abundant and smaller crystals of plagioclase, and a few scattered quartz phenocrysts which are noticeably rounded. The appearance of the porphyritic dacite changes gradually, depending upon the amount of mineralization, from the fresher rock just described to a rock in which the feldspars have been altered almost entirely to sericite, from that to a rock composed almost entirely of silica and fine-grained pyrite but retaining shadow outlines of the original texture, and finally to the sulphide ore, a rock composed essentially of fine-grained quartz, barite, and massive sulphides in varying proportions. The microscope shows that the feldspar of even the fresher-appearing porphyritic dacite is mostly altered to a mass of saussurite, calcite, zoisite, and epidote. Unaltered areas remaining here and there have the composition of andesine. In the fresher-appearing rocks the hornblende is only slightly altered, but near areas of mineralization it has been changed to masses of chlorite, epidote, and zoisite, and finally in the silicified rock it has been almost entirely replaced by fine-grained quartz. The groundmass of the fresher rock is composed of very finely granular feldspar and quartz, saussuritic materials, and chlorite.

"'Composition of the porphyritic dacite footwall from the Almeda Mine.18/
(S. W. French, analyst)

"'Analysis

SiO_2	55.92
TiO_2	.75
Al_2O_3	19.66
Fe_2O_3	1.94
FeO	4.76
MgO	5.27
CaO	5.77
Na_2O	3.26
K_2O	.38
H_2O+	2.90
H_2O-	.06
	100.67

"'Approximate mineral composition

Quartz	15.6
Orthoclase	2.3
Plagioclase	56.4
Chlorite) Epidote)	22.1
Magnetite	2.8
Ilmenite	1.4
	100.6

"Although classified by Diller as a quartz porphyry or alaskite, the porphyritic rock described above is both mineralogically and chemically a porphyritic dacite.

"Ore Bodies: The ore bodies at the Almeda Mine occur in a wide zone of intense silicification, known as the Big Yank lode, that follows close to the contact of porphyritic dacite and argillite (slate) of the Galice formation. According to Diller 19/ who made a broad study of the general region, 'the contact between the slates and the igneous rock, with which the Big Yank lode is associated, may be traced for over 20 miles in a direction about N. 30° E. from Briggs Creek Valley to Cow Creek at Reuben Spur. Although the general course is maintained with considerable regularity, there are many small variations, and the contact dips to the southeast in the same direction as the slates. The plane of the contact is generally a fault plane and is for the most part followed by the lode. The contact is apparently most irregular and the quartz porphyry (porphyritic dacite) most cut by shearing planes in the vicinity of the ore bodies.'

"The Big Yank lode, for the most part, consists of intensely silicified rock with variable amounts of pyrite, but in places masses of the silicified rock have been partly or wholly replaced by barite and sulphides, which constitute the richer ore shoots. The mineralized zone constituting the Big Yank lode varies in width from place to place but at the Almeda Mine is about 200 feet wide. Two types of ore have been previously described; 'siliceous gold-silver ore' and 'copper ore with barite'.20/ The 'siliceous gold-silver ore' is the intensely silicified rock with variable amounts of pyrite described above; the 'copper ore with barite' comprises those portions of the Big Yank lode that have been partly or wholly replaced by barite and sulphides.

"The 'siliceous gold-silver ore' consists largely of intensely silicified porphyritic dacite. The rock is composed almost entirely of quartz, but pseudomorphic outlines of the original texture are shown in thin sections. Although the quartz in general is fine-grained, it tends to be slightly coarser along veinlets.

18/ Winchell, N. H., Petrology and Mineral Resources of Jackson and Josephine Counties, Oreg.: Mineral Resources of Oregon, vol. 1, no.5, p. 209, Oregon Bur. Mines and Geology, August 1914.

19/ Diller, J. S. op. cit. (Bull. 546), pp. 74-75.

20/ Diller, J. S. op. cit., p. 75.

There are two and possibly three generations of quartz. One and possibly two preceded the sulphides, and one clearly cuts the sulphides. In general, the older quartz is very fine grained. It is traversed by some veinlets of coarser quartz that is believed to be of the same age, but because this coarse quartz crystallized in the fractures through which it was introduced, it tended to form larger grains than in the replaced wall rock. Barite is sparingly present in the 'siliceous gold-silver ore'. It was introduced after the older quartz but preceded the sulphides.

"According to P. H. Holdsworth, 21/ engineer for the Almeda Mine in 1911, the average analysis of the 'siliceous-gold-silver ore' is as follows:

"'Average analysis of siliceous gold-silver ore of Almeda Mine

"'SiO_2	percent..	62.9
FeO	do ..	11.5
CaO	do ..	2.1
BaO	do ..	8.1
Al_2O_3	do ..	5.6
S	do ..	8.3
Cu	do ..	.3
Au	ounces per ton......	0.14
Ag	do	6.40

"The gold and silver content shown above is higher than in the siliceous material collected by Diller in the west crosscut of the 500-foot level. He reports that assays of his specimens contain very little gold and only a trace of silver.22/ The writer cut three channel samples across the body of the 'siliceous gold-silver ore' which are believed to be fairly representative of the places sampled but, like Diller's specimens, indicate only that this type of ore is low-grade material. The partial analyses of these samples made in the chemical laboratory of the United States Geological Survey given on page 30 are therefore not presented as representative of the average metal content for this type of ore throughout the mine.

"Partial analyses of 'siliceous gold-silver ore' from the Almeda Mine
(E. T. Erickson, analyst)

	17	18	13
Copper..........percent..	Less than 0.01	0.01	Less than 0.01
$BaSO_4$ .... do ...	.4	Trace	2.1
SiO_2 .... do ...	66.2	88.8	64.2
Gold .... do ...	Trace	Trace	Trace
Silver...ounces per ton..	.17	.08	.01

17. From crosscut starting 200 feet from portal of west adit of level 1 and running west. Sample represents width of 10 feet; from face of crosscut to point 10 feet east of face.

18. Same crosscut as 17. Sample represents width of 20 feet, between points 34 and 54 feet east of face.

13. West crosscut 110 feet south of face of River level. Sample taken across 20 feet of ore.

21/ Diller, J. S., op.cit., p.77.
22/ Diller, J. S., op.cit., p. 78.

"The richer ore at the Almeda Mine, the 'copper ore with barite', occurs as shoots close to the contact of porphyritic dacite and argillite in the broad silicified zone described above. A longitudinal section of the mine workings above the Rogue River indicates that two mineralized zones have been partly mined but that most of the production has come from one that is more or less parallel with and from 20 to 50 feet below the surface. The other zone, which has not been developed sufficiently to determine its pitch, is about 250 feet below the surface. As shown by assays of samples collected by Diller, and P. H. Holdsworth, ore of good grade was found on the 300-foot level (below the Rogue River), but because the shaft is no longer accessible the relation of this ore to the shoots above is not known. The shoots of better-grade ore range in thickness from a few feet to 60 feet and in length from less than 100 feet to over 200 feet. The greatest known width is exposed on level 1, where the main ore shoot is 60 feet thick and 220 feet long. On the river level the greatest visible thickness is 15 feet, but the entire thickness is probably not exposed. According to Diller the thickness of the principal ore body on the 300-foot level (below the Rogue River) is about 15 feet.23/ He also reports the absence of a considerable body of ore at the contact by the shaft on the 500-foot level but states that, according to the pitch, the ore shoot found on the 300-foot level should project to a position south of the shaft on the 500-foot level.

"The ore from the higher-grade shoots is composed principally of barite, quartz, and sulphides. The barite was introduced into the intensely silicified porphyritic dacite before the sulphides, and locally it has almost completely replaced the quartz. The sulphides, in turn, have replaced the barite as well as the quartz. Some specimens clearly show veinlets of sulphides cutting coarse-grained barite. The sulphides include pyrite, chalcopyrite, galena, sphalerite, chalcocite, and covellite. Pyrite is by far the most abundant. It occurs throughout the mineralized zone but is concentrated as massive bodies in the richer ore shoots. The pyrite is cut and replaced by all the other hypogene sulphides and by covellite, which is clearly supergene. In the better-grade ore exposed in the accessible stopes tiny veinlets containing covellite are plainly visible cutting the other sulphides and the gangue minerals.

"According to P. H. Holdsworth,24/ the 'copper ore with barite' across widths of 6 to 20 feet was analyzed as follows:

"Analyses of copper ore from Almeda Mine

SiO_2	8.8 to 5.1
FeS_2	27.0 to 48.1
CaO	Trace to 0.8
$BaSO_4$	47.8 to 28.2
Al_2O_3	8.0 to 10.9
$CuFeS_2$	6.4 to 6.8

"Assays of copper ore from Almeda Mine

Cu	percent	1.5 to 4.5
Au	ounces per ton	0.12 to 0.42
Ag	do	3.32 to12.18

23/ Diller, J. S., op. cit., p. 78.

24/ Diller, J. S., op. cit., p. 76.

"A partial analysis of a sample collected by Diller[24] on the 300-foot level just north of the crosscut from the shaft was made by Chase Palmer, of the United States Geological Survey, and the sample was assayed for gold and silver by E. E. Burlingame & Co., with the following results:

"Analysis of ore from Almeda Mine

SiO_2	........percent...	0.31
$BaSO_4$	.... do ...	68.21
CaO	.... do ...	1.01
Cu	.... do ...	6.02
Au	...ounces per ton.	0.10
Ag	.... do ...	7.78

"Numerous faults cut both types of ore. Strike faults are made evident in places by gouge along the contact of the ore with the footwall argillite and by numerous gouge seams and shattering in the ore. Other faults, particularly those striking about N. 50° W., have offset the ore in many places.

"Both siliceous and copper-barite ores have greatly leached outcrops. The siliceous ore at the surface is a white rock, resembling quartzite. It contains many spots that are porous, owing to the removal of pyrite. The outcrop of the copper ore is strongly stained yellowish and brown by iron oxides and is composed largely of porous aggregates of barite and quartz. Oxidation is not abundant, however, in either type of ore at depths exceeding 50 feet below the surface. Sulphide enrichment is made evident in the stopes examined by the presence of tiny veinlets of covellite cutting both gangue and primary sulphide minerals.

"Origin of the ore: The ore at the Almeda Mine has been formed almost entirely by the replacement of porphyritic dacite close to the contact with argillite. Other bodies of porphyritic dacite have intruded argillite beds, but so far as known the only contact that has been extensively mineralized is the one at the Almeda Mine known as the Big Yank Lode. Both Diller [25] and Winchell [26] have stated that the Big Yank Lode occurs along a zone of faulting. Faulting along the contact probably caused the development of the fractures through which the quartz has so plainly penetrated the rocks. Replacement occurred near the contact in both porphyritic dacite and argillite, but in the argillite to a much lesser degree. After intense silicification and possibly pyritization, the brittle silicified rocks were again fractured. Barite and probably additional quartz were introduced along the fractures and particularly along the zones of greatest shattering. After the barite, sulphides were introduced--pyrite first, and then the other sulphides, apparently as an overlapping series. Like the barite the sulphides tended to follow the zones of most intense shattering, which, as shown by the concentration of barite and sulphides, developed close to the contact of the prophyritic dacite and argillite, thus forming the higher-grade ore shoots. Faulting made evident by gouge, shattering, and displacement of the ore continued after the deposition of the sulphides. Ultimately erosion brought the ore bodies close to the surface, and oxidation attacked the sulphides. Much of the oxidized material was removed, and some of the metals were carried downward to be redeposited as supergene sulphides. However, erosion has nearly kept pace with oxidation, so that today there is but a thin zone of oxidized minerals.

---

[24] Diller, J. S., op. cit., p. 76.

[25] Diller, J. S., op. cit., p. 14.

[26] Winchell, A. N., op. cit. p. 208.

"The source of the ore minerals is purely speculative. Most of the sulphides at the Almeda Mine are characteristically hypogene minerals and hence, in the light of our present knowledge, were derived from some magmatic source below. Diller states that the porphyritic dacites are thought to be genetically related to the granodiorite masses that are so extensive in southwestern Oregon.[27] With this assumption it may be expected that the ore-bearing solutions were derived from the same parent magma as the porphyritic dacite.

"Economic Considerations: Two possibilities must be considered in discussing the economic outlook for the Almeda Mine--(1) the possibility of developing an enormous tonnage of very low grade ore that would be minable when metal prices recover; (2) the possibility of developing and working smaller shoots of higher-grade ore.

"Without question there is, at the Almeda Mine, an enormous deposit of silicified rock containing variable amounts of pyrite and some silver and gold. This is the 'siliceous gold-silver ore' mentioned by Diller. When conditions are favorable for the exploitation of large low-grade deposits containing silver, gold, and copper, consideration should be given to the mineralized zone at the Almeda Mine. The material, excluding the shoots of better ore, is certainly of low grade, but there is a possibility that under very favorable conditions a large part of the mass might be workable. Only careful and complete sampling will determine the feasibility of such a venture.

"Mining has demonstrated the occurrence of good-sized bodies of the richer ore. At least two have been partly developed. The larger and higher-grade body has been partly blocked out for a pitch length of about 800 feet. The smaller body lies about 250 feet north of the larger one and has been only slightly developed. It is not known by the writer whether the continuations of these bodies were found on the levels below the river.

"The south ore body is practically as long on the river level as on level 1, 100 feet above, and if it has not been found on the 300-foot or shallower levels below the altitude of the Rogue River, the reason is probably because prospecting has not been carried far enough to the south. The north ore body has not been developed sufficiently to determine its pitch. However, it apparently has not been found on the River level. Diller has suggested that the ore found near the shaft on the 300-foot level might be the extension of this body. However, if the pitch is approximately constant, it should have been intersected by the River level. Therefore, it seems probable that the north ore body may have a steeper pitch than the south ore body and that the ore body on the 300-foot level may be a separate one. This inference is in accord with the interpretation of the origin of the ore--that is to say, the higher-grade shoots might be expected along the argillite contact wherever intense shattering formed permeable openings for the ore-bearing solutions to follow.

"The shoots of richer ore have been found at or very close to the contact of argillite, and there is a possibility that careful study might reveal undiscovered shoots along the contact of the Big Yank Lode. The outcrops of the better ore differ considerably from those of the lower-grade siliceous ore.

"Sulphide enrichment undoubtedly increased the metallic content of the ore near the surface. Tiny seams filled with supergene covellite are plainly visible in all the stopes examined. It is clear, however, that sulphide enrichment

---

[27] Diller, J. S., op. cit., p.21.

has not been the chief factor in the formation of the better-grade ore shoots. Most of the minerals of the shoots are of hypogene origin, and hence their development was not dependent upon surface agencies. The supergene minerals have affected the shoots only by adding somewhat to their metallic content, particularly to the copper and possibly to the silver.

"Apparently local smelting of the Almeda ore was not successful. The appearance of the slag indicates that considerable difficulty was encountered. The slag is stony, is not uniform in composition, and is shot through with metallic globules and some undissolved pyrite. According to Holdsworth 28/ the composition of the slags from the Almeda matting furnace was as follows:

"Composition of slags from Almeda furnace

	1	2	3	4
SiO_2	30.9	31.8	31.1	38.9
Al_2O_3	10.6	13.5	9.9	4.7
FeO	24.9	24.0	25.3	22.3
CaO	3.1	3.9	4.8	1.3
BaO	30.4	26.9	29.1	32.9

"If a reasonable tonnage of ore of a grade indicated by the analyses of Holdsworth and Diller can be demonstrated the higher-grade shoots should receive serious consideration when metal prices justify it, in view of the recent improvements in metallurgy, particularly in flotation."

Recent Activity: Holdsworth has unwatered the "river level" and diamond drilled the area north of the old workings. The shaft from the "river level" to the next level above was retimbered. A cable way was constructed across the Rogue River across which all supplies were transported. The work probably will be discontinued in the spring of 1942 as a result of difficulty in securing competent labor and inability to secure necessary priority ratings on equipment.

Reference: Diller, J. S., 14:72-81.
Parks and Swartley 16:8.
Shenon, P. J., 33a:24-35.(quoted)
Winchell, A. N., 14:209.
Treasher, R. C. 1942.

AKRON GOLD MINING & MILLING CO. (gold) Galice area

see Keystone Group

ALMEDA CONSOLIDATED MINES COMPANY Galice area

see Almeda Mine (P & S)

ALTA VISTA MINE (gold) Galice area

Location: NE¼ sec. 13, T. 35 S., R. 8 W.

History: "The Alta Vista Mine is in the NE¼ of sec. 13, T. 35 S., R. 8 W. It is reached by a trail from Soldier Camp, on the Robertson Mine road. A short tunnel and several open cuts explore a quartz vein in dark-colored metagabbro. The vein, which

---

28/ Diller, J. S., op.cit., p.8.

MONTHLY REPORT OF PURCHASES

SUPPLIES, MAINTENANCE, ITEMS AND REPAIRS UNDER
PREFERENCE RATING ORDER P-56

NAME OF MINE OPERATOR L. A. LEVENSALER MINE SERIAL NO.

ADDRESS 1408 HOGE BLDG., SEATTLE, WASHINGTON. 33-13

PURCHASES MADE IN THE MONTH OF February 1942

There have been no rated purchases made during the month of February 1942

I. PURCHASES TO WHICH RATING A-8 HAS BEEN APPLIED DURING MONTH.
NONE.

II. PURCHASES TO WHICH RATING A-I-a HAS BEEN APPLIED DURING MONTH.
NONE

CERTIFICATION,

The undersigned hereby certifies to the Office of Production Management, that
(I) he executed the foregoing statement on behalf of and by authority of the above named mining operator;
(2) the above named mine operator has, during the period covered by this report, complied with all the provisions of Preference rating Order P-56;
(3) during such period the Mine Operator 's inventory of operating supplies and other material has not been greater than the minimum necessary for the efficient operation of his business, and the ratio of inventory (quantity) to current production has not exceeded the ratio of average year-end inventory (quantity) to average production for the years 1938, 1939, and 1940;
(4) the facts stated herein are, to the best of his knowledge and belief, true and correct.

Date
March 4th 194 2

P H Holdsworth Superintendent
P. H. HOLDSWORTH

MONTHLY REPORT OF PURCHASES

SUPPLIES, MAINTENANCE, ITEMS AND REPAIRS UNDER PREFERENCE RATING ORDER P-56

NAME OF MINE OPERATOR L. A. LEVENSALER MINE SERIAL NO.

ADDRESS 1408 HOGE BLDG., SEATTLE, WASHINGTON. 33-13

PURCHASES MADE IN THE MONTH OF JANUARY 1042

There have been no rated purchases made during the month of *January* - 1942

I. PURCHASES TO WHICH RATING A-8 HAS BEEN APPLIED DURING MONTH.
NONE.

II. PURCHASES TO WHICH RATING A-I-a HAS BEEN APPLIED DURING MONTH.
NONE

CERTIFICATION,

The undersigned hereby certifies to the Office of Production Management, that
(I) he executed the foregoing statement on behalf of and by authority of the above named mining operator;
(2) the above named mine operator has, during the period covered by this report, complied with all the provisions of Preference rating Order P-56;
(3) during such period the Mine Operator 's inventory of operating supplies and other material has not been greater than the minimum necessary for the efficient operation of his business, and the ratio of inventory (quantity) to current production has not exceeded the ratio of average year-end inventory (quantity) to average production for the years 1938, 1939, and 1940;
(4) the facts stated herein are, to the best of his knowledge and belief, true and correct.

Date
March 4th 1942

RHHoldsworth Superintendent
P. H. HOLDSWORTH

RECEIVED
MAR 7 - 1942
STATE [illegible]

✓

[illegible]

MONTHLY REPORT OF PURCHASES

SUPPLIES, MAINTENANCE, ITEMS AND REPAIRS UNDER
PREFERENCE TATING ORDER P-56

NAME OF MINE OPERATOR L. A. LEVENSALER
ADDRESS 1408 HOGE BLDG., SEATTLE, WASH. MINE SERIAL NO. 33 - 13

Purchases made in months of Sept., Oct., Nov., and Dec. 1941

There have been no rated purchases made during the months of Sept., Oct., Nov., or December of the year 1941.

The undersigned hereby certifies to the Office of Production Management, that

(1) he executed the foregoing statement on behalf of and by authority of the above named Mining Operator;

(2) the above Mine Operator has, during the period covered by this report, complied with all the provisions of Preference Rating Order P-56;

(3) during such period the Mine Operator's inventory of operating supplies and other material has not been greater than the minimum necessary for the e efficient operation of his business, and the rating of inventory (quantity) to current production has not exceeded the ratio of average year end inventory (quantity) to avegage production for the years 1938, 1939, and 1940.

(4) The facts stated herein are, to the best of his knowledge and beleif, true and correct.

Date
January 13th 1942

P H Holdsworth Superintendent
P. H. HOLDSWORTH

The Big Yank lode for the most part consists of silicified rock containing pyrite. In places the silicified zone has been partly or wholly replaced by barite and sulphides which constitute the richer ore shoots. Two types of ore have been described, namely, siliceous gold-silver ore and copper ore with barite. An analysis of the so-called siliceous gold-silver ore, according to the former management of the mine, is as follows:

Silica.	62.9%
Ferrous oxide	11.5%
Calcium oxide	2.1%
Barium oxide.	8.1%
Alumina	5.6%
Sulphur	8.3%
Copper.	0.3%
Gold, ounces per ton.	0.14
Silver, oz. per ton..	6.4

Some channel samples taken by Diller in this orebody did not check the above gold and silver results.

Results of a partial analysis of a sample collected by Diller indicate values in the copper-barite orebodies,—

Silica.	0.31%
Barium sulphate	68.21%
Calcium oxide	1.01%
Copper.	6.02%
Gold, ounces per ton.	0.10
Silver, " " "	7.78

Large bodies of medium to low grade ore have been indicated by previous underground work. Possibly the later diamond drilling referred to above, may have developed or proved additional ore, and it may be that Mr. Holdsworth would confirm this if you would communicate with him.

If there is any further information I can give you, I shall be pleased to do so.

Yours very truly,

FWL:vm

F. W. Libbey
Mining Engineer

Subject Vol. 16.

ALAMEDA MINE

CATION: Alameda, Josephine Co., Oregon.

PROPERTY: Three claims, width 1200 feet on Rogue River, extending northerly 3000 feet on the vein system.

TITLE: Possessory-Mining Locations.

GEOLOGY: Contact Fissure vein, Slate hanging wall, Porphyry foot wall, dip about 87 degrees East, ore bodies pitching South about 30 degrees. Common width of commercial ores about 50 feet.

DEVELOPMENT 7339 feet, including shaft 535 feet. Cost $ 88,068.00

EQUIPMENT: Including smelter and power machinery Cost $ 60,575.00

GENERAL: Roads, surface improvements, buildings, etc. Cost $ 55,500.00

ORE BODY: Estimated at 1,236,640 tons, as follows;

Price basis:	Low grade, 60% at $4.00	$ 2,967,936.00	Note Silicious and
Copper 12¢lb.	2nd grade, 30% at 6.00	2,225,952.00	oxidized gold and
Silver 50¢	Base Ore, 10% at 8.00	989,312.00	silver ores not
		$ 6,183,200.00	included.

METALLURGY: Base ore-smelting.
2nd Grade ore-concentrating and smelting.
Low grade ore-concentration.

SMELTING: Blast Furnace, 36" x 72". Daily capacity 100-125 tons.
Coke consumption 7-8%. Concentration about 35 to 1.
Recovery about 90%.

CONCENTRATION: Low grade ores, from 4 to 1, to 6 to 1.
Recovery on sands 85%. Recovery on slimes 87.5%.

PRODUCTION:
1912-1913, 10,810.3 tons @ $7.50 per ton, (Smelted) $ 79,563.83
1915-1916 7,000 tons @ 11.56 per ton. " 80,916.50
Average value of matte, 1912-13, $261.54 per ton
1915-16, $275.93 per ton

ORE VALUE:
1912-13, Average assay return per ton
Gold .09 ozs. Silver 2.87 ozs. Copper 1.08% $ 7.36
1915-16 Gold .117 " Silver 4.39 " Copper 1.13% 11.56

COSTS: Mining and smelting, $4.00 per ton inclusive.

ESTIMATES: Cost of new concentrating and smelting plant complete with power line based on new machinery with capacity of 300 tons per day calculated under contract at $74,500.00 (1918).

Ore immediately available for treatment, 120,000 tons of an average value exceeding $8.00 per ton, (1919).

REMARKS: The foregoing statements are prepared from official reports and records of the mine and can all be duly verified accordingly.

The above stated ore values and treatment processes apply to the bulk tonnage of base ores and do not apply to the undetermined class of oxidized and silicious gold and silver ores the occurrance of which has not been followed by development.

WESTERN METAL MINES COMPANY

-Incorporated-

Grants Pass, Oregon. Chicago, Illinois

Mining Metallurgy Engineering

- - -

1929

The WESTERN METAL MINES COMPANY is incorporated under the Laws of the State of Oregon with an authorized Capital of One Million Dollars divided into One Million shares par value One Dollar each, NON-ASSESSABLE, of which there has been issued 140,542 shares with 9,458 shares under optional subscription or a total of 150,000 shares subscribed.

The Board of WESTERN METAL MINES COMPANY consists of three Directors which hold the offices of President, Vice-President and Secretary-Treasurer, while the Manager and Attorney serve by appointment of the Board.

OFFICIAL STAFF

Neil R. Allen,	Grants Pass, Oregon.	PRESIDENT
J. J. Seidel	Grants Pass, Oregon.	SECRETARY-TREASURER.
S. W. Gordon	Chicago, Illinois.	VICE-PRESIDENT
Neil R. Allen	ATTORNEY	J. J. Seidel, MANAGER.
	S. W. Gordon FINANCIAL MANAGER	

PROJECT

(1) Ownership and Operation of Mine.

(2) Metallurgy, milling and smelting.

(3) Engineering, assaying, ore testing, mine examinations, surveys, reports, mill, smelter and mining plant designs.

(4) Mine Leases, taken and given for operation.

(5) Contracting, mine development, construction of mining plants.

(6) Mining Properties, bought, sold or financed.

TRINITY 4791

FORM 50

SMITH-EMERY COMPANY

CHEMICAL ENGINEERS AND CHEMISTS
METALLURGICAL AND TESTING ENGINEERS
920 SANTEE STREET
LOS ANGELES 15
CALIFORNIA

LABORATORY
No. 367437

Date April 23, 1953

Sample Rock

Received 4/21/53

Marked "Almeda Specimen 4/18/53"
(Surface at 1100'±)

Submitted by Alaska Copper Corporation,
1013 Smith Tower,
Seattle 4, Washington.

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

Element	*Approximate Quantity*
Barium --------------------------	Major Constituent
	Minor Constituents
Strontium ------	0.5%
Silicon -------	0.5%
Calcium -------	0.1%
Aluminum ------	0.1%
Magnesium ------	0.01%
Lead ----------	0.01%
Iron ----------	0.01%
Copper ---------	0.005%
Manganese ------	Trace

Respectfully submitted,

Smith Emery Co

CHEMISTS AND ENGINEERS

(See statements on reverse side regarding qualitative spectrographic examination)

TRINITY 4791

FORM 50

SMITH-EMERY COMPANY

CHEMICAL ENGINEERS AND CHEMISTS
METALLURGICAL AND TESTING ENGINEERS
920 SANTEE STREET
LOS ANGELES 15
CALIFORNIA

LABORATORY
No. 368056

Date May 8, 1953

Sample Ore

Received 5/6/53

Marked "Sample Tag No. 10
Almeda"

Submitted by Alaska Copper Corporation,
1013 Smith Tower,
Seattle 4, Washington.

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

Element	*Approximate Quantity*
Barium, Iron	Major Constituents
Silicon, Aluminum	Intermediate Constituents
	Minor Constituents
Sodium	0.5%
Calcium	0.5%
Magnesium	0.1%
Lead	0.1%
Strontium	0.05%
Titanium	0.05%
Copper	0.01%
Manganese	0.01%
Vanadium	0.005%
Nickel	0.001%
Chromium	0.001%
Gallium	0.001%
Boron	0.001%
Cobalt	Trace
Silver	Present

Respectfully submitted,

Smith Emery Co
CHEMISTS AND ENGINEERS

(See statements on reverse side regarding qualitative spectrographic examination)

At Olympic Foundry
Phone RAinier 7123

METALLURGICAL LABORATORY
WILLIS H. OTT

ASSAYERS
Umpire and Smelter Control

METALLURGISTS
5200 AIRPORT WAY
SEATTLE 8

CHEMISTS
Physical and Chemical Testing

No. 3599

CERTIFICATE OF ANALYSIS

Date July 31, 1953

Submitted by Alaska Copper Corporation

Sample #255

QUALITATIVE SPECTROGRAPHIC EXAMINATION

Element	Approximate Quantity
Silicon Aluminum	Major Constituents
Iron Calcium Magnesium Potassium	Intermediate Constituents
	Minor Constituents
Titanium	0.5%
Manganese	0.5%
Sodium	0.5%
Barium	0.1%
Strontium	0.05%
Vanadium	0.01%
Lead	0.005%
Copper	0.005%
Tin	0.005%
Boron	0.005%
Gallium	0.005%
Chromium	0.005%

METALLURGICAL LABORATORY.

COPY

LABORATORY REPORT
ABBOT A. HANKS, INC.
ENGINEERS, ASSAYERS, CHEMISTS, METALLURGISTS
CONSULTING - TESTING - INSPECTING
ESTABLISHED 1866
624 SACRAMENTO STREET
SAN FRANCISCO 11, CALIFORNIA
TELEPHONE GARFIELD 1-1697

Lab. No. 55524

Date May 26, 1953

Submitted by Alaska Copper Corporation
1013 Smith Tower
Seattle 4, Washington

Sample Mark 80 126-135

QUALITATIVE SPECTROGRAPHIC ANALYSIS
Metals Found
and Estimated Percentage Range

Less than .03%	*.03% to .30%*	*.30% to 3%*	*3% to 30%*	*30% to 100%*
Chromium	Sodium	Calcium	Aluminum	Silicon
Nickel	Titanium	Magnesium	Iron	
Cobalt	Manganese	Potassium		
Lead	Copper			
Vanadium	Zinc			
Strontium	Barium			

Remarks

cc: Alaska Copper Corporation
Galice Store
Merlin, Oregon

bob

RESPECTFULLY SUBMITTED,
ABBOT A. HANKS, INC.

By Original Signed by
MARTIN P. QUIST
Spectro-Chemist

ORM A-5

LABORATORY REPORT
ABBOT A. HANKS, INC.
ENGINEERS, ASSAYERS, CHEMISTS, METALLURGISTS
CONSULTING - TESTING - INSPECTING
ESTABLISHED 1866
624 SACRAMENTO STREET
SAN FRANCISCO 11, CALIFORNIA
TELEPHONE GARFIELD 1-1697

Lab. No. 58374

Date August 27, 1953

Submitted by Alaska Copper Corporation
1013 Smith Tower
Seattle 4, Washington

Sample Mark —

QUALITATIVE SPECTROGRAPHIC ANALYSIS

Metals Found and Estimated Percentage Range

Less than .03%	*.03% to .30%*	*.30% to 3%*	*3% to 30%*	*30% to 100%*
Sodium	Copper	Silicon		Iron
Potassium	Aluminum	Zinc		
Arsenic	Calcium			
Titanium	Magnesium			
Nickel	Manganese			
Cobalt				
Chromium				
Vanadium				
Lead				
Silver				

Sample of pyrrhotite - quartz - visible sphaler
from Lou Roberts —
reported 15' width on Chrome Ridge
Josephine Co. O

Remarks

RESPECTFULLY SUBMITTED,
ABBOT A. HANKS, INC.
By Martin P. Quist
Spectro-Chemist

bob

ORM A-5

LABORATORY REPORT

ABBOT A. HANKS, INC.
ENGINEERS, ASSAYERS, CHEMISTS, METALLURGISTS
CONSULTING - TESTING - INSPECTING
ESTABLISHED 1866
624 SACRAMENTO STREET
SAN FRANCISCO 11, CALIFORNIA
TELEPHONE GARFIELD 1-1697

Lab. No. 58374

Date August 27, 1953

Submitted by Alaska Copper Corporation
1013 Smith Tower
Seattle 4, Washington

Sample Mark ——

QUALITATIVE SPECTROGRAPHIC ANALYSIS
Metals Found
and Estimated Percentage Range

Less than .03%	*.03% to .30%*	*.30% to 3%*	*3% to 30%*	*30% to 100%*
Sodium	Copper	Silicon		Iron
Potassium	Aluminum	Zinc		
Arsenic	Calcium			
Titanium	Magnesium			
Nickel	Manganese			
Cobalt				
Chromium				
Vanadium				
Lead				
Silver				

Remarks

RESPECTFULLY SUBMITTED,
ABBOT A. HANKS, INC.

By Original Signed by MARTIN P. QUIST
Spectro-Chemist

bob

ORM A-5

#4

DDH #4
Coor. N 1024 W 1176
Bearing N 80° W
Dip -65°
Elev. 522

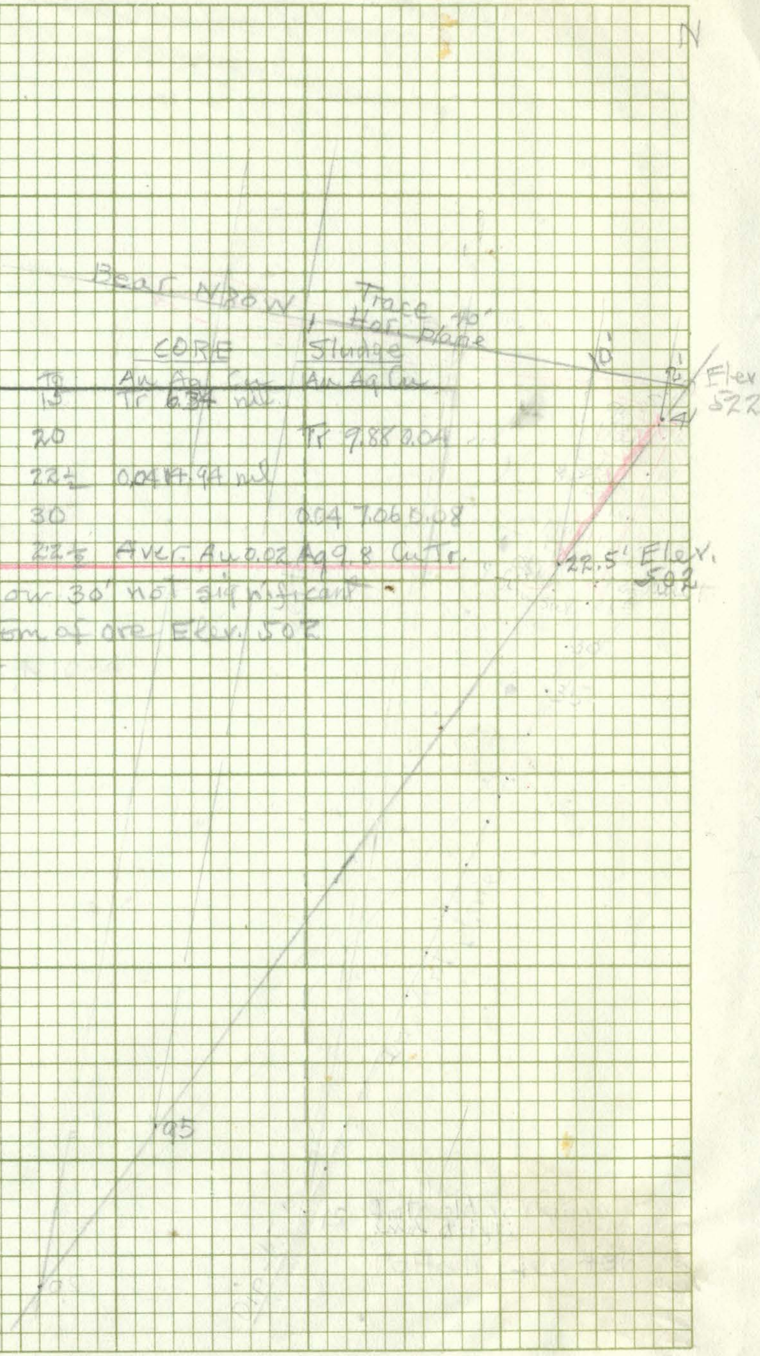
Au .70
Ag 12.74
13.44

Bear. N 80 W | Trace 40' Hor. plane

From	To	CORE Au	Ag	Cu	Sludge Au	Ag	Cu
4	13	Tr	6.34	nil.			
10	20				Tr	9.88	0.04
15	22½	0.04	14.94	nil			
20	30				0.04	7.06	0.08

18½'— 4' 22½ Aver. Au 0.02 Ag 9.8 Cu Tr.

Below 30' not significant
Bottom of ore Elev. 502
Coor



FORM A-8

REPORT OF ASSAY

ABBOT A. HANKS, INC.

ASSAYERS, CHEMISTS, ENGINEERS
624 SACRAMENTO STREET
SAN FRANCISCO, August 27, 1953

DEPOSITED BY Alaska Copper Corporation
1013 Smith Tower
Seattle 4, Washington

SAMPLE OF ORE

Labty. No.	Mark	GOLD, per ton of 2,000 lbs.		SILVER, per ton of 2,000 lbs.		Percentages
		Troy Ounces	Value @ $35.00 oz.	Troy Ounces	Value @	
					$	
58374		.08	2.80	Trace		

cc: Alaska Copper Corporation
Galice Store
Merlin, Oregon

ABBOT A. HANKS, INC.
Martin P. Quist

bob

FORM [illegible]-6

REPORT OF ASSAY

ABBOT A. HANKS, INC.

ASSAYERS, CHEMISTS, ENGINEERS
624 SACRAMENTO STREET

SAN FRANCISCO, August 27, 1953

DEPOSITED BY Alaska Copper Corporation
1013 Smith Tower
Seattle 4, Washington

SAMPLE OF ORE

Labty. No.	Mark	GOLD, per ton of 2,000 lbs.		SILVER, per ton of 2,000 lbs.		Percentages
		Troy Ounces	Value @ $35.00 oz.	Troy Ounces	Value @	
					$	
58374		.08	2.80	Trace		

cc: Alaska Copper Corporation
Galice Store
Merlin, Oregon

ABBOT A. HANKS, INC.
Original Signed by
MARTIN P. QUIST

bob

METAL PRODUCTION (Contents)

A ORE MILLED AND BULLION PRODUCED
B CONCENTRATES PRODUCED
C ORE SMELTED

Almeda Mine, Josephine County, Galice District, State of Oregon

R	A B C	CRUDE ORE PRODUCED		CONCENTRATES PRODUCED		GOLD (OUNCES)			SILVER (OUNCES)			COPPER (POUNDS)		LEAD POUNDS	
		DRY TONS	CLASS	DRY TONS	CLASS	GROSS IN ORE	GROSS IN CONCENTRATES	RECOVERED	GROSS IN ORE	GROSS IN CONCENTRATES	RECOVERED	GROSS IN ORE	GROSS IN CONCENTRATES	GROSS IN ORE	GROSS IN CONCENTRAT
911	c	4,159	cu			420.47	$8409.40	420.47	9,953		9,953	82,808			
912	c	2,935	au			281.01	5620.20	281.01	8,067		8,067	45,713			
913	c	87	cu			83.98	1679.70	83.98	126		126	22,854		6,928	
914	c	4,336	cu			269.40	5388.00	269.40	12,482		12,482	38,150			
915	c	993	pb			83.01	1660.20	83.01	3,349		3,349	5,503		52,617	
916	c	4,109	cu			402.00	8040.00	402.00	14,410		14,410	64,771		11,652	
		16,619					30,797.00								

420.47
20
8409.40

July 29, 1919

COPY OF REPORT
OF ALMEDA MINES COMPANY

BY

JOHN DANIELL

Chas. Mayotte.

Board of Directors
Almeda Mines Co
1010 Board of Trade Building
Portland, Oregon.

Dear Sir ;

Pursuant to your request I have carefully examined the properties of the Almeda Mines Co. spending sixty days in connection with the work, aside from that consumed in travelling, and herewith submit my report thereon.

LOCATION

The properties of the Almeda Mines Company consist of five distinct groups, to wit: ALMEDA MINES; STANDARD METALS MINE; ROCKY GULCH; RAND; and COLD SPRINGS GROUPS.

The Almeda Group contains the following claims:

Monte Cristo
Bonanza
Almeda

The Standard Metals Group contains the following claims:

Goss Lode
Holy Terror   Lot 1 Sec 19 T 33 R 7 W
Mattisons Placer

The Rand Group contains the following claims:

Wasco   Also 18 placer claims following Rogue River for over a mile
Big Horn
Pearl
Homestake
Connecting Link

The Rocky Gulch Group contains the following claims:

Live Yankee   Also 2 placer claims
Yankee Doodle
Portland

The Cold Springs Group contains seven claims in all, as follows:

Cold Springs No 1
Cold Springs No 2
Mineral Hill
Towner Gulch
Blue Jay
Summit
Iron cap

COPY

Calumet, Mich
July 29, 1919

Board of Directors
Almeda Mines Co.
Portland, Oregon.

Dear Sirs -

I enclose herewith my report on the properties of the Almeda Mines Company.

I have dealt with all phases of the work under the following headings, to wit:

I. LOCATION.
    A. Almeda Mine
    B. Standard Metals Mine
    C. Rand Mine
    D. Rocky Gulch
    E. Cold Springs Mine.

II. TIMBER

III Climate

IV POWER

V WATER

VI LABOR

VIITRANSPORTATION

VIII TOPOGRAPHY

IX TITLES

X ALMEDA MINE

    a River Tunnel
    b 0 Tunnel
    c No 1 Tunnel
    d No 2 Tunnel
    e No 3 Tunnel
    f No 4 Tunnel
    g The 200 ft level
    h The 300 ft. level

XI GEOLOGY

XII DESCRIPTION OF ORE AND VEIN

XIII SAMPLING

XIV ASSAYING RESULTS

XV METALLURGICAL TREATMENT

I enclose maps, a plan and an elevation of the Almeda Mine and also assay maps of each tunnel and level.

I also enclose photographs.

I also enclose my bill for services and expenses.

Yours very truly,

(Signed) John Daniell

THE ALMEDA GROUP upon which is located the Almeda Mine, is situated on the North Bank of the Rogue River 26 miles below Grants Pass, Oregon, in Josephine County, and is reached with a fairly good wagon road from Merlin, on the main line of the Southern Pacific Railway 17 miles away.

THE STANDARD METALS GROUP is located directly across the river from the Almeda Mine, on the southerly extension of the same mineralized zone, locally known as the "Big Yank Lode".

THE RAND GROUP is located practically a mile still further south on the same formation, but does not connect with the Standard Group.

THE ROCKY GULCH GROUP lies still further to the south, but connects with the Rand Group.

