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COOPER SHAPLEY, SR.
PRESIDENT

COOPER SHAPLEY, JR.
GENERAL MANAGER

La Purisima Fluorspar Co.

"PRODUCERS OF HIGH GRADE FLUORSPAR"

MILLING PLANT LOCATED ON
THE BROADWAY OF AMERICA

Deming, New Mexico
P. O. Box No. 1

July, 15 '58.

Mr. James D. Mason.
% Transcontinental Resources Ltd.
1158 Melville Street.
Vancouver 5, B. C.

Dear Mr. Mason:

I went in to see Mr. George Crawley yesterday, concerning two expeptional Fluorspar deposits, that have just become available, south 18 miles from Aguila, Arizona, and he suggested that I contact you and was so kind as to give me your address.

I recently turned over some properties to Mr. Ed. Cregar in the Tonto Basin and the work over there, conducted by Mr. Andy Zinkl, is progressing very well.

Am enclosing a government report on one of the properties, and at your convenience, would appreciate its return.

Will await your advice as to your interest, to the address below.

Yours very truly,

C. Shapley Jr.

Cooper Shapley Jr.
1448 East Town & Country Lane.
Phoenix, Arizona.
Amhurst 5-9181.

P.S. I also have several properties in New Mexico.

KEEGEL ENGINEERING INC.
Mineral Appraisal • Production Management • Metallurgical Design
1721 SOUTH FOURTEENTH ST. • LAS VEGAS, NEVADA 89105
TELEPHONE (702) 735-8526

October 29, 1971

Mr. George A. Freeman
4328 N. 56th. St.
Phoenix, Ariz.,85018

Dear George;

I was delayed longer than I had anticipated in the north and just arrived here last night, hence the delay in responding to your request for data on Mexico.

The inspection there involved only a few hours on each property and is therefore of benefit more as to location of the deposits rather than geologic promise. I am deleting the sketches on the Niagra because they add little to the description and are very poor and it would delay matters to get them together.

My sketchy description will probably sound rather disappointing since I talk about the fissure widths as I actually saw them exposed. This does not reflect the possible picture since there are in each case possible parallel structure and I suspect much wider areas than were open. As you note, I recommend that surface trenching be done prior to eventual drilling. Where I suspected control and they did cut, I am told rather wide ore shoots were found.

The possibility of consolidating the group into a single operation has appeal because of excellent access

in all cases, ease of processing and transport.

With reference to the Consolidated Mining & Engineering copper property, it is located near Cima, very close to the Morning Star mine. I have been on it some years ago. The area is on the Clark Mountain fault, a major regional structure, and there are good copper exposures. While my quick impression was of limited extent and fissure confined, I could be wrong. They horsed around with some amateur leaching attempts. It would be necessary to inspect it to get more data but I rather think it would be too small to be of important interest.

We are acquiring a fluorspar property in the Battle Mountain area which has a good surface showing which we will want some help on probably. There is also a lead deal in the Duval nest on which we are getting some data. We understand that Union Pacific has hit some good moly-copper at depth from this lead area but have no substantiation; Anyway I will contact you as we peogress.

Let me hear from you.

Very sincerely yours,

C.P.

C. P. Keegel CPK:ar

KEEGEL ENGINEERING INC.
Mineral Appraisal • Production Management • Metallurgical Design
1721 SOUTH FOURTEENTH ST. • LAS VEGAS, NEVADA 89105
TELEPHONE (702) 735-8526

PRODUCT DEVELOPMENT APPLIED RESEARCH

ARC LABORATORIES

Division of Arizona Research Consultants, Inc.

9236 NORTH 10TH AVE. PHOENIX, ARIZONA 85021 943-3573

Professional Service Reported To:

George Freeman
4328 N. 56th Street
Phoenix, Arizona

INVOICE NO. 3128

DATE 9/14/71

	DESCRIPTION	UNIT PRICE	AMOUNT
	Report 11523 Fluorspar flotation		$ 20.00
	Analyses 3 CaF_2, 1 SiO_2		44.50
			64.50

STATEMENT

This professional service statement is due upon presentation. The liability of these laboratories for the services covered by this invoice shall in no event exceed the amount of this invoice.

PRODUCT DEVELOPMENT

APPLIED RESEARCH

ARC LABORATORIES

Division of Arizona Research Consultants, Inc.

9236 NORTH 10TH AVE. PHOENIX, ARIZONA 85021 943-3573

FOR: George Freeman
4328 N. 56th Street
Phoenix, Arizona

DATE 9/14/71

LAB No. 11523

Silver City Fluorspar

RESULTS

The sample as received contained 40.1 % CaF_2

It was ground to 100 mesh and floated at pH = 8.5 with

4.0 lbs/ton	Sodium fluoride
4.0 "	Calcium lignin sulfonate
0.4 "	Oleic acid

Recovery was 85 % of 77.9 % CaF_2

Since this sample had been dried, a 2ndbatch was floated and cleaned 3 times using 0.5 lbs/ton lignin sulfonate on each cleaning. The product was 87.7 % CaF_2 Yield was 60 %
5.88 % SiO_2

Respectfully submitted,
ARC LABORATORIES

John T. Long, Jr.

As a mutual protection to clients, the public and this corporation, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from this corporation.

PRODUCT DEVELOPMENT APPLIED RESEARCH

ARC LABORATORIES

Division of Arizona Research Consultants, Inc.

9236 NORTH 10TH AVE. PHOENIX, ARIZONA 85021 943-3573

FOR: J. D. Mason
810-955 Marine Drive
West Vancouver, B. C.

DATE 6 Oct 71

LAB No. 11546-9

RESULTS

Sample #	Copper	Gold	Silver
6474	0.08%	Trace	1.25 oz/ton
6475	1.03%	.02 oz/ton	4.15 "
1	0.08%	.01 "	1.85 "
2	0.55%	.02 "	23.20 "

Respectfully submitted,
ARC LABORATORIES

John T. Long, Jr.

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PRODUCT DEVELOPMENT APPLIED RESEARCH

ARC LABORATORIES

Division of Arizona Research Consultants, Inc.
9236 NORTH 10TH AVE. PHOENIX, ARIZONA 85021 943-3573

Professional Service Reported To:

J. D. Mason
810-955 Marine Drive
West Vancouver, B. C.

INVOICE NO. 3139
DATE 6 Oct 71

	DESCRIPTION	UNIT PRICE	AMOUNT
Report 11546-9	4 Copper		$ 20.00
	4 Gold & Silver		30.00
			$ 50.00

STATEMENT

This professional service statement is due upon presentation. The liability of these laboratories for the services covered by this invoice shall in no event exceed the amount of this invoice.

TELEPHONE:
(604) 687-7688

NEW TAKU MINES LIMITED

1326-925 WEST GEORGIA STREET
VANCOUVER 1, BRITISH COLUMBIA
CANADA

MINING EXPLORATION
AND DEVELOPMENT

October 28, 1971

Mr. J. Freeman,
4328 N. 56th St.,
PHOENIX,
Arizona.

Dear George:

I have been intending to write to you for some time, but New Taku has absorbed many days and some nights. On his return, Jim told me you had lost my telephone number, etc. Just in case you need it, home is 100-1169 Pacific Street, Vancouver 5, 682-3462.

So it seems from your fellow's test that the concentrate grade is not quite up to par. However, when we received a copy of the enclosed Denver Equipment Co. report, Jim suggested you may like to see it. Although taken many years ago, I know where the bulk sample came from for the test, but we have bulldozed the area over the hillside now.

