SUTTER 1-5954

CABLE: "CINNABAR"

H. W. GOULD & CO.

MINING & METALLURGICAL ENGINEERS

1000 MILLS BUILDING

SAN FRANCISCO 4, CALIFORNIA

March 12th, 1951

Dr. James Boyd, Deputy Chief Administrator
Defense Minerals Administration
Department of the Interior
Washington 25, D. C.

Dear Dr. Boyd:

The object of this letter and the enclosed report and other data is to apply to the Defense Minerals Administration for an advance against production of $400,000 to be used for the purchase and erection of mining and milling equipment, drilling of water wells, certain limited mine development work, and working capital for the purpose of greatly increasing the production of fluorspar at the Baxter Mine, located 70 miles southeast of Fallon, in Mineral County, Nevada.

Although this mine has produced more than 50,000 tons of high grade shipping ore over the past twenty years, present production is at the rate of only about 50 tons per month and this rate is decreasing. In the mining of high grade ore over this period of years, very considerable tonnages of dumps and milling ore as fills in stopes, ore left unmined in the walls and as ore going to further depth from the bottom level indicate every possibility of success to be attained from a milling operation. There has never been a mill of any type on this property nor has any of the ore been milled elsewhere. The previous operator has always in the past shipped ore of better than 90% grade and actually a great deal of this has exceeded 99%. Total indicated ore reserves are on the order of 400,000 tons plus, that average 50% CaF_2 per ton.

Some 24,000 tons of dumps carefully sampled average better than 40% CaF_2 which can be treated to quickly put the property in production. An excellent camp of 21 houses is a very great advantage to the initial period of construction and development. Shafts and levels are in workable condition and the existence of an excellent ore shoot on the bottom (400') level that is 750 feet in length and 4 to 5 feet in width should contribute to early and substantial production. The property is located only 4 miles by good road from paved highway and all year operating conditions prevail. The fluorspar produced in the past has a reputation for extremely high purity.

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This project involves, in addition to other facilities, the erection of a 250-ton mill, one section of which will be for heavy media separation and production of metallurgical grade fluorspar, and the other section will be a flotation circuit which will produce acid grade spar. Very comprehensive mill testing of the types of feed that will go to each of these circuits indicates that over a period of approximately five years production of metallurgical grade spar will be 118,168 tons (CaF_2 92.83% - SiO_2 6.26%) and 80,216 tons of acid grade (CaF_2 97.7%) or a total of 198,384 tons.

We believe that return of the funds advanced by the government should be on the order of $3.00 per ton of concentrates, at which rate advances would be repaid in five years. In the event that funds can be made available shortly after this application has been studied and checked, we confidently believe that production of concentrates before the end of the current year will exceed 10,000 tons. Ore of known good grade in substantial quantity is readily available due to the method of operation pursued by the previous operator.

The Baxter Mine has been examined, mapped, and diamond drilled by the U. S. Bureau of Mines in conjunction with the U. S. Geological Survey. We hope that the information thus compiled will assist you measurably in expediting the processing of this application and that you will give it favorable consideration.

This company has successfully operated many mines in California and Nevada over a period of many years and we hope you will also give this fact consideration.

Very truly yours,

H. W. GOULD & CO.

Bruce A. Gould, Pres.

BAG:es

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REPORT ON THE
BAXTER FLUORSPAR MINE

1. LOCATION

The Baxter Mine is in the extreme NW corner of Mineral County, Nevada, approximately 70 miles SE of Fallon, the county seat of Churchill County. It is reached from Fallon by way of U. S. Highway 50 going 40 miles east, thence to the south on State Highway 23 for 17 miles, thence westerly for 4 miles on good all weather dirt road to the camp and mine.

The small towns of Gabbs and Smithville are 10 miles to the south of the mine. These communities are supported by sizable mining and mineral processing operations involving brucite and magnesite, and 300 men are employed by the companies doing the work. The product is hauled 32 miles to Luning, a Southern Pacific R. R. point, from which it is shipped to the East (Ohio).

Hawthorne is 25 miles east of Luning (77 miles from the property) but is of practically no importance to the Baxter Mine other than that it is the county seat of Mineral County.

Fallon at 70 miles and Reno at 134 miles from the mine are the logical sources of small supplies and San Francisco and Salt Lake City are supply points for major items of mining equipment and supplies.

2. OWNERSHIP

The property consists of 9 unpatented claims (180 acres) and one millsite claim (5 acres), all held in the name of V. S. Baxter of Fallon. At the time of Baxter's first locations, it was believed that they lay in Nye County and those locations were recorded in Tonopah. Since that time corrected locations have been recorded at Hawthorne in Mineral County.

Since January 8, 1951 the mine has been held under a lease and option to purchase agreement by H. W. Gould & Co., 1000 Mills Building, San Francisco, California.

There are no claims held by others adjacent to or in the area of the Baxter claims. A close check of the original Baxter locations recorded in Hawthorne and the subsequent filing of assessment work and intentions to hold reveal that the claims are in good standing at the date of this writing.