The Almeda Group carries the outcrop of the "Big Yank Lode" for 3000 ft. The Standard Metals for 1500 feet. The Rand for 3000 feet and the Rocky Gulch for 4500 feet, a total of 12,000 feet on the same ore zone.

These groups are all in the Galice Mining District.

THE COLD SPRINGS GROUP lies in the Galice Mining District about three miles southwest of Galice, near the north fork of Galice Creek.

The claims carry the outcrop of the vein for a distance of 4500 feet; this vein is locally known as the "Cheiftan Lead".

TIMBER The claims are practically all in the U S Forest Reserve, but timber for all mining purposes is very abundant.

CLIMATE is such that it permits general mining to be carried on thruout the entire year.

POWER for mining purposes has been developed from the use of distillate.

By building a transmission line to connect with a high voltage line 18 miles distant a cheap source of electric power could be obtained, at the rate of $0.118 per HP per day.

If the requirements of the mines were such as to warrant it, power could be had in very large amounts by constructing hydro-electric plants on Rogue River. Several ideal power sites are to be had along the river within a short distance of the mine.

WATER for general mining is available in sufficient quantities and is obtained by flumes from higher sources.
By resorting to pumping practically unlimited amounts of water could be obtained from Rogue River.

LABOR Sufficient labor is available. Wages are on a par with other western mining camps.

TRANSPORTATION A stage line operates daily between Grants Pass and Almeda. Freighting has to be done by teams or auto trucks, and costs average about $7.50 per ton. If regular freight shipments were assured, such as to warrant employing auto trucks, a freight rate of $3.50 per ton to Merlin would be possible. This would necessitate, however, the spending of about $4000.00 in general road repair work.

A road with easy grades was projected several years ago to connect with Leland, twelve miles distant. Several miles of roadway was constructed but work was discontinued and connection has not been made. This route is the logical outlet for the Almeda District.

TOPOGRAPHY The surface of the country adjacent to the holdings of the Almeda Mines Co. is extremely uneven and rough. The elevation above sea level at Almeda where the Rogue River cuts across the property is 750 feet.

The mountains in the neighborhood range up to 3500 feet elevation, and are generally steep, but soil covered and well timbered.

The rivers and creeks have cut deep canyons and gulches which generally permit tunnelling operations. The valleys are generally narrow.

Roadways follow rivers and creeks and are not very difficult to construct. At Almeda near a large horseshoe bend in the river is a large slightly sloping flat which provides an ideal townsite.

TITLES No attempt was made to determine the validity of the titles. In view of the assurance given by the officers of the Company and as the matter of transfer is not involved, all questions of title have been ignored and it is assumed titles are perfect.

ALMEDA MINE The Almeda Mine is located on the Almeda Group on the North Side of the Rogue River. The topography has lent itself to the easy development of the mines, in that the driving of tunnels was both possible and practical.

In all eight tunnels have been driven.

River Tunnel is 30 feet above the river and its breast is in 535 feet from the Portal. This level contains 996 feet of openings but fully half lie in the hanging wall slates.

O Tunnel is 45 feet above River Tunnel. Its breast is in 140 feet from the portal. This level contains 216 feet of openings all in the ore deposit.

No 1 Tunnel has two branches, No 1 east; No 1 west. The portals are 48 feet apart, No 1 east being close to the hanging wall. The tunnels are 100 feet higher than the River Tunnel and contain 2391 feet of openings.

No 2 Tunnel is 95 feet higher than No 1. Its breast is in 407 feet from the Portal. It contains 602 feet of openings.

No 3 Tunnel has two branches which do not connect. No 3 east and No 3 west. It is 82 feet above No 2 tunnel.
No 3 east tunnel is in 208 feet from the portal and contains 230 feet of openings.
No 3 west is in 322 feet from the portal and contains 610 feet of openings.

No 4 Tunnel is 90 feet above No 3 tunnel. Its breast is in 346 feet from the portal and it contains 502 feet of openings.
A small two compartment shaft 5 1/2 ft. x 7 1/2 ft. has been sunk to a depth of 500 feet starting from the same elevation as No 1. tunnel.

River tunnel connects with the shaft and is also the 100 foot level.

The 200 foot level hasonly one long crosscut across the ore formation 282 feet long.

The 300 foot level has 785 feet of openings. The horizontal extent of its openings along the strike of the ore is 292 feet.

The 400 foot level and the 500 foot level were full of water and an inspection was not possible, but it is reported that crosscuts about 100 feet long on each level have been run from the shaft to cut the ore bodies.

In all 7340 feet of openings have been reported as driven, of which 6970 feet have been verified.

A detailed description of each level is not necessary, as accompanying maps indicate the directions, and general features of the openings.

A large proportion, fully one third of the total openings have been made in the slates and shales on the hanging side, which being softer, no doubt permitted easier and faster mining.

This is noticeable, particularly in River, No 1 east, and No 4 Tunnels. A considerable amount of openings were driven in porphyry and probably not over half were driven in the ore.

A raise connects the River and No 1 Tunnel E. Also two raises correct No 1 and No 2 tunnels and another raise corrects No 2 with No 3 Tunnel W.

The vein has been exposed horizontally for a distance of 1010 feet between the Nothernmost workings in No 2 Tunnel, and the Southernmost workings of the 300 foot level.

Vertically the vein has been exposed from No 4 Tunnel to the 300 foot level or a distance of 567 feet.

If the vein has been found on the 500 foot level which is probable, then the vertical exposure is 767 feet.

GEOLOGY The conspicuous geological feature of the district in the neighborhood of the Almeda is the widespread presence of

Greenstone. This rock is of volcanic origin extends in a broad irregular belt 8 to 12 miles wide in a northeasterly direction for considerable distances, and its presence is characterized by prominent mountains, peaks and ranges.

It has intruded the slates, shales and other stratified rocks of the Galice and Dothan formations which appear to be overturned. The greenstone, shales, etc., have in turn been intruded by serpentine, granodiorites and porphyrys.

In the immediate vicinity of the Almeda Mine, the Rogue River exposes along its Northern bank the characteristic slates and shales of the Galice formation which dip about 78 deg. to the east and whose strata runs almost due north.

Adjoining the slates is a broad zone about 200 feet wide, which can easily be detected in its course up the mountain side by its reddish, brownish iron stained color. This zone is mineral bearing. This zone gradually grades into a belt of quartz Porphyry which finally becomes covered by soil.

About 3000 feet north of the river a large intrusion of Diorite cuts across the vein but farther on the vein continues on its regular course.

The ore occurs along a contact between the slates and an igneous rock, presumably quartz porphyry. The deposit is of the replacement type, the porphyry being replaced by the ore.

There is abundant evidence of faulting in the mine, particularly along the contact plane and also along planes cutting diagonally across the vein in several places running from No 20 deg. W to N 40 deg. W and exhibiting a throw of several feet. Minor faults and shear planes seem to occur frequently running in any direction.

A dike of Dacite porphyry apparently exists and runs in a general way parallel with the contact and in the vein. It is exposed in every tunnel and level available for inspection, and in a sufficiant number of places (at least 20) to presume it is continuous. It ranges in width from one to forty feet, and its walls are generally sharply defined and little altered. Many small intrusions of Dacite porphyry are also exposed on surface in the slates but seem disconnected.

DESCRIPTION OF VEIN AND ORE

The vein which is of the contact replacement type is unusually wide, ranging in width from 100 up to 200 feet. Its course and dip correspond with that of the slates which lie along the hanging wall.

Quartz Porphyry which the vein replaces constitutes the foot wall and is irregular. While the gradation into Quartz Porphyry is generally gradual, in many places there is sharp demarcation and the Porphyry appears relatively unaltered. The vein carries values principally in copper, gold, silver, iron and barite. Copper occurs principally in the form of Chalcopyrite, but Bornite, and Chalcocite are occasionally seen. The ore is heavily pyritized near the contact, and generally speaking less Pyrite is found toward the footwall. The same is true with Barite, but in a lesser degree with silver and gold.

The vein becomes very hard and silicious as the footwall is approached. It is cut by many faults and shearing planes which usually have been channels for solutions which have dissolved some of the constituents of the porphyry and redeposited silicia and other minerals. Along these shearing planes appears abundant evidence of repeated movements of the formation. Characteristic chloritic and talcose gouge is very plentiful, not infrequently up to three feet thick. Upon exposure to air and water this material sluffs off and the ground becomes heavy requiring timbering.

Near the hanging wall there is generally found a heavy mineralized zone from 2 to 15 feet in width, carrying extremely high values in barite and iron.

It usually has a banded appearance and has been known locally as the "Spar Vein."

It would appear that the Dacite porphyry dike which follows the vein has had some influence on the deposition of ore and probably has acted as a barrier for solutions and gases thereby assisting in concentration of values along the hanging side of the vein.

It would seem that the ore had its origin in the heated solutions and gases circulating thru the quartz porphyry along the faults, fractures and shearing planes, dissolving some minerals and replacing others in their stead.

These values are apparently also concentrated along shoots. Judging from assays ahd also from maps showing the places where ore was extracted by stoping there is a shoot of ore about 150 feet long which has a pitch to the south roughly paralelling the slope of the surface. It is encountered in the tunnel levels about 150-200 feet in from the portals.

This shoot is noticeable from No 3 tunnel down to the River tunnel or a distance of over 700 feet along the slope. Its continuity beyond the River Level is undetermined. The ore on the 300 foot level does not line up with this shoot and indicates that it may belong to a second shoot roughly paralleling the first but lying 250 to 350 feet further north, where it would line up with the most northern stope in the mine which is in No 1 tunnel.

SAMPLING. The mine was sampled in practically every available place that showed exposure of ore and only average samples were taken with a view of determining the exact character of the exposure and obtaining ore that would be representative when subjected to general mining conditions.

Wherever possible channel samples were taken across the formation. The material as far as practical was cut from fresh fractures. Samples were reduced and quartered and duplicates are held for future reference.

In all 166 samples were taken. The length of the sample to some extent depended on the width of formation and the character of ore. As a rule samples were not over ten feet in length. The lengths and location of samples are indicated on the accompanying sample and assay maps of each tunnel or level.

ASSAYING RESULTS The samples were given to two approved assayers to make determinations of values. In all 545 determinations were made and samples were frequently checked.

From records in the office of the Company, it appeared that a total of 4,000,000 tons of ore had been developed which contained sufficient values to make it commercial and also a large tonnage was indicated as probable ore.

Also that the values in the vein came in stratas or zones. For instance from records on file, the 10 feet lying on the hanging side (Spar Vein) had been found to carry 0.121 oz. gold, 3.14 oz. silver and 1.53% copper.

A second zone 30-50 feet lying immediately under the first zone carried 0.102 oz. gold, 3.86 oz silver and 1.16% copper.

A third zone of highly silicious ore 50 feet wide lying next to the second zone carried 0.14 oz. gold, silver 3.00 oz, 0.50% copper.

One object in sampling and assaying was to determine if the above facts were really so and if a large low grade tonnage existed. Another object was to determine what values had been disclosed by the workings and properly map them. These maps accompany the report.

Representative samples of the three grades or types of ore as indicated above were obtained by blasting fromvarious parts of the mine, lots aggregating 20 tons each. Each lot was evenly crushed and quartered down and assayed with the following results.

Grade No 1

Gold	0.05	oz
Silver	1.45	"
Copper	0.45	%
Iron	8.92	
Zinc	0.69	
Antimony	none	
Arsenic	trace	
Silicia	49.88	
Aluminic oxide	7.13	
Calcium oxide	0.45	
Magnesium oxide	1.46	
Sulphur	8.99	
Barium Sulphate	19.35	
	97.32	%

$8.70 FINL

The probable composition of the above ore is:

Chalcopyrite	1.31 %
Pyrite	18.28%
Barite	19.35 %

Grade No 2

Gold	0.08 oz
Silver	0.81 "
Copper	0.20 %
Iron	6.67
Zinc	0.54
Antimony	none
Arsenic	trace
Aluminic oxide	6.35
Silica	69.94
Calcium oxide	trace
Magnesium oxide	1.32
Sulphur	6.01
Barium Sulphate	GG6.81
	97.84 %

The probable composition of the ore is:

Chalcopyrite	0.58 %
Pyrite	13.95 %
Barite	6.81 %

Grade No 3

Gold	0.09 oz
Silver	0.30 "
Copper	0.02 %
Iron	6.07
Zinc	none
Antimony	none
Arsenic	none
Silica	74.21
Aluminic Oxide	10.55
Calcium oxide	none
Sulphur	5.61
Barium Sulphate	0.45
	97.36 %

The probable composition of the ore is:

Chalcopyrite	0.06
Pyrite	12.98
Barite	0.45

It is evident from the above results that the vein cannot be made to yield any large tonnage of low grade or commercial ore. This fact is emphasized by the results of the assays of numerous samples taken.

Gold apparently is fairly constant thruout the entire width of the vein. Silver calues decline, copper values almost vanish iron and barite lessen, and silica increases as the footwall is approached.

For all practical purposes grades No 2 and No 3 of ore where developed by present workings, are of no commercial value and need not be considered, altho there is no doubt that several million tons of the material exists.

Apparently the average run of mine of grade No 1 ore is also too low in values to pay to work under present conditions and if worked successfully will be from close selection in mining and milling. It is possible that new development along indicated ore shoots will disclose a tonnage sufficiently large to warrant the erection of a flotation mill and permit of closer selection.

Attention is directed to the assay returns from the stope above the main crosscut on the 300 foot level, near station 18, where xxx ore of good value is found. The values are practically all from the gold content which is abnormally higher than thruout the rest of the mine, but copper values are nil.

The highest individual assay #805 gave values of $25.57 per ton. The average for the entire stope was $7.02 per ton.

METALLURGICAL TREATMENT

The mine has been equipped with a blast furnace for making matte having a daily capacity of approximately 100 tons of crude ore per day. The records show that the smelter was run intermittently during the years of 1911, 1912 and 1913, and treated approximately 15,800 tons of ore from which was produced 346.50 tons of matte which yielded $60,187.50 or $173.40 per ton. The ratio~~n~~ of concentration was approximately 46 to 1, an extremely low rate. The value of crude ore smelted, as judged by net smelter returns, was $3.80 per ton. It is therefore obvious that operations were conducted at a loss as combined mining, smelting, general transportation expenses and treatment charges were in excess of the value per ton smelted.

The assay returns on 5500 tons of ore smelted, were

Copper	1.085 %
Silver	2.872 oz
GOLD	.091 oz.

Other records indicate

Barite content of	27%
an iron content of	17.5%

with silica and alumina running up to 30%. Such a type of ore cannot be successfully smelted and recovery of only 67% of the copper proves it conclusively.

Barite is extremely refractory in smelting, owing to infusibility, and its producing a sticky slag in the furnace with a tendency to freeze.

In smelting operations the best ore obtainable in the mine was taken, judging from location of stopes, and was carefully selected in mining. It was sorted after coming from the mine and in the smelter in an effort to eliminate the excessive Barite and still the ore carried a copper tenor only slightly in excess of 1% on the average.

Barite with a specific gravity of 4.3 - 4.5 compares with chalcopyrite having a specific gravity of 4.1 - 4.3 and pyrite with a specific gravity of 4.9 - 5.2. The differences are so negligable that ordinary gravity concentration could not effect a separation and eliminate the Barite.

Concentration tests were made with the Flotation Process. Results demonstrate that the Flotation Process will both concentrate the values in the ore and eliminate practically all the Barite and Silica. A test run was made on 7600 lbs. of ore under personal supervision.

This ore assayed as follows:

Copper	0.44 %
Iron	10.16
Barite	25.63
Gold	0.045 oz
Silver	1.66 oz

The concentrates ran as follows:

Copper	2.11 %
Barite	6.18 %
Gold	0.19 oz
Silver	7.31 oz

The tailings gave traces of both gold and silver, 0.16 % copper and 29.45 % Barite.

As the values were low in the ore sent which represented the average run of mine on the "#par Vein", Grade No 1. The concentrates were naturally low, but concentration was approximately at the rate of 6 into 1. Pulp density was 5% water to 1% solids. Fine grinding was found necessary to liberate the values, 85% of the feed being finer than 200 mesh.

It is only fair to state that an accident occurred to the machinery while making the test which permitted a considerable amount of the middlings to mix with the concentrates, thereby lowering the ratio of concentration. The recoveries made in the test were as follows:

Gold	100 %
Silver	66.1
Copper	65.90
Iron	69.40

Under regular operating conditions, much better results would be obtained. Standard recoveries by Flotation are usually 80% or better.

It is questionable if any other process of concentration will work successfully on the Almeda Mine ores except the Flotation Porcess.

Smaller labratory tests were run on No 2 and No 3 grades of ore. Recoveries on No 2 Grade were:

Gold	78.4 %
Silver	58.3
Copper	65.6
Iron	54.8

Recoveries on No 3 Grade were:

Gold	75.8 %
Silver	67.7
Copper	62.6
Iron	49.5

These tests are valuable only in indicating the adaptability of the Flotation process to the ores. When regularly operating, experience soon acquired and peculiarities of the ore determined ould lend themselves toward making satisfactory recoveries.

The cost of installing an electric driven 100 ton Flotation unit equipped with motors, crushers, rolls, grinding mills, classifiers, filters, pumps, etc., will approximate $70,000.00; a 250 ton unit will approximately cost $110,000.00

ORE TONNAGES

Unfortunately a large part of the openings in the mine are not on the vein and are such as not to lend themselves to the calculation of ore tonnages. Apparently there is an ore shoot as previously mentioned whose dimensions approximate 150 x 600 x 5 feet. After deducting ore formerly extracted 30,000 tons are available which when carefully sorted would possibly yield considerable commercial ore. Its downward extension whould be determined. Other ore is indicated but is not blocked out in any sense in No 1 tunnel, and No 3 level, and no tonnage can be computed, altho reasonably assured

COSTS

Costs are difficult to arrive at owing to abnormal conditions prevailing. Prices are fluctuating constantly and it is hard to determine a fair basis of estimation. The accomplishment of mines operating under similar conditions to those under which the Almeda Mine would operate is a better criterion of costs than are estimates based on fluctuating factors. On a QPP ton a day basis, mining costs would probably be $2.50 per ton

Mining costs including royalty	$1.50	per ton
Transportation costs on a 6 to 1 ration concentration	1.00	"
General expenses and depreciation	.50	1

Smelting charges would vary with the character of the concentrates, but a contract basis under the following conditions could be secured

The smelter to pay for 95% of gold above 0.03 oz at $20 per oz.
The smelter to pay for 95% of silver at N Y quotations, deducting a minimum of 1/2 oz per ton.

The smelter to pay for copper, less 1.3 units, E & M J quotations less deduction of 3 cents per lb.

Treatment charges of $3.50 per ton.

Penalty of 30 cents per unit on zinc above 8%

Settlement upon completion of assaying.

On a concentration ration of 6 to 1, smelting costs would approximate $2.50 per ton on a crude ore basis.

Development of hydro-electric power, the improvement of transportation, the mining of larger ore bodies, and the mining and milling of larger tonnages would materially lower costs.

Left out list of equipment he had included for surface improvements. Surface improvements consist of smelter building, power house, shaft and engine house, boiler house, assay labratory, boarding house, several dwelling houses and mine office.

The smelter is practically obsolete and in a poor state of repair. The balance of equipment is in good condition. Some miscellaneous equipment such as tools, pipes, fittings and accessories are also on the property.

THE STANDARD METALS MINE, directly across the river on the "Big Yank" vein has 390 ft. of openings. The vein has the same general characteristics as at the Almeda, but shows less oxidation and staining. Faulting and fissuring is in evidence as is also the dike of Dacite Porphyry.

Assays of samples taken reveal only traces of copper, gold and silver, and the showing in the mine cannot be considered very promising.

THE RAND MINE, contains 556 feet of underground workings. The vein has the same characteristics as at the Standard Metals Mine, but no Dacite Porphyry is visible.

Assays of samples taken reveal only small values or traces of gold, silver and copper and the showing in the mine is not promising.

THE ROCKY GULCH MINE was caved at the portal and I could not gain an entrance thereto.

THE COLD SPRINGS MINE on the so called "Chieftan Lead" has a fairly good surface showing.

Unfortunately the tunnels were caved and sampling of the mine was not possible.

Considerable ore which was taken out in developing the mine was sorted and shipped, but samples of the dumps remaining were taken giving the following results:

Gold	Trace
Silver	Trace
Copper	1.15%

Another sample showed

Gold	0.03 oz
Silver	0.65 oz
Copper	3.98 %

The vein lies in the greenstone and is practically all quartz and about 26 feet wide. It runs 4500 feet thru the full length of the claims. The ore is chiefly chalcopyrite, disseminated in the vein. Very little pyrite accompanies the chalcopyrite.

It is significant that the vein lies on the slope of the west fork of Galice Creek along which placer mining has been very extensively conducted in the past and is still carried on in a lesser degree.

The surface showings and assays of samples taken from the dumps look attractive.

SUMMARY AND CONCLUSIONS

As a result of investigation of your properties, it appears that no large tonnage of low grade ore exists at the Almeda Mine. One ore shoot seems proven and another is indicated but the width of the shoots is narrow and absolutely developed or blocked out ore is relatively small.

A notable exception of the concentration of values away from the hanging side is on the 300 foot level where some good ore is found. This indicates that there is a possibility of finding other similar occurrences. Some secondary enrichment of values down to permanent water level is probable, but is not markedly in evidence in present workings.

The ore can be readily concentrated by the Flotation method, and the objectionable ingredients removed.

RECOMMENDATIONS.

I would recommend that the extent of the values on the 300 foot level be determined by drifts, raises and winzes which ought to be driven to closely follow the ore. If encouraging results follow the extensions should be sought on the WPP and 500 foot levels. Also definite determination of the second ore shoot lying to the north of the first by making a series of raises.

I would also advise that a crosscut be run starting at Sta. 6 in the 100 foot level on a course due west to try to find the upward extension of the values on the 300 ft. level.

I would not advise the erection of a concentrator until such time as development work discloses more ore of commercial possibilities or until transportation is improved and smelting charges decline.

I heartily advise that a complete survey be made on surface of the Company's properties and regulation monuments be set up.

All new openings made in the mine should be carefully mapped and frequent assays made of material passed thru.

The tunnels on the Cold Springs property should be reopened and development work done to establish ore reserves.

I gratefully acknowledge the courteous assistance received from the officers and employees during my inspection and while the unwatering of the lower levels was in progress.

(signed) John Daniell

Form No. 40—9-52-18M

ORIGINAL

1953
Forest Operation and Conservation Harvesting Permit

Issued July 7, 1953, 1953

No. 11325

Under the provisions of Sections 107-251 to 107-257, inclusive, and Sections 107-1001 to 107-1015, inclusive, O.C.L.A., permission is hereby granted to conduct a Mining operation and to harvest timber or other forest tree products in Josephine County during the year 1953 on the areas specified below:

To

Almeda Mining Company
Galice Store
Merlin, Oregon

By Charles F. Herbert
(Authorized Representative)

SE¼, Sec. 13 Twp. 34S R. 8W

Landowner O. L. Hillis, 290 S. W. Pine Street, Grants Pass, Oregon

Landowner

Landowner

SISKIYOU

Close-Down Zone No. 16

The sections of the laws referred to provide that the following requirements shall be complied with during the term of this permit:

1. The permittee shall use every reasonable precaution which, in the judgment of the State Forester, is necessary in order to prevent the start and escape of fire from said operation.
2. The permittee shall, when so notified by the State Forester, close down any part or all of said operation during any day or part thereof or during any period of time when, in the judgment of the State Forester, the area covered by this permit is extremely susceptible to damage by fire due to low humidity, high wind or temperature or due to the existence thereon of an excessive amount of inflammable debris, or due to a combination of any such conditions.
3. Said permittee shall designate a representative authorized to act on all matters having to do with fire control. Said representative shall be available at all times by direct means of communication with the State Forester, to receive and transmit promptly information as to burning conditions additional precautionary measures necessary and notification to close down his operation or other instructions hereunder.
4. Said permittee shall furnish and maintain such weather instruments as the State Forester may prescribe as adequate in his judgment to determine the relative humidity and temperature of the air, and the direction of the wind; provided, however, that the cost to the permittee of instruments prescribed hereunder shall not exceed twenty-five dollars ($25.00).
5. That both the operator and landowner shall comply with such rules and regulations as may be promulgated by the State Forester and approved by the State Board of Forestry, within the limits of the stated requirements of Sections 5 and 6, Chapter 237, Oregon Laws 1941, as amended, and shall in any event either leave reserve trees of commercial species deemed adequate by the State Board of Forestry under normal conditions to maintain continuous forest growth or provide adequate stocking to insure future forest growth.
6. That in the conduct of logging operations and prior to and during slash disposal by burning as required by Section 107-222, O.C.L.A., it shall be the duty of every operator and landowner to take proper action and to use every reasonable effort to protect residual stands and trees left uncut as a source of seed supply.
7. This permit shall be posted at a conspicuous place at the headquarters of said operation.

Permission to operate power-driven machinery may be suspended for any period or periods when, in the judgment of the State Forester, the above described area or adjoining areas are extremely susceptible to damage by fire due to low humidity, high wind or high temperature, or due to the existence on said described area of an excessive amount of inflammable debris, or due to any combination of such conditions. Permission to harvest timber or other forest tree products may be suspended, after 30 days notice, for failure to comply with the terms of provisions 5 and 6 above.

The same penalties apply for each day's operation during a period or periods when this permit is suspended or revoked as are provided by law for conducting an operation without a permit.

G. Spaur
State Forester

Herbert file

ALASKA COPPER CORPORATION
1013 Smith Tower
Seattle 4, Wash.

ALMEDA MINE

PROGRESS REPORT

June 1, 1953

This report covers the period from April 7 to May 30, 1953.

SUMMARY

The old tram across the Rogue River was put back into service by constructing a new carriage and installing a new pulling cable. It will carry about 500 pounds safely. A pipe line was suspended from an old cable and connected to a rented compressor on the south side of the river. The 520 ft. level was partially cleaned out and a drilling station prepared. There were many delays caused by poor drill parts delivery, compressor break down, and other causes.

Diamond drilling began on May 2. 268 feet of drilling were completed in the month of May. Hole No. 1 was abandoned at 231 feet and the compressor broke down again at 37 feet in Hole No. 2. The ground is hard and has many faulted sections, but the principal trouble was found to be caused by badly leaking drill rods, a development undoubtedly caused by the high copper content of the mine water.

A new compressor has been obtained on a rental purchase contract (Garner-Denver 500 c.f. with Caterpillar Diesel), the water supply will be changed and the drill rods will be repaired. Drilling will resume on or about June 2.

Mapping and sampling are progressing. To date assay returns have given few significant results. Panning has located a gold zone at the surface, but its relationship with the other structures has not been work out.

An interpretation of the geological structures is offered in this report. Apparently all faults are largely pre-mineral and can be used as guides to possible ore zones. Tension zones under a quartz diorite dike appear to be favorable. Drilling and sampling will develop this theory.

GEOLOGY

The Almeda Mine is located on the Big Yank Lode, a name locally given to a highly mineralized zone along the contact between slates and greenstones. The zone is said to have been traced for thirty miles or more and is the apparent source of the gold placers in Galice Creek and the Old Channel.

Both the slates and greenstones belong to the Galice series (Jurassic). Strike is about N 25 E and dip is steep to the East. The principal component of regional stress is believed to have been directed in a S 65 E direction.

The contact zone, fromaa point about a half mile north of the river to an undetermined distance south of the river was occupied by a rock identified by Diller of the USGS as a quartz porphyry. In some respects this rock appears to be a replacement of a medium coarse grained flow rock, as an apparent gradation from quartz porphyry to altered greenstone has been noted in the bed of the Rogue River and on the hillside south of the river. A similar greenstone appears to be intercalated with the slates at the quartz porphyry contact in the mine, but these may possibly be intrusive. On the other hand a rock very similar to and possibly identical with the quartz porphyry has been found as irregular intrusives in the slates (always with pronounced metamorphism of the slate at its boundaries.)

The quartz porphyry was badly fractured and recemented by silica. It is probable that quartz-diorite dikes were intruded shortly after the first period of fracturing and cementation. These dikes, one of which is well exposed in the underground workings, have a sharp contact with the quartz porphyry; sometimes the contact is faulted. The dike strikes more northerly than the bedded rocks and dips to the west rather than to the east, as do the bedded rocks. There is little contact metamorphism adjacent to the dike, but silification and pyritization are common in the dike and the quartz porphyry at the contact. An increase in the gold content of the quartz porphyry at its contact with one or both walls of the dike is usual. A finer grained, more basic phase of the dike rock has also been noted at its contacts. Alteration (principally chloritization) of the dike rock seems to be related to faulting.

A rough parallelism among the principal copper orebodies, the more massive bands of pyrite and barite, and the dike suggests a shift in the direction of regional stress so as to produce openings along a north-south direction.

The zone of hydrothermal alteration (principally silification and sericitization) is wider along the river bed than on the hill north of the river. This fact suggests a source of hydrothermal solutions along a southwesterly course, an hypothesis that may be somewhat strengthened by the regional distribution of other gold prospects in that direction (i.e. the Oriole, Argo, etc.)

It is believed that renewed faulting along shear planes that were developed in the earlier regional deformation was accompanied by or followed by hydrothermal alteration and metallization. Within the ore zones the quartz porphyry was changed to a mass of pyrite, barite and quartz with small amounts of chalcopyrite, sphalerite and possibly other ore minerals. Barite is often a principal constituent of the rock near the slatecontact. West of this contact the rock becomes more siliceous but everywhere the quartz porphyry carries finely divided pyrite, ranging in amount from a few per cent to nearly fifty per cent of the rock mass.

The copper orebodies appear to lie between shear faults and underneath the quartz-diorite dike. The northwestarly and northeasterly striking faults form alternately facing troughs that pitch to the south. Where a trough opens to the east (i.e. on the side that faces the slate) the copper ore appears to be wide and firm and to develop the maximum length of ore shoot. Where a trough faces west, the apex of the trough is crushed and the ore is irregular and badly faulted.

The gold orebody on the 320 foot level is inaccessible and no geological map is available. However, a letter written by Mr. P. H. Holdsworth in 1944 gives some information. From this letter and from the appearance of some of the ore on the dump it is deduced that the orebody consisted of irregular stringers and wavy bands of quartz and pyrite with a predominantly northerly strike in the siliceous (low barite) phase of the quartz porphyry; that the ore was bounded on the west by a westerly dipping dike and on the north by an easterly striking fault with a steep dip to the south. From Holdsworth's map of his drilling it would appear that he did not adequately explore either the upward or downward continuation of the orebody if it occurs solelywwithin the angle formed by the dike and the fault.

A projection of the fault pattern from the 520 foot level would indicate that the gold orebody lies in the westerly facing trough formed by shear faults v and f (see map), and it is possible that the fault considered to be the northerly limit of the orebody is equivalent to tension fault e or e'.

As the purpose of the present investigation is to determine the extent of the better grade of gold ore, it is suggested that drilling be directed to explore tension zones underneath the quartz-diorite dike.

EXPLORATION PROGRAM

The tension zone in the trough c-f can be readily explored by diamond drilling from the 520 foot level down to the 320 foot level.

Likewise diamond drilling fo the trough a-c beneath the dike can be done by diamond drilling. Although this trough enters a zone of compression in a westerly direction its exploration is easy from the present drill station and should be done.

Indications of minable ore in either trough would be sufficient reason for opening the shaft down to the 320 foot level for further exploration by drifting or drilling or both.

A verification of the theory that the better gold ore is in the tension zones of the troughs, under the dike, and in the more siliceous part of the quartz porphyry would indicate that exploration of the large trough g-h should follow. This work could be done most readily by cleaning out the 520 foot level to the last westerly crosscut and drilling from there in a general northwesterly direction. Rehabilitation of the 620 foot level might also be advisable, but the cost might be high.

Although diamond drilling of the copper orebodies is not presently contemplated their study and sampling will continue. Zinc has been discovered and it is possible that the combined metal content of copper, zinc, gold and silver, and possibly barite will be sufficient to make these bodies interesting. A milling test of typical ore will be made. This test will have as one of its aims the production of a barite concentrate to determine if such a concentrate will be saleable.

Charles F Herbert

Charles F. Herbert

andy - from Hist. Soc. Library
History of Douglas, Josephine, & Jackson

Mammoth
albright
Calumet

History of the Almeda Mine

① Mammoth and Yank Ledges were discovered in December 1874. In less than a month 200 claims were taken on the mineralized outcrops. Prospectors from as far away as California swarmed into the area (in the middle of the rainy season). Capt. Pressley boated several tons of provisions down to the new camp from the vicinity of Vannoys Ferry. Saunders built a hotel and the firm of Gupton and Buck put up another. Some Ashland people incorporated a mining company with capitalization of $1,800,000 to operate the mines. Quartzville (or Galice City) a new town at the mines was surveyed into lots that sold for $50.00 apiece and Yankville (or Lumberville) was established a mile above Quartzville. Lumber came form the mouth of Jumpoff Joe, but later a sawmill was built at the mines. The whole thing declined very rapidly (apparently within a few months). Three years later the Sugar Pine Ledge was discovered and worked by the Green Bros. At that time ~~xx~~ it was the only successful quartz mine working in Oregon. Two arastras were built to process ore having a reported yeild of $30-80 Dollars/ ton.

①.7, Walling, A.C. 1884, History of Southern Oreg. Hist. Soc.

Almeda Bull 14-C (N) E. bank of R River 4 mi N of Galice
in SE $\frac{1}{4}$ sec 13 T34S R8W

T35S R8W

Sugar Pine sec 3 + 4

Wells Galice quad "Great Yank Lode"

(P. 6 missing)

MINING.

PROPOSED OPERATIONS:

For operations under the above contract and lease mining will be done mostly in workings above the shaft and the ore will be broken for a width of 15 to 25 feet along the contact from which can be taken a mixture of ore well adapted to treatment by the proposed plant, and which will range in value from $6.00 to $12.00 per ton.

MILLING.

Milling operations for concentration of the silicious and second grade ores will be conducted briefly as follows:

(1) Through a Blake Crusher 18" X 30 ", product size.........2"

(2) Through Roughing Rolls 14" X 42", product size.......1/2 "

(3) Through Trommel Screen, product size, 1/2",3/8",1/4",1/8 "

(4) Over coarse Jigs, product Base Ore......Silicious Ore

(5) Jig concentrates(base ore) to smelter bins, Jig tails (silicious ore) to Ball Mills, product size 30 mesh.

(6) Through Cone Classifiers, product sands and slimes.

(7) Sand over Sand Tables, product concentrates.

(9) Concentrates prepared for smelting.

SMELTING.

Smelting operations for the treatment of Base Ore Concentrates and Custom Ore will be done in a Blast Furnace, size 42" X 72", capacity 150 tons per day, or 42" X96" capcity 200 tons.

The product from smelting will be Gold, Silver and Copper matte, prepared for market, and which should have an average value of $250.00 per ton from an $8.00 ore.

EQUIPMENT.

Of equipment now on the mine the following will be used for operations under the above contract and lease:

Air Compressors, Mining machinery and Smelter equipment.

All buildings now upon the property will be used. The ore bins with a capacity of 3000 tons are sufficient in every way for requirments of the new furnace and will require but small repair to be in good condition.

Power now upon the property will be discarded and arrangments made to use electric power from the California-Oregon power Company.

For operation of the mine, mill and smelter, SIX motors will be required with a combined energy of 490 H. P. and these motors complete upon the ground will cost about................$7000.00

Crushing and concentrating machinery conplete upon the ground will cost about..$26,000.00

Furnace and equipment upon the ground............$ 7,000.00

Preparation of mill site.........................$ 2,500.00

Building material upon the ground about...........$10,000.00

Labor for construction...........................$15,000.00

Briquetting plant................................$ 2,000.00

Slime tables or Flotation plant..................$ 5,000.00

Total cost of proposed plant complete $74,500.00

Estimates in detail of the above costs have been made but the sums are offered here in round numbers covering all estimates on a broard margin. But it is proposed to have a total sum of $100,000.00 available for the purpose of this contract and lease.

OPERATING COSTS.

Mining;		
Power per day	$ 25.00	
Labor " "	$350.00	
Timber " "	$ 75.000	
Supplies	$150.00	
Total per day	$	600.00
Concentrating;		
Power per day	$ 40.00	
Labor " "	$ 60.00	
Total per day	$	100.00
Smelting;		
Power per day	$ 25.00	
Labor per day	$ 75.00	
Coke " "	$160.00	
Total per day	$	260.00
Miscelleanous;		
Freight per day	$ 90.00	
Gen. Exps. and Ins.	$150.00	
Total per day	$	240.00
Treatment cost $4.00 per ton on 300 tons per day		$1,200.00

The above operating costs have been been prepared in detail based upon current market prices for material and supplies, standard wages for labor, ect., but submitted here in round numbers intended to cover actual costs by a good margin.

PRODUCTION.

Market value of ore to be treated $9.00 per ton

Mined and treated per day 300 tons @ $9.00 per ton $2,700.00 gross

Recovery on ore treated 75 per cent $2,025.00 net

Expense of ore handling, inclusive $4.00 per ton.

Mined and treated per day 300 tons @ $4.00 per ton $1,200.00 cost.

Net profit on ore per day 300 tons @ $2.75 per ton $ 825.00 net.

Profit per month	25 days	$20, 625.00
Profit per year	300 days	$247,500.00

The ore to be treated will range from $6.00 per ton to $12.00 per ton and an average market value of $9.00 per ton has been chosen for the above estimate not because that particular average must be maintained, but rather in order to average the operating costs which would be lower accordingly for a $6.00 ore than for a $12.00 ore but the profits, depending upon the grade of ore treated, may run from $300.00 at the lowest up to $1500.00 per day

CUSTOM ORE.

The foregoing contract gives privilege to treat 50 tons per day of custom ore on a flat rate of $5.00 per ton. This will bring to the smelter a variety of ores that can be treated at a profit and at the same time be used to give a smelting mixture that will improve furnace operation.

Also affording a home market this will permit development of properties within reach of the Almeda on a profitable basis and particularly some properties of the Western Metal Mines Company which can produce a good tonnage of ore of a character that will be very helpful to furnace operations at Almeda.

GENERAL REMARKS.

The foregoing report speaks for its self as to the oppertunity offered in this Contract and Lease which summed up is briefly, this;

Contract Price..............................$200,000.00

Secured by a lease and a valuation of $6,183,200.00

Costs of the Contract.......................$100,000.00

GENERAL REMARKS Continued.

Profit on the Contract ONE HUNDRED PER CENT $100,000.00

A proposition for the up-building of the mines of the district.
A project of importance to businessmen and property owners.
A means of putting the Almeda Mine on a successful, producing basis.

In closing it is desirable to say again that each and every statement of this report can be duly and completely verified and particular reference for that purpose is offered as follows;

Valuation of the Almeda Mine;

Almeda Mines Company, reports and records,	Portland, Oregon.
Oregon Corporation Department, Commissioner	Salem, Oregon.
Oregon Bureau of Mines	Corvallis, Oregon.
Iowa Corporation Department, Commissioner	
Ohio Corporation Department, Commissioner	
Grants Pass Commercial Club	Grants Pass, Oregon.
P. B. Wickham, formerly Almeda Supt., records,	Grants Pass, Oregon.

Value of Matte production;

Tacoma Smelting Company, H.Y.Walker, Mgr.	Tacoma, Wash.
Kennett Smelter, G.W.Metcalfe, Mgr.	Kennett, Calif.

Ore values;

E.R.Crouch, assayer,	Grants Pass, Oregon.
H.P.Holdsworth, assayer,	Seattle, Wash.
A.G.Mather, assayer,	Clackamas. Oregon.

Machinery prices;

Allis-Chalmers Mfg. Company,	Milwaukee, Wis.
Chalmers and Williams	Chicago, Ill.
Colorado Iron Works	Denver, Colo.
Joshua Hendy Iron Works	San Francisco, Cal.
General Electric Company	Portland, Oregon.

Details, reports, records and further reference available.

Investigation solicited.

Respectfully,

....

OPERATION OF ALMEDA MINE AND SMELTER BY - - - - - - - - - - - WICKHAM & WICKHAM.

September, 1915, to December, 1916.

- -

Approximate distribution of total expense:

Mining	7000 tons at $2.00	$14,000.00	
Smelting	5000 tons at $3.00	15,000.00	
Re-Timbering and general repair		9,000.00	
Maintenance of mine, smelter, roads, etc		9,600.00	
Fire and labor insurance		1,000.00	
Construction		1,400.00	
Exploration		2,600.00	
Equipment		500.00	
General Expense, Legal Costs, etc		1,600.00	
Freight on Matte		1,390.73	
Treatment charges on Matte		837.15	
Total expenditure			$56,927
Slag loss on ore treated		14,071.19	
Market discounts on Matte Sales		4,685.23	
Total expense			76,084

- -

Mining Operations:

Ore mined and smelted	5000 tons
Fines mined in stock	1200 tons
Ore broken, on hand	800 tons
Total	7000 tons

Assay value of ore mined

Gold .117 ozs. Silver 4.39 ozs. Copper 1.13%		
Gross value on average market price	$11,5595	
Total gross ore value 7000 tons at 11.5595		$80,916
Ores and fines in stock 2000 tons at 11.5595	23,119.00	
Gross value of ore smelted		57,797

- -

Smelting Operations:

Slag produced	3500.00 tons
S SO2 and SO3 gas	1345.52
Matte produced	154.48
Total ore treated	5000 tons

Assays Value of ore treated:

Gold .117 ozs. Silver 4.39 ozs. Copper 1.13%		
Gross value on average market price $11.5595		
Total ore value 5000 tons at 11.5595		$57,797
Slag loss on 5000 tons at $2.8142	$14,071.15	
Gross proceeds from ore smelted		43,726
Value of scrap Matte and slag on hand	1,100.00	
Gross value of Matte produced		42,626

Matte Transaction:

	Matte produced 154.48 tons		
Assay Value of Matte			
	Gold 3.177 ozs. Silver 114,91 ozs. Copper 25.32%		
	Gross value on average market price $275.93		
	Total matte value 154.48 tons at $275.93 per ton		$42,625.5
Market Discounts 154,48 tons at $30.32 per ton		$4,685.23	
	Net value of matte produced		37,940.3
Freight on Matte	$1390.73		
Treatment charge on Matte	837.15	2,227.88	
	Net returns from matte sales		35,712.4

- -

Cost of mining and smelting 5000 tons at $5.00		25,000.00	
	Profit on mining and smelting 5000 tns		$10,712.4
	Running time of furnace 50 days		
	Average capacity 100 tons		
	Concentration 32.37 tons to one		
	Coke consumption eight per cent		
	Gross out-put per day $852.51		
	Net out-put per day $758.81		
	Operating profit per day $214.25		
	Total expenditure		56,927.8
Matte sales plus ore and matte on hand		62,159.35	
	Balance		$5,231.4

- -

INTRODUCTORY

Brief History of Mining in Southwestern Oregon.