Also enclosed is result of a preliminary mill test by our fellow up here, at least the summary thereof. The full report gives all the details. He made the point that the test was a simple one, a kind of "getting to know you" test. He has been convinced all along that acid grade at reasonable cost was and is possible. His word is fairly good, experience being gained at Britton Research and now with Acres Western, the large consulting engineers.

Perhaps Mr. Zinkle may be interested in a second look, and a visit to the property is not out of the question for him to get his own sample.

Look forward to your comments on this topic, and in the not too distant future a companionable drink.

Yours sincerely,

K. D. Healey.

KDH:f
Encls.

BONDAR-CLEGG & COMPANY LTD.
geologists • geochemists • analysts
1500 PEMBERTON AVENUE, NORTH VANCOUVER, B.C.
Phone 988-5315

REPORT OF: Fluorine Analysis

REPORT No. IT21-141

PROJECT:

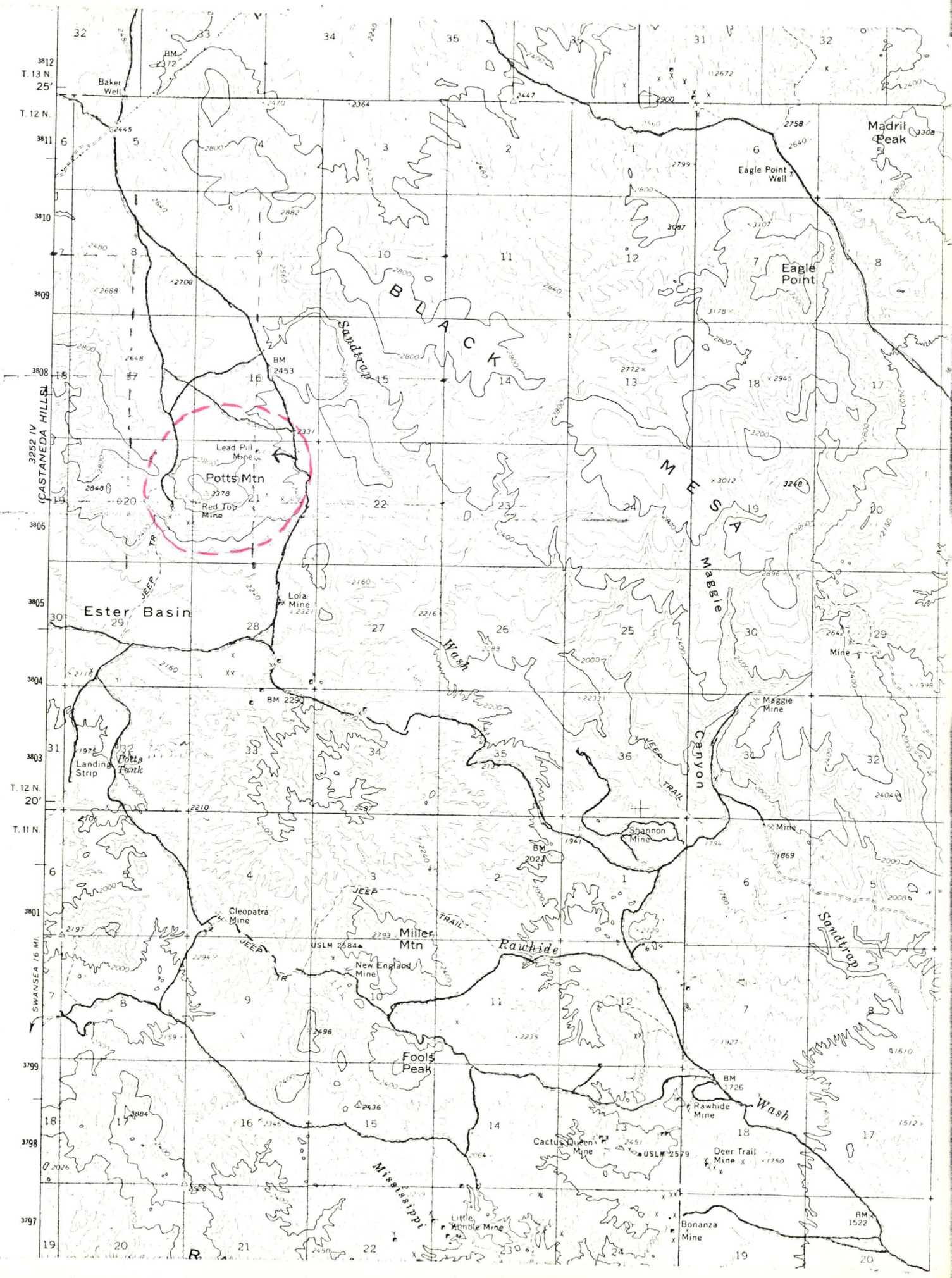
DATE: Sept. 30, 1971

REPORTED TO: New Taku Mines Ltd.
1326 - 925 W. Georgia St.
Vancouver, B.C.
Att: K. Healey

SAMPLE NO	F %	CaF_2 % (Calculated)	SiO_2 %
No. 100	35.7	73.2	3.98
No. 101	13.2	27.1	
No. 102	0.57	1.17	

BONDAR - CLEGG & COMPANY LTD.

R.J. Sawyer,
Chief Chemist.


T. 13 N.
T. 12 N.
T. 11 N.
Baker Well
Madril Peak
Eagle Point Well
Eagle Point
BLACK MESA
Sandtrap
Lead Pill Mine
Potts Mtn
Red Top Mine
Lola Mine
Ester Basin
Maggie Wash
Maggie Mine
Landing Strip
Potts Tank
Shannon Mine
Cleopatra Mine
Miller Mtn
New England Mine
Rawhide
Fools Peak
Rawhide Mine
Cactus Queen Mine
Deer Trail Mine
Mississippi
Little Humble Mine
Bonanza Mine
Canyon
JEEP TRAIL
3252 IV (CASTANEDA HILLS)
SWANSEA (16 MI)

CHARLES E. CRONENWETT

Consulting Geologist

Telephone 801-355-7642

Mine and Mineral Property Valuation
Mineral Exploration

614 13th Avenue
Salt Lake City, Utah 84103

A GEOLOGIC RECONNAISSANCE REPORT OF THE LEAD PILL FLUORSPAR PROSPECT MOHAVE COUNTY, ARIZONA

Prepared for the
MICRO-COPPER CORPORATION[1]

LOCATION

The subject property is located approximately in the N½NW¼, Section 21, Township 12 North, Range 14 West, Gila & Salt River Base & Meridian, Mohave County, Arizona. This area lies about 24 air miles south southwest of Wickiup and about 60 air miles southeast of Kingman, Arizona in the Owens (Potts Mountain) mining district.

OWNERSHIP

When first examined by the writer in January, 1971 the property was held by 8 lode claims staked and held by Mrs. Pearl Craig[2] and recorded in January, 1971 at Kingman, the County Seat under the name: New Year. Other claims on or near the property include Fluorine, 1-3 (1967); Blue Chip, 3,4,6 and La Vista, 3-6 (March 1966). During February 1971, 7 contiguous mineral locations were surveyed by Mr. N. K. Earl, U.S. Mineral Surveyor[3] (see exhibit A). These were recorded in March 1971 under the designation: L. P., 101-107.

These claims are now held by Mr. W. Stewart[4] and supercede the original claims under an agreement between Stuart and Craig et al. Up to the present time 4 additional claims have been staked by Mr. Stuart northwest of the L. P. group.