3. HISTORY

V. S. Baxter located the first four claims in 1922 although he had known of the occurrence of Fluorspar here for some years before.

Shipments were sporadic and small during the first years as Baxter had no financial backing. Gradually, out of profits, the mine became developed to its present stage with 5 shafts totalling 1300', the deepest being 650', and approximately 6,000' of lateral work.

3. HISTORY (Continued)

He has shipped more than 60,000 tons of fluorspar to date averaging well over 90% CaF_2. The only complete records available covering shipments date from 1932 and are as follows:

1932	40 Tons	1941 (Est.)	2500.00 Tons
1933	647 "	1942	5074.63 "
1934	470 "	1943	5817.41 "
1935	943 "	1944	6471.77 "
1936	1500 "	1945	3469.41 "
1937	2200 "	1946	5826.60 "
1938	2102 "	1947	5560.23 "
1939	2805 "	1948	4102.41 "
1940	3543 "	1949	1062.36 "
		1950	1000.00 "
		Shipments since 1932	60,088.52 Tons

Settlement sheets from buyers indicate that many carloads of 60 tons or more were paid for on a basis of over 95% CaF_2 content and one carload sold to Detroit was actually paid for on the basis of 99.87%. It must be remembered that all of the above shipments were obtained from stand are as there has never been a mill of any kind on the property.

During the period that Hunter has operated the property he has constructed a very neat and liveable, as well as complete, camp that will accommodate 30 men.

4. GENERAL INFORMATION

The Hunter claims lie in rolling hills in the south end of the Blue Mtns range at an elevation of 6300' to 6600' above sea level. The mine workings are confined largely to the claims at the higher elevation and the main camp is one claim slightly lower. The workings are on an east to southeast slope and the weather is ideal for all year operations. Summers are hot and winters are moderately cold. Precipitation is slight and results from brief summer showers and minor winter snowfall. There is little vegetation other than chaparral.

The four miles from the highway to the mine is on an easy gradient, is well surfaced, and has a rock bottom. For these reasons we are advised by commercial truckers that the combination of hauling on highway and mine road will involve a cost of approximately 6-1/2 cents per ton mile.

Water is hauled 1.1 miles from a 240' drilled well located between the camp and the highway. The water supply from this well is inadequate for milling purposes and it will be necessary to drill additional wells.

4. GENERAL INFORMATION (Continued)

In the matter of equipment, Shafts No. 1, 2, 3, and 4 are equipped with Fairbanks-Morse 25 H. P. gasoline engine driven hoists, the one on Shaft No. 2 only now being used. It would likely take little work to put the others in operating condition, however, they are all of such age and inefficiency that it would be most feasible to replace the one on the main operating shaft with an electrically driven hoist and abandon or dispose of the others. In my count, these gasoline hoists have about reached their depth limit of the present 600' level. Additional mine equipment consists of a Gardner-Denver compressor (310 Cu. Ft.) driven by a 50 H. P. Continental engine, gas welding and generating equipment, 20 KW Westinghouse-Le Roi motor-generator set, table saw, bit grinder, tools and shop equipment, one 3 and one 1-1/2 KW Kohler motor-generator sets, Vulcan mine hoist, various motors, blowers, machine drills, two small trucks and one pickup truck, underground gasoline and kerosene storage with pumps, considerable pipe and rail, and a moderately sized inventory of drill steel, augers, hose, lubricating oil, grease, supplies and spare parts.

There is a wooden headframe (average 30' high) on each of the Shafts 1 to 4 and also a hoisthouse and bin. The bins have capacities ranging from 30 to 60 tons each. Shaft No. 5 is equipped only with a small tripod headframe and small hoisthouse but no hoist. Other than the above hoisthouses, all mine buildings are centered around the collar of Shaft No. 2 and are as follows: machine shop, blacksmith shop, warehouse, timber-framing shed and blower house. There are also underground powder and cap magazines of ample capacity for any future operation.

Roadways between the camp and mine are in excellent shape, as is the road from the camp to the highway, due to the fact that they have all been surfaced with low grade fluorspar ore. Various roads give access to most of the 4500' length of the claims and to most of the 1000' to 2400' width of the property covered by the claims.

The nearest public utility power is at Cobb, approximately 15 airline miles distant.

The camp is an excellent one and will easily accommodate 50 men. In total there are 23 buildings in camp, including a postoffice building, school, bunkhouse, cookhouse, warehouse, and 18 family dwellings. As may be seen by referring to the claim map, four of the dwellings are located not in the main camp but to the SE in the vicinity of Shafts 3, 4, and 5, and these houses are at present without electricity. The main camp, however, is completely electrified, the source of power being either the 15 KW Westinghouse-Le Roi generator or the 1-1/2 KW Kohler plant.

The cookhouse is equipped with a large oil burning range, a gas stove and a large Servel kerosene operated refrigerator. Utensils and dishes will service about 15 men.