Gold was discovered in southwestern Oregon in 1850, following the first rush into the gold fields of California.

The gold was first found in gravel deposits along the creeks and river bars and later in ancient river channels.

Placer mining flourished in Douglas, Josephine, Jackson and Curry counties for many years during which time millions of dollars in native gold was recovered and operations advanced from the crude methods of pan and rocker to the modern methods with hydraulic equipment.

Among the richest diggings of that time were those at Galice notably Galice Creek and other creeks which flowed easterly from various points within the Galice mineral belt and the bars of Rogue River below Galice, particularly the bar at the Almeda Mine where the oxidized surface ores of that huge deposit had been eroded down giving up their wealth of free gold to the further enrichment of the river deposits and it is known that fabulous sums were recovered from the adjacent bars.

While most of the small and shallow gravel deposits are long since worked out, there still remains in Southern Oregon some of the largest placer mines in existence, foremost among which is the Old Channel Mines at Galice.

In the beginning little was known of quartz mining nor was it generally known that the vast amount of native gold found had originated from veins and pockets and it was not until a later day that attention was directed toward the ore deposits and even then for many years nothing was sought only pockets and surface enrichments of small free gold veins.

After exhausting the more prominent surface deposits of quartz and placer, mining activities decreased and with exception of the equipment and operation of some of the larger placer mines little was done until since about 1895 when some interest in quartz mining became evident but the greater development has been since 1900 and it is a lamentable fact that quartz mining in Southwestern Oregon has never received the attention to which it is entitled and in few instances has sufficient development has been done to afford a demonstration.

The lack of interest and capital for development of these mineral resources is due no doubt to amny causes but mostly to the said experiences of those to first undertake development of quartz properties in Southern Oregon and while many of these failures could be attributed to worthless properties still much of the failure has been due to lack of capital, mismanagement, of inexperience and more especially to a poor understanding of the arrangement and characteristics of the mineral belt but withall the country received a bad name while there are no doubt many valuable properties which require only development to become paying mines. However, Oregon is not peopled with a mining class and outside capital is reluctant to go into an old mining locality with no real large paying mines in operation.

In the location of the Southern Pacific Railroad there lies, no doubt, a very prominent reason for neglect of Southern Oregon's most important mineral belt.

It chanced that, in building, this road ran very closely along and almost parallel to the east mineral belt which received on that account much more attention and while many rich deposits of ore were found it was later learned that in few instances did the ore go down and from this arose a belief that the ore bodies of Southwestern Oregon were only bunches, where truthfully speaking it seems that these explorations had been on a parallel or one of a system of belts of which the main belt lies further West. And while the main belt was more inaccessable, the ores generally lower grade upon the surface and oftimes basic still later development has shown the ore bodies to be permanent and values to improve with depth as in the case of properties at Galice where excellent results have been had for the amount of development done, the greatest examples of which may be found at the Almeda Mine where the most development has been done and greater depth attained.

Brief Geological Description of Galice District.

To better illustrate the position and conditions of the Galice District it is well to note that one of the most important mineral belts of this continent is that lying northerly and southerly along the Pacific Coast and extending from Mexico to British Columbia.

There are places upon the course of this belt where no mineral deposits of importance have been found but whether the original formations are actually replaced with later intrusions of non-mineral bearing rocks of whether the original formations and mineral belt is really continuous being merely overflowed in places by more recent occurences of barren rocks, is entirely a matter of conjecture but it is a notable fact, however, that important ore deposits are to be found in a reasonably direct north and south line through Mexico, California, Oregon, Washington and British Columbia.

In Southwestern Oregon this mineral belt lies between the Cascade Mountains and the Coast Range covering a width of about 50 miles and undoubtedly being an unbroken continuation of the vein system of Northern California.

Through Southwestern Oregon the main mineral belt seems to be divided into three distinct vein systems or belts between which is to be found little except barren formation

The Galice District is upon the center one of these three belts being divided from the East Belt by some ten miles of barren formations.

The principle formation is slate, divided toward the center by a huge serpentine dike and toward the east side are large occurences of Grante. The slates are broken occasionally by intrusions of igneous rocks and the strata of slate and all fractures strike nearly due North and South.

Beginning upon the East contact with the Slate and crossing the Galice Belt westward the prevailing formations are first: A Belt of Porphry about 1500 feet in width within which are found a number of well defined Quartz Porphyry dikes, which are highly silicious, all more or less mineralized, containing some values in gold and silver with occasional evidence of copper. The Porphiries contact upon the West with a Greenstone formation 2,000 to 3,000 feet in width which is fissured at intervals and in places large schist dikes occur from movement on the fracture. Within this formation are many small quartz veins carrying values mostly in gold and an occasional occurence of base ore with values in gold, silver and copper.

To the West of the Greenstone the formations are Dioryte, Quartzyte, and Mica-schist, occuring alternately in narrow stratas upon the contacts of which are numerous quartz veins of more or less promise.

The veins and ore deposits of the Galice District or center belt differ from those of the East Belt, the veins being generally larger and better defined, the ore mostly lower grade upon the surface but in larger deposits with better values in depth.

INDEX TO REPORT

P.6 missing

REPORT ARRANGED FOR THE

ALMEDA CONSOLIDATED MINES COMPANY

- - - -

September - 1914.

- - - -

LOCATION

The Almeda Mine is located at Almeda, Oregon, in the Galice Mining District of Josephine County. It is situated upon the north side of the Rogue River about 18 miles from the Southern Pacific Railroad at Merlin, Oregon, and 15 miles from the same railroad at Leland, Oregon.

DESCRIPTION OF CLAIMS:

The Almeda Mine, more particularly known as the North Side Mine of the Almeda Consolidated Mines Company consists of group of THREE QUARTZ CLAIMS, each 600 feet in width and 1500 feet long, amounting in all to 60 acres.

TITLE:

The property is held under the Mineral Act, not patented but subject to patent upon application. It was purchased from the original owners by J. F. Wickham, R. C. Kinney and O. M. Crouch and was acquired by the Almeda Consolidated Mines Co., by purchase through consolidation, acquired by the Almeda Mines Company by purchase and reorganization.

DESCRIPTION OF VEIN

The Almeda Ledge originally called the "Big Yank" has been known since early days to contain mineral values but being low grade upon the surface and basiz in character, the possibilities were not recognized. The Almeda Lode is a Contact Fissure Vein lying upon the East Contact of the Galice Mineral Belt, between the Porphyry upon the West and Slate on the East. The width varies between 100 and 200 feet, the general strike being almost due North and South and from present indications the dip is toward the East, the slate strata of the hanging wall standing at an angle of about 15 degrees from vertical toward the East.

This ledge may be found as far North as Douglas County, Oregon and undoubtedly extends South into California and may be properly termed the Mother Lode of the Galice Mineral Belt.

Like all veins of this character, the ore is by no means continuous along the length of the entire lode but is confined to shoots or enrichments where intrusions, fractures and other favorable conditions have made possible the formation of ore. The most important occurence of ore foundupon the lode is at the Almeda Mine but others are known to exist at the Rocky Gulch Mine and Rand Mine, both properties of the Almeda Consolidated Mines Company.

DESCRIPTION & GEOLOGY OF ALMEDA MINE

The ore body of this mine is the largest known to exist in the Almeda Lode and one of the largest in the world.

Beginning at the north bank of Rogue River, the deposit crops boldly upon the surface for a distance of about 2300 feet in length, having a width of over 200 feet between walls and reaching an elevation of about 800 feet above the river at the north.

The ore body has been proven underground for a length of 944 feet with ore in evidence both North and South of the present workings. A depth of 420 feet has been reached by tunnel and a depth of 535 feet by vertical shaft and from this development and surface conditions, the following geological facts seem evident.

After the folding of the slates and occurence of the fissure the deposition of ore would seem to have occured in three epochs. First the wide aperture was filled with highly silicious material through which the quite dilute ascending gases and waters perculated causing some enrichment of the entire deposit and since the aperture probably filled and solidified from the lower of foot wall and gradually closed toward the hanging wall, the gases and ascending water became more confined and concentrated as the aperture closed accounting for the gradually increasing values toward the slate or hanging wall. After the first filling of the aperture had partially or entirely solidified, there occured several intrusions along the slate contact, the largest of which occured at the Apex at the North end of the ore body. These intrusions shattered and faulted the silicious filling along the Slate wall for a width of 20 to 40 feet, making possible a further circulation of mineral bearing solutions and subsequent greater enrichment of that strata. The Slate wall being irregular in long curves, there seems later to have occured a lateral movement bringing the depressions of the wall opposite those of the deposit and thus forming a succession of apertures, varying in length from 50 to 300 feet, and in width from nothing to 20 feet. These apertures were thereafter filled by solutions from the older deposits creating a secondary, base, ore. Since complete deposition of the ores, local forces have been active and as a result of circulating waters, values have been carried downward. To what distance down is still a question as the zone of the secondary ores or of re-precipitation has not yet been reached and local waters still continue downward although at the depth reached, the ores show better values and less evidence of leaching while near the surface there is considerable exidized ore and other ores which have plainly lost value through leaching by water and dilute acid solutions. The lowest workings are only about 300 feet above sealevel and while that can be said to have no particular bearing, still it seems reasonable to suppose that "permanent water level" (as construed to mining) might be expected at little depth below the present lowest workings.

Note: Much credit for solution of the foregoing geological problem is due Mr. W. H. Bradley of Chicago, Illinois, who made an examination of the Almeda Mine during February 1913.

DESCRIPTION OF ORES.

While theentire width between walls is over 200 feet development has thus far shown the ore to be of commercial value for only about half that width and though there may be places where the enrichments are wider, yet there are other places of less width and also leaching zones of little value but the deposit is considered of commercial value for a width of 100 feet. However, for the purpose of this report the ore will be calculated as a compact deposit 50 feet wide.

As previously stated, the ore is divided into three distinct stratas, varying in value, character and quantity of depending upon faults, fractures and other conditions of the wall and deposit. These stratas will be described as

Low Grade, Second Grade and Base Ores and will be further referred to as such.

The Low Grade Ore is calculated to have an average width of 30 feet, a value of $4.00 per ton, with the following characteristic analysis:

Si 02 60. Fe 11. CaC03 3. Ba S04 7. Al2 03 6.5 S12 Cu.5.

The Second Grade Ore is calculated to have an average width of 15 feet, a value of $6.00 per ton with the following characteristic analysis:

Si 02 40. Fe 14 Ca C03 3. Ba S04 16. Al2 03 7. S 17 Cu 1.

The Base Ores, occuring in shoots are calculated to have an average width of 5 feet, a value of $8.00 per ton with the following characteristic analysis:

Si 02 23. Fe 17. 5 Ca C03 3. Ba S04 27. Al2 03 7.5 S 20 Cu 2.

The foregoing applies to ores above the shaft, while in the shaft exploration has not been sufficient to admit of giving an average value or characteristic analysis. However, it can be said that ores in the shaft levels have shown an increased value as seen by assays.

Following will be found a list of assays from all "bin lots", and "mine sample "records available at this writing.

NO. 1 ASSAYS.

Date Mine Samples by P. B. Wickham

1910 Description	12¢ Copper %	$20.00 Gold Oz.	.50¢ Silver Oz.	Value.
Tunnel A Base Ore	1.2	.16	$9.40	$10.78
Tunnel A Base Ore	1.7	.08	5.17	8.26
Tunnel B " "	2.0	.20	4.20	10.90
Tunnel B " "	1.2	.08	1.66	5.31
Tunnel B " "	2.0	.08	1.60	7.20
Level No.1.	3.0	.04	.96	8.48
Tunnel A 2nd Grade & Base Ore	1.0	.20	5.04	8.92
Level No. 1. Base Ore	1.3	.16	1.40	7.02
Level No. 1. Base Ore	1.6	.12	2.68	7.68
Tunnel A Base Ore	1.1	.20	9.60	11.44
Tunnel A Base Ore	1.0	.12	3.84	6.72
Tunnel B Base Ore	2.1	.36	3.84	14.16
Tunnel C Base Ore	1.1	.20	2.53	7.90
Tunnel A Base Ore	1.2	.16	2.36	7.26
Tunnel A Base Ore	1.2	.30	2.30	10.03
Tunnel B Base Ore	1.1	.20	3.60	8.44
Tunnel A. Second Grade Ore	1.2	.12	8.04	9.30
Tunnel A. Second Grade Ore	1.0	.14	9.26	9.83
Tunnel A. Second Grade Ore	.6	.18	5.50	7.79
Tunnel A. Second Grade Ore	.8	.18	1.70	6.37
Tunnel A. Second Grade Ore	.9	.20	1.78	7.05
Tunnel A. Second Grade Ore	.7	.28	6.52	10.54
Tunnel A. Second Grade Ore	.5	.28	.80	7.20
Tunnel A. Second Grade Ore	.3	.14	4.86	5.32
Level No. 1. Second Grade Ore	.9	.18	2.42	6.97

NO. 2 ASSAYS.

Date Mine Samples by P. B. Wickham.

1911 Description	12¢ Copper	$20.00 Gold Oz.	50¢ Silver Oz.	Value
Level No. 3. Hand Samples Base Ore	4.0	.14	$3.50	$14.15
Level No. 3. " " " "	11.5	.20	8.00	35.60
" " " " " " "	5.8	.10	5.62	18.73
" " " " " " "	4.2	.08	3.88	13.62
" " " " " " "	2.8	.08	2.92	9.78
" " " " " 2nd Grade	2.2	.04	1.56	6.86
" " " " " " "	1.0	.04	.52	3.46
" " " Nine " Base Ore	2.1	.10	1.30	7.69
" " " " " " "	4.9	.16	5.37	17.74

Date Mine Samples by P. H. Holdsworth

1911	Description	12¢ Copper	$20.00 Gold Oz.	50¢ Silver Oz.	Values.
July 10	Tunnel B. Base Ore	1.3	.09	.87	$5.35
to	" B. " "	1.7	.08	170	6.53
Nov. 10	" B. " "	1.5	.09	1.83	6.31
	" B. " "	2.1	.12	5.29	10.08
	" A. " "	1.1	.15	9.42	10.35
	" A. " "	1.1	.10	8.90	9.09
	" B. " "	1.6	.19	4.96	10.12
	" A. " "	1.3	.12	9.23	10.13
	Level No. 1 ?	?	.08	10.47	6.83
	Tunnel B. Base Ore	1.1	.10	2.06	5.67
	Tunnel A. Base Ore	1.1	.12	3.09	6.58
	Tunnel A. Base Ore	1.2	.09	1.56	5.46
	Tunnel B. Base Ore	2.4	.15	2.67	7.69
	Tunnel C. Base Ore	1.1	.15	5.60	8.44
	Level No. 3. Base Ore	5.3	.81	9.66	33.75
	Tunnel B. Base Ore	1.5	.14	1.86	7.33
	Tunnel A. " "	1.0	.12	5.72	7.66
	Tunnel B. Base Ore	2.3	.24	7.63	14.13
	Tunnel B. Base Ore	1.6	.20	4.55	10.11
	Level No. 3 " "	3.4	.03	6.39	11.95
	Tunnel A. Base Ore	1.4	.06	4.20	6.66
	Tunnel B. Base Ore	1.3	.17	4.35	8.69
	Level No. 3. Base Ore	2.4	.08	4.81	8.56
	Tunnel B. Base Ore	1.7	.12	3.60	8.28
	Tunnel B. Base Ore	1.6	.07	2.59	5.53
	Tunnel B. Base Ore	2.7	.17	2.74	11.25
	Level No. 1. Base Ore	2.1	.18	21.01	19.14

NO. 4. ASSAYS.

Date Mine Samples by P. H. Holdsworth

1911	Description	12¢ Copper	$20.00 Gold Oz.	50¢ Silver Oz.	Values
July 10	Tunnel A. Base Ore	1.6	.11	7.27	$9.67
to	Level No. 1. Base Ore	1.3	.21	19.98	17.31
Nov.10	Tunnel C. Base Ore	1.9	.24	5.35	12.03
	Tunnel B. Base Ore	5.1	.18	2.76	18.19
	Tunnel A. Base Ore	1.9	.16	4.84	10.18
	Tunnel B. Base Ore	1.5	.12	2.82	7.41
	Tunnel B. Base Ore	1.7	?	?	4.08
	Tunnel B. Base Ore	1.0	?	?	2.40
	Level No. 3. Base Ore	2.3	.14	3.06	9.85
	Tunnel A. Base Ore	1.4	.16	5.84	9.48
	Tunnel A. Base Ore	1.4	.12	6.48	9.00
	Tunnel B. Base Ore	2.3	.10	3.15	9.09
	Tunnel B. Base Ore	1.5	.14	2.86	7.83
	Tunnel A. Base Ore	2.5	.20	5.80	12.90
	Tunnel A. Base Ore	3.3	.10	6.10	12.97
	Tunnel A. Base Ore	1.7	.09	3.31	7.53
	Tunnel B. Base Ore	2.6	.07	3.35	9.31
	Tunnel A. Base Ore	1.6	.20	2.26	8.97
	Tunnel A. Base Ore	1.6	.22	2.65	9.56
	Tunnel A. Base Ore	1.9	.12	6.08	10.00
	Tunnel B. Base Ore	2.9	.16	2.84	11.58
	Tunnel A. Base Ore	1.4	.18	9.22	11.57
	Tunnel A. Base Ore	4.1	.22	14.32	21.40

NO. 5 ASSAYS.

Mine Samples by P. H. Holdsworth.

1911	Description	12¢ Copper	$20.00 Gold Oz.	50¢ Silver Oz.	Value.
July 10	Tunnel C. Second Grade Ore	.7	.19	.81	$5.88
to	Tunnel A. Second Grade Ore	.5	.15	6.85	7.62
Nov. 10	" C. " " "	.9	.22	4.81	8.96
	" A. " " "	.4	.09	6.00	5.76
	" C. " " "	.9	.18	4.87	8.19
	" A. " " "	.7	.15	1.87	5.61
	" A. " " "	.9	.09	1.39	4.65
	" A. " " "	.8	.05	6.19	5.01
	" B. " " "	.9	.04	1.92	3.92
	" A. " " "	.6	.09	5.88	6.18
	" B. " " "	1.4	.06	.94	5.03
	Level No. 1 " " "	?	.09	7.10	4.35
	Level No. 1." " "	.9	.21	2.79	7.75
	Level No. 1 " " "	.5	.04	3.49	3.79
	Tunnel A. " " "	.7	.14	3.86	6.41
	Tunnel A. " " "	.9	.13	5.55	7.53
	Tunnel A. " " "	.5	.18	7.52	8.56
	Tunnel C. " " "	1.1	.20	1.60	7.44
	Tunnel C. " " "	1.3	.18	1.92	7.68
	Tunnel B. " " "	.9	.12	1.72	5.42
	Level No. 3 " " "	.4	.50	2.40	12.16

NO. 6 ASSAYS.

Date Mine Samples by P. H. Holdsworth

1912	Description	12¢ Copper	$20.00 Gold Oz.	50¢ Silver Oz.	Value.
July 10	Tunnel C. Low Grade Ore	.2	.08	.72	$2.44
to	Tunnel A. Low Grade Ore	.1	.07	.54	1.91
Nov. 10	Tunnel B. Low Grade Ore	?	.05	.54	1.27
	Tunnel B. Low Grade Ore	?	.04	.54	1.07
	Tunnel A. Low Grade Ore	.5	.08	.92	3.26
	Tunnel C. Low Grade Ore	.6	.11	2.43	4.85
	Tunnel C. Low Grade Ore	?	.11	1.14	2.77
	Tunnel C. Low Grade Ore	?	.10	.45	2.23
	Tunnel C. Low Grade Ore	?	.16	.64	3.52
	Tunnel C. Low Grade Ore	?	.10	.74	2.37
	Tunnel C. Low Grade Ore	?	.10	.80	2.40
	Tunnel C. Low Grade Ore	.5	.22	.78	5.99
	Tunnel C. Low Grade Ore	.2	.14	.86	3.71
	Tunnel C. Low Grade Ore	.6	.08	.92	3.50
	Tunnel C. Low Grade Ore	.5	.16	1.08	4.94
	Tunnel C. Low Grade Ore	.5	.16	.68	4.74
	Tunnel B. Low Grade Ore	.8	.01	.74	2.49
	Level No. 2 " " "	.3	.06	.84	2.34
	Level No. 2 " " "	.5	.10	.50	3.45
	Tunnel B. " " "	.8	.08	.92	3.98

Note: The above list of assays appear lower than the real value, owing to the copper contents omitted on many. A further injustice has been done the Low Grade Ore by calling all samples Low Grade that gave poor results while many of such were merely waste rock not belonging to the Low Grade strata.

Date Mine Samples by P. H. Holdsworth

1911	Description	12¢ Copper %	$20.00 Gold Oz.	50¢ Silver Oz.	Value.
July 10th	Level No. 3 Silicious Ore	?	.10	.66	$2.33
to		?	.01	.50	.45
Nov. 10th		?	.06	4.94	3.67
		?	.08	.48	1.84
		?	.24	1.96	5.78
		?	.16	.22	3.31
		?	.85	2.69	18.34
		?	.42	2.58	9.69
		?	.08	1.44	2.32
		?	.30	1.20	6.60
		?	.19	1.51	4.55
		?	4.54	11.22	96.41
		?	.50	3.70	11.85
		?	.50	5.04	12.52
		?	.54	4.66	13.13

NO 10. ASSAYS.

Date Mine Samples by Wm. Chambers.

1911	Description	12¢ Copper %	$20.00 Gold Oz.	50¢ Silver Oz.	Value.
Nov. 10th	Tunnel B. Base Ore	5.4	.22	4.08	$19.40
to	" A. Base Ore	2.4	.20	3.00	11.26
Dec. 20	" A. Base Ore	1.5	.12	3.90	7.50
	" A. Base Ore	2.1	.10	3.28	8.68
	" A. Base Ore	2.1	.04	2.68	7.18
	" A. Base Ore	2.6	.02	9.19	11.23
	" A. Base Ore	1.6	.21	8.85	12.46
	" A. Base Ore	1.7	.09	1.91	6.83
	" A. Base Ore	2.1	.16	3.88	9.18
	" A Base Ore	1.1	.10	.34	4.81
	" A. Second Grade Ore	.4	.08	2.36	3.74
	" A. Second Grade Ore	.6	.11	4.70	5.99
	Level No. 3 Silicious Ore	?	.10	.10	2.05
	" No. 3 Silicious Ore	?	.62	2.60	13.70
	" No. 3 Silicious Ore	?	.12	1.00	2.90

NO. 11 ASSAYS

Date Mine Samples by P. B. Wickham

1912	Description	12¢ Copper %	$20.00 Gold Oz.	50¢ Silver Oz.	Value.
	Tunnel D Base Ore	.8	.46	$1.64	$11.94
	" C Base Ore	1.2	.30	1.70	9.73
	" C Base Ore	1.7	.22	3.00	9.98
	" A " "	5.3	.09	13.11	21.07
	" A " "	12	.16	1.84	7.00
	" D Second Grade Ore	.5	.14	1.06	4.53
	" A " " "	1.10	.15	.45	5.86
	" A " " "	.8	.10	3.80	5.82
3.00 .5	" C Low Grade Ore	.8	.08	1.02	4.03
	" C Low Grade Ore	.7	.10	. 50	3.93
	" C Low Grade Ore	.5	.15	. 85	4.67

P. 6 missing

July 10 – Nov. 10 1911

All from Level No. 3 - called "siliceous ore"

Taken by Holdsworth 55-samples only 6 assayed for Cu

and 6 averaged 0.5% and were good in

Date MINE SAMPLES BY W. H. BRADLEY ON EXAMINATION

Feb. 1913	Description	12¢ Copper%	$20.00 Gold Oz.	50¢ Silver Oz.	Value.
	Base Ore	1.35	.12	1.02	$6.15
	" "	1.44	.14	2.23	7.36
	" "	3.18	.11	3.34	11.50
	" "	2.41	.13	9.75	13.25
	" "	1.45	.14	6.36	9.46
	" "	2.02	.15	5.30	10.49
	Second Grade Ore	1.25	.13	1.69	6.44
	" " "	.87	.07	4.68	5.82
	Low Grade Ore	.48	.07	.43	2.77

NO. 13 ASSAYS

Date Mine Samples by John Ross

1913	Description	12¢ Copper %	$20.00 Gold Oz.	50¢ Silver Oz.	Values.
1914	Tunnel A. Base Ore	1.0	.14	14.26	$12.33
	" A " "	2.4	.14	15.26	16.19
	Level No. 1. Base Ore	2.9	.20	5.60	13.76
	Level No. 1. Base Ore	3.2	.22	9.78	16.97
	Tunnel B. Base Ore	3.9	.10	1.90	12.31
	Tunnel B. Base Ore	2.5	.09	2.11	8.85
	Tunnel B. Base Ore	1.5	.10	3.40	7.30
	Tunnel B. Base Ore	1.6	.08	2.32	6.60
	Tunnel A. Base Ore	2.1	.16	5.85	11.16
	Level No. 1 Base Ore	1.4	.14	1.43	6.87
	Level No. 1. Base Ore	1.4	.01	3.30	5.21
	Level No. 1. Base Ore.	2.5	.17	5.83	12.31
	Level No. 1. Base Ore	?	?	5.02	2.51
	Level No. 1. " "	?	.06	20.74	11.57
	Tunnel A. Base Ore	3.2	.10	17.00	18.18
	Tunnel B. Base Ore	1.1	.14	3.46	6.67
	Tunnel B. Base Ore	2.3	.09	1.87	8.25
	Tunnel B. Base Ore	1.0	.08	1.32	4.66
	Tunnel A. Base Ore	?	.20	37.80	22.90
	Tunnel B Base Ore	1.2	.10	2.50	6.13
	Tunnel C. Base Ore	1.3	.10	1.50	5.87
	Tunnel A. Base Ore	1.4	.09	1.11	5.71
	Level No. 1. Base Ore	1.6	.06	9.77	9.92
	Tunnel C. Base Ore	2.1	.11	1.48	7.98
	Tunnel A. Base Ore	2.1	.09	8.29	10.98
	Tunnel A. Base Ore	3.8	.20	6.66	16.45
	Tunnel A.	?	.16	12.44	9.42

NO. 14 ASSAYS

Date Mine Samples by John Ross

1913	Description	12¢ Copper %	$20.00 Gold Oz.	50¢ Silver Oz.	Value
1914	Tunnel A. Base Ore	1.3	.16	9.86	$11.25
	" A. Base Ore	.4	.20	23.88	16.90
	" A.Base Ore	?	.18	13.02	10.11
	" A. Base Ore	?	.34	23.42	18.51
	" A. Base Ore	?	.08	15.60	9.40
	Tunnel A. Second Grade Ore	.9	.08	4.12	5.82
	Level No. 1. Second Grade Ore	.4	.06	4.90	4.61
	Tunnel A. Second Grade Ore	1.0	.08	1.68	4.84
	Level No. 1 " " "	.9	.16	7.44	9.08

Tunnel A Second Grade Ore	.7	.12	2.08	$5.12
Tunnel G. Second Grade Ore	.9	.14	1.04	5.48
Tunnel C. Second Grade Ore	.9	.10	1.51	4.91
Tunnel B. Low Grade Ore	.4	.08	. 92	3.02
Level No. 1. ?	?	.06	4.44	3.42
Tunnel B. ?	?	.12	1.68	3.21
Level No. 1. ?	.2	.07	2.53	3.14

NO. 15 ASSAYS

Date Bin Lots by P. H. Holdsworth

		12¢	$20.00	50¢	
1911	Description	Copper %	Gold Oz.	Silver Oz.	Value
July 10	Base Ore	2.1	.19	3.81	$10.74
to		1.4	.18	3.61	8.76
Nov.10th		1.6	.14	1.65	7.46
		1.0	.90	3.10	21.95
		2.2	.12	3.32	9.34
		2.4	.16	3.14	10.53
		1.8	.04	3.20	6.72
		1.6	.14	3.76	8.52
		1.5	.09	1.51	6.15
		1.8	.14	3.26	8.75
		1.8	.10	3.90	8.27
		2.0	.16	3.74	9.87
		1.5	.14	4.14	8.47
		1.6	.20	4.00	9.84
		1.4	.10	5.58	8.15
		1.5	.10	4.60	7.90
		1.6	.18	4.32	9.60
		1.8	.10	4.40	8.52
		1.3	.10	4.50	7.37
		1.1	.12	4.52	7.60
		1.5	.09	4.45	7.62
		1.9	.16	3.94	9.73
		2.2	.14	3.66	9.91
		1.5	.20	3.44	9.32
		1.9	.28	3.72	12.02
		1.6	.22	5.04	10.76
		1.7	.10	4.22	8.19

NO. 16 ASSAYS

Date Bin Lots by P. H. Holdsworth

		12¢	$20.00	50¢	
1911	Description	Copper %	Gold Oz.	Silver Oz.	Value
July 10	Second Grade Ore	.9	.16	2.84	$6.78
to	Silicious Ore from Level #3	.6	.66	1.53	15.40
Nov. 10th	" " " " #3	.3	.50	2.80	12.12
	" " " " #3	.3	.78	2.02	17.33
	" " " " #3	.4	1.40	1.80	29.86
	" " " " #3	.4	.68	2.32	15.72

NO. 17 ASSAYS

Date Bin Lots by Wm. Chambers.

1911	Description	12¢ Copper %	$20.00 Gold Oz.	50¢ Silver Oz.	Value.
Nov. 10 to Dec. 20	Base Ore	2.4	.21.	4.77	$12.34
		1.8	.14	5.16	9.70
		1.7	.20	6.44	11.30
		1.9	.06	4.22	7.87
		1.7	.18	3.98	9.67
		1.7	.16	4.04	9.30
		1.4	.19	4.05	11.18
		1.3	.20	4.20	9.22
		1.7	.20	4.24	10.20
		1.4	.12	3.08	7.30
		1.8	.11	4.21	8.62
		1.7	.18	4.32	9.84
		1.7	.10	3.25	7.70
		1.7	.20	4.00	10.80
		1.5	.06	3.84	6.72
		10.0	.10	14.90	33.45
	Second Grade Ore	.8	.20	4.41	8.12
	" " "	1.3	.10	4.80	7.52
	" " "	?	.09	5.10	4.35
	" " "	.4	.34	1.34	8.43
	" " "	.8	.09	3.53	5.48
	" " "	.7	.09	2.16	4.56
	Silica from Level No. 3	.2	.58	1.72	12.94
	" " "	.?	.38	2.32	8.76
	Low Grade Ore	.?	.09	2.91	3.20

NO. 18 ASSAYS

Date Bin Lots by P. B. Wickham

1912	Description	12¢ Copper %	$20.00 Gold Oz.	50¢ Silver Oz.	Value
	Base Ore	1.56	.16	5.88	$9.88
		1.94	.10	5.04	9.18
		2.33	.09	4.87	9.83
		1.36	.08	5.00	7.36
		1.78	.10	4.30	8.42
		1.49	.20	2.80	8.98
		1.77	.14	1.86	7.98
		1.49	.14	2.37	7.57
		1.68	.14	2.58	8.13
		1.68	.15	2.45	8.26
		1.40	.15	2.05	7.39
		1.20	.13	2.17	6.57
		.67	.10	1.89	4.56
		1.53	.10	2.10	6.72
		2.10	.06	2.54	7.51
		1.14	.09	1.61	5.34
		1.33	.12	4.58	7.88
		1.04	.13	2.37	6.28
1913	Base Ore	1.06	.12	2.18	6.03
		1.74	.18	3.35	9.44
		1.36	.14	1.36	6.74
		1.16	.08	2.80	5.78
		1.64	.11	1.12	6.69
		1.66	.12	3.68	8.22
		2.12	.06	3.04	7.80
		1.73	.05	3.06	6.68
	Ore from Dump	.80	.07	2.93	4.78

NO. 19 ASSAYS

Date Bin Lots by P. B. Wickham

1913	Description	12¢ Copper %	$20.00 Gold Oz.	50¢ Silver Oz.	Value
	Base Ore from Dump	1.0	.07	3.53	$5.56
	" "	.9	.06	3.52	5.12
	" "	1.3	.06	2.54	5.59
	from Mine	1.6	.07	9.53	10.00
		.9	.16	4.24	7.48
		1.3	.14	9.36	10.60
		1.4	.13	2.45	7.18
		1.2	.18	8.80	10.88
		1.6	.15	2.55	8.11

NO. 20 ASSAYS

Dte Bin Lots by P. B. Wickham

1912	Description	12¢ Copper %	$20.00 Gold Oz.	50¢ Silver Oz.	Value
	Second Grade Ore	1.55	.09	2.90	6.97
		1.12	.08	4.02	6.30
		1.68	.09	6.61	9.13
		.56	.12	3.88	5.68
		.86	.13	1.93	5.62
		.76	.06	2.50	4.27
1913	Second Grade Ore	.78	.12	5.08	6.91
		.87	.07	3.61	5.28
		.96	.06	3.34	5.07
	Level No. 3	1.64	.04	2.06	5.76
	Dump	.60	.08	4.82	5.45
		1.02	.06	4.32	5.80
		.80	.08	5.14	6.09
1912	Low Grade Ore	.50	.14	3.00	5.50
	" " "	?	.20	.80	4.40
	Special	3.10	.12	9.58	14.63
	Silicious Ore from Level #3	.37	.40	2.10	9.94
	Spar & Iron Ore	Trace	Trace	5.97	2.89
		.44	.03	4.87	4.08
		.65	.14	6.28	7.50
		Trace	.10	5.10	4.56
		.28	.08	5.52	3.53
		1.62	.14	2.96	8.17
1913	Spar & Iron Ore	.80	.06	6.86	6.55
		.78	.08	7.00	6.97
		.20	.08	10.52	7.34
		.20	.07	7.13	5.44

Date Bin Lots by John Ross

1913	Description	12¢ Copper %	$20.00 Gold Oz.	50¢ Silver Oz.	Value
	Base Ore	1.22	.10	2.00	$5.92
	" "	2.49	.10	9.70	12.82
	" "	1.20	.08	3.04	6.00
	" "	1.10	.12	6.28	8.42
	" "	1.30	.08	6.06	7.75
	" "	1.00	.07	1.97	4.78
	Second Grade Ore	.88	.08	4.92	6.17
	" " "	.72	.07	.95	3.59
	" " "	?	.05	6.75	4.37
	" " "	.85	.06	8.04	7.26
	" " "	.40	.01	5.84	4.08
	" " "	.50	.06	1.54	3.17

UNDERGROUND DEVELOPMENT

The Mine has, above the shaft, the following development by tunnels, cross-cuts and raises:

Tunnel A - Beginning on the East wall of the vein, this adit is driven into the maountain 792 feet along the contact, with three cross-cuts into the Low Grade Ore toward the West and two raises on the contact from Tunnel A to Tunnel B. This tunnel has exposed an almost continuous body of Low Grade and Second Grade ores and three distinct shoots of Base Ore.

Tunnel B - Beginning 100 feet above Tunnel A on the East wall, this adit is driven into the mountain 372 feet along the contact with two cross-cuts to the West and one raise from Tunnel B to Tunnel C. This tunnel has exposed a continuous body of Low Grade and Second Grade ore and an almost continuous body of Base Ore.

Tunnel C - Beginning 100 feet above Tunnel B and about the center of the vein this adit is driven into the mountain 316 feet diagonally across the vein toward the East wall exposing a continuous body of Low Grade Ore at a point 190 feet, in a cross-cut to the East wall exposes a body of Second Grade and Base Ore.

Tunnel D - Beginning 100 feet above Tunnel C on the East wall is driven into the mountain 344 feet, crossing the contact diagonally and exposing a continuous body of Low Grade and Second Grade ore and one shoot of Base Ore.

A vertical shaft sunk to a depth of 535 feet in the slate 185 feet East of the vein.

Level No. 1. One hundred feet below Tunnel A opening both to the surface and to the shaft with one raise from Level No. 1. to Tunnel A exploring the East contact for a distance of 540 feet and exposing an almost continuous body of Low Grade and Second Grade ore and two shoots of Base Ore.

Level No. 2. Two Hundred feet below Tunnel A is a direct cross-cut from the shaft into the vein exposing a body of Low Grade and Second Grade Ore.

Level No. 3. Three Hundred feet below Tunnel A is a direct cross-cut from the shaft to the vein exposing a shoot of Base Ore upon the contact. A cross-cut continuing across the vein exposed 15 feet of Second Grade Ore and an enrichment 30 feet in width within the Low Grade Zone. A drift North upon the contact for 104 feet, exposes a continuous body of Second Grade and Base Ore and a drift South upon the contact for 138 feet exposes a continuous body of Second Grade and one shoot of Base ore.

Level No. 4 Four Hundred feet below Tunnel A is a direct cross-cut from the shaft into the vein exposing Second Grade Ore.

Level No. 5. Five Hundred feet below Tunnel A is a direct cross-cut not completed from the shaft to the ore body.

The total amount of underground development is 7339 feet including the shaft. The shaft alone including stations cost nearly $17,000.00, and the average cost of all workings, timbering and maintenance has cost an average of about $12.00 per foot or a total of approximately - - - - - - - - -$88,068.00

(See Maps of Mine Workings Attached)

ORE TONNAGE AND VALUES

From development of the mine above Level No. 1. there has been proven an ore body 944 feet long, 50 feet wide with a mean depth of 262 feet, containing 12,366,400 cu. ft. or approximately -- -- -- -- -- -- -- -- -- -- 1,236,640 tons of ore of all grades, divided about as follows:

Low Grade 60% - 741.984 tons @ $4.00 per ton - - - - - - - - - - - - - -$2,967,936.
Second Grade 30% - 370,992 tons @ $6.00 per ton - - - - - - - - - - - - 2,225,952.
Base Ore 10% - 123,664 tons @ $8.00 per tons - - - - - - - - - - - - 989,312.
Total tons 1,236,640 - - - - -$6,183,200.

Below Level No. 1. there is proven a vast quantity of ore and when development has been completed from all levels of the shaft, three to four times the above tonnage should be exposed and probably of a better grade in value, however, development below Level No. 1. is now too limited to admit of any exact estimate. There is also huge ore croppings upon the surface North of the present workings above the shaft and solid ore in the North breast of all workings which when developed should add from 1000 to 1200 feet to the present length of proven ore and more than double the present tonnage above the shaft. This ore also gives promise of better values than that now developed, owing no doubt to additional depth and also perhaps to a well founded theory that better grades of ore will be encountered as approach is made toward the main intrusion at the North extremity of the ore deposit.

METALLURGY.

Mettalurgy of the Almeda ores presents no great difficulties aside from smelting the crude Base Ore which, however, has been very successfully accomplished at the Almeda furnace.

Low Grade Ore:

Analysis: Si02 60 Fe 11 CaC03 3 BaS04 7. A 1203 6.5 S 12 Cu. 5

This ore will be seen to be both too low in value and too high in Silica for direct Smelting, however, mill tests made on 1000 to 2000 pound lots at the Almeda experimental plant have shown this ore well adapted to concentration and the following results have been obtained;

Concentration - From 4 to 1, to 6 to 1,

Recovery, Copper- 72.77% , gold - 87.3% , Silver 50.25%

Recovery, Sands 85%, Slimes 87%

Concentrate Analysis:

Anl: Si02 6. Fe 30. BaS04. 22.8 A1203 5.0 S 34. Cu 2.

Second Grade Ore:

Analysis: Si02 40. Fe 14. CaC03 3. BaS04 16. A1203 7. S 17. Cu 1.

This ore is rather basic for concentration and too silicious for direct smelting, alone, but in connection with the Base Ore and basic concentrates it will be desirable and in fact necessary to furnace operations.

Base Ore;

Analysis: Si02 23. Fe 17.5 CaC03 3. BaS04 27. A1203 7.5 S 20. Cu 2.

This ore, generally considered quite impossible to smelt, has been proven entirely satisfactory at the Almeda Smelter since overcoming the metallurgical and mechanical problems naturally attendant upon such an undertaking. The Barium Sulphate presenting one of the chief interfering elements, has been successfully converted to Ba0 and made to replace Lime as a base. Alumina is also high enough to be dangerous but has been successfully made to react in its proper place and the resulting Type Slags are as follows:

Base Slag: Si02 31.3 Fe0 29. Ca0 1.3 Ba0 28.5 A1203 9. Cu. .47

Silicious Slag: Si02 39.5 Fe0 22.7 Ca0 1.3 Ba0 27. A1203 8.7 Cu. .38

Both slags give a surprisingly clean separation showing rare traces of gold and silver and from . 2 to . 6% copper. The base slag is extremely rapid oftimes running as much as eight tons per square foot of hearth area. The coke consumption is 6 to 8 per cent and the concentration very high, ranging from 30 to 40 tons of ore to 1 ton of Matte.

From the foregoing it is evident that the most practical and economical method of treatment for Almeda ores requires both smelting and concentration and since concentration is cheaper than smelting, it is fortunate that the ores can partially be treated in that manner. Concentration will also cheapen the cost of mining by greater and more unrestricted tonnage and the cost of smelting by less coke consumption and greater capacity.

Fines

The silicious ores make few fines but the base ore, being softer, produces from 10 to 20% of fines passing ¼ inch screen. Experiments have shown these base fines to contain sufficient binding material and moisture coming direct from the mine to make excellent briquetts and in experiments good briquettes have been made after adding even 20% of either flue dust or concentrates. However, no provision has thus far been made for either handling the fines or saving the flue-dust and as a consequent it has been a great detriment to smelting operations besides adding materially to smelting losses and cost of mining. The losses and inconvenience from these fines may be reduced to a minimum by the use of good ore grisslies, a dust chamber of reasonable area and briquetting or otherwise preparing the fines for smelting.

Surface Improvements.

Smelter Building, Ore Bins, capacity 3000 tons, Coke bins capacity 300 tons, Engine Room, Shaft House, Assay Laboratory, Boarding House, Blacksmith Shop and Mill Building.

There are excavations for concentrating plant and smelting yard, fills for timber and wood yards, roads about the mine, wagon bridge across the river and 6000 feet of flume for conveyance of water to the property.

Buildings, bins and flumes have cost about - - - - - - - - - - - - - - $27,500.00
and roads, excavations and fills about - - - - - - - - - - - - - - - - 7,000.00
or a total cost for surface improvement of approximately $34,500.00

Equipment of Almeda Mine.