SUMMARY

The Lead Pill property is located on the northeast flank of Potts Mountain, 24 air miles south of Wickiup, Mohave County, Arizona, within the Owens (Potts Mountain) mining district and is readily accessable by passenger car.

1. Uranium Building, Moab, Utah
2. 4180 Skylark Rd., Kingman, Arizona, 86401
3. 1945 Orchard Ave., Glendale, California, 91706
4. P. O. Box 158, Searchlight, Nevada

This property and the Potts Mountain area appear to offer the potential for the development of substantial fluorite reserves of moderate grade which may be amenable to open pit mining followed by up-grading with the use of appropriate crushing, screening and flotation techniques.

Beginning in 1920* the property was worked for lead oxides and silver chlorides associated with the fluorspar veins. The minerals are contained in northeast to northwest trending systems of fracture, fault and fissure veins within the Precambrian granite outcrops at the base of Potts Mountain. As far as can be determined the fluorspar encountered during the operation of the property was transported to the dumps as waste. Also ignored was the fluorspar which can be found scattered on the surface in a linear trend several thousand feet wide extending for more than a mile northwest of the present property boundary. At least 9 adits and a 60 foot inclined shaft were driven during the period of previous mining activities.

During the period 17 January to 5 February about 12 days were spent by the writer in examination of the surface and mapping and sampling 7 adits. During this period 7 contiguous mineral locations were surveyed and later recorded. Subsequently 4 additional claims have been located along strong fluorite outcrops northwest of the present claim group. During the period 1-3 March bulk samples were taken in zones judged, on the basis of preliminary assay reports, to have economic potential. On the basis of these assay results and mapping four areas have been targeted for confirmatory drilling.

1. Protore area 1 is a shallow, 20 foot wide shear zone exposed at the surface and in adits 2 and 3. One hole is positioned to include a possible intersection of the shear zone with a 3 foot vein of fluorite. Assays indicate a CaF_2 content of 5.26%. Its proximity to the surface would make it amenable to strip mining. (see Fig. 1 and 2)

2. Protore area 2 is the alluvium that aprons the granite outcrops at the base of Potts Mountain including the granite-alluvium contact which is frequently the locus for fluorite mineralization. The alluvium averages 5.12% CaF_2. (Fig. 1)

3. Area 3 is an easterly dipping fissure vein (thrust fault?) including within the ore zone at least 10 feet of the overlying granite. The vein averages 2 feet but ranges up to 4 feet in thickness. The bulk assay average of the fluorite content is 24.6%. Additional values include Au .014 oz., Ag 0.59 oz., Pb 10.07%. The granite within 10 feet of the upper contact of the vein averages 10.01%; within 5 feet of the lower contact averages 4.78% CaF_2. (see Fig. 2 and 3)

4. The fourth area lies north and west of the claim boundary and consists of a northwesterly trend of fluorite filled fractures whose limits are as yet undefined.

*P. Craig, per. comm.

Approximately 15,000-20,000 tons of ore is in sight within the area mapped. In the absence of core assay data it is not possible at this time to make a realistic estimate of the tonnage potential for the entire property.

An exploratory drilling program of 20 holes aggregating 2000 linear feet has been recommended in this report to establish the fluorspar grade and tonnage potential of the Lead Pill property and adjacent ground.

RECOMMENDATIONS

The recommendation to initiate an exploration drilling program is based in part on the results of sample assays and in part on a subjective impression of the quantity of the fluoritization in the general vicinity. The Potts Mountain area may have the potential for the development of substantial reserves of moderate grade which may be amenable to open pit mining methods and upgrading by screening and flotation.

Within the present claims the proposed exploratory core drilling will test three target areas with 5 holes approximately 100 feet deep. Five additional locations will be drilled to test the southeast extension of the mineralized area to the limits of the property boundary.

The factors influencing this recommendation are:

1. the presence of the easterly dipping "blind" ore vein in the upper adits may imply the existance of additional ore zones to the east in the area masked by surficial deposits.

2. a surface exposure near the southern end of the property with a grade of 23.4% CaF_2 may imply a continunity of mineralization across the property.

3. terrain conditions within the property favorable to the open pit mining of shallow mineralized zones of low to moderate grade.

Beyond the present claim boundaries the proposed exploratory core drilling will consist of 20 holes averaging 50 feet in depth. These will probe fluorite exposures north and west of the L. P. claims to determine continunity, thickness and grade. Locations for these holes will be determined subsequent to surface mapping.

The factors influencing this recommendation are:

1. northwestward continuation of mineralization, in fractures additional to those recognized during underground mapping.

2. a broader exposure of the mineral trend where surficial cover does not mask the bedrock.

Details of this program accompanied by synoptic cost schedule are included in a later section of this report.

ACCESSABILITY

The Lead Pill property is readily accessable by automobile on county maintained gravel roads from Wickiup, on Arizona 93 and Yucca (76 miles), on U. S. 66.

TOPOGRAPHY and CLIMATE

The Lead Pill mine at an elevation of 2560 feet is located on the northeast flank of Potts Mountain, a local prominence north of the Rawhide Mountains. It lies between the McCracken mountains on the west and the Artillery mountains which are to the east.

The topography in the vicinity of the mine has ridges with north and south facing slopes varying from 15° to 30° that would facilitate the removal of waste material. Crushing and floatation facilities if located near the mine could be constructed to utilize gravity flow methods. The continuation of fluorspar veins to the northwest, however, extend across gentle dipping to flat alluvium which may be less favorable for waste handling.

The climate in this desert region is hot and dry in the summers and mild in the winter with an average rainfall of about 8 inches. Mining operations could be expected to operate on a year around basis.

Numerous wells in the area point to the widespread occurance of subsurface water, however, the volume available from an individual well is not known.

GEOLOGY

Information presented in this report with regard to regional geology and age of strata has been derived in part from the Mohave County Geologic Map[5] and from a U.S.G.S. report on the Artillery Mountains[6].

Stratigraphy:

Strata within the mine workings and over most of the surface of the claimed area is Precambrian in age and is mostly a red, coarsely crystalline, porphyryitic, biotite granite. The phenocrysts which are feldspar may reach 2 inches in length.

---

5. Wilson, E. D., and Moore, R. T., Geologic Map of Mohave County, Arizona. (scale 1:375,000): Univ. Ariz., Ariz. Bur. Mines (1959).
6. Lasky, S. G. and Webber, B. N. 1949. Manganese Resources of the Artillery Mountains Region, Mohave County, Arizona: U.S. Geol. Survey Bull. 961

The biotite is present in ½ to ¼ inch clots and varies from red to black depending on the degree of decomposition. Locally it imparts a gnessic texture to the granite. In the upper level adits (5,6,7,8) the granite adjacent to the east dipping mineralization has been chloritized and is greenish to gray in color. It also is coarsely crystalline but appears to be more even-granular. In the same area dark green aphanitic (andesite?) dikes have intruded the granite. These are especially evident in adit 5 where an individual dike may reach a thickness of 2 feet.

Overlapping the granite and in some areas down-faulted into it is an indistinctly bedded, coarse red arkose. This unit is probably equivalent to Lasky's Artillery Peak formation[7] of lower Eocene age and was deposited on a surface with a regional relief estimated to be several thousand feet.[8]

Bordering the property to the east are several small outcrops of Quaternary (?) basalt that also appear to have been down-faulted against older rock.