Smelter: One 36" X 72" Blast Furnace
Two Fore Hearths
One Connersville Blower
Two Crushers
Charge Scales
Charge Buggies
Matte & Slag Pots
Hot Blast Hood
Elevator
Matte Pans
and other accessories complete
Approximately Cost Installed - - - - - - $35,000.00

Power: One 125 H.P. Commercial Gas Engine
Two 35 H. P. Western Gas Engine
One 30 H. P. St. Mary Gas Engine
One 5 H. P. Fairbanks, Morse Gas Engine
One 50 H. P. Atlas Steam Engine
One 70 H. P. Steam Boiler
One 10 H. P. Water Pelton
Shafting, Belting, Pullies and Tools
Approximate Cost Installed - - - - - - - $11,200.00

Mine: One 100 H.P. Sullivan Compresser
One 30 H. P. Sullivan Compresser
One 25 H.P. Western Gas Hoist
Two Cameron Mine Pumps
Five Machine Drills
Three Air Receivers
Cars, Tracks, Pipe Lines & Tols,
including Blacksmith Shop equipment
Approximate Cost Installed - - - - - - - $ 9,500.00

Laboratory: Fully equipped for assaying and analytical work.
Approximate Cost - - - - - - - - - - - - - $ 900.00
Two Stamp Mill of Nissin type and Christensen concentrating table.
Approximate Cost - - - - - - - - - - - - - $ 700.00

Miscellaneous: One Donkey Engine
One K. W. Generator
One 6" Centrifugal Pump
Boarding House Equipment
Mine Office Equipment
Various Odd Machinery
Two Mine Transits
Approximate Cost - - - - - - - - - - - - - - - - - - $3,275.00
Approximate Total Cost of Equipment $60,575.00

Power:

At present all power except pumping is derived from Distillate Engines and in full operation amounts to 225 Horse Power which costs from 40 to 60 cents per H. P. per day.

While very expensive, this was the cheapest power available at the tim of installation, however a large electric plant now in operation on Rogue River, offer to furnish power at the rate of $30.00 per H. P. per year or 8 1/3 ¢ per day. An advance sum of $10,000.00 is required for the pole line, however this deposit is to be refunded from power bills.

With the use of this power upon the above terms, the saving on power now required would amount to approximately $30,000.00 per year besides a greater efficiency and lower cost of machinery maintenance.

Transportation:

Freighting to the property is now done by teams over a wagon road, fro Almeda to Merlin, at a cost of $7.00 per ton one way or $5.00 per ton both ways, howeve auto trucks were tried for the purpose and said to have made a considerable saving ove the above cost.

The company has a private road right-of-way from the mine to Leland which road has been surveyed and laid out on uniform grades the maximum being 6 2/3%.

About five miles of this road is completed which represents however, about one-half of the total estimated cost of the road and the remaining ten miles should be made at a cost of $15,000.00.

This road was laid out to eventually be electrified but the company, it is said, intended to surface the road and use auto trucks until power was available.

With the use of these trucks the cost of freighting was estimated at $2.00 per ton which appears conservative.

Roads built by the company amount to about 9 miles of which considerabl has been rock work and about three miles of which has been surfaced. The cost of construction including fills, bridges, gravelling and upkeep to date, is approximately $21,000.00.

Mining:

The costs of ore mines are extremely difficult to arrive at since the ore has been taken largely from development and mine repair under most adverse conditions but from available records and careful consideration of conditions it appears that the mining of ore alone for smelting costs $1.75 per ton under present conditions. However, when mining from 300 to 500 tons per day for smelting and concentration togeth breaking from 30 to 50 feet, in width and with power at a reasonable price the cost of mining, including development, should not exceed $1.00 per ton.
The cost of minint the ore treated to date amounts to approximately - - $18,725.00

At least one-half of this amount should be charged to development and repairs.

Operations:

The expenditure upon the Almeda Mine According to the foregoing report amounts to -$222,868.0

This will be understood to cover development and equipment of the Almeda or North Side Mine alone according to the items hereinbefore enumerated and not to include development of other company properties or company expenses such as interest, commissions, travelling expenses, head office expenses, legal costs,, or office salaries aside from management, or purchase of properties.

When it is realized that for this sum expended all the foregoing improvements have been made and ore to the amount of $6,183,200.00 has been developed, the showing made would seem to be most satisfactory and while operations have not proven profitable upon the whole, still from an actual running time of 107 days the net proceeds were $60,187.80 or an average of $562.50 per day which for that time alone would show a fair margin of profit and would indicate that for profitable production, it would be necessary only to provide for continuous operation.

Following will be found a report of "Smelter Operations" written separately but included herewith for the benefit of this report.

REPORT OF SMELTER OPERATIONS

UNDER SUPERVISION OF P. B. WICKHAM.

DURING 1912 and 1913.

#1. Amount of Ore Smelted		5503.95 $503.95 tons
#2. ASSAY VALUE.		
Copper 1.085% 21.7152# @ 16.385 ¢ -	$3.558	
Gold -.091 ozs. @ $20.67	1,881	
Silver 2.872 ozs. @ 60.665¢	1.743	
$920.00 Matte Unsold	.178	
	$7.360	
#3. Gross Value of 5503.95 tons @ $7.36008		$40509.46
#4 Copper produced 76132.65# @ 16.385¢	12474.335	
Gold Produced 471.03 ozs. @ 20.67	9735.19	
Silver produced 14860.976 ozs.@ 60.665¢	9015.41	
Slag Loss .5% cu. 3621.599# @ 16.385	5933.989	
Flue Dust 6% 330.237 tons @ $7.36	2430.544	
Matte on hand Sept 1 - 1913	920.000	$40509.460
#5 Copper Loss 32.23%	$5933.989	
Flue Dust 6%	2430.544	
Total Loss 20.67%	$ 1.52 per ton	8364.533
Copper Recovery 67.77%		
Gold Recovery 100.00%		
Silver Recovery100.00%		
Total Recovery 79.353%	5.84 per ton	$32144.927
#6. Sale Discounts		
Copper 2¾¢ per lb. on 76132.65 lbs	2093.648	
Copper 26 lbs per ton on 119.387 tons matte		
or 3104.06 lbs copper @ 13.635¢	423.238	
Gold 90.6¢ per oz. on 471.03	426.753	
Silver 5% of 14860.976 ozs. @ 60.665¢	450.765	
Total Discounts .617 per ton		3394.404
Net Proceeds $5.223 per ton		$28750.523

Smelter Operations (Continued)

#7 Matte Sold

Assay Value

Copper 31.884% 637.68 lbs	@ 16.385¢ -	$104.48	
Gold 3.9454	@ 20.67	81.55	
Silver 124.476 Ozs.	@ 60.665 -	75.51	
Gross Value per ton		$261.54	
Gross value 119.389 tons @ 261.543 per ton			$31,224.924
Discounts			3,394.404
Receipts			$27,830.520
Matte on hand not sold September 1, 1913			920.00
Net value of Matte produced			$28,750.52

#8 Smelting costs. 57 days

Labor	$67.25 per day -	$833.25	
Coke 7.79 tons @ $19.50	151.90 per day -	8662.29	
Lime 1.149 tons @ $14.	16.08 per day -	902.64	
Freight 2.09 tons @ $15.	31.35 per day -	1790.80	
Distillate 150 gal. @ 12¢	18.00 per day -	1026.00	
Total 57 days	284.58 per day	$16214.98	
Total 5503.95 tons @ $2.946 per ton			$16,214.980
Smelting Profit 5503.95 tons @ $2.277 per ton			$12,535.543

#9 Smelter Operations

Ore Smelted	5503.95 tons		
Slag Smelted	287.50 tons		
Lime Rock	65.76 tons		
Low Grade Matte Smelted	49.20 tons		
Total Material Smelted		Amount	5906.41 tons
Coke Burned 7.52%		"	444.22 tons
Daily Capacity 103.62 tons		Time	57 days

Cost per ton material treated $2.74

Crude Ore smelted	Amount	5503.95 tons
Coke burned 8.07%	"	444.22 tons
Daily capacity 96.56 tons	Time	57 days

Matte produced 119.387 tons

concentration 46 to 1

Smeltin costs per ton Crude ore $2.946

SUMMARY

#1	Ore Smelted	5503.95 tons
	Assay Value	$ 7.36 per ton
	Total Gross Value	40509.46
	Smelting Loss 20.67%	$ 1.52 per ton
	Total Loss	$ 8364.533
	Recovery 79.353%	5.84 per ton
	Total Recovery	32144.927
	Sale Discounts	.62¢ per to
	Total Discounts	3394.404
	Net Proceeds	5.22 per ton
	Total Net Proceeds	28750.523
#2	Matte Sold	119.387 tons
	Gross Value	261.54 per ton
	Total Gross Value	31224.924
	Sale Discounts	28.432 per ton
	Total Discount	3394.04
	Sale Receipts	233.11 per ton
	Total Net Receipts	27830.520
	Matte on hand Sept. 1, 1913	920.00
	Total Matte Production - Net	28750.52
#3	Material Smelted Including Ore	5906.41 tons
	Time of operation	57 days
	Daily Capacity	103.62 tons
	Coke Consumption	7.52%
	Total Coke Burned	444.22 tons
	Cost of Smelting	$ 2.74
	Ore Smelted	5503.95 tons
	Time of Operation	57 days
	Daily Capacity	96.56 tons
	Coke Consumption	8.07%
	Total Coke Burned	444.22
	Matte Produced	119.387 tons
	Concentration	46 tons to 1
	Cost of Smelting	2.946
	Total cost of Smelting	$ 16214.98
	Smelting Profit	2.277 per ton
	Total Smelting Profit	12535.543

REMARKS

Ore Smelted

The ore smelted during operations described was mostly taken from necessary development and repair of the mine and from dumps but being profitable, was smelted, regardless of value, though lower grade than the general mine run of smelting ore.

Coke Conditions.

An attempt was made to use 72 hour Carbonade Coke which proved unsuccessful and resulted in an increase of coke consumption with a decrease of capacity. With Carbonade coke the consumption was 7 to 10 per cent with a daily ore capacity of 60 to 90 tons while, with Wilkison coke, the consumption was 5 to 8 per cent with a daily ore capacity of 90 to 125 tons. This, including coke for each blow-in, has made the coke consumption much higher and the capacity much lower in the foregoing report than in actual practice where it is found the actual coke consumption does not exceed 7% Wilkison with an easy average capacity of 100 tons of ore per day.

Losses.

Loss in slag has been Gold-trace Silver-Trace Copper .5% which compares favorably with all other smelting plants but the loss in flue dust has been about 6% of the ore charge whichis very high; however, with the installation of ore grizzlies, briquetting machinery and a larger dust chamber, this loss may be reduced to a minimum.

Practice.

Comparison between operations of 1912 and 1913

	1912	1913
Daily Ore Capacity	85.29 tons	100.43 tons
Coke Consumption	11.8%	7.7%
Costs	$3.15 per ton	$2.48 per ton

Total Production 1911 to 1914

1911 P. H. Holdsworth	$10996.66
1911 Chambers & Ramer	12339.45
1912 & 1913 P. B. Wickham	28750.52
1913 Rose & Chambers	8100.67
Total Net Proceeds	$60187.30

Difference

Net proceeds of Matte produced by P. B. Wickham as per Tacoma Smelter Returns	$28753.43
Net proceeds of same Matte as per foregoing report	28750.52
Difference due to slight variation of discounts on smelter returns while discounts in the report are calculated on a flat basis.	
Dif. Cr.	2.91

MATTE PRODUCED BY P. H. HOLDSWORTH

Date	Dry. Wt.	Alameda Smelter Assay Value			Sold to Price			Kennett Smelter	
1911	Lbs.	Au.	Ag.	Cu.	Au.	Ag.	Cu.	Per ton.	
Sept 8th	46760	1.45	41.70	20.06	$19.00	52½¢	09825¢	$88.75	2076.14
Sept 8th	17758	2.32	62.495	31.10	19.00	52½¢	09825¢	137.84	1223.88
Oct. 14	31060	1.95	47.365	23.60	19.00	52½¢	09592¢	107.19	1664.50
Oct. 14	12993	2.685	58.48	29.18	19.00	52½¢	09592¢	137.69	893.92
Nov. 3	3240	1.905	40.80	20.76	19.00	54 3/8¢	09665¢	98.51	159.57
Nov. 3	30238	2.075	40.295	20.82	19.00	54 3/8	09665¢	101.58	1535.79
Nov. 14	63740	2.95	55.31	21.73	19.00	56 1/8	09795¢	129.66	4132.26
	205789							113.57	11686.06
	102.894 tons								

Net Value	11686.06
Discounts & Charges	689.40
Net proceeds	10996 .66

MATTE PRODUCED BY CHAMBERS AND RAMER.

		Almeda Smelter					Sold to	Tacoma Smelter	
Date		ASSAY VALUE			Price			Net Val.	Net. Amt.
1911-12	Lbs.	Au.	Ag.	Cu.	Au.	Ag.	Cu.	per ton	
Dec. 13	60499	3.21	73.59	25.49	$19.50	55 3/8¢	10.2¢	$155.34	$4694.72
Dec. 22	50468	4.04	98.06	35.58	20.00	58 3/8	10754¢	214.56	5414.20
Jan. 31	21590	4.08	123.76	40.45	20.00	57.3/8¢	11.5¢	245.63	2651.25
	132557							192.52	$12760.17

Tons 66.2785 @ 192.52	- 12760.17
Sale Discounts	420.72
Net Proceeds	12339.45

MATTE PRODUCED BY P. B. WICKHAM

Almeda Smelter Sold To Tacoma Smelter

Date	Dry Wt.	Assay Value			Price			Net Val.	Net Amt.
1912-13	Lbs.	Au.	Ag.	Cu.	Au.	Ag.	Cu.	Per Ton	Per Lot
Oct. 3	49056	3.61	106.01	30.52	$19.50	63 1/4	14.65¢	226.87	5564.67
Oct. 3	10703	4.68	190.37	38.37	20.00	63 1/4	14.82¢	327.73	1753.88
Dec. 28	52914	4.68	118.08	33.83	20.00	62 3/4	14.55¢	266.14	7037.56
Mar. 20	72648	3.68	96.19	32.52	19.50	57 1/2	11.92¢	204.59	7431.89
Sept. 15	53453	3.74	173.01	29.05	20.00	59 5/8	13.9¢	258.71	6916.82
	238774							240.44	28704.82

119.387 tons

119.387 tons @ $240.44 -	Value $28704.82
Sale Discounts	871.39
Net Proceeds	$27833.43
Matte Left on hand September 1, 1913,	920.00
Total Net Production	$28753.43

MATTE PRODUCED BY ROSS AND CHAMBERS

	Almeda Smelter					Sold To		Tacoma Smelter	
Date	Dry Wt.		Assay Values			Price		Net Value.	Net Amou
1913	Lbs.	Au.	Ag.	Cu.	Au.	Ag.	Cu.	Per Ton	Per Lot
Oct. 17	29401	3.02	162.98	25.87	$20.00	60/7/8	13.49	229.41	3372.29
Oct. 27	49401	1.76	95.44	17.41	20.00	61 1/4	13.65	141.18	3487.21
Nov. 5	36926	1.73	92.52	18.00	20.00	59 1/2	13.62	138.68	2560.44
	115728							162.79	9419.94

57.864 tons @ 162.79 -	$9419.94
Sale Discounts	339.27
	$9020.67
Matte on hand Sept.	920.00
Total Net Production	$8100.67

Present Situation

The mine with its present equipment and the furnace now in use are ca able of handling 100 tons of ore per day, the output in matte being from 2 to 4 tons daily, depending upon the copper tenor of the ore and the rate of concentration, both of which may vary from day to day, and with some repair and additional improvements it should be possible to operate at a profit of $3,000.00 to $6,000.00 per month.

The furnace operations can be improved, the losses materially reduced and the cost of mining lessened by provisions for handling the fines and including this arrangement the cost of needed repairs, improvements and equipment to bring the present plant to its greatest efficiency should not exceed $5,000.00.

Requirements:

General Repair
Dust Chamber
Equipment for Fines
Air Hammer Drills
Miscellaneous Supplies

Future Possibilities

A great future for the Almeda Mine is self evident but for the purpose of suggesting plans and probable results of further equipment, it may be well to discuss the more advisable methods for greater production and to offer approximate estimates of results to be expected.

It must be borne in mind that the proposition is a vast ore body having its greatest values upon, or near, the East wall and that those values gradually decrease westerly toward the West wall. There may be exceptions to this condition in places where the Low Grade ores have exceptional enrichments, as at Level No. 3 however, the general arrangement is as stated. There are zones through the ore body known to be of lower value than the average given and other zones much above the given average; therefore results could be made to differ widely according to the proportionate amount of the various grades of ore treated and accordingly any estimate made may not conform to future results only in event that operations were carried out exactly as planned in making such estimates. However, the estimates offered here are intended to be thoroughly conservative and are based upon safe average ore values, ample costs and losses without consideration of those better shoots of ore which might be treated exclusively for a time with better results.

With the present development of the mine it would be possible with small preparation, to extract 300 to 500 tons of ore per day. However, for the output and treatment of such a tonnage it would be necessary to secure cheaper power than that now in use, preferably the electric power before mentioned, which would require an advance sum or deposit of - - - - - - - - - - - - - - - $10,000.00

The most economical and advantageous method for treatment of the various grades of Almeda ores is a combined process of concentration and smelting and for present conditions a plant with concentrating capacity of 200 tons per day an smelting capacity of 100 to 200 tons per day. The most conservative version of results to be expected from the above suggested plant is given following.

OPTION AGREEMENT

THIS OPTION AGREEMENT, made and entered into this 23rd day of March, 1953, by and between O. L. HILLIS and ROBINA HILLIS, his wife, hereinafter known as the Owners, and CHARLES F. HERBERT, of 1013 Smith Tower, Seattle 4, Washington, hereinafter known as the Optionee, WITNESSETH:

WHEREAS, the Owners are the owners of the hereinafter described unpatented mining claims in Josephine County, Oregon; and

WHEREAS, the Optionee is interested in acquiring said mining claims but desires the opportunity to make a full investigation and examination of the property before making any commitment with regard to the purchase of the same; and

WHEREAS, the parties have agreed upon the terms and conditions of an option to purchase and the opportunity for the Optionee to thoroughly explore and investigate the property and the parties desire to reduce such agreement to writing,

NOW, THEREFORE, for and in consideration of the foregoing, the mutual promises and agreements herein contained and the acts to be done and performed by the Optionee, the Owners do hereby give and grant to the Optionee the exclusive right and privilege to purchase the following described unpatented mining claims the Galice unorganized mining district in Josephine County, State of Oregon:

The Smelter Mining Claim, more particularly described in the location notice thereof of record in Vol. 31 at Page 290 of the Record of Mining Locations for Josephine County, Oregon.

The Robina Mining Claim, more particularly described in the location notice of record in Vol. 39 at Page 391 of the Record of Mining Locations for Josephine County, Oregon.

The Hillis Mining Claim, more particularly described in the location notice thereof of record in Vol. 39 at Page 390 of the Record of Mining Locations for Josephine County, Oregon.

The Amador Mining Claim, more particularly described in the location notice thereof of record in Vol. 39 at Page 392 of the Record of Mining Locations of Josephine County, Oregon.

The Madras Mining Claim, more particularly described in the location notice thereof of record in Vol. 39 at Page 360 of the Record of Mining Locations of Josephine County, Oregon.

IT IS AGREED that this option will terminate and end on August 15, 1953, if not exercised, as herein provided. If the Optionee shall desire to exercise this option he shall so notify the Owners in writing at 210 S.W. Pine Street, Grants Pass, Oregon, on or before August 1, 1953. In the event the Optionee shall exercise this option, as herein provided, the parties shall proceed immediately with the preparation and execution of a contract of sale carrying out the terms of this option.

IT IS AGREED that during the period of this option the Optionee shall have the right to go upon the above described premises and to drill, sample and otherwise explore and investigate the property, and to do everything reasonable and proper to satisfy himself as to the mineral value of the property. The Optionee shall not have the right to conduct any mining operations on the property, however, unless and until he shall have exercised this option. This prohibition against mining shall not apply to the taking or removal of such samples or bodies of minerals as may be necessary in the thorough examination and investigation of the property by the Optionee.

IT IS AGREED that the Optionee shall have the right to take such machinery, tools, equipment and labor upon the above described property as he may desire to assist him in the sampling, drilling and investigation and examination of the property. In the event the Optionee shall not exercise this option he shall have the right to remove all of such property on or before thirty (30) days from the expiration of the option.

IT IS AGREED that the Optionee shall conduct his operations in a good and minerlike manner; that he will remove no more ore or mineral values from the property than may be reasonably necessary for his examination and determination of the value of the property.

IT IS AGREED that the Optionee shall conduct his operations on the property in accordance with the laws of the United States of America and the State of Oregon and the rules and regulations of any bureau or agency of either having jurisdiction of the Optionee's operations. The Optionee shall promptly pay when due all bills, expenses and charges of any kind or nature in connection with his work on the above described property and shall keep the property free and clear of any lien or encumbrance resulting by, through or under any act or omission of the Optionee.

IT IS AGREED that the Optionee shall furnish the Owners at their request copies of all assay maps, drill logs and other sampling data obtained by the Optionee during the life of this option agreement.

IT IS AGREED that the option price for the property is the sum of Fifty Thousand Dollars ($50,000.00), which the Optionee shall pay as follows:

1. The sum of $2,500.00 on or before August 15 and December 15, 1953.
2. The sum of $5,000.00 on or before April 15, August 15 and December 15, 1954, and the sum of $5,000.00 on or before April 15 and August 15, 1955.
3. The sum of $10,000.00 on or before December 15, 1955 and a like sum of $10,000.00 on or before April 15, 1956.

IT IS AGREED that, notwithstanding the above schedule of payments, the same shall be considered minimum payments. The Optionee shall pay to the Owners fifteen (15%) of the net mint or smelter returns on all cooper, gold, silver or other valuable metals or minerals produced by the Optionee from the above described mining property. This 15% shall be computed after the deduction of shipping charges and shall be upon the basis of the net mint or smelter returns. The Optionee shall furnish copies of all bills of lading, mint or smelter returns or other information covering the sale or disposal of any ore, concentrates, bullion or precipitates from the above described property. Such 15% royalty payments as made shall be credited against the next succeeding installment on the purchase. The payment of royalty shall cease when the full $50,000.00 purchase price has been paid.

IT IS AGREED, as herein provided, that in the event the option shall be exercised, the parties shall enter into a written contract of sale and purchase of the property, which shall include the purchase provisions above set out. In addition, it shall contain the usual and customary provisions of such contracts in Josephine County, Oregon. The contract shall provide for a thirty (30) day grace period before default and shall further contain a "war clause" which shall excuse the Optionee from performance under the contract during the period of any war in which the United States of America may find itself engaged; provided, however, that the present Korean conflict shall not be considered such a war.

IT IS AGREED that the said purchase contract, in the event the option is exercised, shall further provide that the Owners will, upon request of the Optionee, execute a special warranty deed conveying the above described property to the Optionee and warranting title to the same as against anyone claiming by, through or under the Owners. If requested by the Optionee, the said warranty deed, together with one of the originals of this agreement, shall be placed in escrow in the Grants Pass bank designated by the Owners, with said deed to be delivered to the Optionee upon payment of the purchase price in full, as herein provided. The parties shall execute such escrow instructions as the escrow bank may require.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals the day and year first above written.

O. L. Hillis (SEAL)

Robina Hillis (SEAL)

Charles F Herbert (SEAL)

General geology. - The Almeda mine is near the contact of the Galice formation and a thick series of greenstone rocks. Near the contact both formations have been intruded by sill-like bodies of porphyritic dacite. At least six of these sill-like bodies are found in the Galice beds within a distance of 800 feet to the east of tunnel 1, and several of them are exposed in the greenstone rocks west of the Almeda mine. All of the formations strike approximately north and are vertical or dip at very steep angles to the east or west.

The Galice formation in the vicinity of the mine is composed principally of dark-colored argillite and slate which on the basis of fossils collected about 100 feet east of the mine have been assigned by Diller to the Jurassic period. The rocks are composed largely of subangular quartz and feldspar grains and sericite. The original minerals have clearly undergone considerable recrystallization, and near the ore bodies they are largely replaced by calcite and quartz and contain much disseminated pyrite.

The greenstones consist of greatly altered even-grained and fragmental igneous rocks containing much secondary chlorite and epidote.

The porphyritic dacite, where fresh, is a dark-colored rock with abundant large phenocrysts of dark-green hornblende, less abundant and smaller crystals of plagioclase, and a few scattered quartz phenocrysts which are noticeably rounded. The appearance of the porphyritic dacite changes gradually, depending upon the amount of mineralization, from the fresher rock just described to a rock in which the feldspars have been altered almost entirely to sericite, from that to a rock composed almost entirely of silica and fine-grained pyrite but retaining shadow outlines of the original texture, and finally to the sulphide ore, a rock composed essentially of fine-grained quartz, barite, and massive sulphides in varying proportions. The microscope shows that the feldspar of even the fresher-appearing porphyritic dacite is mostly altered to a mass of saussurite, calcite, zoisite, and epidote. Unaltered areas remaining here and there have the composition of andesine. In the fresher-appearing rocks the hornblende is only slightly altered, but near areas of mineralization it has been changed to masses of chlorite, epidote, and zoisite, and finally in the silicified rock it has been almost entirely replaced by fine-grained quartz. The groundmass of the fresher rock is composed of very finelygranular feldspar and quartz, saussuritic material, and chlorite.

Composition of the porphyritic dacite footwall from the Almeda mine.[18]
[S. W. French, analyst]

Analysis	
SiO_2	55.92
TiO_2	.75
Al_2O_3	19.66
Fe_2O_3	1.94
FeO	4.76
MgO	5.27
CaO	5.77
Na_2O	3.26
K_2O	.38
H_2O+	2.90
H_2O-	.06
	100.67

Approximate mineral composition	
Quartz	15.6
Orthoclase	2.3
Plagioclase	56.4
Chlorite) Epidote)	22.1
Magnetite	2.8
Ilmenite	1.4
	100.6

---

[18] Winchell, N.H., Petrology and mineral resources of Jackson and Josephine Counties, Oreg.; Mineral Resources of Oregon, vol. 1, no. 5, p. 209, Oregon Bur. Mines and Geology, August 1914.

Although classified by Diller as a quartz porphyry or alaskite, the porphyritic rock described above is both mineralogically and chemically a porphyritic dacite.

Ore bodies

The ore bodies at the Almeda mine occur in a wide zone of intense silicification, known as the Big Yank lode (fig. 4), that follows close to the contact of porphyritic dacite and argillite (slate) of the Galice formation. According to Diller[19] who made a broad study of the general region, "the contact between the slates and the igneous rock, with which the Big Yank lode is associated, may be traced for over 20 miles in a direction about N. 30° E. from Briggs Creek Valley to Cow Creek at Reuben Spur. Although the general course is maintained with considerable regularity, there are many small variations, and the contact dips to the southeast in the same direction as the slates. The plane of the contact is generally a fault plane and is for the most part followed by the lode. The contact is apparently most irregular and the quartz porphyry [porphyritic dacite] most cut by shearing planes in the vicinity of the ore bodies."

Figure 4. - Almeda mine and Big Yank lode, looking north. 1, Smelter; 2, Big Yank lode; 3, mouth of tunnel; 4, gravity plane.

The Big Yank lode, for the most part, consists of intensely silicified rock with variable amounts of pyrite, but in places masses of the silicified rock have been partly or wholly replaced by barite and sulphides, which constitute the richer ore shoots. The mineralized zone constituting the Big Yank lode varies in width from place to place but at the Almeda mine is about 200 feet wide. Two types of ore have been previously described; "siliceous gold-silver ore" and

---

[19] Diller, J. S. op. cit. (Bull. 546), pp. 74-75.

"copper ore with barite."[20] The "siliceous gold-silver ore" is the intensely silicified rock with variable amounts of pyrite described above; the "copper ore with barite" comprises those portions of the Big Yank lode that have been partly or wholly replaced by barite and sulphides.

The "siliceous gold-silver ore" consists largely of intensely silicified porphyritic dacite. The rock is composed almost entirely of quartz, but pseudomorphic outlines of the original texture are shown in thin sections (fig. 5). Although the quartz in general is fine-grained, it tends to be slightly coarser along veinlets. There are two and possibly three generations of quartz. One and possibly two preceded the sulphides, and one clearly cuts the sulphides. In general, the older quartz is very fine grained. It is traversed by some veinlets of coarser quartz that is believed to be of the same age, but because this coarse quartz crystallized in the fractures through which it was introduced, it tended to form larger grains than in the replaced wall rock. Barite is sparingly present in the "siliceous gold-silver ore." It was introduced after the older quartz but preceded the sulphides.

According to P. H. Holdsworth,[21] engineer for the Almeda mine in 1911, the average analysis of the "siliceous-gold-silver ore" is as follows:

Average analysis of siliceous gold-silver ore of Almeda mine

SiO_2	percent	62.9
FeO	do	11.5
CaO	do	2.1
BaO	do	8.1
Al_2O_3	do	5.6
S	do	8.3
Cu	do	.3
Au	ounces per ton	0.14
Ag	do	6.40

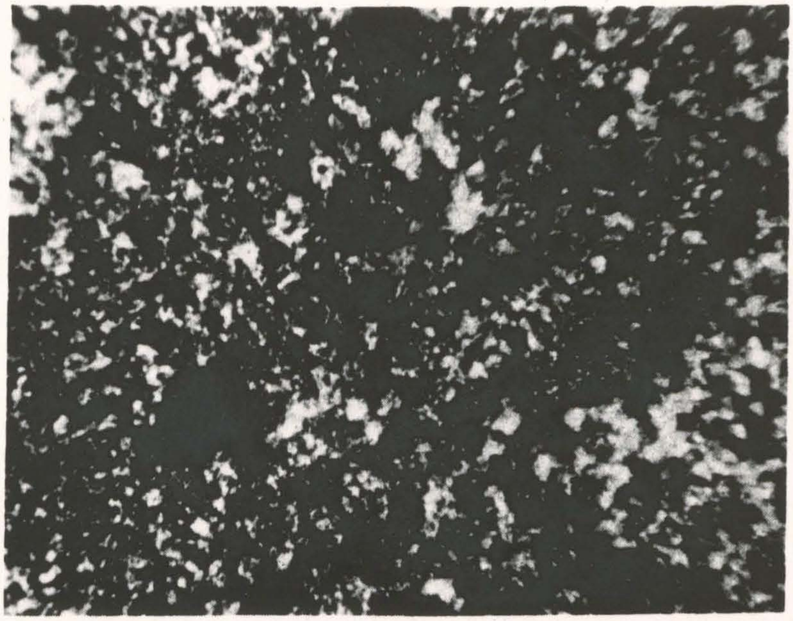
The gold and silver content shown above is higher than in the siliceous material collected by Diller in the west crosscut of the 500-foot level. He reports that assays of his specimens contain very little gold and only a trace of silver.[22] The writer cut three channel samples across the body of the "siliceous gold-silver ore" which are believed to be fairly representative of the places sampled but, like Diller's specimens, indicate only that this type of ore is low-grade material. The partial analyses of these samples made in the chemical laboratory of the United States Geological Survey given on page 30 are therefore not presented as representative of the average metal content for this type of ore throughout the mine.

---

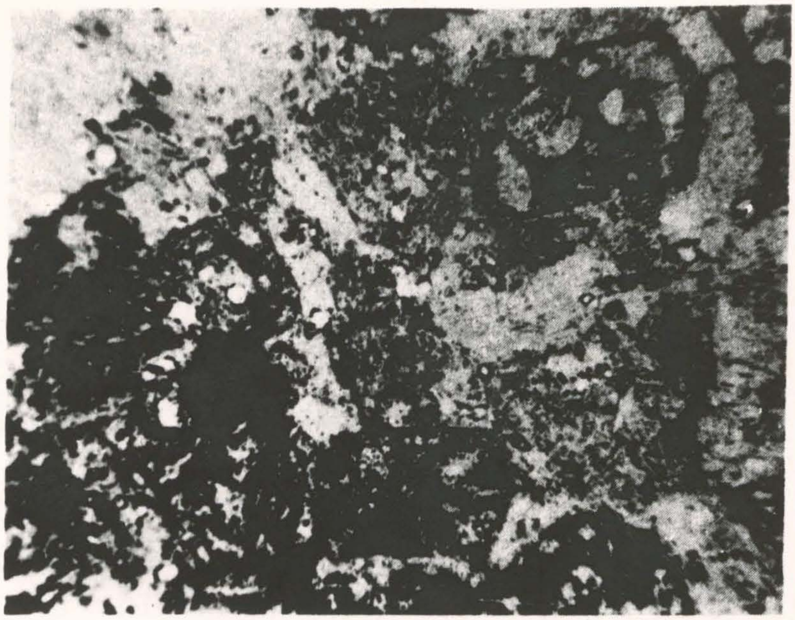
[20] Diller, J. S., op. cit., p. 75.

[21] Idem, p. 77.

[22] Idem, p. 78.



A. Silicified porphyritic dacite, "siliceous gold-silver ores. "Nicols crossed. Enlarged 41 diameters.



B. Same as A, showing outlines of silicified phenocrysts. Sulphide ore black. Plain transmitted light. Enlarged 48 diameters.

Figure 5. - Photomicrographs of ores, Almeda mine.

Partial analyses of "siliceous gold-silver ore" from the Almeda mine
[E. T. Erickson, analyst]

	17	18	13
Copper ....percent..	Less than 0.01	0.01	Less than 0.01
$BaSO_4$ .... do ..	.4	Trace	2.1
SiO_2 .... do ..	66.2	88.8	64.2
Gold .... do ..	Trace	Trace	Trace
Silver ....ounce per ton..	.17	.08	.01

17. From crosscut starting 200 feet from portal of west adit of level 1 and running west. Sample represents width of 10 feet; from face of crosscut to point 10 feet east of face.

18. Same crosscut as 17. Sample represents width of 20 feet, between points 34 and 54 feet east of face.

13. West crosscut 110 feet south of face of River level. Sample taken across 20 feet of ore.

The richer ore at the Almeda mine, the "copper ore with barite," occurs as shoots close to the contact of porphyritic dacite and argillite in the broad silicified zone described above. A longitudinal section of the mine workings above the Rogue River indicates that two mineralized zones have been partly mined but that most of the production has come from one that is more or less parallel with and from 20 to 50 feet below the surface (pl. 5). The other zone, which has not been developed sufficiently to determine its pitch, is about 250 feet below the surface. As shown by assays of samples collected by Diller, and P. H. Holdsworth, ore of good grade was found on the 300-foot level (below the Rogue River), but because the shaft is no longer accessible the relation of this ore to the shoots above is not known. The shoots of better-grade ore range in thickness from a few feet to 60 feet and in length from less than 100 feet to over 200 feet. The greatest known width is exposed on level 1, where the main ore shoot is 60 feet thick and 220 feet long. On the river level the greatest visible thickness is 15 feet, but the entire thickness is probably not exposed. According to Diller the thickness of the principal ore body on the 300-foot level (below the Rogue River) is about 15 feet.[23] He also reports the absence of a considerable body of ore at the contact by the shaft on the 500-foot level but states that, according to the pitch, the ore shoot found on the 300-foot level should project to a position south of the shaft on the 500-foot level.

The ore from the higher-grade shoots is composed principally of barite, quartz, and sulphides. The barite was introduced into the intensely silicified prophyritic dacite before the sulphides, and locally it has almost completely replaced the quartz. The sulphides, in turn, have replaced the barite as well as the quartz. Some specimens clearly show veinlets of sulphides cutting coarse-grained barite. The sulphides include pyrite, chalcopyrite, galena, sphalerite, chalcocite, and covellite. Pyrite is by far the most abundant. It occurs throughout the mineralized zone but is concentrated as massive bodies in the richer ore shoots. The pyrite is cut and replaced by all the other hypogene sulphides and by covellite, which is clearly supergene. In the better-grade ore exposed in the

---

[23] Diller, J. S., op. cit., p. 78.

accessible stopes tiny veinlets containing covellite are plainly visible cutting the other sulphides and the gangue minerals.

According to P. H. Holdsworth,[24] the "copper ore with barite" across widths of 6 to 20 feet was analyzed as follows:

Analyses of copper ore from Almeda mine

SiO_2	8.8 to 5.1
FeS_2	27.0 to 48.1
CaO	Trace to 0.8
$BaSO_4$	47.8 to 28.2
Al_2O_3	8.0 to 10.9
$CuFeS_2$	6.4 to 6.8

Assays of copper ore from Almeda mine

Cu	percent	1.5 to 4.5
Au	ounces per ton	0.12 to 0.42
Ag	do	3.32 to 12.18

A partial analysis of a sample collected by Diller[24] on the 300-foot level just north of the crosscut from the shaft was made by Chase Palmer, of the United States Geological Survey, and the sample was assayed for gold and silver by E. E. Burlingame & Co., with the following results:

Analysis of ore from Almeda mine

SiO_2	percent	0.31
$BaSO_4$	do	68.21
CaO	do	1.01
Cu	do	6.02
Au	ounces per ton	0.10
Ag	do	7.78

Numerous faults cut both types of ore. Strike faults are made evident in places by gouge along the contact of the ore with the footwall argillite and by numerous gouge seams and shattering in the ore. Other faults, particularly those striking about N. 50° W., have offset the ore in many places. (See pl. 6.)

Both siliceous and copper-barite ores have greatly leached outcrops. The siliceous ore at the surface is a white rock, resembling quartzite. It contains many spots that are porous, owing to the removal of pyrite. The outcrop of the copper ore is strongly stained yellowish and brown by iron oxides and is composed largely of porous aggregates of barite and quartz. Oxidation is not abundant, however, in either type of ore at depths exceeding 50 feet below the surface. Sulphide enrichment is made evident in the stopes examined by the presence of tiny veinlets of covellite cutting both gangue and primary sulphide minerals.

---

[24] Diller, J. S., op. cit., p. 76.

Origin of the ore

The ore at the Almeda mine has been formed almost entirely by the replacement of porphyritic dacite close to the contact with argillite. Other bodies of porphyritic dacite have intruded argillite beds, but so far as known the only contact that has been extensively mineralized is the one at the Almeda mine known as the Big Yank lode. Both Diller[25] and Winchell[26] have stated that the Big Yank lode occurs along a zone of faulting. Faulting along the contact probably caused the development of the fractures through which the quartz has so plainly penetrated the rocks. Replacement occurred near the contact in both porphyritic dacite and argillite, but in the argillite to a much lesser degree. After intense silicification and possibly pyritization, the brittle silicified rocks were again fractured. Barite and probably additional quartz were introduced along the fractures and particularly along the zones of greatest shattering. After the barite, sulphides were introduced--pyrite first, and then the other sulphides, apparently as an overlapping series. Like the barite the sulphides tended to follow the zones of most intense shattering, which, as shown by the concentration of barite and sulphides, developed close to the contact of the prophyritic dacite and argillite, thus forming the higher-grade ore shoots. Faulting made evident by gouge, shattering, and displacement of the ore continued after the deposition of the sulphides. Ultimately erosion brought the ore bodies close to the surface, and oxidation attacked the sulphides. Much of the oxidized material was removed, and some of the metals were carried downward to be redeposited as supergene sulphides. However, erosion has nearly kept pace with oxidation, so that today there is but a thin zone of oxidized minerals.

The source of the ore minerals is purely speculative. Most of the sulphides at the Almeda mine are characteristically hypogene minerals and hence, in the light of our present knowledge, were derived from some magmatic source below. Diller states that the porphyritic dacites are thought to be genetically related to the granodiorite masses that are so extensive in southwestern Oregon.[27] With this assumption it may be expected that the ore-bearing solutions were derived from the same parent magma as the porphyritic dacite.

Economic considerations

Two possibilities must be considered in discussing the economic outlook for the Almeda mine--(1) the possibility of developing an enormous tonnage of very low grade ore that would be minable when metal prices recover; (2) the possibility of developing and working smaller shoots of higher-grade ore.

Without question there is, at the Almeda mine, an enormous deposit of silicified rock containing variable amounts of pyrite and some silver and gold. This is the "siliceous gold-silver ore" mentioned by Diller. When conditions are favorable for the exploitation of large low-grade deposits containing silver, gold, and copper, consideration should be given to the mineralized zone at the Almeda mine. The material, excluding the shoots of better ore, is certainly of low grade, but there is a possibility that under very favorable conditions a large part of the

---

[25] Diller, J. S., op. cit., p. 74.

[26] Winchell, A.N., op. cit., p. 208.

[27] Diller, J.S., op. cit., p. 21.

mass might be workable. Only careful and complete sampling will determine the feasibility of such a venture.

Mining has demonstrated the occurrence of good-sized bodies of the richer ore. At least two have been partly developed. The larger and higher-grade body has been partly blocked out for a pitch length of about 800 feet. The smaller body lies about 250 feet north of the larger one and has been only slightly developed. It is not known by the writer whether the continuations of these bodies were found on the levels below the river.

The south ore body is practically as long on the river level as on level 1, 100 feet above, and if it has not been found on the 300-foot or shallower levels below the altitude of the Rogue River, the reason is probably because prospecting has not been carried far enough to the south. The north ore body has not been developed sufficiently to determine its pitch. However, it apparently has not been found on the River level. Diller has suggested that the ore found near the shaft on the 300-foot level might be the extension of this body. However, if the pitch is approximately constant, it should have been intersected by the River level. Therefore, it seems probable that the north ore body may have a steeper pitch than the south ore body and that the ore body on the 300-foot level may be a separate one. This inference is in accord with the interpretation of the origin of the ore - that is to say, the higher-grade shoots might be expected along the argillite contact wherever intense shattering formed permeable openings for the ore-bearing solutions to follow.

The shoots of richer ore have been found at or very close to the contact of argillite, and there is a possibility that careful study might reveal undiscovered shoots along the contact of the Big Yank lode. The outcrops of the better ore differ considerably from those of the lower-grade siliceous ore.

Sulphide enrichment undoubtedly increased the metallic content of the ore near the surface. Tiny seams filled with supergene covellite are plainly visible in all the stopes examined. It is clear, however, that sulphide enrichment has not been the chief factor in the formation of the better-grade ore shoots. Most of the minerals of the shoots are of hypogene origin, and hence their development was not dependent upon surface agencies. The supergene minerals have affected the shoots only by adding somewhat to their metallic content, particularly to the copper and possibly to the silver.

Apparently local smelting of the Almeda ore was not successful. The appearance of the slag indicates that considerable difficulty was encountered. The slag is stony, is not uniform in composition, and is shot through with metallic globules and some undissolved pyrite. According to Holdsworth[28] the composition of the slags from the Almeda matting furnace was as follows:

Composition of slags from Almeda furnace

	1	2	3	4
SiO_2..............	30.9	31.8	31.1	38.9
Al_2O_3.............	10.6	13.5	9.9	4.7
FeO...............	24.9	24.0	25.3	22.3
CaO...............	3.1	3.9	4.8	1.3
BaO...............	30.4	26.9	29.1	32.9

---

[28] Diller, J.S., op. cit., p. 8.

If a reasonable tonnage of ore of a grade indicated by the analyses of Holdsworth and Diller can be demonstrated the higher-grade shoots should receive serious consideration when metal prices justify it, in view of the recent improvements in metallurgy, particularly in flotation.