Recent and Quaternary colluvial debris mantles much of the area and includes material derived from the mineralized granite, paleozoic (?) sediments, arkose and the rhyolite plug which supports Potts Mountain. In adit 7 this colluvium is in fault contact with the grantite. Some of the alluvial material may be pre-Quaternary and pre-mineral in age and has been preserved in small graben-like structures. In the vicinity of station 24 (adit 6) fluorite mineralization pinches out a short horizontal distance from the granite-alluvial contact. Here in contrast to other exposures, the alluvium above the contact does not appear to contain fragmented fluorite.

Structure:

The abundant fractures and faults of various systems noted in all exposures of the granite present a record of the variety of tectonic events that have affected this area. These breaks in the rock vary in width from a knifeblade to 3 foot fault zones accompanied by well developed breccias.

Overlooking local variations, the gross pattern of fold and fault systems appears to have a basic allignment in a northwesterly and northerly direction. Lasky and others suggest that this pattern predates the deposition of the Artillery Peak formation and is most probably related to Basin and Range fault systems developed during the Laramide orogeny. Since that time strata in the area has been subjected to the block faulting, thrusting, regional tilting and emplacement of the Potts Mountain rhyolite plug and its related intrusives. The cumulative effects of these events have produced prominent fractures of N60W, N60E and the less prominent but more consistently mineralized sets of N20W and N20E. Both these fracture systems appear to post-date the northerly striking systems.

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7. op. cit. (Bull 961) P. 17, 21
8. op. cit. (Bull 961) P. 20

In the upper adits 6, 7 and 8 mineralization is associated with an east dipping (25° to 40°) fault which is at structural variance with the fault pattern exposed within the lower adits (1,2,3,4). The somewhat different character and texture of the granite and the unusual attitude of the fault suggest the possibility that the mineralization here may be controlled by a north trending thrust fault.

Intermittent block faulting has locally down-dropped prisims of sediments into the granite. Local readjustment has continued into Recent time as is indicated by the fault contact which sometimes is present between the granite and alluvium.

MINERALIZATION

Fluorite mineralization is widespread within the Lead Pill property and a trend of mineralized veins serveral thousand feet in width extends for more than one mile in a northwesterly direction beyond the claimed area.

Within the property possible commercial quanities of fluorite occur:

1. a. as veins filling isolated vertical fractures and fracture systems contained within shear and fault zones. In the areas examined the average thickness of the veins is estimated to be ½ inch. But at present, only within protore zone 1 is their linear density sufficient to warrant mining.

b. a 25° to 40° east dipping fissure (thrust fault?). Portions of this vein contain massive fluorite up to 4 feet thick. Lead oxides, carbonates; silver chlorides; specks of blue and green copper carbonates and gold in an undetermined form are contained in a black pulverant material up to 2 inches thick at the base of the vein. (see Table 1 for assays 22-4, 33-1)

2. as fragments of vein material as large as 4 X 12 inches contained within the alluvial cover.

Assays from both chip and bulk sampleing indicate that the fluorite is contained by the fracture or fault walls. Little, if any, occurs in disseminated form although in areas of intense fracturing the mineral appears to be scattered within the host rock.

The cubic form of most of the crystals within fractures suggest a relatively low temperature of deposition[9]. The massive fluorite of 1b is not characteristic of specific conditions[10]. Both types are probably hypogene;

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9. Ingerson, E., 1955, Methods and problems of geological thermometry; in Pt. 1 of Bateman, A.M., ed., Econ. Geol., 50th anniv, vol., 1905-1955; Urbana Ill., Econ. Geol. Pub. Co., p. 341-410.
10. Peters, W. C., 1958, Geologic characteristics of fluorspar deposits in the western United States, Econ. Geol. Vol. 53, p. 673.

deposited by ascending thermal waters. The associated minerals in their oxide, chloride and carbonate forms doubtless are supergene in origin and may not have been contemporaneous with the fluorite. In the type 1-a occurance these supergene mineral are also generally present as thin films. In both types of vein fillings the powdered form of the supergene minerals may be subject to loss if mined under open pit conditions.

The source and time of mineralization is presently a matter of speculation. However, the intensity of mineralization adjacent to the Potts Mountain Tertiary rhyolite plug suggest a genetic relationship and therefore a Tertiary age for the mineralization. Lasky notes that in the Artillery Mountains the fluorite veins are older than early Pliocene.[11]

ORE GRADE and TONNAGE

The principal objective of the sampling program to date has been to establish ore grade. Because of the nature of the deposit drilling will be required to determine the extent of the mineralization and to compute a realistic estimate of the tonnage potential.

Two phases have now been completed in the program. Phase I consisted of identifying zones of favorable mineralization through geologic mapping of the underground exposures and assay data of chip samples. Phase II consisted of reexamination of favorable areas by bulk channel sampling.

Both chip and channel samples were taken at a convenient height above the adit floor. Channel samples were cut along horizontal lines in order to intercept the near-vertical fractures perpendicular to their dip. Exceptions to this were made in highly mineralized areas and in the horizontally bedded alluvium.

Variations in the assay results between the chip and channel samples reflects, in part, the sampling difficulties inherent to areas where mineralization is carried in randomly spaced fractures.

To facilitate a consideration of the ecomonic potential of this property four areas have been delineated on the basis of structural occurance of the mineral, suitability of the area for open pit mining.

1. Lower adits (2,3,4)
2. Alluvial aprons
3. Upper adits (5,6,7,8)
4. Surface veins beyond the L. P. claim boundaries

1. Lower adits (2,3,4)

The granite exposed in the lower adits has been cut by many faults, some with breccias up to 3 feet in width. Fractures are also numerous and locally

11. op. cit. (Bull, 961) p. 33.

attain sufficient linear density to be considered as shear zones. Northeast and northwest trends were most frequently mineralized. The average width of a mineralized fracture was about ¼ inch. However, the average linear density of fractures appeared to be too low to be of immediate economic interest except in 3 zones. The results of bulk sampling has identified one zone, protore zone 1, 20 feet in width and continuous between adits 2 and 3 that averages approximately 5% CaF_2. (Table 1; 6-2, 6-3, also Figs. 1, 2)

The strike of a 1 to 3 foot vein in adit 3 carrying 13.3% CaF_2, if projected south from Sta. 9 should intersect protore zone 1 some 20 feet east of the drift. Intersections such as this should result in marked increases in the average assay value of this target.

2. Alliuval aprons

The alluvial aprons that fringe the base of the granite outcrops carries fluorspar fragments apparently weathered from surface outcropping veins. Bulk samples in this material assayed 5.12% CaF_2. The alluvium-granite contact in adit 2, as in two locations in the upper adits, is a favorable locus for mineralization. The irregular contact gave values of 4% to 11% CaF_2. (Table 1; 2-1, 2-2) The alluvium and the contact zone constitute protore zone 2.

3. Upper adits (5,6,7,8)

Mineralization in adits 5, 6, 7, and 8 occur in a structural context that differs markedly from the other adits, (Exception: east-dipping vein vicinity Sta. 8/9, adit 3) As discussed in Structure and Mineralization, The east dipping (25° to 45°) fissure vein carries massive fluorite up to 4 feet thick. The vein averages at least 24.6% CaF_2 and in addition carries values of .014 oz. Au; 0.59 oz. Ag; 10.01% Pb.

The mineral zone appears confined to the granite except for areas where alluvium has been down-faulted adjacent to the vein or where the granite has been exposed by post-mineral erosion and the alluvium rests on the vein. The granite hanging wall carries 10% CaF_2 for a vertical distance of at least 10 feet above the vein. An 8 foot interval in adit 5 some 20 feet above the vein assayed 11%.

As shown in Fig. 2 the vein has the shape of an inverted saucer. Its diameter is approximately 100 feet with its thickness tapering in a north-south direction. The vein lies in the saddle of a ridge, perhaps 75 feet below the crest. The north and south slopes of the ridge would facilitate the removal of waste material.

4. Surface veins beyond the L. P. Claim boundaries

As discussed in Mineralization the northwesterly trending zone of fluorite mineralization presents an additional area for the development of reserves. The potential size of the area is impressive and zones of CaF_2

debris 10 or more feet wide and traceable for several hundred feet have been seen by the writer. Exploration drilling will be required to determine the continunity, density, width and tenor of the veins. These factors in turn will determine if the veins constitute an ecomonically recoverable reserve.

In summary, all of the above targets carry fluorspar in amounts ranging from 5% to 25% and all are amenable to strip or open pit mining methods. If the following conditions can be met:

a. enlargement of the perimeters of known target areas within the claims by exploration drilling
b. discovery of additional reserves beyond the claim boundaries
c. economic beneficiation of protore zones by low-operational-cost screening and trommel-jigging

then it seems possible that the combined tonnages of the mineable zones will be able to offset the relative low average grade to make a large open pit operation in the district feasable.

PROPOSED EXPLORATION

The results of the first two phases of exploration indicates the possibiltiy that a large low grade fluorite deposit may be developed along a northwesterly trending zone of fractures in the vicinity of Potts Mountain. One terminus of this zone appears to be in the vicinity of the Lead Pill mine. Here, a combination of topography and numerous underground exposures present a favorable area in which to conduct an exploration drilling program that may serve to assess the entire trend.

A drilling program is proposed that would consist of 10 holes aggregating 1000 feet to be drilled within the present property boundaries. An additional 20 holes aggregating 1000 feet will be drilled in the area within one mile northwest of the property.

All the holes are to be core drilled where possible in order to obtain the maximum accuracy of information regarding the thickness, spacing, grade and character of the mineralized fractures.

The following holes, their locations plotted on Fig. 1, will be used to evaluate the area within the claim boundaries.

Hole 1: will test for increased mineralization at the intersection of the zones sampled at locations 6-3 and 8-1.

Hole 2: will test the continuity of mineralization of samples at 6-3 and 18-3.

Hole 3: will test the alluvium and the alluvium-granite contact sampled in 1-4 and 2-2.

Holes 4 and 5: will test the continuity of the zone sampled at 22-4.

Five additional 100 foot holes to be located subsequent to surface mapping will test the remainder of the claimed area.

The locations for 20 holes approximately 50 feet deep will be determined sebsequent to mapping of the area northwest of the claim block.

A cost schedule for this proposed exploration is attached to this report.

Respectfully submitted,

Charles E. Cronenwett
Consulting Geologist

March 15, 1971
Casa Grande, Arizona

Table 1

BULK SAMPLE AND ASSAY-FOOT WEIGHTED AVERAGES
OF SELECTED SAMPLED INTERVALS
LEAD PILL MINE, MOHAVE COUNTY, ARIZONA

Adit	Sample Number	Chip Samples	%CaF_2 Assay Foot	%CaF_2 Bulk	Channel Samples	Sample Number	Rock Type; Remarks
2	(0/2)[1]	6	3.68	5.12	10	1-4	alluvium, 150' exposure
3	6-2	1	4.36	5.26	10	6-3	granite, shear zone
3	(8/9)			13.3	3	8-1	3' fissure vein
3	11-4	1	1.55	1.64	2	11-7	granite, fault zone
6	30-1, 21-1	2	7.3	10.01	7	30-2, 21-2	granite, 10' zone above fissure vein
6	22-3	1	18.10	24.6	9	22-4, 33-1[2]	3' fissure vein (thrust fault)
6	22-2	1	4.05	4.78	4	22-5	granite, 5' zone below fissure vein
5	(31/32)	3	3.2	5.05	6	(31/32)	granite, average of drift , adit 5

(1) parentheses indicate survey stations
2 Au .014 oz., Ag 0.59, Pb 10.07

EXHIB.

SOUTHWESTERN ASSAYERS & CHEMISTS, Inc.

REGISTERED ASSAYERS

FELIX K. DURAZO
WIL WRIGHT
ARIZONA REG. NO. 5875

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. EVANS BLVD.
PHONE 602-294-5811

Mr. C. E. Cronenwett
1244 Barcelona
Casa Grande, Arizona 85222

JOB # 003634
RECEIVED 2-1-71
REPORTED 2-4-71

SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %	CaF_2 %	MOLYBDENUM %
LP:							
0-1		Trace				1.37	
0-2		Trace				4.08	
0-3		Trace				3.40	
1-1	.005	.12				7.34	
1-2	.005	Trace				3.80	
1-3	.006	.04				2.14	
2-1	.004	Trace				4.24	
3-1	.005	.14	.02			1.58	
3-2	.003	Trace	.03			9.70	
3-3	.004	.06	.05			4.40	
21-1	.006	.20				9.50	
22-1	.025	.64	10.6			27.5	
22-2	.005	.14	1.26			4.05	
25-1	Trace	.04				2.72	
25-2	Trace	Trace				.99	
25-3	Trace	.10				3.02	
26-1	.003	.08	.05			2.30	
26-2	Trace	.06	.02			1.95	
26-3	Trace	Trace	.03			3.12	
27-1	Trace	Trace	.04			2.08	
27-2	Trace	Trace	.14			1.62	
30-1	Trace	.44	.96			5.08	
31-1	Trace	.12	.47			2.70	
31-2	.006	.16	.35			5.03	
31-3-A	.003	Trace	.29			2.68	
31-3-B	.003	Trace	.30			2.86	
$	9.10--Double Pulps						
	381.50--Assays						

CHARGE $ 390.60

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

INVOICE

SOUTHWESTERN ASSAYERS & CHEMISTS, Inc.

REGISTERED ASSAYERS

FELIX K. DURAZO
WIL WRIGHT
ARIZONA REG. NO. 5875

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. EVANS BLVD.
PHONE 602-294-5811

Mr. C. E. Cronenwett
1244 Barcelona
Casa Grande, Arizona 85222

JOB # 008905
RECEIVED 3-6-71
REPORTED 3-15-71

SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %	CaF_2 %	MOLYBDENUM %
L.P.:							
1-4						5.12	
2-2						11.4	
3-4						1.4	
6-3						5.26	
8-1						13.3	
11-7						1.64	
21-2						10.8	
21-3						3.02	
22-3						4.78	
22-4	.011	.40	7.3			24.4	
30-2						9.22	
31-4						11.1	
31-5						3.69	
31-6						1.70	
31-7						5.60	
33-1	.041	1.95	29.5			26.0	

Specific Gravity: L.P. 1-4 = 2.56 = 12.5 cubic feet per ton.
" " Composite of 2-2 thru 22-3 + 30-2 thru 31-7 = 2.78 = 11.5 cubic feet per ton.

Sample Preparation: $ 35.00
Specific Gravity: 10.50
Assays 156.00

REGISTERED ASSAYER CERTIFICATE NO. 5 W. D. 3/15/71

CHARGE $ 201.50

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

INVOICE

EXHIBIT "B"

SOUTHWESTERN ASSAYERS & CHEMISTS, Inc.