Outlying copper deposits

Banfield

The Banfield mine is about 5 miles southwest of Drew, at an altitude of 2,400 feet. It is said to have been located as the Rainbow lode, but it is now generally known by the name of H. Banfield, a former owner, who developed the deposit during a period of 20 years or more after 1900. A production of 52 tons of ore containing 10,059 pounds of copper and 19 ounces of silver was reported in 1928.[30] In July 1929 a small crew was employed in repairing a concentrating mill near the mine. According to J. T. Pardee, who visited the mine at that time, the deposit is opened by several adits at different levels, and the underground workings are rather extensive. The country rock is chiefly greenstone that belongs to the older or pre-Tertiary rock group of southwestern Oregon. The greenstone is intruded by a body of porphyry of undertermined extent. In a zone that trends north and is 20 or 30 feet wide the greenstone and porphyry are bleached nearly white by hydrothermal alteration. Within this zone chalcopyrite and pyrite are irregularly distributed as stringers, grains, and bunches. The sulphides are accompanied by abundant magnetite and, locally, bunches of quartz having a coarse texture like pegmatite. Microscopic examination of a specimen of sulphide ore by M.N. Short shows it to consist chiefly of chalcopyrite studded with small crystals of magnetite. Some pyrite also is present. These minerals are cut by veinlets of carbonate and quartz.

Pennell & Farmer

The prospect of Pennell & Farmer is on the South Umpqua River about 1 mile above Tiller. When seen by Mr. Pardee in July 1930, a shaft equipped with up-to-date hoisting machinery was being sunk on the north bank of the river, preparatory to exploring the deposit with crosscuts in depth. The country rock consists largely of dark-green hornblende and quartz and shows a decided schistose structure that trends northeastward. Small pink garnets are sparingly scattered through the rock, and locally much of the hornblende is altered to chlorite. Here and there for a short distance outcrops exposed along the stream at low water contain grains and streaks of chalcopyrite sparingly distributed along the schistosity. Except that in places the exposures of mineralized rock are a few feet wide, the extent of the deposit is not shown.

---

[30] Personal communication from Victor C. Heikes, of the U. S. Bureau of Mines.

73165

In all, about 600 feet of underground development work has been done. Most of the work has been concentrated on the claims near the road in the vicinity of the Bradfield cabin; the remainder on claims about half a mile to the east.

The production has come chiefly from an open cut and some shallow workings close to the Silver Butte road. The ore occurring here is a dark grayish-green chlorite schist striking N. 30°- 60° E. and dipping 50°- 70° SE. A layer in the schist contains pyrite cubes and some stringers of chalcopyrite, and according to Mr. Bradfield free gold can be panned from some of the rock. The pyrite cubes range in size from those that are barely visible to some with faces over half an inch across. The cubes cut across the schistosity of the enclosing rock, thus indicating that they were formed later.

Two tunnels have been driven on a mineralized bed in foliated schist at a point several hundred feet east of the workings just described. The two tunnels, which differ in altitude by 90 feet, have explored the mineralized bed for a total distance of about 170 feet. The schist is similar to that containing the disseminated ore at the Silver Peak Copper and Umpqua Consolidated mines and probably was mineralized under similar conditions and at the same time. In contrast, however, very little quartz or barite was noted in the deposit at the Golden Gate mine.

Almeda mine

Location and access. - The Almeda mine is on the north bank of the Rogue River in the SE$\frac{1}{4}$ sec. 13, T. 34 S., R. 8 W. Willamette meridian, 26 miles below Grants Pass and 4 miles from Galice. Merlin, on the main line of the Southern Pacific Railroad 19 miles to the southwest, is the nearest accessible shipping point. A road to connect the mine with Leland, also on the Southern Pacific Railroad but only 10 miles distant, was started but never completed. High water carried away the bridge that once connected the mine with the Merlin road, and at present to reach the mine it is necessary to cross the Rogue River on an aerial tram or by boat.

History and production. - The Almeda mine has been known for many years because of the great extent of the mineralization and because some fairly large masses within the mineralized zone contain enough gold and other metals to attract notice. Consequently, a small smelter was built in 1908, but no production was reported until 1911. From 1911 to 1916, 16,619 tons of ore that yielded 1,539.87 ounces of gold, 48,387 ounces of silver, and 259,800 pounds of copper was produced. A total of 7,197 pounds of lead was also reported as produced from 5,189 tons of ore during 1913, 1915, and 1916. No lead was reported in 1911, 1912, or 1914. The gross value of the ore produced, on the basis of these figures, is, in round numbers, $108,000. 6.50 per Ton

Development. - The Almeda mine is one of the most extensively developed mines in southwestern Oregon. A mineralized zone has been prospected for more than 1,000 feet along its strike and for about 900 feet vertically. Five adits have been driven, and a shaft with levels at intervals of 100 feet was sunk to a depth of about 450 feet below the Rogue River (pl. 5). The shaft is no longer accessible, but most of the workings above the river are open.

Conclusions.

Since less granite was encountered in the lower levels, it is evident that the slate and shale was of earlier origin than the granite.

The best ore is in the lower levels and less barren country rock, will be countered in its extraction. Misconceptions and lack of inference from geologic evidence, is shown by the way the workings have kept persistently to the east of the main body of ore.

REPORT ON
ALAMEDA LODE MINERAL CLAIMS
ALAMEDA MINE AREA
GALICE MINING DISTRICT
JOSEPHINE COUNTY OREGON, U.S.A.
FOR
COMANCHE PETROLEUM INC.

INTRODUCTION

This report is on 14 unpatented lode mineral claims located on the north bank of the Rogue River about 3 miles north of the resort town of Galice and 30 road miles northwest of Grants Pass in sections 7, 12, 13, and 18, Township 34 South, and Range 7 West and 8 West, Galice Mining District, Josephine County, Oregon, U.S.A. This report is prepared at the request of Mr. Morris Murtack, the President of Comanche Petroleum Inc., 210 - 347 Lean Avenue, Kelowna, B.C. It is based on a visit by the writer on February 16th and 17th, 1983 and accompanied by Mr. Geoffrey J. Garcia, the geologist who directed and supervised the diamond drilling programme of 1982. The author visited surface showing and had a general traverse of the property in order to study general geology of the area. He could not visit the underground workings as they are unsafe at the present time. The writer also referred to the previous written reports and publications, as listed in the bibliography, provided by the Comanche Petroleum Inc. This study was undertaken to evaluate the property and to propose a programme of exploration if it is warranted.

PROPERTY AND OWNERSHIP:-

The property consists of 14 unpatented lode mineral claims including the original four claims covering the Alameda Mine (see figure #2).

Alameda mineral claims A-J were staked by Geoffrey J. Garcia, of 12303 Galice Road, Merlin, Oregon, U.S.A., on August 5, 1982 and recorded in the official Record Books of the Josephine County Recording Office, Oregon, on August 6, 1982 with the bill of sale for Blue Diamond Energy Resources Inc., and Comanche Petroleum Inc. The details of these mineral claims are as follows:-

Name of Claims	Date of Recording	Vol. No.	Page No.
Alameda A-J	August 6, 1982	28	435-444

The Lost Treasure, Lost Treasure Extension, Hidden Treasure and Hidden Treasure Extension are optioned by Blue Diamond Energy Resources Inc. and Comanche Petroleum Inc. from Messrs. Wesley J. Pierin and Fayette I. Bristol of Grants Pass, Oregon and Rogue River, Oregon, respectively. This option is in good standing till June 30, 1983. The details of these mineral claims are as follows:-

Name of Claims	Date of Recording		Vol. No.	Page No.
Hidden Treasure Extension	11 July	1966	72	641-642
Hidden Treasure	6 February	1956	63	297-298
Lost Treasure Extension	11 July	1966	72	643-644
Lost Treasure				

All these lode mineral claims are located in accordance with the Mineral Act of the State of Oregon, U.S.A.

LOCATION AND ACCESSIBILITY

The property is located on the north bank of the Rogue River about 3 miles north of the town of Galice in the section 7, 12, 13, and 18, Township 34S, Range 7 and 8 West, Galice Mining District, Josephine County, State of Oregon, U.S.A. It is centred approximately 42°32'25" North Lattitude and 123°35'00" West Longitude.

The property is accessible by about 5 miles Interstate Highway #5 from north of the town of Grants Pass thence by Merlin Galice Highway to Hog Creek and then about 25 miles by series of dirt roads leading to the mine workings. It can also be reached by boat across the Rogue River from a boat ramp at the Alameda Bar Recreation Area located outside Galice. Supplies are available from Grants Pass and Galice.

TOPOGRAPHY, VEGETATION AND CLIMATE:-

The area is located on the southern canyon slope of Klammath Mountain which is bounded to the south by the Rogue River. This southern slope of Klammath Mountain is very rugged which makes access in the claim area difficult if not impossible. The elevation ranges from 650 feet above sea level at the Rogue River level rising steadily to 2400 feet above sea level.

The claim area is covered by trees of commercial value, and can be used for mining. The climate of the area is moderate for the greater part of the year. Average precipitation is approximately 32 inches, mostly between the months of November to March. Summer months are very hot and dry with little or no rain. Snowfall is very rare which results in a mild winter.

The area is drained by south flowing tributaries of the Rogue River, which can supply all water required for exploration and mining. The exploration and mining can be carried out throughout the year.

PREVIOUS HISTORY AND WORK:-

The history of the area dates back as early as 1874 when Yank Ledge, also known as the Big Yank Lode, was discovered by pr spectors, although this extensive gossanized zone which is expose on both sides of the Rogue River must have been known to placer miners long before that. The prospectors swarmed in the area as a result of this discovery and later the city of Galice was established. The four original lode mineral claims known as Live Yankee (1898), Yankee Doodle (1899) and Monte Cristo and Bonanza Lode (1900) were located. These four lode claims with two placer claims subsequently conveyed to Alameda Consolidated Mining Co. in July 1906.

The development and mining activity started in 1905 and continued intermittently up to 1917. During this period about 2300 tons of ore, or average grade of $5.35/ton,was shipped to Tacoma and Kennett Smelters. But out of this recorded 5,504 tons of ore fed to the melting furnace during 1912 - 1913 graded 0.091 oz/ton in Gold, 2.87 oz/ton in Silver and 1.085% in Copper.

Mining activity became dormant during the period of 1917 to 1940. The claims were relocated by Ray Hillis who later became the legal owner after a law suit was completed in 1931. Within this span of time (1917-1941) several mining companies conducted examination of the mine for the purpose of acquisition but nothing developed from several attempts to complete a deal.

In 1940, Messrs. P. H. Holdsworth and L.A. Lavensaler optioned the mine. They drilled 15 diamond drill holes, all from the 300 foot level (200' below the River Level), outlining a small ore shoot about 60' X 60' raking approximately 70° southeast. The U.S. Bureau of Mines reported shipment of 287 tons of ore reading 2.1 oz/ton in Gold, 0.95 oz/ton in Silver and 0.13% Copper apparently from this ore shoot. The Mine was closed in 1942.

The mine was optioned by Alaska Copper Corporation from Alameda Mining Company, a company formed by Roy Hillis, in 1953. Some of the old workings were rehabilitated by providing access to sampling, geological mapping and diamond drilling. Nine holes were drilled from the 520' level and 4 holes from the 320' level. The option was dropped on account of discouraging results.

Details of the underground mining and development is described by F. W. Libbey in his report published as "short paper 24" by the Department of Geology and Mineral Industries, State of Oregon.

On September 1975, Texas Gulf Western Inc. optioned the property. At this time, the claims covering the mine had been staked by Mr. L. Pierin as the Lost Treasures, Hidden Treasure, Hidden Treasure Extension and Lost Treasure Extension. Work by Texas Gulf consisted of surface geological mapping, geochemical soil sampling, magnetometer and induced polarization surveys followed by six surface diamond drill holes totalling 2,333 feet.

The Blue Diamond Energy Resources Inc. and Comanche Petroleum Ltd. acquired the property in 1981. During the period of September 24 to October 7, 1981 vector pulse electromagnetic survey was completed by Glen E. White Geophysical Consulting and Services Ltd. of Vancouver. This vector pulse electromagnetic survey was followed by four diamond drill holes totalling 1929 feet in 1982. These drill holes intersected the sulphides mostly pyrite bearing zones, but the results were inconclusive.

During the period of October 1982, C.F. Mineral Research Limited of 263 Lake Avenue, Kelowna, B.C. collected three bulk soil talus and stream sediment samples for Heavy Mineral Oriented analysis. The resulting analysis is very encouraging (see appendix #1)

GENERAL GEOLOGY AND STRUCTURE:-

The regional geology of Galice quadrangle including Alameda Mine had been studied by Wells and Walker in 1953 and published by F.W. Libbey of Department of Geology and Mineral Industries, in short paper 24, in 1967. Mr. Thorny Rogers of Texas Gulf Western Inc. had mapped the Alameda Mine area in detail during 1976. The study of above paper and reports suggests that the property and its vicinity is underlain by a sequence of volcanic rocks of the Rogue Formation conformably overlain by Galice Formation of Upper Jurassic Age.

The Rogue Formation is a sequence of fragmental volcanics such as volcanic breccias, agglomerates, pillow Lavas and flows of predominantly andesitic composition, and fine to coarse grained tuffs of siliceous to intermediate composition.

The Galice Formation lies to the east of the Rogue

Volcanics and consists of mainly black to dirty grey graphitic thinly bedded slaty shale with thin interbeds of sandstone and volcanic rocks. These sedimentary rocks strike north to northeast dipping steeply to the east near the mine area. Both of these formations are thought to be of middle to upper Jurassic Age. The above sedimentary-volcanic formations are intruded by sill and dykes of dacite porphyry and ulterbasic rocks during early Jurassic or early Cretaceous period.

STRUCTURE:-

Volcanic flows strike N15°-20°E and dip 75°-85°SE in the vicinity of sedimentary contact, but flatten westward to about 55°-65°SE. The rhyolite agglomerate and sedimentary contact trends about due north.

The altitude of graphitic shale also varies. It strikes N20°-30° with varying dip of 40° vertical. These formations had displayed cocentric folds and occasionally drag folds in competent silty units adjacent to uncompetent graphitic shales. These variations of altitude and minor folds suggests the occurence of large scale folds.

MINERALIZATION:-

The occurrence of massive and disseminated sulphide in the Alameda mine area appears to be confined along the contact of volcanic units of Rogue formations and sediments of Galice formation. This volcanicgenic mineralized zone of about 150 - 200 feet width and 1500 feet of strike length is traced by adits, pits and trenches in the mine area. This mineralized zone is marked on surface by a highly gossanized zone which strikes N-NE and steeply dipping to the east. It extends further to the southwest over an unknown strike length across the Rogue River.

The mineral assemblage of massive and disseminated sulphides occurs in silicified rhyolite agglomerate, and consists of mainly pyrite and minor chalcopyrite, galena, sphalerite and occasionally tetrahedrite which possibly accounts for high values of silver. Pyrite with lenses of barite is also noticed. The chlorite, sericite and limonite occur as alteration product. These minerals also constitute gangue material. Disseminated pyrite also carries variable values of gold and silver.

SAMPLING:-

Mr. E. D. Cruz, P. Eng., Consulting Mining Engineer-Geologist of 7734 Garrett Drive, Delta, B.C., sampled an adit at 794 feet elevation and collected 30 samples over a strike length of 160 feet during his examination of the property in August 10 - 11 and September 24 - 25, 1981. Sample locations and assays are shown in figure #4. The values range from 0.030 -1.102 oz/ton in Gold and 0/13 - 3.25 oz/ton in silver.

DRILLING OF 1982:-

The Comanche Petroleum and Blue Diamond Energy Resources Inc. have drilled four diamond drill holes totalling 1929 feet in 1982, to test the vector pulse electromagnetic conductor.[1] The core was logged from these holes by Charlotte Garcia. The location of these drill holes are marked on geophysical map.[5] The details of these holes are as follows:

DDH#1 It is drilled to the total depth of 88 feet at a location of 1120°N, 400°W, at an angle of -55° due N55E. This is a short hole and drilled in the opposite direction of the conductor. Therefore it had no possibility of intersecting it. the recovery of the hole is about 60%, 6" of vein intersected at 34.5' - 35', assayed .34 oz/ton Ag and 0.003 oz/ton Au.

DDH #2 It is located at 1100°N, 420°W, and drilled to the total depth of 148 feet at an angle of -65° due S25W. This hole has first 40' of overburden and the rest of the depth is an oxidized zone. The total recovery was 30%.

DDH #3 It is located at 1200°N, 300°W and drilled to the total depth of 798' at an angle of -59° due East. It has about 85% recovery, but the study of logs suggests that it has intersected fault zone. Core was sampled and assayed for Gold, Silver and occasionally for Zinc. Values for Silver trace to .2 oz/ton, for Gold trace -0.01 oz/ton, and for Copper .04%.

DDH #4 It is located at 1200°N, 300°W, and drilled to the total length of 895 feet at an angle of -45° due East. Its recovery is about 80%. It is very poor in the oxidized zone. The log of hole indicates that the hole has intersected a fault zone, and values are also very poor. The highest value in Silver is 0.05 oz/ton, and Gold 0.05 oz/ton.

SOIL SAMPLING:-

Mr. C. Fipke, Geologist and Geochemist of C. F. Mineral Research Limited, 263 Lake Avenue, Kelowna, B.C., visited the property in October 1982 and collected three bulk soil samples for heavy mineral testing with the help of

Mr. Geoff Garcia of Galice, Oregon. These samples were collected downslope from two electromagnetic anomalous zones unaffected by previous mining contamination. As these anomalies are supposed to be related to mineralized zones which carry gold and silver, covered by about 40 - 60 feet of overburden, did not reflect by conventional soil geochemistry completed by Texas Gulf Western Inc. in 1976. But it was hoped that the large bulk samples might contain trace amounts of "microfloat" mineralization. If traces of "microfloat" could be concentrated from large amounts of dilutent soil values and detected optically or geochemically, such a tool could prove useful in detecting mineralization covered with overburden. For the details of this method please see Appendix #2. Locations of these 3 bulk samples are marked on geophysical map #5.

This heavy mineral orientation test indicates that small quantities of Au, Ba, As, Sb, and base metals can be concentrated from large diluted sample of soil talus and stream sediments. The geochemical results of concentrates significantly indicates the presence of Au, Ba, Sb, As, etc., elements which are undetectable by conventional 080 mesh geochemical samples. Therefore the concentrate results can be used as geochemical anomalies.

CONCLUSIONS:-

The property discussed above in this report is in a favourable geological environment and structure. The property is underlain by the volcanic rocks of Rogue Formation which are conformably overlain by sedimentary rocks of Galice Formation. Both of these formations are of Upper Jurassic Age. The property is located at the contact of these volcanic and sedimentary formations.

The occurrence of massive lenses and disseminated sulphides in the Alameda Mine is confined along the contact of volcanic units of Rogue Formation and sediments of Galice Formation. These types of mineralized zones can be traced for about 1500 feet of strike length and 150 - 200 feet in width. The mineralized zones are defined by a highly gossanized zone. About 23,000 tons of ore grading 0.091 oz/ton Gold, 2.87 oz/ton Silver, and 1.085% Copper in early 1900.

The two electromagnetic conductors had been outlined as a result of Vector Pulse Electromagnetic Survey in 1981. The conductor #1 was drilled out of the zone and in the opposite direction. Hole #2 was drilled in a gossan area and oxidation was very deep; as a result the core recovery was very poor. Hole #3 and #4 were drilled through the fault.

The area is covered by about 40 - 60 feet of overburden and as a result of it conventional soil geochemistry is not effective as indicated by Texas Gulf Western Inc. work of 1976. However a programme of heavy mineral orientation test on Alameda Mine area carried out in 1982 by C. Fipke, Geologist of C.F. Mineral Research Limited, appears to be effective in locating mineralized zones under heavy overburden. The geological environment is such that there is every possibility of finding new mineralized zones. Therefore this heavy mineral orientation test of C. F. Mineral Research Ltd. should be carried out for finding new ore deposits.

RECOMMENDATIONS:-

As a result of the above studies, the following exploration programme of two phases is recommended.

1. The bulk soil samples and stream sediments should be collected in the area of E. M. Conductors and north of it at the contact of volcanics and sediments.
2. The "microfloat" detection of Cu, Pb, Zn, Ba and Au should be carried out from -60 or -80 mesh HN concentrates.
3. The Vector Pulse Electromagnetic Conductors and bulk soil sample anomalies should be tested by diamond drilling.
4. This programme should be implemented in two stages. The E. M. Survey should be extended north of the present surveyed area to locate new conductors.

Respectfully submitted,

Dated at:
901 - 675 W. Hastings Street
Vancouver, B.C.

February 22nd, 1983

G. C. Singhai

G. C. Singhai, M.Tech., P.Eng.

ESTIMATED COST

STAGE I:-

1.	Collection of 300 samples at $38.00/sample	$ 11,400.00
2.	Preparation and Analysis of 300 samples for Au, Ag, Cu, Pb, Zn, Ba; at $62.00/sample	$ 18,600.00
3.	Report and maps	$ 2,000.00
4.	E. M. Survey for 30 line mile at $450/line mile	$ 9,000.00
5.	Magnetometer survey for 30 line miles at $100/line mile	$ 3,000.00
		$ 44,000.00
Contingencies 10%		4,400.00
		$ 48,400.00

STAGE II:-

1.	Diamond Drilling - 5000 feet at $35.00/foot	$175,000.00
2.	Analysis for Gold, Silver and Copper	$ 10,000.00
3.	Transportation, Camp and Supplies	$ 15,000.00
4.	Supervision and Engineering	$ 15,000.00
		$215,000.00
	Contingencies 10%	21,500.00
		$236.500.00

STAGE I:	$ 48,400.00
STAGE II:	$236,500.00
NET TOTAL	$294,900.00

PROFESSIONAL ENGINEER
PROVINCE OF

G. C. Singhai

G. C. Singhai

CERTIFICATION

I, Gyan Chand Singhai of 5620 Clearwater Drive, Richmond, B.C., do hereby certify that:

1. I am a member of the Association of Professional Engineers of British Columbia since 1969, and member of the Canadian Institute of Mining and Metallurgy.
2. I am a post graduate in Applied Geology (1959) from the University of Saugor, Sagar, Madhya Pradesh, India, and have been practising my profession since that time.
3. I was teaching in the University of Saugor, Sagar and Ravishankar University, Raipur, India, and practised my profession in India, Canada, West Indies, Mexico, Peru, and U.S.A.
4. This report is based as a result of personal examination of property on February 16th and 17th, 1983, and information and data provided by Comanche Petroleum Inc.
5. I have no interest either directly or indirectly in the property described herein or any other properties, or in the securities of Comanche Petroleum Inc.
6. This report may be used for the purposes of a prospectus, if so desired.

Dated at:
901 - 675 W. Hastings Street
Vancouver, B.C.

February 22, 1983

G. C. Singhai, M.Tech., P.Eng.

BIBLIOGRAPHY

1.	CRUZ, E.D., P.Eng.	1981	"Report on Alameda Mineral Property, Josephine County, Oregon". For Blue Diamond Energy Resources Ltd., and Comanche Petroleum Ltd.
2.	LIBBEY, F.W.	1967	"The Alameda Mine, Josephine County, Oregon". Short Paper 24, Department of Geology and Mineral Industries, State of Oregon.
3.	Ramp, L & ~~HULL, D.A.~~ Peterson, N.V.	1979	"Geology and Mineral Resources of Josephine County, Oregon". Bulletin 100, Department of Geology and Mineral Industries, State of Oregon.
4.	ROGERS, T.	1976	"Preliminary Report on the Geology and Mineralization of the Alameda Mine". Texas Gulf West Inc.
5.	WHITE, G.E.	1981	"Geophysical Report on Vector Pulse Electromagnetometer Survey for Blue Diamond Energy Resources Ltd., and Comanche Petroleum Ltd., Alameda Property".
6.	GARCIA, J.	1981	"Report on the O.M. Claims, Galice Mining District, Southern Oregon". Oak Mining Company.
7.	FIPKE, C.	1983	"Heavy Mineral Orientation Test Report, Alameda Mine Area, Oregon."

PRELIMINARY REPORT ON THE GEOLOGY AND MINERALIZATION OF THE ALMEDA MINE

Josephine County, Oregon

Thorny Rogers
February, 1976

Thorny Rogers
Texasgulf Western Inc.
Golden Office

TABLE OF CONTENTS

SUMMARY

On September 30, 1975, Texasgulf Western optioned four claims surrounding the inactive Almeda Mine in southwestern Oregon. The previous mine activity was predominantly between 1911 to 1916 when production of 16,619 tons of ore averaged .09 oz./ton gold, 2.91 oz./ton silver and 1.28% copper.

The geology consists of N15-20E, steep, southeast-dipping, volcanic rocks of dacite porphyry, chloritic rhyolite, rhyolite tuffs and rhyolite agglomerates overlain by barite lenses. A deformed and folded graphitic shale sequence overlies these volcanic rocks. There are numerous dacite-porphyry sills, diorite sills and a dacite-porphyry intrusive within the volcanic and sedimentary rocks.

The massive sulphide mineralization of copper and silver consists of barite ore, which lies stratigraphically near the top of the rhyolite-agglomerate unit. It is underlain by breccia ore and disseminated mineralization of low-grade silver and gold within the rhyolite agglomerates. Geologic mapping, I. P. Survey, and compilation of various underground data have contributed to delineating the mineralized zone for further exploration.

CONCLUSION

This volcanogenic, massive-sulphide deposit contains copper, zinc, lead, and pyrite with precious-metal association of silver and gold. Associated volcanic rocks consist of an intermediate to felsic volcanic suite.

The intermediate volcanic rocks differentiated toward a felsic center of explosive volcanism represented by the rhyolite agglomerate unit. The deposition of massive sulphide occurred during the last stage of volcanism which overlapped with the onset of barite sedimentation. This was followed by epiclastic sedimentation of graphitic shales in an eugeosynclinal environment devoid of chemical deposition. The last geologic event was porphyritic, subvolcanic intrusions of diorite sills and dacite-porphyry sills intruded nearly contemporaneous with the dacite-porphyry intrusive.

The baritic ore contains variable copper and silver values. It lies stratigraphically near the top of the rhyolite agglomerate and below the graphitic shales. The upper rhyolite agglomerate contains low-grade gold and silver stockwork mineralization lying stratigraphically below the barite ore.

The surface geologic mapping, geochemical and I. P. results (Windels, 1976) indicate that the mineralization extends northward to 14N and is progressively more abundant southward toward the Rogue River. Windels, 1976, states that I.P. results for this mineralized zone show continuous sulphides to a depth of 400'+. The compiled underground geologic data (Maps 2 and 3) confirm this interpretation. This suggests that the potential for ore tonnage lies at depth, particularly southward toward the Rogue River.

RECOMMENDATIONS

Almeda Project:

I. Conduct detailed underground geologic mapping and sampling.

II. A drilling program with initially four holes at an approximately 300' north-south spacing (Map 1).
   - A) Top priority should be assigned to Hole 1 which will test the mineralized rhyolite zone below ON, which corresponds to the area of strongest I.P. readings (Windels, 1976, Figures 2-4) and geochemical anomalies of Cu; Pb; Zn; Ag and Au.
      - 1) An angle hole of 55° S80°W at Site A (Map 1) of about 900'-1000' will penetrate through the mineralized zone approximately 300' below the workings at the 320' level (Map 2).
   - B) Hole 2 will test a shallow I.P. anomaly (Windels, 1972, Figure 2) and a corresponding Pb anomaly near 10N.
      - 1) Initial geological examination of underground workings at 10N, 1W could determine the I.P. anomaly source and subsequently modify drilling plans.
      - 2) If underground observation fails to determine the source of the anomaly, then an angle hole of 50°, due west, of about 500'-600' should be drilled from Site B (Map 1).
   - C) Hole 3 will test approximately 150'-200' below the known barite ore and mineralized stockwork zone on the 620' level (Map 3).
      - 1) Site D will have an 1100' hole at 55°, S72°W (Map 1).
   - D) Hole 4 will involve an angle hole of 55°, due west, from Site D (Map 1). It will be a 900' hole in order to penetrate through the mineralized zone to approximately 100' below the workings on the 520' level.

1) This drill site necessitates constructing a road, but all others utilize existing ones.

III. Geologic examination of Oak Mines property on the south side of the Rogue River for further southward extension of the mineralized rhyolite zone. The rhyolite zone is present on the edge of the road paralleling the south side of the Rogue River.

A) A reconnaissance I.P. line was attempted on the edge of the road in order to correlate with our I.P. data on the north side of the Rogue River. Unfortunately, the data was invalid due to cultural features.

Regional:

I. Delineate and explore the Rogue Formation for further potential massive-sulphide prospects.

II. Retain valid claims on the massive-sulphide prospect at Waite Barite.

A) The majority of the rhyolite zone lies within county land.

B) This mineralized rhyolite zone must be evaluated in order to determine if Texasgulf should pursue a lease on this county land should it become available for lease in the future.

INTRODUCTION

In October, 1974, Allan Juhas observed various stratabound, massive-sulphide prospects in southwestern Oregon with top priority for land acquisition assigned to the Almeda Mine.

In late February, 1975, Doug Underhill and I went to southwestern Oregon to determine land availability and stake claims on open ground in the vicinity of the favorable massive-sulphide prospects. It was established that Homestake Mining Company was presently negotiating with Faye Bristol for control of the Almeda Mine. Four claims encompassing the mine site were owned by Wes Pieren (1/3 owner), Fay Bristol (1/3 owner), Paul Remsen (1/6 owner) and Peter Remsen (1/6 owner).

In early June, 1975, Homestake ceased active negotiations for the Almeda Mine, allowing Texasgulf Western an opportunity to enter into negotiations. On September 30, 1975, Texasgulf Western and the above-mentioned optionors entered into an Option Agreement on the following unpatented lode mining claims: Hidden Treasure, Lost Treasure, Hidden Treasure Extension and Lost Treasure Extension (Map 10).

LOCATION AND ACCESS

The Almeda Mine is located on the north bank of the Rogue River in southwestern Oregon (Figure 1). It is approximately 2 3/4 miles north of the small town of Galice and 15 miles northwest of Grants Pass.

Access to the Almeda Mine is by driving about 2 1/2 miles north of Grants Pass on Interstate 5 to the Merlin exit. Proceed west on the Merlin-Galice Road to Hog Creek Road where the remaining distance is covered on a series of dirt roads.

Another means of access is by remaining on the Merlin-Galice Road past Rand and Galice to the Almeda Bar Recreation Area. The availability of a boat ramp at this site allows easy boat crossing of the Rogue River to the mine on the opposite bank.

(extra copy)

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1

TELEPHONE: (604) 984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

O : MURTACK , MR. MAURICE

618 SHERWOOD STREET
KELOWNA, B.C.
V1W 1E7

263 LAKE AVE.
KELOWNA
V1Y 5W6

CERT. # : A8214942-001
INVOICE # : I8214942
DATE : 5-JAN-83
P.O. # : NONE
M. MURTACK 82-94

CC: C. F. MINERALS RESEARCH LTD.

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	
AN1bag1-20+35HP	205	180	18	400	265	0.8	--
AN1bag1-35+60HP	205	144	2	230	235	0.8	--
AN1bag1-60+150HP	205	115	1	166	205	0.6	--
AN1bag1-150HP	214	88	1	118	312	1.6	--
AN1bag2-20+35HP	205	65	1	163	105	0.5	--
AN1bag2-35+60HP	205	60	1	68	95	0.2	--
AN1bag2-60+150HP	205	66	1	56	96	0.3	--
AN1bag2-150HP	214	64	1	44	96	0.2	--
AN2bag2-20+35HP	205	5000	37	>10000	860	>100.0	--
AN2bag2-35+60HP	205	5350	42	>10000	905	>100.0	--
AN2bag2-60+150HP	205	5600	45	>10000	930	>100.0	--
AN2bag2-150HP	214	5500	41	>10000	810	>100.0	--
AN1bag1-20+35IP	205	137	7	198	250	1.0	--
AN1bag1-35+60IP	205	194	4	176	345	1.0	--
AN1bag1-60+150IP	205	98	3	106	205	1.1	--
AN1bag1-150IP	214	186	4	118	405	1.3	--
AN1bag2-20+35IP	205	215	3	1900	136	6.1	--
AN1bag2-35+60IP	205	119	2	950	103	3.4	--
AN1bag2-60+150IP	205	80	2	370	102	1.6	--
AN1bag2-150IP	214	82	2	34	136	0.3	--
AN2bag2-20+35IP	205	3450	37	>10000	880	>100.0	--
AN2bag2-35+60IP	205	3150	31	>10000	725	>100.0	--
AN2bag2-60+150IP	205	3750	21	>10000	1250	78.0	--
AN2bag2-150IP	214	3000	19	>10000	840	57.0	--
AN2bag2-20+35HPN	205	1700	17	>10000	395	>100.0	--
AN2bag2-35+60HPN	205	1650	14	>10000	385	>100.0	--
AN2bg2-60+150HPN	205	1900	12	>10000	450	>100.0	--
AN2bag2-150HPN	214	1300	7	>10000	405	>100.0	--

MEMBER
CANADIAN TESTING
ASSOCIATION

Certified by Hart Bichler

TOPOGRAPHY AND CLIMATE

The area is located in the rugged Klamath Mountains. It is composed of a steep, south-facing canyon slope cut by northward ravines and bordered on the south by the Rogue River.

The area averages approximately 32 inches of precipitation, predominantly between the months of November to March. Summer months are hot and dry with little or no precipitation.

HISTORY AND PRODUCTION

Development of the Almeda Mine occurred prior to 1910 with the first reported production from 1911-1916. It consisted of 16,619 tons of ore yielding 1,539 ounces of gold; 48,387 ounces of silver and 259,800 pounds of copper (Shenon, 1933). There was reported lead production of 7,197 pounds of lead from 1913, 1915 and 1916. The production of gold, silver and copper from 1911 to 1916 averaged .09 oz./ton gold; 2.91 oz./ton silver and 1.28% copper.

Mine activity was dormant from about 1917 to 1940. P. H. Holdworth and L. A. Levensaler leased the mine in 1940. They drilled at least 15 underground, diamond drill holes, mainly from the 300' level (Libbey, 1967, Figure 16). They reported shipping about 287 tons of ore containing 602 oz. gold, 273 oz. silver and 600 lbs. copper.

In March, 1953, Alaska Copper Corporation optioned the Almeda property. They rehabilitated some of the workings in order to allow underground drilling of 13 holes (Libbey, 1967, Figures 17, 18 and 22).

It is suggested the reader refer to the published article: The Almeda Mine, Josephine County, Oregon, 1967, by F. W. Libbey, Short Paper 24, State of Oregon, Department of Geology and Mineral Industries. This article gives more extensive coverage of mining activities, drill hole logs, assays and maps of underground workings accompanied with drill hole locations.

OPERATIONS

Personnel:

Two local laborers were hired to grid stake and collect geochemical soil samples on the property. The Tucson office supplied the geophysical survey crew for the induced-polarization survey. Magnetic survey was carried out by geophysicist, Carl Windels, and myself.

Geology:

The initial step of this winter's geologic program involved staking a grid on the property for control during detailed geologic mapping, geochemical soil sampling, magnetic survey and induced polarization survey.

A 3,400' due-north baseline was marked every 200' with 1,000' east and west crosslines marked every 100'. A later addition of a east-west crossline 200' south was completed.

Detailed geologic mapping of outcrops was undertaken on a scale of 1" = 100'. Subsequent geochemical soil samples for Cu; Pb; Zn; Au; Ag and Ba were taken at each survey stake. This was followed by magnetic and induced polarization surveys. The Bonanza 1 and Bonanza 2 claims were staked on the west edge of the property in order to secure complete coverage of the rhyolite zone (Map 10). These claims were overlapped into the optioned Hidden Treasure and Hidden Treasure Extension claims due to the uncertainty of their eastern claim boundary.

STRATIGRAPHY

The Klamath Mountains Province is limited to pre-Tertiary sedimentary, igneous and metamorphic rocks. Its boundaries are placed at contacts of Tertiary rocks overlying per-Tertiary (Figure 2).

Ramp, 1969, gives the generalized stratigraphy of the Klamath Mountains which is summarized in Figure 3. The lithologic units differentiated in the Almeda area have been added to Figure 3 in order to show their stratigraphic relationship.

LITHOLOGIC UNITS

Lithologic descriptions are based on outcrop observation and hand-specimen identification.

Dacite Porphyry:

In outcrop, this rock is massive, greenish to greenish-black with minor reddish-buff occurrences. It has minor, sporadic quartz veining. This porphyritic rock contains phenocrysts of anhedral quartz, subhedral plagioclase laths and hornblende grains with partial to complete chlorite alteration. The chloritic matrix is composed of quartz, plagioclase, hornblende, chlorite and hematite. Pyrite content varies irregularly throughout the unit from 0-5%.

This unit shows a discordant, intrusive relationship in the northern mapped area where it cuts across the trend of the graphitic shale sequence, as supported by both geologic mapping and magnetics (Windels, 1976, Figure 1).

Windels (1976, Figure 1) relates high magnetic susceptibility units in the northern dacite-porphyry unit as possibly a later intrusive system related to the diorite and dacite sills. These sills show variable magnetic susceptibility, as observed when correlating their surface exposures (Figure 1) with high magnetic susceptibility (Windels, Figure 8).

Diorite Sills:

It is massive, buff to reddish-buff due to limonitic staining with distinctive phaneritic texture evident on weathered surfaces. The fresher exposures have a salt-and-peper texture accented by hornblende in contrast to plagioclase. There are occasional quartz veinlets within the diorite.

It is complsed of predominantly hornblende and plagioclase with minor orthoclase, quartz, augite and hematite. The subhedral prismatic hornblende grains average about 2/10" in size, but range up to 4/10". There is partial alteration of hornblende to chlorite and also to hematite. The anhedral plagioclase laths have minor alteration to sericite or saussurite. There is generally less than 4% disseminated pyrite.

This intrusive unit forms lenticular, sill-like masses with the one exception observed on the road between 400' and 500' west of the 0N baseline where it shows a bulbous, dike relationship with the rhyolite tuffs. The diorite sills have intruded into the rhyolite tuff, rhyolite agglomerates and lower graphitic shales. A few of the diorite sills exhibit contact metamorphism of the adjacent fissile,graphitic shales to hornfels.

Dacite-Porphyry Sills:

These lenticular sills are massive, greyish-white and weather reddish-buff to buff with a distinctive porphyritic texture. Minor quartz veining was observed in a few dacite sills.

This porphyritic unit contains phenocrysts of quartz, sericite altered plagioclase and hornblende, partially altered to chlorite. The pale-green to dark-green chloritic, siliceous matrix is predominantly composed of quartz, plagioclase, chlorite and hematite. It contains disseminated pyrite, generally less than 2%, but some sills have up to 10%.

Dacite-Porphyry Breccia: This unit is massive, greenish to reddish-black, and was observed only adjacent to the diorite sill trending from 0N to 2N. It is composed of quartz and feldspar phenocrysts in a chloritic silliceous matrix. There are subrounded, poorly sorted, pale-green siliceous fragments up to 2" in size and generally parallel to bedding. This unit is suggestive of an intrusive breccia genetically related to the dacite porphyry sills.

Shales:

These consist of predominantly laminated to very thinly bedded, fissile, graphitic shales with occasional soft sediment slumping. There are also minor occurrences of interculated siltstone and cherty shale lenses in the graphitic shales.

Barite:

Barite occurs as massive, greyish-white, limonitic-stained, lenticular lenses up to 15' wide, which are generally located in the stratigraphic horizon between the rhyolite agglomerates and overlying, graphitic-shale sequence. Some barite lenses are the host rock for massive sulphides, which will be discussed in detail in the section on mineralization.

There are minor occurrences of barite as small, irregular lenses within the upper rhyolite agglomerate. There are also subrounded barite fragments of up to 6" which are dispersed within this rhyolite-agglomerate unit.

Rhyolite Agglomerate:

This unit is massive and white on fresher exposures, but generally reddish due to pervasive limonitic staining, which has obscured many textural features. It consists of tuff to block-sized, homogenous rhyolite fragments of up to 1 1/2'. These fragments are subangular to subrounded, poorly sorted, non-aligned and tend to be more conspicuous on weathered surfaces.

The rhyolite matrix is white to greyish-white, silicified with anhedral clear to milky-quartz eyes and white to pinkish-buff, subhedral, tabular feldspar phenocrysts. It contains minor, disseminated pyrite.

Rhyolite Tuffs:

The rhyolite tuffs are laminated with minor, interbedded, massive sections. It is white on fresher exposures, but generally red to reddish-black due to mild, sporadic, limonitic staining.

It is composed of an aphanitic siliceous matrix with minor quartz eyes and feldspar phenocrysts altered to sericite. There is a minor, streaky, foliated texture displayed in the matrix.

Chloritic Rhyolite:

This unit is massive with minor, poorly-displayed laminations and is reddish-black to greenish-black in color. It is compositionally similar to the overlying rhyolite tuff unit, except for mild chlorite alteration in the matrix.

GEOCHEMISTRY

This skeletal soil profile consists of a humus-rich A_1 horizon ranging from 2"-6" and an A_2 iron-rich horizon from 6"-2'. Samples were systematically collected along east-west cross lines at every 100' station and at a depth of about 1'. Each sample was sieved to -80 mesh and analyzed for Cu; Zn; Pb; Au; Ag and Ba.

There is a low background Pb content in the dacite-porphyry and sedimentary sequence of less than 50 ppm (Map 5). The background values of Pb in the rhyolite-agglomerate and tuff units are higher. This factor, along with the immobility of Pb, results in a close correlation between the geochemical and geological pattern of these units.

There are significant Pb anomalies existing at 2N and 10N, 1W, which are located in the known mineralized rhyolite agglomerate unit (Map 5). A non-significant anomaly is concentrated around 0N, 3W and resulted due to contamination from the mine dump. Similar non-significant anomalies were encountered at this sampling location for all elements.

The significant anomalous pattern for Cu delineates the mineralized rhyolite agglomerate from 0N to 12N on the baseline and is centered around 8N, 1W (Map 4). There are sporadic, insignificant sub-anomalous values associated with the graphite shales.

The Zn values are generally indefinitive, with erratic geochemical patterns exhibited in all lithologic rock types (Map 6). Subtle, significant anomalies exist at 4N and 8N, 1W, but the magnitude of the values have probably been suppressed due to secondary dispersion of zinc. There is an anomaly centered at 2N, 5W which is peripheral to the known mineralized zone, but yet, has the same trend and also shows a close relationship to a ridge. This location correlates with low chargeability from I.P. results and also low geochemical values for other minerals. These factors tend to suggest that this is an insignificant anomaly.

The anomalous Au and Ag values show a geochemical pattern trending parallel to the rhyolite-agglomerate unit from 0N to 8N (Map 7 and 8). This pattern supports the existance of a low-grade, precious-metal association with the upper part of the rhyolite-agglomerate unit, as discussed in the section on mineralization.

MINERALIZATION

The observations on mineralization were made during surface geologic mapping and from compilation of published data (Libbey, 1967) related to ore grade, underground geologic mapping, and drilling. The underground workings were not examined at this time due to the precedence of surface geologic mapping, geochemical soil sampling and geophysics.

It is important to note that ore grades shown on Map 2 and 3 are only average ore values from underground sampling and drilling results from previous companies (Libbey, 1967). The sampling widths and methods are uncertain, allowing the data on ore grade to be construed only as an approximate. Zinc and lead values were not reported on assay values.

Massive Sulphide:

Breccia Ore: Breccia ore is composed of predominantly pyrite grains interspersed between poorly-sorted, subrounded, grey, siliceous fragments and barite fragments. Minor chalcopyrite was observed within the pyrite matrix. This breccia ore is best displayed near the portal at 0N. It is a 5'-6' diameter pod with laminated rhyolite tuffs bending around it.

It is hypothesized that the breccia ore occurred as the result of late-stage, explosive volcanism with concomitant, sulphide mineralization. The sulphide fragments settled out into barite which was forming during this early stage of sedimentation.

Barite Ore: The only bedded massive sulphide observed during surface mapping was a gossanous barite near 6N. It consists of unidentifiable, cellular, limonitic-boxwork structures with unaltered, white to grey, barite crystals in the gangue.

Unaltered barite ore was observed in dump material. It is composed of predominantly pyrite with minor, disseminated chalcopyrite and minor galena in small seams. Unidentifiable black to grey, metallic, granular grains and clusters are disseminated within the pyrite and barite gangue. This mineral could possible be tetrahedrite, accounting for the high silver values reported from barite ore.

The sampling and drilling results reported by Libbey, 1967, show assays of barite ore ranging from .5% to 6% copper and associated with silver ranging from .1% to greater than 10%. It is readily noted from these values that radical variations in ore tenor exist.

This barite ore stratigraphically overlies the rhyolite agglomerate unit and underlies the graphitic shales (Map 3). Libbey, 1967 reported concentrations of barite and pyrite averaging 10.39% Ag from a stope on the 520' level (Map 2). This occurs within the upper agglomerate unit.

The limited data compiled in Map 3 suggests a stratigraphic zoning of metals with silver and copper concentrated in barite ore. This is underlain by mineralized rhyolite agglomerate with low-grade copper, silver and gold values.

Disseminated Sulphides:

Disseminated pyrite was observed throughout the rhyolite agglomerate and in parts of the dacite porphyry. Moderate to heavy limonite alteration of these leached outcrops obscured any further sulphide identification.

The data compiled in Map 2 and 3 shows low-grade gold and silver values for the upper part of the rhyolite agglomerate. This unit represents stockwork mineralization for the overlying conformable massive sulphides.

ALTERATION

The rhyolite agglomerate unit is heavily silicified and sericitic. It is underlain by rhyolite tuffs with similar alteration, but less dominant silicification. These rhyolite units have varying degrees of limonitic staining, but it is more prevalent in the rhyolite agglomerates.

Chloritization occurs in the underlying chloritic rhyolite. This mild chloritization is the only observable difference between this unit and the overlying rhyolite tuffs.

STRUCTURE

Rhyolite beds strike N15°-20°E and dip 75°-85°SE in the vicinity of sedimentary contact, but flatten westward to about 55°-65°SE. The rhyolite agglomerate and sedimentary contact trends approximately due north to the 18N baseline where these units interfinger with the dacite porphyry.

The bedding in the graphite shale sequence strikes N2°-30°E with dips varying from 40°-verticle SE and minor 65°-85°NW. A few beds have N5°-10°W strikes with varying NE dips.

A few sedimentary outcrops displayed concentric folds and occasionally drag folds in competent silty units adjacent to uncompetent graphitic shales. The differences in attitude of bedding strikes and dips in the sedimentary units suggest the probable existance of folds larger than outcrop scale. This is further supported by the occurrence of drag folds indicative of larger scale folding, and, therefore, inferred folds have been plotted on the geologic map.

REFERENCES

Libbey, F. W., 1967: The Almeda Mine, Josephine County, Oregon: Short Paper 24, State of Oregon, Department of Geology and Mineral Industries

Ramp, L., 1969: Geology of the Klamath Mountains Province: Mineral and Water Resources of Oregon, Bull. 64, pp. 47-52

Windels, C. O., 1976: Almeda Project, Geophysical Investigation, Josephine County, Oregon: Texasgulf Western Inc. report

APPENDIX II

APPENDIX - II

C.F. MINERAL RESEARCH LIMITED
263 LAKE AVENUE
KELOWNA, BRITISH COLUMBIA
CANADA V1Y 5W6

TEL. (604) 763-1815
(604) 860-8525

C. Fipke
January 12/83.

Heavy Mineral Orientation Test Report Almeda Mine Area, Oregon.

Introduction

Leached soil talus overburden ranges to at least 20 meters in depth in the Almeda volcanogenic massive sulfide Au-Ag mine deposit area, located in Josephine County of S.W. Oregon. As a consequence conventional soil geochemistry completed by Texas Gulf Western Inc. in 1976 did not prove effective in detecting mineralization in area's of thick cover away from the effects of mining contamination.

In early October, 1982 Mr. M. Murtack asked geologist-geochemist C. Fipke to collect a few bulk samples for heavy mineral testing. With the help of Goeff Garcia, the Almeda property geologist, samples of about 12Kg were collected down slope from two geophysical E.M. conductor anomalies in areas unaffected by mining contamination. As the anomalies are potentially related to buried base/or precious mineralization, it was hoped that the large bulk samples might contain trace amounts of "microfloat" mineralization. If traces of "microfloat" could be concentrated from large amounts of dilutent soil talus and detected optically or geochemically, such a tool could prove useful in detecting vicinity mineralization hidden by overburden.

Methods

a) Field

Three samples about 12Kg in weight were collected from sites AN1 bag 1, AN1 bag 2, and ANII bag 2 located on map 1. The samples were collected from B horizon soil-talus at a depth of 6" to 20" below surface. The soil talus with large talus fragments removed was shovelled into prelabelled 12" X 20" plastic bags. G. Garcia collected a regular "B" horizon conventional soil sample from the same material that was bulk sampled.

Two bulk samples (AN1 bag 1, AN1 bag 2) were collected on either side of a stream draw downslope from Anomaly I (map 1). As the location at depth of Anomaly I was not precisely known at surface both sides of the draw were sampled. Soil talus sample AN1 bag 1 was collected below high ground water and was grey in color; sample ANI bag 2 was collected above the ground water level and was oxidized to a reddish brown color.

According to G. Garcia previous diamond drilling in the general area indicated that overburden thickness was about 60 feet.

The third bulk sample (ANII bag 2) was collected upstrike and upslope from anomaly "II" mine workings (map 1). The sample was collected in the vicinity of large blocks of barite mineralized talus discovered by G. Garcia during the construction of a new road. The large blocks of mineralized talus indicate massive sulfide mineralized bedrock to be near surface.

An additional ±8Kg . sample of -20 mesh stream sediments was collected from stream gravels of Centineal Gulch Creek. Conventional -80 mesh stream sediments from the creek had previously yielded unanomalous background responses in Au-Cu-Zn-Hg.

b) Laboratory

The 25lb samples were washed, wet sieved and jigged. About 3000gms of -20+35 mesh, 3000gms of -35+60 mesh and all -60 mesh concentrates were subsequently submitted to tetrabromeothane and methylene iodide separations so that all +0.8 micron heavies were concentrated. The resultant heaviest (H) and intermediate (I) specific gravity fractions were subsequently separated electromagnetically into magnetic (M) paramagnetic (P) and non magnetic (N) concentrates. The resultant heavy non magnetic (HN) concentrates were checked using a binocular microscope for precious metals etc. As the HN concentrates of ANII bag 2 contained huge quantities of barite, microscope time was reduced by further electromagnetic concentrating the HN fraction into weakly paramagnetic (HPN) and strongly non magnetic (HNN) concentrates.

The HN and HNN concentrates as well as the -80 mesh fractions of the conventional soil samples were subsequently submitted to Nuclear Activation Services at McMaster University, Hamilton, Ontario for Au-Ba-As-Sb analysis. The intermediate paramagnetic (IP) and heavy paramagnetic (HP) concentrates, that concentrate jarositic and geothetic limonite respectively after sulfides, were submitted to Chemex Labs in Vancouver for Cu-Mo-Pb-Zn-Ag geochem analysis. The "HN" fractions were also submitted to Chemex for Cu-Mo-Pb-Zn-Ag analysis after (non-distructive) Nuclear Activation analysis.

Results

a) Au-Ba-As-Sb

Sample #	Mesh Size	Estimated Grain Count		NAS	Analysis	
			Au ppm	Ba %	As ppm	Sb ppm
ANII bag 2	-20+35HNN	Nil	940	43.1	330	64
	-35+60HNN	6 Au	9,000	40.2	740	120
	-60+150HNN	45 Au	11,000	42.1	260	77
	-150HNN	30 pos Ag	31,000	47.2	200	42
	-80 soil		1,900	1.5	260	38
ANI bag 2	-20+60HN	Nil	20	0.2	29	7
	-60HN	Nil pos Ag?	40	0.2	32	11
	-80 soil		30	0.2	29	4
ANI bag 1	-20+60HN	Nil	120	15.8	100	28
	-60HN	(3 electrum 1Au 1Ag)	4,400	8.2	50	31
	-80 soil		80	0.4	51	5
Cent. Gch. Stream Sed.	-20+60HN	Nil	30	0.2	50	6
	-60+150HN	Nil	50	0.2	53	5
	-150HN	Nil	910	0.4	51	4
	-80 stream Sed.		30	-	-	-

b) Cu-Mo-Pb-Zn-Ag

The base metal results for the various mesh sizes of the intermediate paramagnetic (IP), heavy paramagnetic (HP) and heavy weakly paramagnetic HPN are given on the accompanying certificate of analysis of Chemex Labs. The base metal results of heavy non magnetic (HN), strongly non magnetic (HNN) and concentional -80 mesh soils are not available at the time of writing this report.

Discussion of Results

a) ANII bag 2

Concentrates from sample ANII bag 2 contain very strong amounts of Au-Ba-As-Sb-Cu-Pb-Zn-Ag. The conventional -80 soil is also significantly high but at lower levels than for the HNN concentrate results.

The general high results indicate that massive sulfide mineralized bedrock is near surface. The zone discovered by G. Garcia should be exposed and evaluated.

b) ANI bag 2

Both the HN concentrates and -80 mesh conventional soils give background Au-Ba-As-Sb geochem results. This suggests that no such mineralization is present up slope from where the samples were collected.

The microscopic results suggest some Ag may be present in the -60HN concentrate of the reddish oxidized bulk sample. The coarse -20+35IP concentrates contain significantly strong amounts of Pb-Ag and weak amounts of Cu suggesting a Pb-Ag-Cu source is present up slope.

c) ANI bag 1

The -60HN concentrates of ANI bag 1 give moderate responses in Au and Ba and weak responses in As and Sb. The -20+35 HP and IP concentrates also give weak to moderate Cu-Pb-Zn-Ag responses. The microscope results indicate that the Au and Ba responses are attributible to small amounts of gold, electrum, silver and barite present in the -60HN concentrate. The -80 mesh soil gives a weak spot Au response of 80ppb Au compared to the -60HN concentrate result of 4400ppb Au . The results indicate that a Ba-Cu-Pb-Zn-Au-Ag source is present up slope.

d) Cent. Gch.

A weak to moderate response of 910ppb gold was detected geochemically in -150HN concentrates of stream gravels from Cent. Gch. Creek. This indicates there is a gold source(s) somewhere in the drainage.

A -80 mesh conventional stream sediment sample previously collected near the mouth of Centineal Gulch Creek gave background responses in Au-Cu-Zn-Hg.

Conclusions

Small quantities of Au-Ba-As-Sb and base metals can be concentrated from large diluted samples of soil talus and stream sediments. The geochem results of concentrates significantly enhance the presence of Au-Ba-Sb-As etc. The concentrate results can be utilized to detect small quantities of Au etc. undetected in conventional -80 mesh geochem samples.

Large area's could be prospected by collecting bulk samples of soil talus and stream sediments at perhaps 300m intervals downslope from favorable volcanic statigraphy. Fine -60 or -80 mesh HN concentrates would best detect Au and Ba wilst -20+35IP concentrates appear to give the best overall detection of Cu-Pb-Zn-Ag.

Hole # 82-1 For: Blue Diamond Energy & Comanche Petroleums Sheet No 1 of 1

Date started 3-4-82 Completed 3-8-82 Inclination -55° Direction N55E

Location: Almeda Mine : 1120N, 400W Scale: 1"=10' Logged by: Charlotte Garcia

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values Ag oz/T	Au oz/T		
0									
Box #1		core recovery begins @ ~ 33' @ 33' 2" veinlet of Fe stained qtz country rock is broken and sheared siliceous feldspar porphyry w/ green matrix (possible dacite porphyry). . 6" seam of extremely vuggy Fe st. qtz. @ 34.5'. On shears of feldspar porphyry are red clay gouge			(6") 1-34.5-35	.34	.003		
				67%					
				63%					
				67%					
		50-52' red Fe stained siliceous rock gossaniferous		80%	1-50-52	.05	.010		
				25%					
58'		2" seam of red Fe stained, siliceous, gossanif. rx		72%					
		country rx changes to a coarse-grained rx - probably dioriteppy. very broken and extremly poor recovery		6%					
				15%					
88'		T.D. 88'							

Hole # 82-2 For: Blue Diamond Energy Resources & Comanche Petroleums Sheet No 1 of 2
Date started 3-10-82 Completed 3-15-82 Inclination -65° Direction S25W
Location Almeda Mine: 1100N, 420W Scale: 1"=10' Logged by: Charlotte Garcia

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values Ag oz/T	Au oz/T
0'							
40'		1' of Ferruginous, gossaniferrous, siliceous rock; very broken from 41-58' red clay gouge w/siliceous fragments	Trace pyrite fr 40-41'	* 43%	2-40-48	.08	<
				20%	2-48-58	<	<
Box #1							
		58-68' No core recovery		0%			
		68-91' mixture of broken fragments of siliceous feldspar porphyry w/green matrix, diorite porphyry and ferruginous, clay alt., siliceous rock -probable boulders		21%			
				33%			
				25%			
				33%			
				40%			
		91-100' very siliceous feldspar porphyry w/ green matrix		33%			
		100-108 mixture of broken frags of diorite porphyry and hard siliceous feldspar porphyry w/ green matrix - probable boulders		12%			
				8%			
		108-113' hard siliceous, feldspar porphyry w/ green matrix		17%			
113'							

* These %'s represent the amount of rock recovered in overburden of rock + clay

Hole # 82-2 For: Blue Diamond Energy & Comanche Petroleums Sheet 2 of 2
Date started 3-10-82 Completed 3-15-82 Inclination -65° Direction S25W
Location: Almeda Mine: 1100N, 420W Scale. 1"=10' Logged by: Charlotte Garcia

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values
.113'		113-118' mixture of rock fragments probably boulders of feldspar and diorite porphyry		* 25%		
				8%		
		123-124' brown clay gouge		4%		
		124' to 133' siliceous feldspar porphyry - broken w/green matix		30%		
Box #2				30%		
		133' brown clay gouge and rock to 148'; rock possible diorite porphyry		20%		
				20%		
				30%		
148'		T.D. 148'				

* These %'s represent the amount of rock recovered in overburden of rock + clay mix

Hole # 82-3 For: Blue Diamond Energy & Comanche Petroleums Sheet of 1 . 8

Date started 3-15-82 Completed 3-29-82 Inclination -59 Direction Due Ea

Location: Almeda Mine : 1000N 280W Scale: 1"=10' Logged by: Charlotte Garcia

~ shear gouge zone
/ fracture
ΔΔ breccia clasts
°o blebs
:: disseminated pyrite

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values Ag oz/T	Assay Values Au oz/T
0		Extremely sheared, Fe. stained, slightly pyritic, alt. rhyolite agglomerate and gouge. Siliceous blebs and vienlets present.	TRACE Pyrite				
10'					3-10-15	.10	.005
Box#1				92%	3-15-20	<.01	<.003
					3-20-25	<	<
				60%	3-25-30	.04	<
				100%	3-30-33	.06	<
31.5'		Extremely sheared and weathered, Fe stained altered rhyolite agglomerate and gouge. Massive sulfides zones in unweathered section of core	Pyrite ~5%	67% 100%	3-33-38	.08	<
Box#2				100%	3-38-43	.06	<
				100%	3-43-48	.08	.005
50.5				90%	3-48-53	.06	<
		end of weathered zone of oxidation In primary pyritic zone Rock is a pyritic, siliceous, grey (possible rhyolite) Tuff - Rx are slightly seriticized -	Pyrite - 30-40% disseminated	92%	3-53-58	.02	<
Box#3				100%	3-58-63	.04	<
				100%	3-63-68	.01	<
		from 68-78' grey gouge zone		30%	3-68-73	.02	<
73'				40%	3-73-78	.01	<
		siliceous blebs in core		100%	3-78-83	.06	<
Box#4				100%	3-83-88	.02	<
				100%	3-88-93	.02	<
93'		hard grey, very silicified, pyritic (possible rhyolite) Tuff - Pyrite is very fine-grained	disseminated Pyrite ~40%	100%	3-93-98	.01	<
Box#5				100%	3-98-103	<	<
		@ 106' smaller core size		100%	3-103-106	.02	<
				33%	3-106-109	.02	<
		gouge at 114'		80%	3-109-114	.03	.003
114'							

Hole # 82-9 For: Blue Diamond Energy & Comanche Petroleums Sheet No 2 of 8
Date started 3-15-82 Completed 3-29-82 Inclination -59° Direction Due East
Location: Almeda Mine: 1000N, 280W Scale: 1"=10' Logged by: Charlotte Garcia

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values				
						Ag oz/T	Au oz/T			
There is no Box #6										
114'		6" grey gouge zone at 114.5' - Core is increasing in silicification but still sericitized.	~40% Dissem. Pyrite	100%	3-114-118	.02	<			
Box # 7				100%	3-118-123	.01	<			
				100%	3-123-128	.01	<			
		Quartz vnlets 1/2" wide start appearing @ 130'. Pyrite xstals are more well formed; but still very fine grained.		100%	3-128-133	.01	<			
136'				80% 100%	3-133-38	<	<			
				95%	3-138-43	<	<			
Box #8				100%	3-143-48	.02	<			
				100%	3-148-53	.02	<			
				..	3-153-58	.01	<			
				50%	3-158-63	.01	<			
163'		30-40% pyrite, grey sericitic and silicic Tuff, small qtz vnlets up to 1" wide	30-40% Dissem. Pyrite		3-163-68	.02	<			
Box #9				100%	3-168-73	<	<			
					3-173-78	<	<			
					3-178-83	<	<			
183'				100%	3-183-88	<	<			
				100%	3-188-93	<	<			
Box #10					3-193-98	<	<			
				100%	3-198-203	<	<			
				68%	3-203-08	.04	.006			
208'		Core is becoming slightly brecciated. Fragments are pyritized Tuff and quartz. Rock is still sericitized			3-208-13	.02	<			
Box #11		@216' - 1' broken, gouge zone		100%	3-213-18	<	<			
					3-218-23	.02	<			
					3-223-28	<	<			
228										

Hole # 82-3 For: Blue Diamond Energy & Comanche Petroleums Sheet No 3 8
Date started 3-15-82 Completed ________ Inclination -59° Direction Due East
Location: Almeda Mine: 1000N, 280W Scale: 1"=10' Logged by: Charlotte Garcia

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values				
						Ag oz/T	Au oz/T	Cu %	Mo ppm	Zn
228'		broken gouge zone to 235' Rock is a dark grey, sericitic, pyritic, silicice Tuff; slightly brecciated w/ lacings of Qtz	40% dissem. Pyrite	60%	3-228-33	.01	.003			
				75% 100%	3-233-38	<	<			
Box # 12				97%	3-238-43	.02	.005			
				100%	3-243-48	.04	.005			
				100%	3-248-53	.01	.003			
253'			Pyrite 20-30%		3-253-58	<	<			
					3-258-63	<	<			
Box # 13				100%	3-263-68	<	<			
		sheared-gouge			3-268-73	<	<			
273'			Pyrite ~30%	60%	3-273-78	<	<			
Box # 14				100%	3-278-83	.01	<			
				100%	3-283-88	<	<			
		½ Qtz vnlet.		100%	3-288-93	<	<			
		⅛" Qtz vnlet.		100%	3-293-98	.04	.005	<	–	54
298'		301-308' broken & sheared breccia clasts are pyritic quartz and pyritic tuff	Pyrite ≈ 30%	83% 67%	3-298-303	.02	<			
				100% 75% 33%	3-303-08	.01	.003	<	–	2
Box # 15				50%	3-308-13	.02	<			
				100%	3-313-318	.02	.003			
				100%	3-318-323	.01	<			
323'										

Hole # 82-3 For: Blue Diamond Energy & Comanche Petroleums Sheet No 4 of 8
Date started 3-15-82 Completed-3-29-82 Inclination -59° Direction Due East
Location: Almeda Mine: 1000N, 280W Scale: 1"=10' Logged by: Charlotte Garcia

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values	
						Ag oz/T	Au oz/T
323'		Rock is a grey, pyritic, sericitized, silicic Tuff; slightly brecciated w/ Tuff and silica fragments, small 1/10-1/4" qtz vnlets present	~40% pyrite disseminated	94%	3-323-28	.07	.003
		broken & sheared 330-33'		67%	3-328-33	.01	<
Box #16				100%	3-333-38	.06	<
				100%	3-338-43	.10	<
				80%	3-343-48	.20	.005
348'		light grey siliceous clasts w/pyrite clasts 1-2" in diameter Pyrite is massive in minute stringers	~40% Pyrite	100%	3-348-53	.20	.003
Box #17					3-353-58	.10	.003
					3-358-63	.08	.003
					3-363-68	.02	<
368'		siliceous stringer and clasts		100%	3-368-73	<	<
Box #18		shear zone		100%	3-373-78	.04	<
					3-378-83	.02	<
				90%	3-383-88	.01	<
388'				100%	3-388-93	.01	<
Box #19					3-393-98	<	<
				100%	3-398-403	.05	<
					3-403-08	.05	<
408' Box #20				100%	3-408-13	.10	.003
		@ 414' rock is more sheared and sericitized	Pyrite ~40% Disseminated		3-413-18	.02	<
					3-418-23	.08	<
					3-423-28	.04	<
428'							

Hole # 82-3 For: Blue Diamond Energy & Comanche Petroleums Sheet No 5 of 8

Date started 3-15-82 Completed 3-29-82 Inclination -59° Direction Due East

Location: Almeda Mine: 1000N, 280W Scale: 1"=10' Logged by: Charlotte Garcia

Ft.	Gr	Description	% Minerals	% Rec.	Sample #	Assay Values Ag oz/T	Au oz/T			
428' Box #21		Rock is a sheared and fractured, grey, sericitized, silicic, pyritic Tuff. slightly brecciated w/ silica clasts also minute quartz string			3-428-33	.01	<			
			~30% Dissem. Pyrite	100%	3-433-38	.02	<			
					3-438-43	.01	<			
					3-443-48	.04	.003			
451'				75%	3-448-53	<	<			
			~30% Pyrite		3-453-58	.02	.003			
Box 22					3-458-63	<	<			
				100%	3-463-68	<	<			
					3-468-73	.01	<			
473'			~30% Pyrite		3-473-78	<	<			
		gouge zones		100%	3-478-83	<	<			
Box #23					3-483-88	.02	<			
					3-488-93	.03	<			
					3-493-97	.03	.005			
498'		brecciation increases			3-497-503	.03	.010			
		1' gouge zone @ 504'		100%	3-503-08	.04	.010			
Box 24					3-508-13	.02	.003			
					3-513-18	.03	<			
518										

Hole # EE-3 For: Blue Diamond Energy & Comanche Petroleums Sheet No 6 of 8

Date started 3-15-82 Completed 3-29-82 Inclination -59° Direction Due East

Location: Almeda Mine: 1000N, 280W Scale: 1"=10' Logged by: Charlotte Garcia

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values				
						Ag oz/T	Au oz/T			
519'		Rock is a pyritic, grey, sericitic and silic, brecciated Tuff w/ silica stringers Breccia fragments are Tuff & Quartz	~30% Pyrite		3-518-23	<	<			
					3-523-28	.01	<			
Box #25				100%	3-528-33	<	<			
					3-533-38	.02	.003			
					3-538-43	.01	<			
542'		Core is broken and sheared; only slightly brecciated	10-15% dissem. Pyrite		3-543-48	.02	<			
Box #26				100%	3-548-53	<	<			
					3-553-58	.01	<			
					3-558-63	.02	<			
563'		Brecciation increases	~20% Pyrite		3-563-68	.02	<			
Box #27				100%	3-568-73	.02	<			
					3-573-78	.02	<			
					3-578-83	<	<			
585'		pyrite is dissemirated in Qtz vnlets, in clasts and througout rx	~30-40% pyrite		3-583-88	.01	<			
					3-588-93	<	<			
Box #28				100%	3-593-98	.01	<			
					3-598-603	.01	.003			
					3-603-08	.02	<			
608'										

Hole # 82-3 For: Blue Diamond Energy & Comanche Petroleums Sheet No 7 of 8
Date started March 15, 1982 Completed March 29, 1982 Inclination -59° Direction Due Eas
Location: Almeda Mine: 1000N, 280W Scale: 1"=10' Logged by: Charlotte Garcia

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values Ag oz/T	Au oz/T
608'		Up to 610.5' Rx is brecciated, pyritic, sericitic, silicic grey Tuff	~40% dissem. Py.		3-608-10	<	<
		From 610.5' to 619' are in a chloritic, slightly pyritic (possible diorite) dike rock.	~1% pyrite	100%	3-616-19	.02	<
Box#29		@ 619' back into Tuff gouge zone @ 623	~20% dissem Py		3-619-23	.02	.003
					3-623-28	<	<
631'					3-628-33	.01	<
			~20-25% Dissem. Pyrite		3-633-38	.04	.012
Box#30				100%	3-638-43	<	<
					3-643-48	<	<
					3-648-53	.03	<
653'		pyrite disseminated in stringers and throughout the rx, Rx is silicified.	25-30% py		3-653-58	.03	.003
					3-658-63		
Box#31				100%	3-663-68	.02	<
					3-668-73	.02	<
676'		1" qtz vnlet	~40% Pyrite		3-673-78	.01	<
					3-678-83	.06	<
Box#32		-gouge zone			3-683-88	<	<
					3-688-93	.01	<
					3-693-98	.02	.003
698'							

Hole # 82-3 For: Blue Diamond Energy & Comanche Petroleums Sheet No 8 of 8
Date started 3/15/82 Completed 3/29/82 Inclination -59° Direction Due Eas
Location: Almeda Mine; 1000N, 880W Scale: 1"=10' Logged by: Charlotte Garcia

Ft.	Description	% Minerals	% Rec.	Sample #	Assay Values			(ppm	
					Ag oz/T	Au oz/T	Cu %	Mo	Z
698'	Rock is a pyritic, grey, siliceous, sericitized brecciated Tuff. Minute qtz stringers are present. The pyrite is disseminated in vnlets and throughout the rock. Qtz vnlets are no more than 1" wide. Breccia clasts are composed of pyritic qtz, and sericitic Tuff. Local gouge —	~30% Pyrite Trace Chalcopyrite		3-698-703	.02	<	<		
Box#33				3-703-08	.04	<	<		
			100%	3-708-13	.02	<	<		
				3-713-19	<	<	<		
720'	Qtz vnlet 1" wide – Trace of cp	~30% dissem Pyrite		3-718-23	.01	<	<		
				3-723-28	.05	.003	<		
			100%	3-728-34	.05	<	<		
Box#34				3-734-38	<	<	<		
				3-738-43	.01	<	<		
743'		~30-40% Pyrite Trace Chalcopyrite		3-743-48	.04	<	<		
Box#35				3-748-53	<	<	<		
			100%	3-753-58	.04	<	<		
				3-758-63	.05	.003	<		
765'				3-763-68	.02	.003	<		
		30-40% Pyrite TRACE CP		3-768-73	<	<	<		
Box#36			100%	3-773-78	.02	<	<		
				3-778-83	.01	<	<		
				3-783-88	.03	.003	.03	9	3
788 Box#37	Silicified, Brecciated, slightly sericitized, Pyritic Tuff. Clasts are silica w/Pyrite, and Tuff	30-40% Pyrite TRACE Cp		3-788-93	.04	.010	.04	—	3
			80%	3-793-98	.01	.003	.01	—	3
798	T.D. 798'								

Hole # 82-4 For: Blue Diamond Energy Resources & Comanche Petroleums Sheet No 1 of 8
Date started 3-16-82 Completed 4-12-82 Inclination -45° Direction East
Location: 1200N 300W - Almeda Scale: 1"=10' Logged by: Charlotte Garcia

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values Ag oz/T	Au oz/T			
33'		(N core) weathered; zone of oxidation red clay - rock is pyritic, grey porphyry Rock is soft ~ 2-3 H. Traces of silica in the cement. Pyrite crystals are well-formed cubes but minute.	5-10% pyrite disseminated	100%						
				45%						
Box#1		out of the zone of oxidation. Zone is a mixture of grey clay gouge and soft, grey, pyritic, chloritic felds. ppy w/ trace of silica	5-10% Pyrite	15%	4-43-68	<	.004			
				40%						
		gouge								
				6%						
		very broken		90%	4-83-88	<	.002			
88'		very broken soft grey porphyry tr. of silica in matrix - Pyrite is deseminated. Chloritic alteration	~10% Pyrite	100%	4-88-94	<	.002			
Box#2					4-94-100	<	.002			
					4-100-106	<	<			
105'		@ 105' core size smaller (BQ) very broken	~10% Pyrite	100%	4-106-113	<	.002			
				40% 80%	4-113-23	<	<			
Box#3				40% 80%	4-123-33	<	<			
				67%	4-133-43	<	<			
136'										

Hole # 82-4 For: Sheet No 2 of 8

Date started Completed Inclination Direction

Location: Scale: Logged by:

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values				
						Ag oz/T	Au oz/T			
136'		Rock is soft, grey, pyritic, chloritic Felspar porphyry [illegible] Rock is harder and broken Pyrite is variable from 5-30% dissem. [illegible]	~25% dissem. Pyrite							
Box #4		Porphyry blebs are light colored and clay altered		100%	4-143-53	<	.002			
153'		[illegible]	Pyrite ~15%		4-153-63	<	<			
Box #5				100%	4-163-73	<	.002			
					4-173-83	<	.002			
183'				100%	4-183-193	<	.002			
Box #6		@ 197' 3" gouge zone - chloritic			4-193-203	<	.002			
				72%						
203'		very poor recovery - rock is ground up and broken	10% pyrite	8%	4-203-13	<	.002			
				42%	4-213-28	<	<			
Box #7		225' Light grey green dike rock with minute phenocrysts - siliceous. Rx is x-cut with 1/4" siliceous pyritic stringers.	~10% pyrite							
				33%	4-228-43	<	.002			
cont'd page #3										

Hole # 82-4 For: ______ Sheet No 3 of 8

Date started ______ Completed ______ Inclination ______ Direction ______

Location: ______ Scale: ______ Logged by: ______

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values Ag oz/T	Assay Values Au oz/T
240							
		Rock is chloritic, grey, feldspar porphyry - numerous gouge zones and very broken, poor recovery	~ 10-15% pyrite	80%			
Box#7				50%	4-243-58	<	.002
				25%			
				25%			
				75%			
258'		Chloritic grey porphyry w/minute siliceous vnlets. Veinlets contain Pyrite. Blebs of talcose material in rock also		80%	4-258-68	<	.002
				100%			
				90%	4-268-78	<	.002
Box#8		6" gouge zone					
				90%	4-278-86	<	<
				100%			
286'		Rx is brecciated - siliceous clasts	~15% Pyrite				
Box#9				100%	4-293-98	<	<
					4-298-303	.01	.003
					4-303-08	.04	<
308'		Chloritic, pyritic grey breccia - Siliceous, pyritic clasts and chloritic clasts	~15% pyrite		4-308-18	<	<
Box#10				100%	4-318-29	<	<
329'		Rock is more silicified - veinlets and clasts of siliceous rock	10-15% dissam. Pyrite				
Box#11				100%			
353'							

Hole # 82-4 For: ______ Sheet No 4 of 8
Date started ______ Completed ______ Inclination ______ Direction ______
Location: ______ Scale: ______ Logged by: ______

Ft.	Description	% Minerals	% Rec.	Sample #	Assay Values Ag oz/T	Au oz/T
353'						
	Rock is a pyritic, chloritic and silicified breccia. Pyrite is disseminated thru out the rock and in veinlets. Clasts are siliceous - some chloritic. Clast 1/10" - 1/2" in diam.	Pyrite ~ 20% dissem.		4-353-58	.02	.003
				4-358-63	.04	.003
Box #12			100%			
375'	Pyritization increased - Vnlets of pyrite 1/4" - 1" wide. Silicification has also increased - only slightly brecciated	~30%		4-373-78	.03	<
Box #13			100%			
	chloritic shear @ 390-2					
398'	1/10" pyritic vnlets	~30% Py				
	shear zone - very chloritized from 404-10 ⟶	~15% Py				
		~30% Py				
Box #14			100%			
419'	Rock is extremely brecciated and silicified. Clasts are composed of silica (chert) w/py. Small vnlets of py. lace core	~25% Py				
Box #15			100%			
442	pyritic, silicic, chloritic breccia Pyrite around clast edges, in the silic clasts and dissem. thru core.	~30% Py.				
				4-443-48	<	<
			100%	4-448-53	<	<
Box #16				4-453-58	<	<
	2' shear					
			50%	4-458-63	.03	<
			67%	4-463-69	.03	<
467	1' shear					

Hole 82-4 For: ____________ Sheet No 5 of 8

Date started ________ Completed ________ Inclination ________ Direction ________

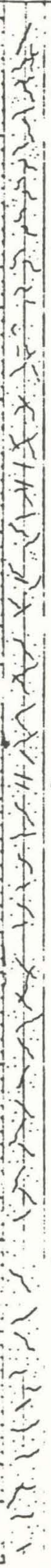
Location: ____________ Scale: ________ Logged by: ____________

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values	
						Ag oz/T	Au oz/T
467'		Rock is grey extremely sheared, chloritic, slightly silicified breccia. Clasts of silica, pyritic stringers and dissem. thru out the core	20-30% py.		4-463-69		
					4-469-73	<	<
				100%	4-473-78	.06	.003
Box#17							
492'		492-493' light green dike rx w/silic. phenocrysts	1% Py.				
		Grey, extremely chloritic, pyritic rock veined with numerous lacings of gypsum - slightly brecciated	20-30%		4-493-98	.02	.003
					4-498-503	.03	<
Box#18				100%	4-503-08	<	<
		2" gysum vnlet @ 510'			4-508-13	.05	<
515		Rock is grey chloritic, pyritic material w/numerous Lacings of gypsum Pyrite not dissem. in the gysum - only in the grey chloritic rock.	1-5% Py.		4-513-18	.04	.003
					4-518-23	<	<
				100%	4-523-28	.04	<
Box#19					4-528-33	.01	<
					4-533-38	.02	.003
538		Rock has ~ 30% gypsum	10-15% dissem. Py.		4-538-46	.05	<
					4-546-50	.03	.005
Box#20				100%	4-550-57	.04	.005
		Light grey, greendike rock w/ minute phenocrysts - Light colored phenos.	1% py.				
561'		@560' back into grey, chloritic, pyritic rock w/gypsum					

[illegible] 82-4 For: Blue Diamond Energy & Comanche Petroleums Sheet No 6 of 8

Date started ________ Completed ________ Inclination ________ Direction ____

Location: ____________________ Scale: ________ Logged by: ________________



Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values Ag oz/T	Assay Values Au oz/T
561'		Rock is grey, chloritic, slightly pyritic with ~ 30% white gypsum veined through out the rock	1-5% Dissem. Py.		4-560-66	<	<
					4-566-73	.03	.003
Box#21				100%			
					4-573-78	<	<
					4-578-83	<	<
583					4-583-88	.05	<
					4-588-93	.05	.003
				100%			
Box22							
607					4-608-13	.03	<
		618-19'-1 ft vein of white gypsum	5% dissem Py	100%			
Box#23							
					4-623-28	.01	<
630							
					4-633-38	.01	<
			5-10% Py. dissem.		4-638-43	<	<
Box#24				100%			
653'		Gysum has decreased to ~ 20% Airlets. Rock is chloritic and silicified			4-653-58	<	<
			~10% Py dissem.				
Box#25				100%			
					4668-78	<	.002
678'							

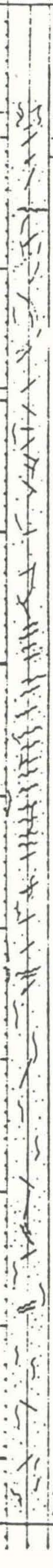
Hole# 82-4 For: ______ Sheet No 7 of 8

Date started ______ Completed ______ Inclination ______ Direction ______

Location: ______ Scale: ______ Logged by: ______

Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values				
						Ag oz/T	Au oz/T			
678		Green-grey, chloritic, pyritic porphyry w/ seams of gypsum - some silica in matrix	1-5% dissem. Py.							
Box#26				100%						
699			5-10% Py dissem.							
Box#27				100%						
722'			10% dissem. Py.		4-723-28	<	<			
Box 28'				100%	4-728-33	.04	<			
					4-738-43	.03	<			
745'										
					4-748-53	.02	<			
Box 29		Grey-green, chloritic dike rock w/ silic. blebs	Tr. Pyrite	100%						
		Grey-green, chloritic, pyritic porphyry w/ gypsum vnlets	1-5% PY		4-759-63	.04	<			
					4-763-67	.04	.005			
767'		Grey-green, chloritic dike rock w/ silicic blebs	TR. Pyrite							
Box#30		Grey-green, chloritic pyritic porphyry w/ gypsum veinlets	1-5% Py.	100%	4-772-78	.01	<			
788'										

Hole # 82-4 For: ______ Sheet No 8 of 8
Date started ______ Completed ______ Inclination ______ Direction ______
Location: ______ Scale: ______ Logged by: Charlotte Garcia



Ft.	Gr.	Description	% Minerals	% Rec.	Sample #	Assay Values	
						Ag oz/T	Au oz/T
		Broken					
788'		Chloritic, grey, pyritic porphyry w/ gypsum veinlets	1-5% Pyrite				
		Green-grey chloritic dike rock	Tr. dissem. Py.				
			5-10% Pyrite				
		Chloritic, grey, pyritic porphyry w/ gysum veinlets. Some dissem. pyrite in vnlets		100%			
Box #31							
					4-800-05	.01	<
					4-805-09	<	<
809'			~10% dissem. py.				
Box #32				100%	4-818-23	<	<
		Shear zone – py. along fractures					
830'		Rock is sheared chloritic, grey, pyritic, porphyry w/ gysum veinlets to 844'	~5% dissem. Py				
Box #33				100%			
850'		Grey. Chloritic, pyritic porphyry w/ gypsum vnlets	~5% dissem Py.				
Box #34				100%			
870'							
			~10% dissem. Py.		4-873-78	.02	<
Box 35					4-878-83	<	<
				100%			
					4-883-87	.02	.003
					4-887-92	.02	<
890'		Hole ends in grey-green, chloritic, pyritic porphyry w/ gysum vnlets. Pyrite is disseminated.	~10% dissem. pyrite	100%	4-892-95	.03	<
		T.D. 895' Hole 82-4					

REPORT on the

ALAMEDA MINERAL PROPERTY

Josephine County, Oregon

for

BLUE DIAMOND ENERGY RESOURCES LTD.

COMANCHE PETROLEUM LTD.

Vancouver, B.C.
Canada

November, 1981

E.D. CRUZ, P. Eng.

TABLE OF CONTENTS

ILLUSTRATIONS

SUMMARY:

Blue Diamond Energy Resources Ltd. and Comanche Petroleum Ltd. have acquired the Alameda Mine thru an option agreement with Joe Fleming of Oregon. The mine is situated near the resort town of Galice in Southwestern Oregon.

Historically, the mine was operated intermittently in 1905 - 1917 and 1940 - 1942. From 1905 - 1917, it had a recorded production of 23,000 tons of ore yielding a gross return of $5.35/ton. Reported assay of 5,504 tons of ore are as follows: Gold - 0.091 Oz/Ton, Silver - 2.87 Oz/Ton and Copper - 1.085%. In 1940 - 1942, a total of 287 tons of ore was produced containing 2.1 Oz/Ton in Gold, 0.95 Oz/Ton in Silver and 0.13% Copper. The mine was never reopened since then.

The economic mineral deposit in the mine is confined within what appear to be a volcanogenic mineralized zone, 150-200 feet wide, a pyritic silicified rhyolite agglomerate containing variable and sub-economic values in gold and silver. On the hanging wall side of this zone are lenses of massive sulphide ore bodies directly in contact with the overlying graphitic mudstones of the upper Triassic Galice formation. Most of these lenses had been mined.

The mineralized zone was explored and developed by five adits driven along the volcanic - sedimentary contact at elevations of 520', 620', 712', 794' and 881'. Below the 520' level, two more sub-levels were driven from a shaft sunk from 620' level. The above workings have traced the mineralized zone over a strike length of about 1,000 feet.

Diamond drilling exploration by Texasgulf in 1975 intercepted massive sulphide zones in two of their holes (A-3 and A-4).

Recent exploration using Vector Pulse Electromagnetic method conducted by Glen E. White Geophysical Consulting and Services delineated two conductive zones, one being the Alameda Mine Ore Zone and the other parallel zone located 400 feet to the west.

A 2 - phase programme of diamond drilling and vector pulse electromagnetic survey is recommended. The cost of the above programme was estimated at $85,800.00 for Phase I and $215,000.00 for Phase II.

INTRODUCTION:

The writer, upon the request of Mr. Al Moss of Blue Diamond Energy Resources Ltd. and Comanche Petroleum Ltd., conducted a preliminary examination of the Alameda Mine in Southwestern Oregon. The purpose of the examination is to determine a suitable exploration tool to detect massive sulfide type deposit in the property. The property was visited on August 10-11 and September 24-25, 1981.

Upon the recommendation of the writer, Mr. Al Moss commissioned Glen E. White Geophysical Consulting and Services Ltd. to undertake a Vector Pulse Electromagnetometer survey. Limited amount of geochemical soil sampling, geological mapping and rock sampling was conducted by Garcia Consultants of Merlin, Oregon.