REGISTERED ASSAYERS

FELIX K. DURAZO
WIL WRIGHT
ARIZONA REG. NO. 5875

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. EVANS BLVD.
PHONE 602-294-5811

Mr. C. E. Cronenwett
1244 Barcelona
Casa Grande, Arizona 85222

JOB # 003716
RECEIVED 2-8-71
REPORTED 2-12-71

SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %	CaF_2 %	MOLYBDENUM %
-LP-							
5-1						4.08	
5-2		.07				2.64	
10-1/11-6		.05				1.48	
10-2		.06				4.36	
11-1/12-3		.03				1.56	
11-2		.04				1.83	
11-3		.05				1.40	
11-4		.06				1.55	
11-5		.05				1.04	
12-1		.05				1.32	
12-2		.05				1.38	
~~12-3 Sample Not Received~~ (See 11-1)							
13-1		.04				0.92	
14-1		.04				1.46	
14-2		.04				0.74	
14-3		.05				0.62	
15-1		.05				1.12	
18-1		.06				1.92	
18-2		.10	.32			1.96	
18-3		.06	.22			5.38	
22-3		.37	5.20			18.10	
35-1	.005	Trace	.15			23.40	
35-2	Trace	Trace	.01			1.68	
35-3	Trace	Trace	.01			2.30	
35-4	.020	Trace	.14			9.75	
35-5	Trace	Trace	.09			8.50	

$ 1.00—Postage
9.10—Double Pulps
331.50—Assays

CHARGE ~~$ 341.60~~

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

INVOICE

EXHIBIT

Mineral Assay Office, Inc.

ASSAY CERTIFICATE

ASSAYERS & CHEMISTS

E. S. GATES, JR., PRES.
P. O. BOX 275 MINA, NEVADA 89422
PHONE: 702-573-2236

Mr. Charles Cronenwett
1244 Barcelona
Casa Grande, Ariz. 85222

Jan. 26, 1971

WE HEREBY SUBMIT THE RESULTS OF ASSAYS MADE ON THE FOLLOWING SAMPLES.

OFFICE No.	SAMPLE MARK	GOLD OZ. PER TON	SILVER OZ. PER TON	Lead Pb%	Fluorspar CaF_2%
33,801	LP - 2 - 1	Trace	0.12	0.045	4.34

By _____ Assayer

EXHIBIT "A"

SOUTHWESTERN ASSAYERS & CHEMISTS, Inc.

REGISTERED ASSAYERS

FELIX K. DURAZO
WIL WRIGHT
ARIZONA REG. NO. 5875

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. EVANS BLVD.
PHONE 602-294-5811

Mr. C. E. Cronenwett
1244 Barcelona
Casa Grande, Arizona 85222

JOB # 003643
RECEIVED 1-26-71
REPORTED 2-2-71

SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %	CaF_2 %	MOLYBDENUM %
AP-2-1	Trace	Trace	<.01			4.60	

CHARGE $ 15.75

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

INVOICE

SYNOPTIC COST SCHEDULE

PROSPECT: Lead Pill

SCHEDULE: Phase III Proposed Exploration Costs

	Per Day	Days	Total
EQUIPMENT			
A. Diamond Drilling 2000 ft. @$12.00/ft.			$24,000.00
B. Catapillar D8 (or equivalent), location work and trenching; including operator	$350.00	7	2,450.00
Sub-total Equipment			$26,450.00
LABOR			
A. Geologist, mapping, supervision of drilling		30	1,600.00
Sub-total Labor			$1,600.00
GENERAL EXPENSE			
A. Assaying 200 samples @$12.00 each			2,400.00
B. Freight, Sample bags, tags, drill logs			50.00
C. Travel and living expense $15.00/day, 1 man			450.00
D. Geologic report and drafting			1,000.00
Sub-total General Expense			$3,900.00
SUB-TOTAL			$31,950.00
Contingency 15% of sub-total (rounded)			$4,800.00

Yield
10 - 100 foot holes 1000
20 - 50 foot holes 1000
2000 lineal feet drilling

Direct Drilling cost per foot	12.00
Total Project cost	$36,750.00
Cost per foot of hole	18.37

KEEGEL ENGINEERING INC.
Mineral Appraisal • Production Management • Metallurgical Design
1721 SOUTH FOURTEENTH ST. • LAS VEGAS, NEVADA 89105
TELEPHONE (702) 735-8526

October 29,1971

Mr. George A. Freeman
4328 N. 56th. Street
Phoenix, Arizona
85018

Gold Spar

Dear George;

The attached report came to my attention a few days ago.

At first glance, particuliarly at the samples, it was certainly uninteresting; also geologically the setting is hardly inspiring.

On going over it, however, I notice several areas which may be worth thinking about. On page 6, 1 b, the assay values at 7.3 to 29.5 in Pb with CaF_2 at 24.4 to 26.6. Cronenwett also mentions 20' of 5% CaF_2 which would intersect a 13% CaF_2 fissure and is not explored. Also, if there are large chunks of spar in the alluvium, even at 5%, there could be a scalping operation.

I have not seen this property but I am wondering if you have had someone on it ? The layout could have suffered from too much detail in reporting without emphasis of the better points. The lead association is probably area restricted and some contamination would be acceptable for some uses.

By the same engineer, geologist, or whatever, I also have data on a property in the Beatty, Nevada, area however it is small, some 39,000 tons at 25% measured, and some 11,000 tons indicated with about 13,000 tons of dump at 17%. There is not much to go on as far as the prospective ore is concerned and since the tonnage is too small to process,I could not get very excited about it.

I am in the process of getting a property in northern Nevada which is Rhyolite-Limestone contact with a considerable quantity of good surface spar. The whole value of the deposit will depend on drilling a 30' contact area to determine the grade on processing.
I think it can be strip mined.

also, while up that way, I saw a lead silver property comprising some 40 lode claims between the Duval mines. This had a Krup mill on it with jigs and tables but no crusher ???? I doubt that I have seen a more confused set up. The plant was installed in the last few years and is all in very good condition including power.

With some drilling on the exposed shoots (to 15' wide) and a possible shattered area which has never been tested and which might be an open pit source of ore, there is the chance that this could make a mine. It would be my thinking to put in a temporary portable crusher and use the mill to bulk sample the possible pit area. We will be getting some samples back shortly on the active headings, our widest about 25'.

It is interesting that, according to rumor, Union Pacific is successfully drilling out copper zones under some of the lead-silver areas. Zinc, happily is low.

The shattered area could have 150-200' x 700'+ surface dimensions. Needs mapping; there are a whole nest of fissures throughout. Sediments on the lower horizons and rhyolite at upper elevations. I am getting the published geology.

It may be that some of these things would be of interest to you. Of the properties above, I personally regard the northern Nevada mines with the most interest. It just might pay, however, to get someone to take a look at the Potts mountain (lead Pill) thing to see whether it is worth a serious look.

I will be glad to have your views.

Regards,

Very sincerely yours,

C. P. Keegel

CPK:ar

KEEGEL ENGINEERING INC.
Mineral Appraisal · Production Management · Metallurgical Design
1721 SOUTH FOURTEENTH ST. · LAS VEGAS, NEVADA 89105
TELEPHONE (702) 735-8526

There is a real poor set of Maps and "report" on the Esqueda prospect which Managua can give to you — or I can.

This is strictly a drilling prospect

from the desk of
C. P. KEEGEL

RECONNAISSANCE STUDIES

MEXICAN FLOURSPAR

A group of four areas within a distance ranging from 50 to 70 kilometers, approximately, from Durango, Mexico, and 13 to 40 km from the nearest railroad loading point.