This report presents the result of the above programme and outlines the proposed follow-up work.

LOCATION AND ACCESS:

The Alameda Mine is situated on the north slope of the Rogue River about 3 miles north of the small resort town of Galice in Southwestern Oregon. The mineral claims, totalling fourteen, are located in sections 7, 12, 13 and 18, Range 7W and 8W, Township 34S.

The town of Galice is joined by the Merlin-Galice Highway to Interstate 5 at a point about 5 miles north of Grants Pass. Access to the claims is by following the Merlin-Galice highway up to Hog Creek road which consist of a series of dirt road leading to the mine workings. Alternate access is by boat across the Rogue River from a boat ramp at the Alameda Bar Recreation area located outside of Galice.

TOPOGRAPHY AND DRAINAGE:

The claim area is situated on the south facing Canyon slope of Klamath Mountains bounded to the south by the Rogue River. Elevation range from 650 feet at the river level rising steeply to 2,400 feet above sea level. The area is drained by south flowing tributaries of the Rogue River where ample flowing water is available for future drilling operation.

Average precipitation of 32 inches obtains during the months of November to March. In the summer months, the weather is very hot and dry.

PROPERTY:

The Alameda property consist of a total of fourteen lode claims including the original four claims covering the Alameda Mine. The relative position of the claims are shown in Fig. 2.

Following are details of the claims:

Name of claim	Date Recorded
Lost Treasure	
Lost Treasure Extension	
Hidden Treasure	
Hidden Treasure Extension	
Alameda "A"	July 9, 1981
Alameda "B"	July 9, 1981

Name of claim	Date Recorded
Alameda "C"	July 9, 1981
Alameda "D"	July 9, 1981
Alameda "E"	July 9, 1981
Alameda "F"	July 9, 1981
Alameda "G"	July 9, 1981
Alameda "H"	July 9, 1981
Alameda "I"	July 9, 1981
Alameda "J" Fraction	July 9, 1981

HISTORY:

The Alameda Mine was discovered in 1874. The four original claims namely the Monte Cristo, Bonanza Lode, Live Yankee and Yanke Doodle were staked in 1898 to 1900 and subsequently conveyed to Alameda Mining Company.

Development and mining activity started in 1905 and continued intermittently up to 1917. A total of 23,000 tons was mined yielding gross return of $5.35/Ton of ore. Recorded average assays of the 5,504 tons of ore fed to the matting furnace in 1912 - 1913 are as follows: Gold - 0.091 Oz/Ton, Silver - 2.87 Oz/Ton and Copper - 1.085 percent.

Mining activity became dormant in 1917 - 1940. The claims were relocated by Ray Hillis who later became the legal owner after a law suit was completed in 1931. Within this span of time (1917-1941) several mining companies conducted examination of the mine for the purpose of acquisition but nothing developed from several attempts to complete a deal.

In 1940, Messers P.H. Holdsworth and L.A. Lavensaler optioned the mine. They drilled 15 diamond drill holes, all from the 300 - foot level (200' below the River Level), outlining a small ore shoot about 60' x 60' raking approximately 70° southeast. The U.S. Bureau of Mines reported shipment of 287 tons of ore containing 2.1 Oz/Ton in gold, 0.95 Oz/Ton in Silver and 0.13% Copper apparently from this ore shoot. The mine closed in 1942.

The mine was optioned by Alaska Copper Corporation from Alameda Mining Company, a company formed by Roy Hillis, in 1953. Some of the old workings were rehabilitated providing access to sampling, geological mapping and diamond drilling. Nine holes were drilled from the 520' level and 4 holes from the 320' level. The option was dropped on account of discouraging result.

On September 1975, Texas Gulf Western Inc. optioned the mine. At this time, the claims covering the mine had been staked by Mr. L. Pierin as the Lost Treasures, Hidden Treasure, Hidden Treasure Extension and Lost Treasure Extension. Work by Texas Gulf consisted of surface geological mapping, geochemical soil sampling, magnetometer and induced polarization surveys followed by surface diamond drilling totalling 2,333 feet in six holes.

The property including ten additional claims were acquired by Blue Diamond Energy Resources Ltd. and Comanche Petroleum Ltd. by virtue of an option agreement with Mr. Joe Fleming of Oregon. Details of the present ownership and option agreement is beyond the scape of this report.

GENERAL AND ECONOMIC GEOLOGY:

The general geology of the claim area and its vicinity consist of a sequence of volcanic rocks of the Rogue formation conformably overlain by Upper Jurassic Galice formation.

Rogue formation consist predominantly of fragmental volcanics such as tuffs, agglomerates and flow breccias and andesitic to basaltic flows. Galice formation consist mainly of graphitic; fine grained, thinly layered mudstones with some interbeds of sandstone. Near the mine area, beddings strikes north to northeast dipping steeply to the east. The above sedimentary-volcanic sequence are intruded in early Jurassic or early Cretaceous time by sills and dykes of dacite porphyry and ultrabasic rocks.

The economic mineral deposit in the Alameda mine is confined within what appear to be a volcanogenic mineralized zone, 150-200 feet wide and about 1,500 feet long traced in the mine area by adits, pits and trenches. This zone, marked by reddish gossan on the surface, extends further to the southwest over an unknown strike length across the River. The zone strikes N - NE and dips steeply to the east and is directly in contact with the overlying sediment of the Galice formation.

Locally, the mineralized zone consist of highly silicified rhyolite agglomerate containing disseminated pyrite with variable gold and silver values.

Recent sampling of this zone from the adit at 794' elevation yielded values ranging from 0.030 - .102 Oz/Ton in gold and 0.13 - 3.25 Oz/Ton in Silver. Thirty samples were collected over a length of 160 feet. Sample locations and assays are shown in fig. 3.

On the hanging wall side of the above mentioned gold - silver bearing siliceous rhyolite agglomerate are lenticular masses of massive sulphide of predominantly pyrite and associated chalcopyrite, bornite and galena with values in gold and silver in barite gangue. These massive sulphide lenses had been the target of previous exploration and development of the mine.

PREVIOUS EXPLORATION AND DEVELOPMENT:

The mine was explored and developed by five adits in 5 levels (520', 520', 712', 794' and 881' elevations) driven northerly along the sedimentary-volcanic contact over a strike length of about 1,000' measured horizontally from the portal of the lowest level to the end of the uppermost level. Several massive sulphide lenses were stoped out from the different levels. Details of the underground mining and development is described by F.W. Libbey in his report published as "short paper 24" by the Department of Geology and Mineral Industries, State of Oregon.

The latest recorded work on the property are the geological, geochemical and geophysical surveys followed by diamond drilling conducted by Texas Gulf in 1975. Two of the six drill holes aimed towards the mineralized zone intersected massive sulphide mineralization. Hole No. A4 and A3 collared at 2 + 00S, 1 + 00E and 6 + 50N, 0 + 80E respectively intersected mineralized zone with the following assay results.

Hole No. A4

From	To		ASSAYS				
			Cu(%)	Zn(%)	Pb(%)	Ag(Oz/T)	Au(Oz/T)
118.2'	120'	2	1.04	0.063	0.285	2.65	0.151
120'	122'	2	0.014	0.021	0.013	0.26	0.020
122'	124.6'	2	2.25	9.7	0.78	5.90	0.14
124.6'	125.7'	1'	0.031	0.042	0.007	0.11	0.01
125.7'	126.3'	0.5'	0.640	0.290	0.050	1.20	0.11
126.3'	127.2'	1'	0.029	0.006	0.008	0.26	0.030
127.2'	127.7'	0.5'	0.81	0.055	0.007	2.25	0.11
127.7'	129'	1.3'	0.82	1.90	0.081	1.01	0.07
	10.8'	10.8'	0.89			2.23	.086

Hole No. A3

107.2'	112.2'	5'	1.22	0.068	0.020	4.10	0.081
112.2'	117.2'	5'	1.22	0.425	0.060	4.80	0.039
117.2'	122.2'	5'	0.61	0.48	0.115	2.85	0.060
122.2'	127.2'	5'	0.89	0.65	0.130	3.20	0.063
127.2'	128.4'	1.2'	1.740	0.725	0.225	4.60	0.059
128.4'	132.3'	3.9'	0.58	0.95	0.23	3.40	0.039
132.3'	137.2'	5'	0.398	0.032	0.065	1.50	0.039
137.2'	145.4'	8.2'	0.248	0.011	0.013	1.35	0.033
145.4'	152.2 ~~512~~.2'	6.8'	0.325	0.015	0.039	1.55	0.055
152.2'	157.2'	5'	0.200	0.15	0.070	0.500	0.047
157.2'	162.1'	5'	0.105	0.160	0.095	0.26	0.032
		55.1	0.57%			2.26 oz/t.	0.48 oz/t.

PRESENT EXPLORATION:

Vector pulse electromagnetic survey covering the southern part of the claims was conducted by Glen E. White Geophysical Consulting and Services Ltd. to trace extensions of the massive suphide lenses possibly remaining in the mine as well as to find additional new mineralized zones.

A total of fourteen lines spaced at 200 feet apart were surveyed. Two significantly strong parallel conductors, indicated on Fig. 4, were detected. Conductor 'II' reflects the known massive sulphide lenses that was developed by the underground workings. Conductor 'I', showing relatively much stronger respond, was located to the west of the known mineralized zone. It was traced over a strike length of about 1,200 feet from line 0 + 00 to 12 + 00N where it was interpreted to be terminated by a fault. The conductor was detected at 250 to 300' depth and appear to be dipping almost vertical.

Four reconaissance soil sample lines were run across the projected strike of the mineralized zone to the north east. The lines are spaced every 800 feet and soil samples collected every 150 feet across 1,800 feet. The samples totalling 65, were analysed for copper, lead, zinc, silver and gold. Silver and gold values are relatively uniform at 0.1 ppm and less than 10 ppb respectively. Anomalous copper, lead and zinc values up to 80 ppm, 15 ppm and 225 ppm respectively were delineated but appear to be erratically distributed to be considered significant.

CONCLUSION AND RECOMMENDATIONS:

The mineral deposit at the Alameda mine had been proven to persist from 880' elevation down to 260' elevation over a strike length of about 1,000 feet. The ore zones occur as lenticular massive sulphide bodies with assays reported up to 11.5% copper, 9.66 Oz/Ton in silver and 2.0 Oz/Ton in gold.

The present potential of the mine lie on the extensions of the ore zones remaining in the mine as well as the other conductor outlined by the Vector Pulse Electromagnetic Survey. It is likely that this conductor is caused by massive sulphide zone simillar to those at the mine which are likewise detected by the Electromagnetic survey.

It is recommended that these conductive zones be verified by diamond drilling. A total of 2,000 feet in four holes, location of which are indicated on Fig. 4, is proposed as Phase I of the programme. Should these holes prove the presence of ore zones, Phase II programme of diamond drilling and further electromagnetic survey be conducted.

ESTIMATED COST OF THE PROGRAMME:

Phase I:

1.	Diamond Drilling 2,000 ft. @ 30.00/Ft.	$ 60,000.00
2.	Road Construction & Site preparation	2,000.00
3.	Mobilization and Demobilization	2,000.00
4.	Assaying	2,000.00
5.	Supervision and Consulting	6,000.00
6.	Transportation	1,500.00
7.	Meals & Accomodations	1,500.00
8.	Supplies	1,000.00
9.	Contractual Labour	2,000.00
	Sub-Total	78,000.00
	Contingency 10%	7,800.00
	TOTAL	85,800.00

Phase II:

Provide for 5,000' of drilling	$ 150,000.00
Electromagnetic Survey	20,000.00
Related Expenses	45,000.00
TOTAL	$ 215,000.00

APPENDIX I

REFERENCES:

Libbey, F.W., 1967	The Alameda Mine, Josephine County, Oregon, Short Paper 24, Dept. of Geology and Mineral Industries, State of Oregon.
Ramp, L. and ~~Hull, D.A.,~~ 1979 Peterson, N.V.	Geology and Mineral Resources of Josephine County, Oregon, Bulletin 100, Dept. of Geology and Mineral Industries, State of Oregon.
Rogers, T., 1976	Preliminary Report on the Geology and Mineralization the Alameda Mine, Texasgulf Western Inc.
White, G.E., 1981	Geophysical Report on a Vector Pulse Electromagnetometer Survey for Blue Diamond Energy Resources Ltd. and Comanche Petroleums Ltd., Alameda Property.
Garcia, J., 1981	Oral communications.

Litho-Logic Resources
"Hard Rocks and Software"

207 S.W. "G" Street Suite A • Grants Pass, Oregon 97526 • (503) 479-2851

June 25, 1987

SUMMARY

During late May, 1987, Litho-Logic Resources was retained by Mr. Jim Dingman to conduct an evaluation and summary of results obtained during recent exploration at the Almeda deposit (Josephine County, Oregon) by Kennecott Exploration. The Almeda hosts gold/silver/copper/zinc mineralization within the uppermost silicified and pyritized volcaniclastic unit of the Jurassic Rogue Volcanics, immediately below its conformable upper contact with sedimentary units of the Jurassic Galice Formation. Drill-indicated reserves, based on 17 drill holes placed by Kennecott with an aggregate length of 4805 feet, total 600,000 tons at an average grade of 0.055 opt gold and 1.20 opt silver. An internal high-grade section, totalling 33,000 tons at an average grade of 0.063 opt gold and 4.94 opt silver, occurs at the stratigraphic and structural top of the mineralized horizon. It is stressed that these reserve figures are preliminary and based on limited shallow drilling and interpretation. Additional exploration and data compilation is needed to further refine the geologic and structural setting of the deposit, as well as the reserve potential.

REGIONAL GEOLOGIC SETTING

The Almeda deposit occurs in the Western Jurassic Belt (WJB) of the Klamath Mountains geomorphic province. The lithologies and age relationships within the Klamaths indicate repeated accretion, beginning in the early to middle Paleozoic and continuing through the Mesozoic, of ophiolitic and/or island arc terrains and associated sedimentary units to the western edge of the North American continent. Jurassic and Cretaceous intrusives (gabbroic to granitic) intrude all the units.

Prominent features of the WJB include the Josephine Ophiolite and coeval volcaniclastics and flows associated with island arc development. The Josephine Ophiolite is interpreted to be the product of Jurassic back-arc spreading, with island arc development occurring relatively westward. Both units regionally trend NNE with a steep SE dip; however, local variations in both strike and dip occur.

In SW Oregon, Jurassic extrusive rocks have been collectively named the Rogue Volcanics. Volcanic members associated with island arc development include intermediate to locally felsic volcaniclastics and flows, while those within the Josephine Ophiolite consist of mafic flows and pillows. The Rogue Volcanics are conformably overlain by the Galice Formation, which is composed predominantly of inter-bedded greywacke and shale.

THE ALMEDA DEPOSIT

Location and Access

The Almeda is located in Sec. 13; Twp. 34S; Rge. 8W, W.M. in northwestern Josephine County, Oregon. The deposit is approximately 30 road miles northwest of Grants Pass on the north bank of the Rogue River. Access to the deposit is via the Merlin-Galice Road to the north bank road turnoff at the east end of the bridge immediately below the mouth of Hellsgate Canyon. From this junction, a poorly maintained dirt and gravel jeep trail leads west to the deposit.

Deposit History

Several published and unpublished reports have been written concerning the Almeda deposit. An excellent compilation was made by F. W. Libbey in 1967. In addition to production records, this report contains geologic data which were available at that time, as well as geological and assay maps of the underground workings.

Past production at the Almeda has been minimal. A total of 16,619 tons, averaging 0.093 opt gold, 2.91 opt silver, and 0.78% copper, were produced in the early 1900's. Additional values are reported for zinc and lead. This material was associated with an exhalative baritic horizon which occurs at the stratigraphic top of the mineralized section. Limited production occurred again during the early 1940's when approximately 300 tons were mined.

The Alaska Copper Company conducted a diamond drilling program at the Almeda during 1953. Results of their program include several high-grade gold (>0.50 opt) and silver intercepts. Other companies have obtained options on the Almeda in the recent past. These include Texasgulf Western (1975) and Blue Diamond and Commanche Petroleum (1981-1982). Both companies conducted limited regional exploration and drilling. Results of this earlier work were not made available for this evaluation, and as such have not been included.

Local Geologic Setting

The Almeda occurs in the Galice District of northwestern Josephine County, Oregon. Sulfide mineralization occurs within silicified and pyritized felsic to intermediate extrusives of the Rogue Volcanics immediately below their upper contact with sedimentary units of the Galice Formation. This broad zone of mineralization is known locally as the Big Yank Lode (BYL). The width of the BYL varies from an average of 60' to over 200' wide where exposed at the Almeda. The BYL closely follows the Rogue/Galice contact, and can be traced for over twenty miles. Dacite porphyry dikes are common along the contact, which strikes NNE and dips steeply to the SE.

Two types of mineralization occur at the Almeda. The highest grade mineralization occurs in what is called the "copper ore with barite". These lenses, which occur as tabular massses up to 60' in width, consist of massive sulfides in a gangue of barite and quartz. These portions of the Almeda stratigraphy are interpreted to be volcanogenic in origin, and represent seafloor exhalative sulfide horizons. Sulfide minerals include pyrite, chalcopyrite, galena, sphalerite, chalcocite, and covellite. Analysis of "copper ore with barite" samples taken in the early 1900's by Holdsworth and Diller range from 0.10 to 0.42 opt gold, 3.32 to 12.18 opt silver, and 1.50% to 6.02% copper. From 1911 through 1916, 16,619 tons of ore produced at the Almeda from an on-site matte smelter returned average values of 0.093 opt gold, 2.91 opt silver, and 0.78% copper. Old reports indicate that the high barite content of the ore contributed to the generally poor recoveries of the metals.

Alteration of the underlying volcaniclastics, with the introduction of silica and pyrite, has resulted in a broad zone (up to 200' thick) of lower grade gold/silver mineralization. "Siliceous gold-silver" mineralization occurs in zones of intensely silicified volcaniclastics both lateral to, and stratigraphically below, the exhalative horizons, and contains variable amounts of sulfides. Large tonnages of this type are reported to occur; however, the gold and silver values are erratic and essentially low grade. This observation is supported by the recent drilling by Kennecott.

Post-mineral faulting has disrupted both the baritic and siliceous horizons. A limited examination of geologic maps contained in the Libbey report, as well as preliminary X-sections prepared by Kennecott, indicate that several roughly east-west trending structures exist in the vicinity of the Almeda deposit. Two separate generations of faults are evident. These consist of an older set with shallow to moderate southerly dips which are cut by a younger set which dips steeply to the north. It is apparent that the majority of the early production on the property was from a single horizon bounded by two of the first generation south-dipping faults. From the pattern of Kennecott's drilling, it is probable that several of their later holes were designed more to obtain additional structural information than to maximize mineralized intercepts.

Drilling by Kennecott - 1986-87

During September and October 1986, Kennecott drilled a total of 17 reverse circulation rotary holes at the Almeda for an aggregate length of 4805 feet (See Table I). Holes AL-1 through AL-13 were drilled north of the Rogue River in the vicinity of the old mine workings. The remaining four holes (AL-14 through AL-17) were drilled south of the river to test the down-dip extension of several anomalous bedrock samples of pyritic volcaniclastic rocks. Summary drill logs and assay intervals were made available for this evaluation.

TABLE I

Hole #	Azimuth	Angle	Depth
AL - 1	270	-50	305'
AL - 2	278	-45	200'
AL - 3	310	-75	145'
AL - 4	264	-75	685'
AL - 5	263	-80	250'
AL - 6	263	-45	250'
AL - 7	258	-45	400'
AL - 8	264	-50	405'
AL - 9	317	-70	135'
AL - 10	-	-90	200'
AL - 11	360	-60	360'
AL - 12	345	-55	315'
AL - 13	277	-45	155'
AL - 14	277	-70	185'
AL - 15	285	-70	250'
AL - 16	-	-90	365'
AL - 17	250	-45	200'

Reserve Estimates

Reserves were calculated using the block section method on two cross-sections prepared by the writer (see attachments). The northern section contains holes AL-1, AL-2, and AL-4, and is bounded to the north by the 1140' fault. The southern section contains holes AL-5 and AL-6, and is limited to the south by the 950' fault. These holes apparently penetrated a single structurally bounded slice of mineralization. The remaining holes were either barren, too widely spaced to allow reasonable interpretation, or were drilled essentially along strike (presumably to obtain structural information). Results from these other holes, however, indicate that mineralization similar in grade to that reported here continues both north and south along strike from the tested area. It is also clear, from a preliminary examination of the Libbey report, that the potential for high grade mineralization at depth is good (as well as significant tonnages of the lower grade siliceous material).

Drill-indicated reserves, based on the above mentioned holes, total 600,000 tons at an average grade of 0.055 opt gold and 1.20 opt silver. An internal high-grade section, totalling 33,000 tons at an average grade of 0.063 opt gold and 4.94 opt silver, occurs at the stratigraphic top of the mineralized zone and is associated with the barite-rich exhalative horizon discussed above. It is stressed that these reserve figures are preliminary and based on limited shallow drilling and interpretation.

CONCLUSIONS AND RECOMMENDATIONS

The potential for significant tonnages of ore grade gold/silver/copper mineralization exists at the Almeda deposit, both along strike and down dip of the area worked in the early 1900's. A post-mineral structural break-up of the original volcanogenic deposit has complicated the local stratigraphy. A full understanding of the lithologic and structural setting is critical, and will require detailed surface and underground correlations before a full reconstruction of the depositional setting can be attempted. This reconstruction should be made prior to any additional drilling at the Almeda.

REGISTERED PROFESSIONAL GEOLOGIST
OREGON
MICHAEL D. STRICKLER
G855

Michael D. Strickler

FIGURE 2. ALMEDA DRILL HOLE SUMMARY SHOWING INTERCEPTS OVER 0.03 OPT AU

Hole	Depth	Bearing	Angle	Footage	Thickness	Au/opt	Ag/opt	Footage	Base Metals
AL-1	305'	W	-50	130-145'	14'	0.057	1.13*	135-160'	0.39% Cu
				145-170'	24'	0.032	--		
				170-180'	10'	0.042	--		
				205-210'	5'	0.053	--		
AL-2	200'	N82W	-45	42½-75'	28'	0.056	8.28	70-90'	0.25% Cu
AL-3	145'	N50W	-75	12½-20'	5'	0.035*	2.29		
AL-4	685'	S84W	-75	No assay intervals above 0.03 opt			--		
AL-5	250'	S83W	-80	77½-105'	20'	0.044	--	150-155'	0.637% Cu, 3.72% Zn 0.69% Pb
				135-155'	12'	0.08	--		
				165-250'	50'	0.069	--		
AL-6	250'	S83W	-45	50-90'	38'	0.06	2.69		
				100-120'	18'	0.076	--		
AL-7	400'	S78W	-45	180-200'	19'	0.039	--	185-192½'	0.33% Cu, 0.38% Zn 0.17% Pb
				360-370'	10'	0.037	--		
AL-8	405'	S84W	-50	No assay intervals above 0.03 opt			--		
AL-9	135'	N43W	-70	0-10'	7'	0.042	1.82		
AL-10	200'	--	-90	25-35'	5'	0.065	1.27		0.27% Cu
				115-125'	5'	0.024	1.04		
AL-11	360'	N	-60	275-315'	-A-	0.028	--		
AL-12	315'	N15W	-55	205-230'	15'	0.175	3.18**		1.67% Cu, 0.86% Zn, 0.26% Pb
AL-13	155'	N83W	-45	No assay intervals above 0.03 opt			--		
AL-14	185'	N83W	-70	90-92½'	2'	0.036	--		
AL-15	250'	N75W	-70	No assay intervals above 0.03 opt			--		
AL-16	365'	--	-90	170-175'	4'	0.03	--		
AL-17	200'	S70W	-45	No assay intervals above 0.03 opt			--		
Total	4,805 feet								

Note: GDR assayed Au, Ag except as noted below. Chemex or Bondar-Clegg assayed Cu, Pb and Zn.

-A- 25 feet of "ore" interval lost in drilling.
* Re-assayed by Chemex.
** Re-assayed by Bondar-Clegg.
-- Interval does not average greater than 1 opt Ag.

SDC/ab 10/27/86

KENNECOTT SUMMARY DRILL LOG

Project Almeda

State Oregon

Location South Almeda - Site B

Hole Direction N83W; -45°

Hole Commenced 11:20 AM 10/2/86

Hole Terminated 1:45 PM 10/2/86

Total Depth 155'

Casing Depth 5' **Size** 6"

Drilled by Eklund; Kirk Sherburn

Logged by Gander

Page 1 of 3

DH# AL-13

INTERVALS OF INTEREST

Footage	Assays
NONE	

REMARKS: Lost circulation @ 155'. Hole was drilled dry. Sample# 1537-1566

Sample Number	Lithology	Alteration	Structure	Mineral	Au-ppb	Ag-ppm	Cu-ppm	Pb-ppm	Zn-ppm
1537	+ andesite	mod chloritization (propylitized)		wk FeOx					
1538	intrusive	P							
1539	+								
1540	+	P							
1541	+								
1542	+	P							

Page 2 of 3

KENNECOTT SUMMARY DRILL LOG Project Almeda DH# AL-13

Sample Number		Lithology	Alteration	Structure	Mineral	ASSAYS				
						Au-opt	Ag-opt	Cu-ppm	Pb-ppm	Zn-ppm
1543	50	+ andesite intrusive	P mod chloritization (propylitized)							
1544		+								
	60									
1545		B massive BaSO4			≤5-7% sulfides	0.004	0.009	1090	368	120
1546		Δ Lower Siliceous Zone	S st silicified		≥50% sulfides	0.025	0.128	4700	440	159
25'-1547	70					0.010	0.006	1100	136	22
1548						0.009	0.006	740	282	60
1549						0.012	0.006	480	188	27
1550						0.010	0.006	361	74	14
1551	80	Δ				0.010	0.006	490	43	28
1552						0.018	0.047	505	58	23
1553						0.006	0.006	264	60	20
1554	90		S			0.006	0.006	249	84	24
1555		Δ				0.005	0.006	480	108	94
1556	100					0.005	0.006	645	63	102
1557	110					0.003	0.006	377	39	399
1558			S			0.004	0.006	300	43	525
1559		Δ				0.008	0.022	1150	48	640
1560	120					0.014	0.014	1030	67	227
1561						0.006	0.006	640	34	269
1562	130					0.008	0.006	310	59	32
1563		Δ	S			0.008	0.006	217	22	76
1564	140					0.004	0.006	215	20	18
1565	150					0.004	0.022	269	32	42

Page 3 of 3

KENNECOTT SUMMARY DRILL LOG Project Almeda DH# AL-13

ASSAYS

Sample Number	Lithology	Alteration	Structure	Mineral	Au-opt	Ag-opt	Cu-ppm	Pb-ppm	Zn-ppm
1566	Δ Lower Zone	S st silicified		≥50% sulfides	0.002	0.006	215	20	21

T.P. 155'

150
160
170
180
190
200
210
220
230
240
250

KENNECOTT SUMMARY DRILL LOG

Project Almeda

State Oregon

Location South Almeda-Site B

Hole Direction N83W; -70°

Hole Commenced 1:50 PM; 10/2/86

Hole Terminated 4:20 PM; 10/2/86

Total Depth 185'

Casing Depth 5' **Size** 6"

Drilled by Eklund; Kirk Sherburn

REMARKS: Hole was drilled dry.
Sample #1567-1602

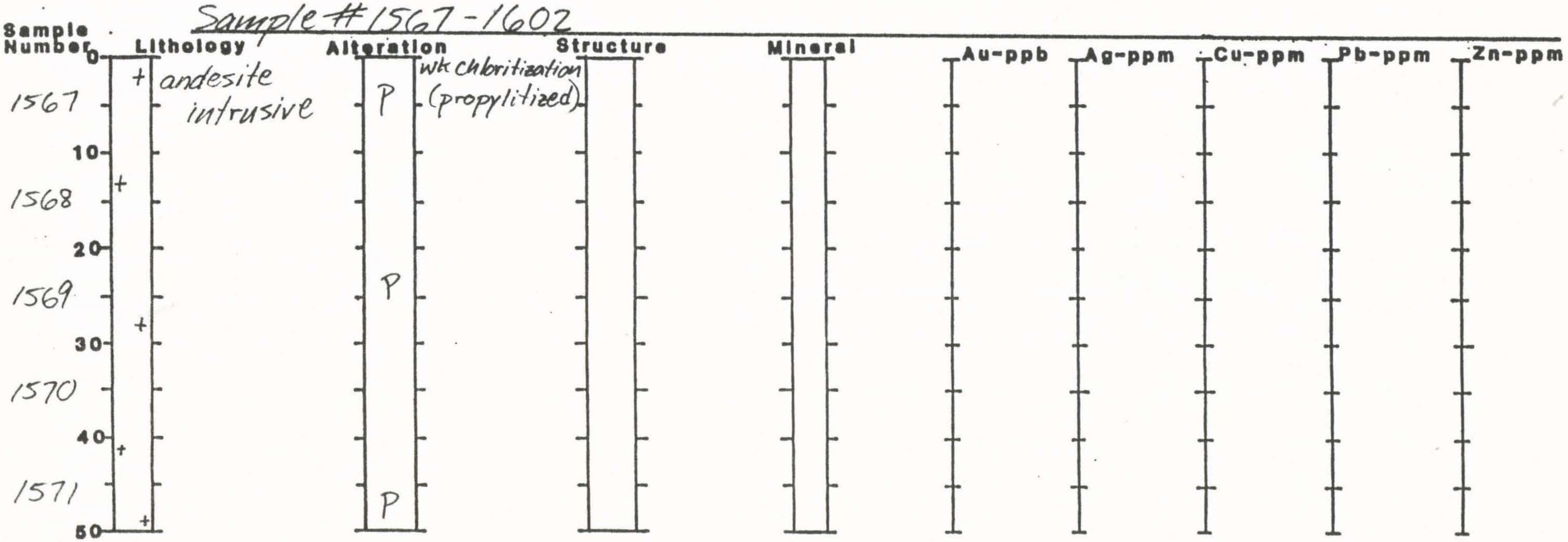
Logged by Gander

Page 1 of 3

DH# AL-14

INTERVALS OF INTEREST

Footage	True Thickness	Assays
90-92½'	2'	0.0360pt Au



Page 2 of 3

KENNECOTT SUMMARY DRILL LOG Project Almeda DH# AL-14

Sample Number	Depth	Lithology	Alteration	Structure	Mineral	Au-opt	Ag-opt	Cu-ppm	Pb-ppm	Zn-ppm
	50	+ andesite intrusive	P wk chloritization (propylitized)							
1572										
1573	60	+								
1574										
1575	70	+	P							
1576						0.001	0.006	1880	219	196
1577	80	Δ Lower Siliceous Zone	S st silicified		≥15-20% sulfides	0.002	0.092	1080	185	307
.5'-1578						0.005	0.201	935	880	520
1579	90				≥50% sulfides	0.022	0.176	1750	475	377
1580						0.029	0.422	3680	620	397
1581						0.011	0.103	1440	138	143
1582		Δ				0.012	0.187	1450	195	97
1583						0.009	0.106	1090	88	92
1584	100					0.011	0.006	384	52	198
1585						0.010	0.038	354	68	415
1586			S			0.009	0.030	343	60	265
1587	110	Δ				0.001	0.019	570	39	128
1588						0.007	0.047	965	30	605
1589						0.004	0.031	1290	40	975
1590	120	Δ				0.004	0.020	1390	69	203
1591			S			0.004	0.006	398	98	66
1592	130					0.002	0.006	291	24	98
1593						0.003	0.006	630	25	171
1594	140	Δ				0.004	0.006	515	27	116
1595	150		S			0.004	0.006	405	55	170

Page 3 of 3

KENNECOTT SUMMARY DRILL LOG

Project Almeda

DH# AL-14

Lithology: Lower Zone

Alteration: S st silicified; S

Structure:

Mineral: ≥50% sulfides

ASSAYS

Sample Number	Au-opt	Ag-opt	Cu-ppm	Pb-ppm	Zn-ppm
1596	0.006	0.006	279	37	815
1597	0.002	0.055	334	57	410
1598	0.006	0.049	395	35	188
1599	0.004	0.058	600	50	105
1600	0.009	0.052	695	47	119
1601	0.003	0.040	475	41	87
1602	0.002	0.006	367	36	62

150
160
170
180
190
200
210
220
230
240
250

KENNECOTT SUMMARY DRILL LOG

Project Almeda

State Oregon

Location South Almeda - Site C

Hole Direction N75W; -70°

Hole Commenced 4:40 PM 10/2/86

Hole Terminated 11:55 AM 10/3/86

Total Depth 250'

Casing Depth 2' **Size** 6"

Drilled by Eklund; Kirk Sherburn

Logged by Gander

Page 1 of 3

DH# AL-15

INTERVALS OF INTEREST

Footage	Assays
NONE	

REMARKS: Sample #1603-1650

Sample Number		Lithology	Alteration	Structure	Mineral	Au-ppb	Ag-ppm	Cu-ppm	Pb-ppm	Zn-ppm
1603	0	gray to blk shale	f fresh							
1604	10									
1605	20		f							
1606	30									
1607	40		f							
1608	50									

KENNECOTT SUMMARY DRILL LOG

Project Almeda

Page 2 of 3

DH# AL-15

ASSAYS

Sample Number	Depth	Lithology	Alteration	Structure	Mineral	Au-opt	Ag-opt	Cu-ppm	Pb-ppm	Zn-ppm
1608	50	gray to blk shale	f fresh							
1609	60									
1610	70									
		andesite intrusive	P wk chloritization (propylitized)		rare PY					
1611	80									
1612	90									
1613			P							
25'-1614	100									
1615										
1616										
1617										
	110									
1618										
1619										
1620										
1621	120									
1622										
1623			P		≤1-2% sulfides					
1624										
1625										
7.5' 1626	130	B massive BaSO4			20-30% sulfides	0.004	0.370	53	84	430
1627	140	Lower Siliceous Zone	S st silicified		40-50%	0.005	0.237	394	1150	248
1628					≥50% sulfides	0.013	0.081	755	236	127
1629						0.009	0.059	535	107	377
1630	150					0.008	0.050	410	88	970

Page 3 of 3

KENNECOTT SUMMARY DRILL LOG Project Almeda DH# AL-15

	Sample Number	Lithology	Alteration	Structure	Mineral	Au-opt	Ag-opt	Cu-ppm	Pb-ppm	Zn-ppm
150	1631	Δ Lower Zone	S st silicified		≥50% sulfides	0.008	0.024	258	83	1670
	1632					0.005	0.006	398	50	1960
160	1633					0.007	0.006	445	51	965
	1634					0.011	0.019	315	48	500
170	1635	Δ				0.005	0.006	226	35	269
	1636					0.009	0.015			
180	1637		S			0.006	0.006			
	1638					0.012	0.044			
190	1639	Δ				0.005	0.030			
	1640					0.006	0.006			
200	1641		S			0.005	0.006			
	1642	Δ				0.006	0.006			
210	1643					0.008	0.006			
	1644					0.013	0.006			
220	1645		S			0.012	0.006			
	1646	Δ				0.011	0.006			
230	1647					0.008	0.006			
	1648					0.013	0.006			
240	1649	Δ				0.008	0.006			
	1650		S			0.009	0.006			
250										

T.D.
250'

KENNECOTT SUMMARY DRILL LOG

Project Almeda

State Oregon

Location South Almeda - Site C

Hole Direction vertical

Hole Commenced 12:15 PM 10/3/86

Hole Terminated 9:40 AM 10/4/86

Total Depth 365'

Casing Depth 2' **Size** 6"

Drilled by Eklund; Kirk Sherburn

Logged by Gander

Page 1 of 5

DH# AL-16

INTERVALS OF INTEREST

Footage	True Thickness	Assays
170-175'	4'	0.03 opt Au

REMARKS:

Sample # 1651-1708

Sample Number		Lithology	Alteration	Structure	Mineral	Au-ppb	Ag-ppm	Cu-ppm	Pb-ppm	Zn-ppm
1651	0	gray to blk shale	f fresh							
1652	10									
1653	20		f							
1654	30									
1655	40		f							
1656	50									

KENNECOTT SUMMARY DRILL LOG

Project Almeda

Page 2 of 5

DH# AL-16

Sample Number		Lithology	Alteration	Structure	Mineral	ASSAYS Au-ppb	Ag-ppm	Cu-ppm	Pb-ppm	Zn-ppm
1656	50	gray to blk shale	f fresh							
1657	60									
1658	70									
1659	80		f							
1660	90									
1661	100									
1662	110		f							
1663	120									
1664	130									
1665	140		f							
1666	150									

Page 3 of 5

KENNECOTT SUMMARY DRILL LOG Project Almeda DH# AL-16

Sample Number		Lithology	Alteration		Structure	Mineral	Au-opt	Ag-opt	-ppm	-ppb	-ppm
							ASSAYS				
1666	150	gray to blk shale	f	fresh							
1667		andesite intrusive	p	tr chloritization mod $CaCO_3$ (propylitized)		tr py	0.001	0.006			
	160										
1668							0.016	0.006			
1669		gray to blk shale	f	fresh			0.009	0.004			
	170										
1670		andesite intrusive	p	tr chloritization mod $CaCO_3$		2-3% sulfides	0.030	0.006			
1671							0.003	0.037			
	180										
1672							0.001	0.006			
1673							0.001	0.006			
	190										
1674		gray to blk shale	f	fresh		tr py	0.001	0.083			
1675											
	200										
1676											
1677											
	210										
1678											
1679											
	220										
1680			f								
1681											
	230										
1682											
1683											
	240										
1684											
1685											
	250										

Page 4 of 5

KENNECOTT SUMMARY DRILL LOG Project Almeda DH# AL-16

	Sample Number	Lithology	Alteration	Structure	Mineral	Au-ppb	Ag-ppm	Cu-ppm	Pb-ppm	Zn-ppm
250										
	1686	gray to blk shale	f fresh		tr PY					
	1687									
260										
	1688									
	1689									
270										
	1690									
	1691		f							
280										
	1692									
	1693									
290										
	1694									
	1695									
300										
	1696	andesite intrusive	P st chloritization (propylitized)							
	1697									
310										
	1698									
	1699									
320										
	1700	gray to blk shale	f fresh							
	1701		P							
330										
	1702									
	1703									
340										
	1704									
	1705		P							
350										

KENNECOTT SUMMARY DRILL LOG

Project Almeda

Page 5 of 5

DH# AL-16

						ASSAYS				
Sample Number		Lithology	Alteration	Structure	Mineral	Au-ppb	Ag-ppm	As-ppm	Hg-ppb	Sb-ppm
1706	350	+ andesite intrusive	P st chloritization (propylitized)		tr PY					
1707										
1708	360	+								
T.D. 365'	370									
	380									
	390									
	400									
	410									
	420									
	430									
	440									
	450									

KENNECOTT SUMMARY DRILL LOG

Project Almeda

Logged by Gander

Page 1 of 3

State Oregon

DH# AL-17

Location South Almeda

INTERVALS OF INTEREST

Footage	Assays
NONE	

Hole Direction S70W; -45°

Hole Commenced 10:35 AM 10/4/86

Hole Terminated 1:50 PM 10/4/86

Total Depth 200'

Casing Depth 5' **Size** 6"

Drilled by Eklund; Kirk Sherburn

REMARKS: Sample # 1709-1743

Sample Number		Lithology	Alteration	Structure	Mineral	Au-ppb	Ag-ppm	Cu-ppm	Pb-ppm	Zn-ppm
1709	0	- gray to blk shale	f fresh							
1710	10	-								
1711	20	-								
1712	30	-								
1713	40	-								
1714	50	+ andesite intrusive	P wk chloritization (propylitized)							

Page 2 of 3

DH# AL-17

KENNECOTT SUMMARY DRILL LOG Project Almeda

ASSAYS

Sample Number		Lithology	Alteration		Structure	Mineral	Au-opt	Ag-opt	Cu-ppm	Pb-ppm	Zn-ppm
1714	50	+ andesite intrusive	P	wk chloritization (propylitized)							
1715											
	60										
1716		+									
1717				st chloritization							
	70										
1718		+									
1719											
	80										
1720			P								
1721	90										
1722		+									
1723											
	100										
1724											
1725						tr py					
	110	+									
1726											
1727			P								
	120										
1728		+									
1729							0.001	0.006			
	130										
1730							0.001	0.027			
1731		Lower Siliceous Zone	S	st silicified		25-30% sulfides	0.018	0.335			
	140	Δ									
1732						40-50%	0.029	0.274			
1733	150	Δ				≥50% sulfides	0.011	0.172			

Page 3 of 3

KENNECOTT SUMMARY DRILL LOG Project Almeda DH# AL-17

ASSAYS

Sample Number	Lithology	Alteration	Structure	Mineral	Au-opt	Ag-opt	As-ppm	Hg-ppb	Sb-ppm
1734	Δ Lower Zone	S st silicified		≥50% sulfides	0.004	0.007			
1735					0.009	0.034			
1736	Δ				0.006	0.022			
1737					0.007	0.037			
1738					0.005	0.006			
1739	Δ	S			0.008	0.006			
1740					0.001	0.006			
1741					0.001	0.006			
1742	Δ				0.013	0.006			
1743					0.001	0.006			

T.D. 200'

150 160 170 180 190 200 210 220 230 240 250

ALMEDA DRILL HOLE AL13

SAMPLE INTERVAL	SAMPLE NUMBER	GDR Au opt	BONDAR Au opt	GDR Ag opt	BONDAR Ag opt	BONDAR Cu ppm	BONDAR Zn ppm	BONDAR Pb ppm
AL13 60-65	1545	0.004	0.010	0.009	0.052	1090	120	368
AL13 65-70	1546	0.025	0.028	0.128	0.321	4700	159	440
AL13 70-72.5	1547	0.010	0.016	0.006	0.038	1100	22	136
AL13 72.5-75	1548	0.009	0.010	0.006	0.041	740	60	282
AL13 75-77.5	1549	0.012	0.004	0.006	0.032	480	27	188
AL13 77.5-80	1550	0.010		0.006	0.026	361	14	74
AL13 80-82.5	1551	0.010		0.006	0.055	490	28	43
AL13 82.5-85	1552	0.018		0.047	0.093	505	23	58
AL13 85-90	1553	0.006		0.006	0.041	264	20	60
AL13 90-95	1554	0.006		0.006	0.026	249	24	84
AL13 95-100	1555	0.005		0.006	0.041	480	94	108
AL13 100-105	1556	0.005		0.006	0.020	645	102	63
AL13 105-110	1557	0.003		0.006	0.015	377	399	39
AL13 110-115	1558	0.004		0.006	0.023	300	525	43
AL13 115-120	1559	0.008		0.022	0.015	1150	640	48
AL13 120-125	1560	0.014		0.014	0.020	1030	227	67
AL13 125-130	1561	0.006		0.006	0.015	640	269	34
AL13 130-135	1562	0.008		0.006	0.012	310	32	59
AL13 135-140	1563	0.008		0.006	0.009	217	76	22
AL13 140-145	1564	0.004		0.006	0.012	215	18	20
AL13 145-150	1565	0.004		0.022	0.018	269	42	32
AL13 150-155	1566	0.002		0.006	0.012	215	21	20

ALMEDA DRILL HOLE AL14

SAMPLE INTERVAL	SAMPLE NUMBER	GDR Au opt	BONDAR Au opt	GDR Ag opt	BONDAR Ag opt	BONDAR Cu ppm	BONDAR Zn ppm	BONDAR Pb ppm
AL14 75-80	1576	0.001		0.006	0.006	1880	196	219
AL14 80-85	1577	0.002		0.092	0.114	1080	307	185
AL14 85-87.5	1578	0.005	0.003	0.201	0.254	935	520	880
AL14 87.5-90	1579	0.022	0.018	0.176	0.242	1750	377	475
AL14 90-92.5	1580	0.029	0.036	0.422	0.584	3680	397	620
AL14 92.5-95	1581	0.011	0.012	0.103	0.105	1440	143	138
AL14 95-97.5	1582	0.012	0.012	0.187	0.216	1450	97	195
AL14 97.5-100	1583	0.009		0.106	0.117	1090	92	88
AL14 100-102.5	1584	0.011		0.006	0.038	384	198	52
AL14 102.5-105	1585	0.010		0.038	0.032	354	415	68
AL14 105-107.5	1586	0.009		0.030	0.035	343	265	60
AL14 107.5-110	1587	0.001		0.019	0.029	570	128	39
AL14 110-115	1588	0.007		0.047	0.058	965	605	30
AL14 115-120	1589	0.004		0.031	0.038	1290	975	40
AL14 120-125	1590	0.004		0.020	0.015	1390	203	69
AL14 125-130	1591	0.004		0.006	0.015	398	66	98
AL14 130-135	1592	0.002		0.006	0.012	291	98	24
AL14 135-140	1593	0.003		0.006	0.006	630	171	25
AL14 140-145	1594	0.004		0.006	0.009	515	116	27
AL14 145-150	1595	0.004		0.006	0.015	405	170	55
AL14 150-155	1596	0.006		0.006	0.047	279	815	37
AL14 155-160	1597	0.002		0.055	0.053	334	410	57
AL14 160-165	1598	0.006		0.049	0.047	395	188	35
AL14 165-170	1599	0.004		0.058	0.047	600	105	50
AL14 170-175	1600	0.009		0.052	0.053	695	119	47
AL14 175-180	1601	0.003		0.040	0.029	475	87	41
AL14 180-185	1602	0.002		0.006	0.023	367	62	36

ALMEDA DRILL HOLE AL15

SAMPLE INTERVAL	SAMPLE NUMBER	GDR Au opt	BONDAR Au opt	GDR Ag opt	BONDAR Ag opt	BONDAR Cu ppm	BONDAR Zn ppm	BONDAR Pb ppm
AL15 130-137.5	1626	0.004	0.002	0.370	0.642	53	430	84
AL15 137.5-140	1627	0.005	0.002	0.237	0.380	394	248	1150
AL15 140-142.5	1628	0.013	0.004	0.081	0.111	755	127	236
AL15 142.5-145	1629	0.009	0.003	0.059	0.064	535	377	107
AL15 145-150	1630	0.008	0.008	0.050	0.058	410	970	88
AL15 150-155	1631	0.008		0.024	0.032	258	1670	83
AL15 155-160	1632	0.005		0.006	0.026	398	1960	50
AL15 160-165	1633	0.007		0.006	0.038	445	965	51
AL15 165-170	1634	0.011		0.019	0.029	315	500	48
AL15 170-175	1635	0.005		0.006	0.017	226	269	35
AL15 175-180	1636	0.009		0.015				
AL15 180-185	1637	0.006		0.006				
AL15 185-190	1638	0.012		0.044				
AL15 190-195	1639	0.005		0.030				
AL15 195-200	1640	0.006		0.006				
AL15 200-205	1641	0.005		0.006				
AL15 205-210	1642	0.006		0.006				
AL15 210-215	1643	0.008		0.006				
AL15 215-220	1644	0.013		0.006				
AL15 220-225	1645	0.012		0.006				
AL15 225-230	1646	0.011		0.006				
AL15 230-235	1647	0.008		0.006				
AL15 235-240	1648	0.013		0.006				
AL15 240-245	1649	0.008		0.006				
AL15 245-250	1650	0.009		0.006				

ALMEDA DRILL HOLE AL16

SAMPLE INTERVAL	SAMPLE NUMBER	GDR Au opt	GDR Ag opt
AL16 155-160	1667	0.001	0.006
AL16 160-165	1668	0.016	0.006
AL16 165-170	1669	0.009	0.004
AL16 170-175	1670	0.030	0.006
AL16 175-180	1671	0.003	0.037
AL16 180-185	1672	0.001	0.006
AL16 185-190	1673	0.001	0.006
AL16 190-195	1674	0.001	0.083

ALMEDA DRILL HOLE AL17

SAMPLE INTERVAL	SAMPLE NUMBER	GDR Au opt	GDR Ag opt
AL17 125-130	1729	0.001	0.006
AL17 130-135	1730	0.001	0.027
AL17 135-140	1731	0.018	0.335
AL17 140-145	1732	0.029	0.274
AL17 145-150	1733	0.011	0.172
AL17 150-155	1734	0.004	0.007
AL17 155-160	1735	0.009	0.034
AL17 160-165	1736	0.006	0.022
AL17 165-170	1737	0.007	0.037
AL17 170-175	1738	0.005	0.006
AL17 175-180	1739	0.008	0.006
AL17 180-185	1740	0.001	0.006
AL17 185-190	1741	0.001	0.006
AL17 190-195	1742	0.013	0.006
AL17 195-200	1743	0.001	0.006

While You Were Out

To Jerry G

Date 2/25 Time 945

Steven Craig called

of Kennicott - Reno

Phone

☑ Telephoned
☐ Please call
☐ Will call again
☐ In person
☐ Wants to see you
☐ Returned your call

Message

re: Alameda data confidentia

The data is not confidentia

you may release the data

Anne Bradley

Taken by

FORM CS 51619

FIGURE 2. ALMEDA DRILL HOLE SUMMARY SHOWING INTERCEPTS OVER 0.03 OPT AU

Hole	Depth	Bearing	Angle	Footage	Thickness	Au/opt	Ag/opt	Footage	Base Metals
AL-1	305'	W	-50	130-145'	14'	0.057	1.13*	135-160'	0.39% Cu
				145-170'	24'	0.032	--		
				170-180'	10'	0.042	--		
				205-210'	5'	0.053	--		
AL-2	200'	N82W	-45	42½-75'	28'	0.056	8.28	70-90'	0.25% Cu
AL-3	145'	N50W	-75	12½-20'	5'	0.035*	2.29		
AL-4	685'	S84W	-75	No assay intervals above 0.03 opt			--		
AL-5	250'	S83W	-80	77½-105'	20'	0.044	--	150-155'	0.637% Cu, 3.72% Zn 0.69% Pb
				135-155'	12'	0.08	--		
				165-250'	50'	0.069	--		
AL-6	250'	S83W	-45	50-90'	38'	0.06	2.69		
				100-120'	18'	0.076	--		
AL-7	400'	S78W	-45	180-200'	19'	0.039	--	185-192½'	0.33% Cu, 0.38% Zn 0.17% Pb
				360-370'	10'	0.037	--		
AL-8	405'	S84W	-50	No assay intervals above 0.03 opt			--		
AL-9	135'	N43W	-70	0-10'	7'	0.042	1.82		
AL-10	200'	--	-90	25-35'	5'	0.065	1.27		0.27% Cu
				115-125'	5'	0.024	1.04		
AL-11	360'	N	-60	275-315'	-A-	0.028	--		
AL-12	315'	N15W	-55	205-230'	15'	0.175	3.18**		1.67% Cu, 0.86% Zn, 0.26% Pb
AL-13	155'	N83W	-45	No assay intervals above 0.03 opt			--		
AL-14	185'	N83W	-70	90-92½'	2'	0.036	--		
AL-15	250'	N75W	-70	No assay intervals above 0.03 opt			--		
AL-16	365'	--	-90	170-175'	4'	0.03	--		
AL-17	200'	S70W	-45	No assay intervals above 0.03 opt			--		
Total	4,805 feet								

Note: GDR assayed Au, Ag except as noted below. Chemex or Bondar-Clegg assayed Cu, Pb and Zn.

-A- , 25 feet of "ore" interval lost in drilling.
* Re-assayed by Chemex.
** Re-assayed by Bondar-Clegg.
-- Interval does not average greater than 1 opt Ag.

SDC/ab 10/27/86

GEOLOGY OF THE ALMEDA ORE DEPOSITS

E. G. Kirkwood

May 25, 1922

Extent:

Roughly, the mineralized zone lies between steeply dipping slate beds on the east and unmineralized tuffaceous material on the west. The zone is about 200 yards wide and extends from the Rogue River back into the mountain an unknown distance to the north.

Character and occurrence:

The copper occurs as chalcopyrite, finely disseminated in pyrite, in barite and silicified andesite gangue. Tuffs are replaced by the ore, the chief deposits of which occur on the contact between the slates and tuffs.

Granitic intrusions are encountered in all levels of the mine, and have, no doubt, been found a serious drawback to development.

Due to many slips, and much folding and faulting, the occurrence of ore is very irregular; the drifts have followed contacts in many places and have been abandoned in granite.

River Tunnel:

In the lowest level examined, the River Tunnel, the workings are almost entirely in barren slate, the ore being found to lie to the west.

Tunnel No. 1:

The next higher level, as shown by an investigation of Tunnel No. 1, has been exploited more fully and systematically, but the ore is still shown lying to the west of the main workings. A good sized granite intrusion is encountered in the center and at the western ends of two short crosscuts.

Tunnel No. 2:

Tunnel No. 2 was so badly caved that it could not be entered, but slate or shale was found to predominate at the portal.

Tunnel No. 3:

Tunnel No. 3 contained much low grade ore, some high grade, and several granite barriers were penetrated.

Tunnel No. 4:

Tunnel No. 4, on the highest level of the mine, contained several small deposits of high grade ore, but too much slate and granite were encountered.

"O" Tunnel:

The level exposed by the "O" Tunnel, which lies between the River Tunnel and Tunnel No. 1, contains no geologic features of importance. Slate predominates on the east and silicified andesite, containing low grade ore, on the west.

CONCLUSIONS

Since less granite was encountered in the lower levels, it is evident that the slate and shale were of earlier origin than the granite.

The best ore is in the lower levels, and less barren country rock will be encountered in its extraction. Misconception and lack of inference from geologic evidence, is shown by the way the workings have kept persistently to the east of the main body of ore.

GEOLOGY OF THE ROGUE AND GALICE FORMATIONS AND THE ALMEDA MASSIVE SULFIDE DEPOSIT, JOSEPHINE COUNTY OREGON

Randy Koski

The first half of our traverse down the Rogue River will take us through steeply dipping metasedimentary rocks of the Galice Formation (Fig. 1). The remainder of the trip passes through predominantly fragmental metavolcanic rocks of the Rogue Formation. The Almeda Mine is located on the north side of the river near the Rogue-Galice contact. The Rogue and Galice Formations and coeval calc-alkaline intrusive rocks (dacite porphyry in Fig. 1) are thought to have a volcanic arc origin.

The following descriptions are compiled from Wells and Walker (1953); Garcia (1979); Ramp and Peterson (1979); and Koski and Derkey (1981). The bulk of the Galice Formation consists of dark gray mudstone composed of microscopic fragments of quartz, opaque minerals, plagioclase and clays. The dark-gray mudstone is interlayered with light to medium gray graywacke, giving the unit a distinctive color-banded appearance. Sedimentary structures are well preserved in the Galice Formation, with cross-bedding, graded bedding and rip-up structures common in the graywacke units.

The presence of Buchia concentrica indicates an age of late Oxfordian to early Kimmeridgian for the Galice Formation. The Galice Formation volcanic rocks are interlayered and interfingered with marine sedimentary rocks; they are otherwise difficult to distinguish from rocks of the Rogue Formation. Galice volcanic rocks consist of thick andesitic flow rocks and flow breccias and coarse agglomerates overlain by more siliceous tuffs and thin flows.

The Rogue Formation consists predominantly (>95%) of fragmental rocks, including fine- to coarse-grained tuffs, agglomerates, and flow breccias. Less extensive lava flow rocks include light-gray to white silicic rocks and pale-green to greenish-gray andesite and basalt, some of which have pillow structures.

The Rogue Formation underlies and is approximately conformable to the Upper Jurassic Galice Formation. Age of the Rogue Formation is not known, but on the basis of its stratigraphic position, it is believed to be Middle to Late Jurassic.

The volcanic rocks of the Rogue and Galice formations display predominantly fragmental textures. They are interbedded with a thick sequence of volcaniclastic sedimentary rocks of Late Jurassic age. The volcanic rocks display trace element abundances typical of modern calc-alkaline volcanic arc rocks. Compositions of clinopyroxene phenocrysts from the volcanic rocks of the Rogue and Galice formations show a trend indicative of calc-alkaline parentage. This sequence appears to have been laid down on (or adjacent to) the Briggs Creek amphibolite (the amphibole gneiss of Fig. 1) and a section of mafic and ultramafic rocks that together may represent former oceanic crust and its underpinnings. The Briggs Creek amphibolite trends parallel to a coastal belt (the Dothan Formation) of mudstones and graywackes containing blocks and a thrust sheet of low-temperature, high-pressure, lawsonite-bearing schists, forming a paired metamorphic belt. All of these features suggest that the Rogue and Galice Formations were deposited in a calc-alkaline, island arc of Jurassic age.

The Almeda massive sulfide deposit occurs in highly altered fragmental rhyolitic to dacitic metavolcanic rocks assigned to the Rogue Formation, immediately below the depositional contact with overlying slate and graywacke of the Galice Formation. Sill-like masses of dacite porphyry are emplaced along the Rogue-Galice boundary. At the Almeda Mine, a 60-m-thick steeply east-dipping mass of intensely silicified fragmental rock known as the "Big Yank lode" occurs between clastic sedimentary rocks of the Galice Formation and coarse rhyolitic agglomerate. The mass contains lenses and fragments of massive sulfide and barite in a silicified volcanic matrix. Lenses of massive sulfide have a fragmental texture and contain clasts of sulfide, barite, and altered volcanic rock. Locally, alternating layers of sulfide and barite appear to be bedded deposits. The most abundant hypogene sulfide is pyrite, although chalcopyrite, sphalerite, and galena are locally concentrated in massive accumulations.

Disseminated and vein sulfide, mostly pyrite, is present in silicified rock between the sulfide and barite lenses and lithic fragments and also forms an extensive stockwork in silicified volcanic breccia stratigraphically below the Big Yank lode. Quartz-sericite alteration and pyritization decrease in intensity below the Almeda deposit but extend southward from the Rogue River along the contact between the Rogue and Galice Formations. Sill-like masses of dacite porphyry emplaced near the contact are locally altered to fine-grained quartz and sericite accompanied by disseminated pyrite. With depth below the stratiform sulfide, quartz-sericite alteration diminishes, and the felsic volcanic rocks contain chlorite and epidote.

Between 1911 and 1916, 16,619 tons of ore produced from the Almeda deposit yielded 259,800 pounds of Cu, 7,197 pounds Pb, 1,540 troy ounces Au, and 48,387 troy ounces Ag.

REFERENCES

Garcia, M.O., 1979, Petrology of the Rogue and Galice Formations, Klamath Mountains, Oregon: Identification of a Jurassic island arc sequence: Journal of Geology, v. 87, p. 29-41.

Koski, R.A., and Derkey, R.E., 1981, Massive sulfide deposits in oceanic-crust and island-arc terranes of southwestern Oregon: Oregon Geology, v. 43, p. 119-125.

Ramp, Len, and Peterson, N.V., 1979, Geology and mineral resources of Josephine County, Oregon: State of Oregon, Department of Geology and Mineral Industries Bulletin 100, 45 p.

Well, F.G., and Walker, G.W., 1953, Geologic map of the Galice quadrangle, Oregon: U.S. Geological Survey Geologic Quadrangle Map GQ-25, scale 1:62,500.

United States
DEPARTMENT OF THE INTERIOR

Geological Survey

CIRCULAR 2

COPPER DEPOSITS IN THE SQUAW CREEK AND SILVER PEAK DISTRICTS AND AT THE ALMEDA MINE, SOUTHWESTERN OREGON

WITH NOTES ON THE PENNELL & FARMER AND BANFIELD PROSPECTS

By

Philip J. Shenon

Washington

1933

RIVER TUNNEL.

1 Fault, strike N 30 W, dip 35 SW. Fault extensively mineralized Barite in excess.
2 Fault, strike N 10 W dip 40 W Between granodiorite and ore

3 Drippings of copper indicate high grade ore in back of drift on hanging wall.

4 Fault strike N 30 E dip 80 SE.

5 Fault, strike N 60 W, dip vertical. Drift follows fault.

6 Fault, strike N 10 E,dip 80 East. transverse to drift.

7 Fault, strike N 70 W, dip 65 S.
in slate
8 " ~~in slate~~. strike N 30 E, dip 45 SE

9 Fault in slate strike N 70 E dip 60 S. Slates appear to be mineralized beyound fault.
10 S"
10 Probably slip between andesite and ore, obscured by timbering.

11 Slip strike N 10 E dip 80 East.

12 Gradual gradation of slates to andesites, considerable gouge would indicate slip, but obscured by timbering.

13 Fault, Strike N. dip vertical.

14 Considerable water dripping. much $Fe_2 O_3$

15 Two small intrusions of rhyolite in slates, contacts well defined.

"O" TUNNEL.

1 Fault strike N 40 E. dip 20 NW

2 Solid sulphides

3 Fault strike N 40 E. dip 20 NW

"B# TUNNEL

1 Caved.

2 Contact fault, strike N70 E Sip vertical

3-4 Caved

5 Raise

6 Fault, strike N 70 W. dip N 20

River Tunnel

In the lowest level examined, the River Tunnel, the workings are almost entirely in barren slate, the ore being found to lie to the west.

Tunnel No. 1.

The next higher level, as shown by an investigation of Tunnel No. 1, has been explo more fully and systematically, but the ore is still shown lying to the west of the main workings. A good sized gran intrusion is encountered in the center a at the western ends of two short cros cuts.

Tunnel No. 2.

Tunnel No. 2 was so badly caved that it could not be entered, but slate or shale was found to predominate at th portal.

Tunnel No. 3.

Tunnel No. 3 contained much low grade ore, some high grade, and several granite barriers were penetrated.

Tunnel No. 4.

Tunnel No. 4, on the highest level of the mine contained several small deposit of high grade ore, but too much slate and granite were encountered.

"J" Tunnel.

The level exposed by the "O" Tunnel, whi lies between the River Tunnel and Tunne No. 1, contains no geologic features of importance. Slate predominates on th east and silicified andesite, con the west.

SERVICES, INC.
120 S. Walnut P.O. Box BB
Hayden, Colorado 81639
(303) 276-3377

SEMIQUANTITATIVE SPECTROGRAPHIC ANALYSIS

INSTRUMENT: WADSWORTH MOUNTED, JARRELL ASH, 1.5 METER, DC ARC EMISSION SPECTROGRAPH
Fe, Mg, Ca, Ti, Na, K, Si, Al & P reported in %, all other elements reported in PPM

DATE S

Office No.	Field No.	Au	Ag	Cu	Pb	Zn	Mo	Fe	W	Ni	Co	Cr	Cd	As	Sb	Mn	V	Bi	Sn	Zr	B	Ba	Be	La	Nb	Sc	Sr	Y	Ca	Mg	Ti	Na	K	S
Reference	—	—		—	—	—	—	—		—	—		—		—	—		—	—		—	—		—	—		—	—	—	—		—	—	
S87-243	ALA-1	N	.5	30	20	300	N	3.	N	70	20	150	N	N	N	500	300	N	N	100	70	700	3	20	N	30	150	30	.2	1.	.5	1.5	2.	3
244	2	N	N	100	L	N	N	2	N	N	N	150	N	N	N	1000	150	N	N	100	20	500	2	20	N	10	700	20	2.	.7	.3	1.5	.5	G
245	3	N	.5	50	20	L	N	2.	N	5	5	150	N	N	N	700	300	N	N	100	20	700	3	20	N	20	200	20	.2	1.5	.3	1.	2.	G
246	4	N	200	50	500	N	N	15.	N	5	N	50	N	5000	100	100	L	N	N	N	N	*G 5000	N	20	N	N	3000	N	L	N	.007	L	N	3
247	4A	N	1	70	70	N	N	5.		N	N	100	N	N	N	100	500			100	10	1500	1	N		50	100	20	.07	.15	.5	.5	1.	G
248	5	N	2	15	300	N	N	.1		N	N	70	N	N	N	N	200			70	30	*G	L	50		15	G 5000	N	.07	.1	.15	.15	.5	5
249	6	N	.5	150	10	L	N	5.		50	30	300	N	N	N	1000	150			70	10	700	L	N		15	200	10	1.	1.5	.2	1.5	.5	3
250	7	N	30	10,000	50	7000	50	G		30	70	70	N	N	N	150	150			50	10	GGGG 5000	L	30		10	1000	N	.2	.15	.15	N	.5	2
251	8	N	.5	50	20	N	N	3.		N	10	100	N	N	N	500	300			100	L	1000	2	20		30	300	20	.2	.5	.3	1.	1.	G
252	9	N	L	30	10	200	N	2.		7	5	100	N	N	N	1000	70			100	N	700	2	20		10	100	10	.2	1.	.3	1.5	1.	G
253	10	N	L	10	10	L	N	1.5		5	N	200	N	N	N	1000	50			70	N	1000	1	20		5	100	10	.2	1.	.15	1.5	1.	G
254	11	N	.5	30	10	300	N	1.5		L	5	100	N	N	N	2000	70			50	N	1000	2	20		7	200	20	.5	1.	.2	1.5	1.	G
	—	—		—	—		—	—		—		—		—	—	—		—		—	—	—		—	—		—		—	—		—	—	
Lower Detection Limit		10	0.5	5	10	200	5	0.05%	50	5	5	10	20	200	100	10	10	10	10	10	10	10	1	20	10	5	100	10	0.05	0.02%	.001%	.15%	0.5%	1

Alameda Mine
Profile 1/3 mile along Rive

N - Not detected L - Detected, but below limit of determination G - Greater than value shown

Instructions: 35 el(12), AA-Au(1), prep

Remarks: *G - values very high

JOB NO: S87-47

CUSTOMER: [illegible] / Diego - Alameda Mine

ANALYST

WILLIAM A. BOWES and ASSOCIATES
P.O. Box 1?? • Steamboat Springs
Colorado 80?? • 303 879 ????

ATOMIC ABSORPTION

INSTRUMENT: VARIAN TECHTRON MODEL 1200 AA SPECTROPHOTOMETER

OFFICE NO.	FIELD NO.	Au	Ag				Hg		[illegible]
597 255	ALA - BULK	0.623							
DETECTION LIMITS		0.01	1				.05		

Alameda Mine
profile composite
0.6 PPM=

< - LESS THAN

RESULTS IN PARTS PER MILLION (PPM)

REMARKS

JOB NO. 597-417

CUSTOMER [illegible] - Alameda Mine

ANALYST

```
RIB MINERAL RESOURCES FILE 12

                                   RECORD IDENTIFICATION
                                     RECORD NO............  M060726
                                     RECORD TYPE..........  X1M
                                     COUNTRY/ORGANIZATION.  USGS
                                     DEPOSIT NO...........  DOGMI 100-78
                                     MAP CODE NO. OF REC..

                                   REPORTER
                                     NAME.........................  JOHNSON, MAUREEN G.
                                     UPDATED......................  81 02
                                     BY...........................  SMITH, ROSCOE M.
                                        FERNS, MARK L. (BROOKS, HOWARD C.)
                                        FERNS, MARK L. (BROOKS, HOWARD C.)

NAME AND LOCATION
  DEPOSIT NAME.................  ALMEDA

  MINING DISTRICT/AREA/SUBDIST.  GALICE

  COUNTRY CODE.................  US
  COUNTRY NAME:  UNITED STATES

  STATE CODE...............  OR
  STATE NAME:  OREGON

  COUNTY...................  JOSEPHINE
  DRAINAGE AREA............  17100310 PACIFIC NORTHWEST
  PHYSIOGRAPHIC PROV.......  13 KLAMATH MOUNTAINS
  LAND CLASSIFICATION......  40

  QUAD SCALE          QUAD NO OR NAME
   1:   62500           GALICE

  LATITUDE            LONGITUDE
   42-36-37N            123-35-03W

  UTM NORTHING        UTM EASTING         UTM ZONE NO
   4717481.8            452086.0            +10

  TWP......  34S
  RANGE....  08W
  SECTION..  13
  MERIDIAN.  W.M.

  LOCATION COMMENTS: SE 1/4


COMMODITY INFORMATION
```

```
   OCCURRENCE(S) OR POTENTIAL PRODUCT(S):
             POTENTIAL.......
             OCCURRENCE...... ZN   SB   BA

  ORE MATERIALS (MINERALS,ROCKS,ETC.):
   PYRITE, CHALCOPYRITE, SPHALERITE, GALENA, TETRAHEDRITE; BARITE; BARITE

  COMMODITY SUBTYPES OR USE CATEGORIES:
   0.03 AU:AG


EXPLORATION AND DEVELOPMENT
  STATUS OF EXPLOR. OR DEV.  6
                             PROPERTY IS INACTIVE
  YEAR OF DISCOVERY........  1898 -1900
  BY WHOM..................  J.C. MATTISON, J.F. WICKHAM & R.C. KINNEY
  NATURE OF DISCOVERY......  B
  YEAR OF FIRST PRODUCTION.  CIRCA 1905
  PRESENT/LAST OWNER.......  WES PERRON, GRANTS PASS OREGON
  PRESENT/LAST OPERATOR....  TEXASGULF INC, DENVER COLORADO (1976)


DESCRIPTION OF DEPOSIT

  DEPOSIT TYPES:
   MASSIVE SULFIDES
  FORM/SHAPE OF DEPOSIT:

  SIZE/DIRECTIONAL DATA
   SIZE OF DEPOSIT......  MEDIUM
   MAX THICKNESS........  200       FT
   STRIKE OF OREBODY....  N30E
   DIP OF OREBODY.......  80-90E
  COMMENTS(DESCRIPTION OF DEPOSIT):
   THE LARGER STOPES RANGED FROM 12 TO 25 FEET IN WIDTH

DESCRIPTION OF WORKINGS
     UNDERGROUND
     LENGTH OF WORKINGS..............  7339 FT

  COMMENTS(DESCRIP. OF WORKINGS):
   7339 FEET OF DEVELOPMENT ON SIX LEVELS.


PRODUCTION
      YES
      SMALL PRODUCTION


 ANNUAL PRODUCTION (ORE,COMMOD.,CONC.,OVERBURD.)  YES
```

```
  15                                                  0.09 OZ/TON AU; 2.9 OZ/TON AG; 0.8 % CU
  16 ORE       EST 00125.00 DOLLARS     1911-1945
  23 ORE, ACC      16.619   TONS        1911-1916     0.09 AU, 2.9 AG, 0.8 CU

PRODUCTION YEARS.......  1911-1916


RESERVES ONLY

   ITEM        ACC  AMOUNT  THOUS.UNITS  YEAR GRADE OR USE
  1                ENORMOUS LOW GRADE   1933  INF

GEOLOGY AND MINERALOGY

  AGE OF HOST ROCKS.............  JUR
  HOST ROCK TYPES...............  DACITE PORPHYRY  SLATE SLATE
  IGNEOUS ROCK TYPES............  DACITE PORPHYRY

  PERTINENT MINERALOGY..........  QUARTZ, SERICITE

  IMPORTANT ORE CONTROL/LOCUS..  CONTACT ZONE BETWEEN DACITE PORPHYRY AND SLATE.

  LOCAL GEOLOGY
    NAMES/AGE OF FORMATIONS,UNITS,OR ROCK TYPES
     1) NAME: ROGUE FORMATION
         AGE: JUR

GENERAL COMMENTS
  RECORD NUMBER (M013299) HAS BEEN MERGED WITH THIS RECORD AND DELETED FROM THE OREGON FILE.


GENERAL REFERENCES
  1) RAMP, L. AND PETERSON, N.V., 1979, GEOLOGY  AND MINERAL RESOURCES OF JOSEPHINE COUNTY, OREGON;  ODGMI BULL. 1
    45 P
  2) BROOKS, H.C. AND RAMP, L., 1968, GOLD AND SILVER IN OREGON;  ODGMI BULL. 61, P. 206
  3) LIBBEY, F.W., 1967, THE ALMEDA MINE, JOSEPHINE COUNTY, OREGON; ODGMI SHORT PAPER 24, 53 P.
  4) SHENON, P.J., 1933, COPPER DEPOSITS IN THE SQUAW CREEK AND SILVER PEAK DISTRICTS AND AT THE ALMEDA MINE; USGS
    CIRC. 2, 35 P.
```

Geology of the Almeda Ore Deposits

E. G. Kirkwood 25 May 1922

Extent. Roughly, the mineralized zone lies between steeply dipping slate beds on the east and unmineralized tufaceou material on the west. The zone is about 200 yards wide and extends from the Rogue River back into the mountain an unknown distance to the north.

Character & Occurrence. Country rock. The copper occurs as chalcopyrite finely disseminated in pyrite, in barite and silicified andesite gangue. Tuffs are replaced by the ore, the chief depos of which occurs on the contact between the slates and tuffs.

Granitic intrusions are encountered in all levels of the mine, and have, no doubt been found a serious drawback to development.

Due to many slips and much folding and faulting the occurrence of ore is very irregular; the drifts have followed contacts in many places and have been abandoned in granite.

GEOLOGICAL REPORT ON THE ALMEDA MINE

The Almeda mine is located on the Rogue River about fifteen miles west of the station of Merlin on the Southern Pacific Railroad. The country is one of very rugged relief and has been the scene of a great deal of earth movement, as shown by the extensive folding and faulting of the strata. The mineralization occurs along a contact between andesites and slates. These andesites and slates are interbedded in places and have evidently been laid down contemporaneously. The slates are only very slightly mineralized, but along the contact, which forms the hanging wall of the deposit, and for some distance back the andesites have been partly silicified and replaced by barite.

The andesites have been subjected to a great amount of movement, probably both before and after mineralization, and a large number of slips and faults occur. The high grade ore is found along the contact with the slates and along these slips, from which it may be inferred that the enrichment has been accomplished by thermal waters ascending along these avenues of escape. The slips strike in all directions, but the majority, especially those which seemingly have had the greatest effect on ore deposition, may be divided into two classes, those whose strike is in the general direction of N. 20-30 W. and those which strike N. 60-70 W. This would indicate that the movement had been principally along these planes.

The andesite is intruded in several places by granodiorite, which apparently has come in subsequent to the mineralization as it cuts right into the ore bodies, with no appreciable effect on the character of the ore. As far as development has indicated, the granodiorite intrusions are comparatively small and should not have a very bad effect on mining problems.

Development of the property has been carried on chiefly by running tunnels and crosscuts along the strike of the slips and along the hanging wall. This has resulted in a complex arrangement of crooked drifts and crosscuts which will undoubtedly complicate any mining system which is adopted for further work on the property. There are now five levels above the river in which work has been done and three below the river, the latter however being full of water at the present time. In each case the tunnel has been driven along the hanging wall or close to it and in no case has the footwall been reached although in one level a crosscut has been driven 160 feet from the main tunnel toward the footwall. In all levels the northernmost point to which the tunnel has been driven is still in ore, so the prospects for lateral extension of the workings look good. Owing to the water in the lower levels an examination of them was not possible, but the manager reports that the best ore so far secured from the mine has come from the 300 foot level below the river. This together

slips around which the most
extensive occurred on the upper levels are of quite
(torn out) conditions are apparently favorable to their
depth would indicate that ore will probably
be found distance below the lowest level which is now
developed.

The ore itself is a sulfide, chiefly chalcopyrite but also some bornite, running according to mine assay reports from two to six per cent copper and containing variable amounts of gold and silver. The gangue mineral is principally barite, which makes the problem of extraction complicated and forms the chief obstacle to a profitable operation of the mine.

In conclusion we may say that the mine has a large amount of ore in sight, some high grade but mostly low grade, and has very favorable prospects for extension of the ore-bodies both laterally and in depth, and if a successful metallurgical treatment for the ore is found will undoubtedly become a valuable property.

RIVER TUNNEL

1. Fault, strike N 30 W, dip 35 SW. Fault extensively mineralized. Barite in excess.

2. Fault, strike N 10 W, dip 40 W. Between granodiorite and ore.

3. Drippings of copper indicate high grade ore in back of drift on hanging wall.

4. Fault strike N 30 E, dip 80 SE.

5. Fault, strike N 60 W, dip vertical. Drift follows fault.

6. Fault, strike N 10 E, dip 80 E. Transverse to drift.

7. Fault, strike N 70 W, dip 65 S.

8. Fault, in slate. Strike N 30 E, dip 45 SE.

9. Fault in slate. Strike N 70 E, dip 60 S. Slates appear to be mineralized beyond fault.

10. Probably slip between andesite and ore, obscured by timbering.

11. Slip strike N 10 E, dip 80 E.

12. Gradual gradation of slates to andesites, considerable gouge would indicate slip, but obscured by timbering.

13. Fault, Strike N. Dip vertical.

14. Considerable water dripping. Much Fe_2O_3.

15. Two small intrusions of rhyolite in slates, contacts well defined.

"O" TUNNEL

1. Fault strike N 40 E, dip 20 NW.

2. Solid sulphides

3. Fault strike N 40 E, dip 20 NW.

"B" TUNNEL

1. Caved.

2. Contact fault, strike N 70 E, dip vertical.

3.-4. Caved

5. Raise

6. Fault, strike N 70 W, dip N 20

NOTES

TUNNEL A

At mouth of tunnel andesites grading into andesitic slates. Strike N 30 W, dip 80 SW.

1. Slip N 10 W, dip 80 SW. Filled with gouge.
2. Slip N 15 E, dip 45 SE.
3. Slip N 20 W, dip 55 SW.
4. Slip N 20 W, dip 40 SW. Contact between andesite and granodiorite.
5. Contact between granodiorite and andesite.
6. Slip N 10 W, dip 50 W. Contact between andesite and granodiorite.
7. Slip N 25 W, dip 55 SW.
8. Tunnel follows along fault contact between granodiorite and andesite.
9. Slip N 20 W, dip 55 SW.
10. Slip N 80 W, dip 90.
11. Slip N 60 E, dip 70 SE.
12. Small intrusion of granodiorite.
13. Slip N, dip 55 W.
14. Slip N 10 W, dip 40 W.
15. Slip N 70 W, dip 30 SW.
16. Slip N 70 W, dip 85 SW.
17. Slip N 45 W, dip 90.
18. Slip N 25 E, dip 30 SE.
19. Slip N 30 W, dip 60 NE.
20. Contact between andesite and granodiorite.
21. Slip N 80 W, dip 55 NE.
27. Slip N 80 W, dip 60 NE.

28 and 29. Water dripping to considerable extent, at 28 stream issues from hanging wall.

30. Slip N, dip 80 W.
31. Altered andesite grades into unaltered andesite, sharply defined contact with granodiorite.
32. Slip N 70 E, dip 45 S.
33. Contact between granodiorite and silicified ore, hanging wall bedding plane parallel to tunnel in back.
34. Fault strike N 70 E, dip 45 S.
35. Slip, strike N 20 W, dip 65 E.
36. Slip fault, strike N 70 E, dip 35 S.
37. (a) Fault N 10 W, dip 80 SW.
    (b) Fault N 10 E, dip 30 E.
    (c) Fault N 15 W, dip 80 SW.
38. Fault N 10 E, dip 40 W.
    Slightly mineralized along fault.

"C" TUNNEL

1. Fault, strike N 70 W, dip vertical
2. Fault, strike N 70 W, dip vertical
3. Fault, strike N 70 W, dip 30 N. Numbers 2 and 3 intersect and show slip of about 2 feet along hanging wall. Heavy sulphides.
4. Fault, strike N 70 W, dip 80 N.
5. Fault, strike N 70 W, dip 85 N.
6. Fault, strike N 65 W, dip 75 N.
7. Fault, strike N 60 W, dip 80 N.
8. Two parallel faults strike N 70 W, dip 25 N.
9. Fault strike N 70 W, dip vertical.
10. Fault strike N 20 W, dip 80 SW.
11. Fault strike N 20 E, dip 35 E. 18 inches of gouge denotes considerable movement.
12. Fault, strike N 30 W, dip 35 SW.
13. Fault, strike N 60 W, dip 70 N.
14. Fault, strike N 70 W, dip vertical.
15. Fault, strike N 70 W, dip 80 to the south.
16. Fault, strike N 20 W, dip 50 E. Stope caved.
17. Fault obscured by timbering.
18. Fault, strike N. 70 W, dip 70 N.
19. Fault, strike N 60 W, dip 55 N.

On winze connection between "B" and "C" low grade ore.

"D" TUNNEL

1. Fault strike N 70 W, dip vertical, much gouge.
2. Fault strike N 30 W, dip 65 SW.
3. Fault strike N 70 W, dip 60 N.
4. Fault strike N 30 W, dip 75 NE.
5. Fault strike N 30 W, dip 80 NE.
6. Fault strike N 60 W, dip 75 N.
7. Fault between andesite and slate. Strike N 30 W, dip 50 N.
8. Small igneous intrusion, probably rhyolite.

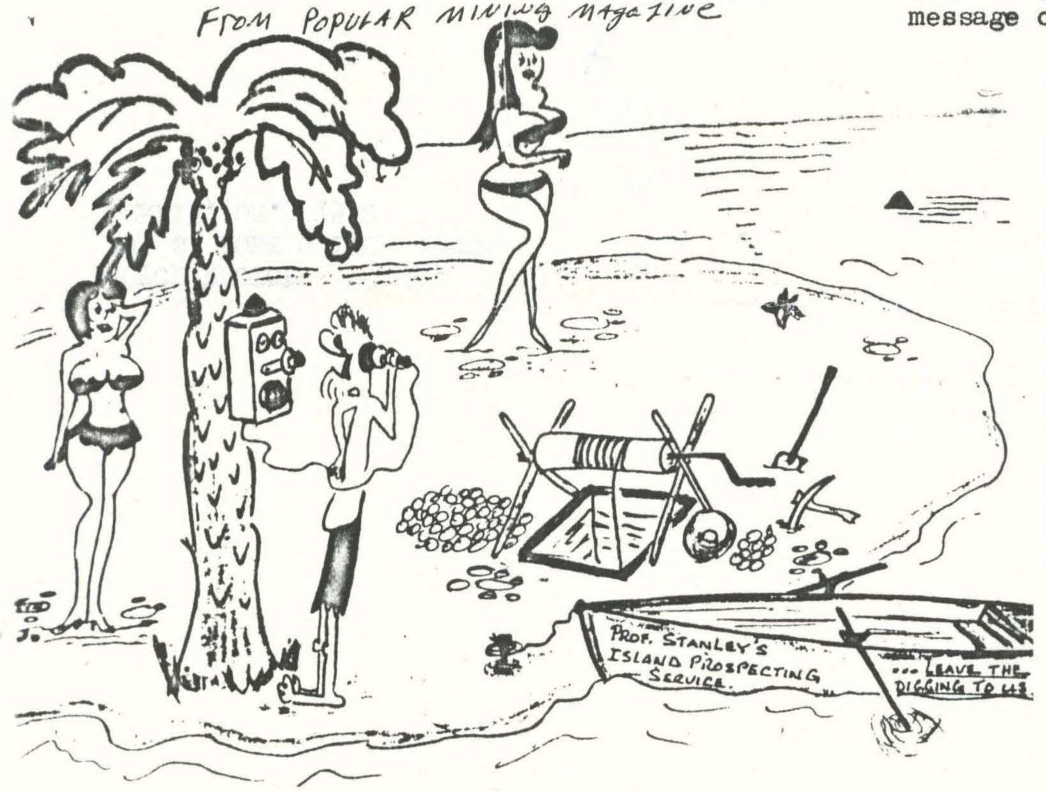
2. The Almeda Mine is on the banks of the Rogue River which in this area has been classified by the U.S. Congress as a Scenic River. (Area defined as the river and a land strip 1/4 mile on each side). Short distance downstream it is classified as a Wild and Scenic River. No human activity of any type is allowed in this portion. Although the state has granted permission to Homestake to explore the Almeda Mine, they have stated that under no circumstances would an open pit mine be permitted as the land is part of the Scenic Rivers system. Any mining would have to be underground with access by tunnels to a mill located out of sight and outside the Scenic River land boundary. (Note: A group of ecolonuts from San Francisco tried to get a court injunction to stop logging miles from the river because they could hear the noise of the trucks while floating downstream.)

In summary, this is not a massive sulphide prospect. I do no believe there is any large tonnage open pitable ore there. But, if there was, one could not mine it anyway. I believe the high grade underground ore has been exhausted.

FOR SALE: 1965 Jeep Pickup 4x4 Good Tires and body. Needs some work. Asking $500 Contact Lance Thomas 476-7243

****

FROM POPULAR MINING MAGAZINE



I CAN TELL YA HUGH... THERE AIN'T MUCH GOLD HERE!
..BUT SOME OF THE OTHER PROSPECTS ON THE ISLAND
LOOK PROMISING!

Hal Farmer

Mr. Reiner offers a 15% discount to members. Go in, visit, show your membership card and get acquainted. Mr. Reiner will be a speaker at one of our meetings.

****

New members, please show your membership cards when you visit the Armadillo Mining Shop for your 10% discount on mining equipment.

****

JACK OF ALL TRADES: If you have trouble and need help, look for Dan. Camped by milepost 16, Rogue River. 74 white Dodge station wagon

******

FOR SALE: Full size Genie, used 1 summer. $300 Call Dennis Palmer, 774-0432, Portland, Or. Leave message on recorder before 7 P.M.

******

As you can see from the newsletter, we have had a very busy and confusing month. Some of us feel like we have met ourselves coming back when we were still going. In spite of all the hard work and long hours, we really had a lot of fun and it does the heart good to see friends and neighbors working together for the good of everybody. I, myself am grateful that I have my Great Father above, my family, the freedom to work and live as I please and the chance to know some very good people. May God Bless all of you and remember, IF EVERYBODY BECAME SOMEBODY THERE WOULDN'T BE ANY BODY LEFT TO BE A NOBODY!

Joyce