The areas discussed are: 1) The Niagra Mine, 2) TheVera Cruz area, 3)the Santo Tomas Group and, 4) the La Cruz zone.

The reconnaissance was made for the purpose of determining what indicated ore existed potentially and to recommend any development work which might be warranted for the evaluation or the deletion of the various properties. The intended project ultimately being to consolidate a group of the flourspar resources near a central point and railroad such that the products could be combined in a single larger volume process facillity than any one of the properties could alone justify, this phase was very preliminary in nature.

1) NIAGRA MINE

The Niagra mine is reached southerly from Durango on the Fresnillo paved highway a distance of 61 Km.,thence easterly and northeasterly over a paved road to La Valle Union a total distance of 85 Km.

The nearest railroad siding is 24 Km. southerly from La Valle Union. The mine is reached from the village northwest about 8 Km. over a bladed and maintained dirt road, then about 4 Km over an unimproved dirt road westerly.

An electric power line is available about 2-3 Km. from the mine. A source for water is reported 600 to 800 menets from the mine from a 6' x 8' well 120' deep with the water level standing at 50'.

The surface topography is gentle and rolling and the rise above the valley floor is probably only 100' generally.

The area is subject to rainfall late June through September and efficient operation requires surfacing and draining the road from the mine to the graded and maintained road (4 Km.).

The history of this property is not known to the writer. It has been sparodically operated and a few tons were recently shipped. Efforts to beneficiate were apparently not very successful since there is much visible flourite in the discarded dumps. It is believed that a lack of understanding of the principals of concentration were the reason since the ore would appear to concentrate very easily by proper jigging, the equipment used.

An attached paced-Brunton compass survey shows the area developed approximately. Work has been done through small vertical shafts which were driven to a maximum depth of about 120 feet, numereous drifts, crosscuts, and shallow surface pits and trenches. Some ore was apparently removed by rather sizeable open cuts as are indicated. The above work as shown has been over some 300' or more in an easterly-westerly direction (1-3_) and a total strike distance of probably 400'.

The fissures mined occurr in a light gray limestone which is on a NE course with a SE dip at 40-60° probably. The flourspar is contained in steeply dipping fissures (South 50° to 78°) and generally striking easterly and westerly (N 80 ° E). These fissures appear to have at least one prominent direction of movement laterally, or strike slip; this has resulted in lateral branches with the most heavy concentration of mineral at the junction of such oblique fissures with both of the main veins shown.

In general, the limestone was capped with a basaltic flow and underlieing ash which remains northerly and to the west. The section mined is a down dropped block (on the south, such that the overlieing volcanics were removed by erosion and the limestone exposed. The basalt was unconformable.

Hence, by determining the position of the major faults, it is possible that other parallel fissures may be found northerly.

Crossing the east-westerly system on a northerly and southerly course are a number of high angle normal faults. At one point these were probably pre-flourspar and at a later time a second movement circulated the last (present) hydrothermals. One of these along which CO_2 is being discharged is at point 6, plan 1. There is no fumerolic activity nor any observed temperature differences such that this emination is the dissolution of limestone by the circulation of the highly acidic waters which are oxidizing contained pyrite of a late stage. In most instances observed, the north bearing faults were an ore control second to and probably related with the branching.

The minerals deposited comprise chalcedony, flourspar, calcite, small amounts of manganese, with pyrite and arsenopyrite very sparse. These minerals fill the open fissure areas and the interstices between the breccia fragments. While there is some rather intimate relationship of the floyrspar and the silica, the flourspar was for the most part coarsly crystalline and separate. No important replacement of the limestone-dolomites was observed by the flourspar though at lower horizonz such may be the case. It is believed that the most important ore control is structural.

This property has suffered much from disorganized and the "gambisino" type of operation. Any small ore shoots were removed, sorted and shipped with no attention to development.

The methods currently being practiced appear to be a continuance of this process which will achieve nothing but loss.

It would appear that it is likely that a minimum continued vertical development would show ore to at least 500'(deeper horizons are certainly more common). Taking this would, at an average width of 10' and a 400' shoot length there is the possibility of: 400 x 500 x 10 = 165,000 tons. Widths up to 30' have been reported since the inspection by the writer. Taking the contained fluorspar at 50% and 90% recovery = 74,250 tons and this with 90% mill recovery =66,825 tons or some 68,900 tons of acid grade (97%). At a net of $20.00 per ton, this is more than 1.3 million dollars which is more than enough to sink and prove the extent of the ore.

This does not infer that there is only prospective the above small tonnage. It is intended to illustrate that one can sink and develop with some assurance. It is the opinion of the writer that this property has less potential than the Vera Cruz. It should be noted that, however, there are a number of close parallel fissues here which may consolidate and which are not explored.

The above is made, in estimate, without careful study of Mexican costs, taxes, freight, and other factors. While drilling should ultimately be done, the follo wing should be started at once to intelligently plan ahead.

1. An accurate surface map and plan, with sections, of the underground workings should be made and the boundaries of the denouncement shown.

2. Cuts at least 4' in depth should be made across all of the projected veins at points shown.

3. A local tabulation of all costs, taxes, labor costs, equipment costs, complete with duties, should be made.

4. Following this an engineering examination should be made and feasibility reported with a detailed plan for development, showing an estimate of total costs. This property has the disadvantage of underground production with expensive shaft development and possible water problems; it is most favorable from transport and process aspects.

Vera Cruz

This totally undeveloped property, northerly and easterly from the Niagra is excellent and air photos show remarkably good fault structure leading to the hope of possible surface mining and very large tonnage. Uplifted limestone strata similiar to the Niagra dipping 30-40° southerly is cut by a number of easterly-westerly nearly vertical faults. The formation is limestone with some thin interbedded slates and argillite.

The property is entirely undeveloped except for three or four surface pits a maximum of 8' deep.

The area occupied by the vertical fissure has an extent of 2,000 feet or more and where the flourite was exposed, widths were on the order of three feet.

The property is said to comprise 24 hectares and occupies low rolling terrain, again requiring vertical shaft development. It is only about ½ mile westerly from the village of Vera Cruz where power and water are said to be available.

With so little development, it is not possible to determine much about this property in so far as the potential is concerned. It appears that there may be two "belts" here which strike easterly and westerly one northerly and parrallel to that described.

It is necessary to map the surface of this deposit and to place dozer cuts along the sides of transverse canyons (which probably represent faults) and which have no exploration.

It is not possible to determine the costs of such work but it is estimated that the time requirement for a D-8 tractor with ripper will be about 5 days and the cuts should be deep enough to expose the flourspar in place; hence, equipment should include a compressor and a jackhammer.

The position of these proposed development cuts has been disclosed to Vallejo C.

With respect to transport to rail shipping point, an added 10 km. to those distances from the Niagra will serve for the present.

Upon the completion of the above work, the property should be examined and re-evaluated by competent engineering. Again, surface plans should show the boundary of present denouncements so that planned added acquisition can be made as recommended.

Santo Tomas Property

This property comprises the Santo Tomas and the Santo Tomas 1 through 4 inclusive totalling 180 hectares.

The area is reached about 20 km. S 45° East from Valle La Union over unimproved dirt roads across nearly level terrain until a point about 2 km or less from the denouncements is reached. Graveled roads which provide for drainage would have to be constructed.

The denouncements cover the southerly side of a small northerly trending range of hills and these have a much higher relief than either the Vera Cruz (La Fe' and Esperanza denouncements) or the Niagra with the northerly-southerly striking flourspar fissure outcropping as much as 300' above the valley floor to the west. Variation in Strike was north and south to N 20° W with the dip westerly 35° to 40°. It is possible that the dip is much steeper than the above but this must be determined.

A very short period of time was available to examine this property such that only the most general geologic factors were observed. Parallel to the flourite bearing fissure and some 300' down slope westerly there is an igneous intrusive (rhyolite or dacite depending on the feldspar contained which was not determined). This intrusive may also be easterly from the flourite bearing fissure. In all events, it appears to be in dike form with the sedimentaries continuing further west. Along the contacts of this rock with the limestone, further deposits of flourspar may occurr which to date have not been prospected.

The principal attraction of this deposit is: A) it has rather good elevation differences such that a reasonable down dip distance, or "backs" can be developed by a cross cut adit, and B) the consequent cost of both production and development is lower than the type requiring vertical shafts and the profit margin likely to be greater.

A trackless adit at -10° would contact the known fissure in about 400' and have backs at 600' up the dip if the dip of the fissure is on the order of 40°; further, if there is an occurrence along the contact with the dike mentioned, such a cross cut would develop this also. The cost of such development would be on the order of $20,000.00 here.

Because of the very limited present information concerning this mine a small cross cut about 100 feet below a suitable outcrop should be driven to establish dip and expose the ore at a lower horizon. The site must be carefully selected. Also, the area may be explored by drilling.

Such drilling, allowing 5 holes at 200' each with the necessary drill site preparation, sample analysis and other costs would require an expenditure of $10,000.00 to $12,000.00. While a single exploratory cross cut will cost much less, it is more valuable in that some production can be made and the fissure drift explored. It is, however, more critical as to location and the selection of a site should not be left to inexperienced choice.

It is expected that that the cost of a small adit would be on the order of $ 4-5,000.00.

The present recommendations are:

1) The property should be mapped in some detail with the present flourspar fissure shown and the denouncement limits. Stakes should be placed in the field westerly as well easterly along strike some distance from the fissure and so placed as to be easily identified in order that later geologic mapping can be expedited. Stadia is suitable accuracy for this purpose.

2) Some hand cuts 5-10' in depth should be made on the fissure and cleaned for sampling.

3) Following the completion of the above, the property should be subject to engineering study and recommendations made for the large adit location with a preliminary site location for a small adit.

La Cruz Mine

This property and the adjacant denouncements is located northerly from Durango about 55 Km. The largest village near the area appearing on most maps is Carlos Real. The area is reached from Durango northerly on a paved road about 55 Km; thence westerly a distance of about 6 Km to the village of Colon. Morales. The mine is about 1 KM westerly and south from this point, see air photos.

The nearest railroad shipping point is at Los Chorros a distance of about 13 Km, 6 of which is on the paved highway.

The La Cruz (Exp 11903) and the Espanada (Exp. 11216) denouncements were inspected. It is understood that some additional denouncements are being made.

In general, sedimentaries easterly on the low range pictured dip SE at 40°, since the west side was not inspected, dip there is not known and the attitude may be anticlinal with andesite-rhyolite occupying a crestal rupture.

A flourspar bearing fissure is developed by a single inclined shaft at its intersection with a cross fault the strike is N 08 E with a 60° NW dip; the shaft is reported to be 120 feet deep and the fissure width is 6'. The flourspar is amorphous to cryptocrystalline and will undoubtably be more crystalline at depth where the cooling process was slower. Entry into this shaft was not available to the undersigned.

There has been intensive hydrothermal alteration on the wall rock of the area such that the hangingwall rock is

altered as to be unidentifiable without petrographic study. It appears to be a gneissic andesite due to an intensive fault pressure with folliation northerly and southerly and vertical with some chalcedony being deposited and the feldspars completely altered to a brown clay. This rock type is in the hanging wall; the fissure walls being rather well defined and silicified such that there is no serious alteration at the fissure.

While some small production is reported to be currently made in flourspar, there has been no development except the shaft mentioned.

There has been very strong easterly and westerly faulting across the fissure with lateral movement on the north side of a fault near the shaft being easterly nearly 300 feet.

It is incredible that work has not progressed on the surface in the proximity of these very strong and very obvious structural controls.

Beacause of the major nature of the faults here this area in general offers good opportunity for the discovery of a large flourite deposit, again, it is in the small and limited productive state probably because of a complete lack of geologic understanding on the part of the owners, or possibly funds to secure the necessary information.

The time available did not permit the study of this area geologically and a period of at least three days will be needed if a reasonably good base map is available.

The area suffers from the fact that, like most of the others inspected, development must be by the rather costly shaft menthod.

If the property is available under a reasonable option, it should be mapped and a final engineering appraisal made. It would appear that the denouncements at the strike limits may be as productive as those on the exposed fissure, or better; by strike limits is meant those areas where the fissure disappears into the valley alluvium.

To establish the value of the prospect, the mine workings would have to be inspected and sampled and the probable ore established. Since mines of this type do not block in advance of production, the present value of the denouncements is very low.

Photograph No.11 indicates points which should be very intensively studied for possible ore shoots.

SUMMARY AND CONCLUSIONS

In their order of preference for development the foregoing properties fall into these positions:

1. Niagra Mine

This selection because of the extent of the prior work proving the extent of the ore shoots and the very good location with respect to transport.

2. The Santo Tomas Denouncements

Because of the favorable geology with the known intrusive position and because the development and ultimate production cost is lower that any of the others studied with a larger possible profit margin.

3 The La Cruz area

This area has established production, however small, and yet lacks any other surface development known to the writer. The intensity of faulting is great and as the dominant structural control indicates possible larger volume potential ore shoots.

The area is also very favorably located for trensport. The property would be placed in position 2 except for the possible complications in acquisition within a reasonable capital outlay. It has the disadvantage of requiring shaft development.

4. Vera Cruz

The Fe' and Esperanza denouncements are prospects and while realtively good geologically, are not in the class with any of the above as far as desireable present development is concerned.

Without the recommended work and ultimate engineering appraisal and feasibility, it is doubtful that any major interest will be aroused in the subject properties.

It is very important that the information covering the cost of labor, transportation to the various costal areas and the U.S. border, taxes, and all other costs be made available.

Rough estimates here are all in U.S.dollars.

Assays from the various areas are:

Niagra, 15' width moil sample in stope 40' below the surface 50.01% CaF_2

Sto Tomas Random grab sample from the ore taken from several of the cuts along the vein fissure 49.23 CaF_2

Sta.Cruz Surface grab across 300' lime structure 1.20 CaF_2 *

The samples were not run for silica, therefore the effective CaF_2 is not represented. The sample from the Vera Cruz area does not represent the material contained in the

ore bearing fissure. It therefore has no meaning as to the grade which from appearence would be on the order of 50% CaF_2.

The idea of the project is to consolidate the production from several of these small properties in order to achieve lower over all costs from a single administration and by having a higher processing volume, achieve a reduced over all cost position.

There are new techniques for "scalping" to pre-concentrate prior to flotation which are relatively inexpensive to apply and which can produce satisfactory metallurgical grades of product. Should a suitable raw materials source be indicated there are a number of approaches to ultimate practice which will establish a long term competitive place for these types of properties.

For some time now, some U.S. processors have been receiving crude flourspar ores from all over Mexico, including Durango. It is believed that a properly managed plant of the type most suitable for these ores will eventually obtain all ores from central Mexico.

Considering the production possibilities, development expenditures are fully justified as proposed and they will supply data for the ultimate planning which should reduce risk greatly where the major investments are concerned.

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