4. GENERAL INFORMATION (Continued)

The dwellings are all furnished with beds and springs, wired for electricity, have sinks and also connecting root cellars. Among the dwellings are 9 more Servel kerosene operated refrigerators, and all houses are equipped with oil heaters.

5. GEOLOGY (By James G. Greaves)

The main ore occurrence, as far as is now known, is along a fault which strikes about N45W to S50W, and dips about 40° to 60° NE. Both walls consist of flow andesite, except for certain portions of the 200 to 400 levels, where the hanging wall rock has been identified by the U.S.G.S. as an andesitic tuff.

"The fluorspar is white to pale green and lavender, and a small portion is almost clear. It fills fissures and interstices of the breccia within the fault zone. In many places the filling was incomplete, and the exposed surfaces of fluorspar show botryoidal and mamillary structures. Banding to the veins is common. In places the bands are separated by thin sheets of pliable mountain leather, composed of a fibrous mineral, probably a member of the palygorskite group. Slickenses neighboring masses of fluorspar have a layer of mountain leather between them. Black stains of manganese oxide locally coat the fluorspar. Some of the fluorspar is finely granulated by post-mineral movement along the fault. The ore is considered to be epithermal in origin." (Quoted from U.S.G.S. Report 3-180 by Thornton.)

Faulting has brecciated the andesite on both walls, and solutions have replaced the fragments of andesite, and have gone far toward filling the resulting vugs, frequently with comb-structure fluorite.

There has been very extensive mineralization, apparently by ascending and laterally moving solutions along lines of least resistance, which has resulted in the deposition of several feet of fluorspar along the Main Vein, (up to a maximum of about 15 ft.) and also along fractures and vugs in both walls. This wall mineralization is frequently quite intense, resulting in several feet of ore of good mill grade, in addition to the width of the Main Vein.

This condition is well illustrated by Sample 3110, which was taken about 22 ft. above the 400 ft. Level East, at Raise 18X, where a short crosscut into the hanging wall exposed 4.0 ft. averaging 67.08% CaF_2.

Likewise, at 8X Chute on the 100 Level, 6.3 ft. of 63.0% ore are exposed on the hanging wall side, while at 108 on the same level, Sample 3210 shows 6.0 ft. (plus) averaging 34.70%, also in the hanging wall. Obviously, such conditions as these have been ignored in the past, when a minimum of 50% was desired.

9. GEOLOGY (Continued)

It is extremely difficult to estimate the tonnage of mill grade which has been left on one or both walls of the ground already stoped, but it is safe to say that it will amount to many tens of thousands of tons.

This is without taking into consideration certain partly developed regions where splits have diverged at a low angle from the Main Vein, with strong fracturing and mineralization in the V thus formed.

Perhaps the best illustration is the split which shows from Station 225 to 227 (Chute 12N to 15N) on the 200 Level. I am quite certain that this occurrence is the continuation of the ones exposed on the 300 at Chute 16N, and on the 400 at Chutes 5N and 6N. It shows on these two lower levels only on the side of the drift which follows the Main Vein, but the correlation is almost perfect, and the assays and the indicated width are excellent. This region is sure to produce a large quantity of ore which at present cannot be measured.

At the northeast end of the workings, on all four levels, the Main Vein appears to be cut by a later structure called the Barnett Vein, or Barnett Fault, which strikes almost exactly due North, and dips about 60° W. Distortion of the Main Vein indicated motion along the Barnett Fault to the north, with strike certainly at 60°.

There is considerable mineralization (post-faulting) along the Barnett, particularly on the 300 and 400, but little of shipping grade. Sample 3174, on the 400, gave 61.1% across 11.0 ft., while other samples indicate the probability of a good tonnage of mill ore in this vicinity.

At the north face of the 300, which is caving, there is a working to the east, too dangerous to enter at present, which Mr. Bunter states is a drift, about 40 ft. long, on ore. If this is correct, there is a possibility that it may be the faulted segment of the Main Vein. This obviously could be of great importance.

To the north and northeast of the mine workings, there are several trenches which expose stringers and narrow veins of fluorspar, usually conforming quite well with the strike and dip of the Main Vein. These are on the footwall side of the Barnett Fault, and only a few hundred feet from the face of the 300, from which they can be readily prospected. These surface exposures, and the topography, along the strike of the Main Vein, indicate strongly the desirability of careful examination and prospecting of this large block in the footwall of the Barnett Fault.

To the east and northeast of the Main Vein, considerable float is found on surface, in places where it could not have migrated naturally from the Main Vein outcrop. It is almost certain that another vein or veins will be found in this vicinity, the sole question being its size and purity.

6. GEOLOGY (Continued)

To the east, no fluorspar indications exist, as far as I know. I suspect that limited formations come well up the slope, thus concealing any outcrops that may exist under them. The andesites are Tertiary, while the lake which filled this entire basin was probably contemporaneous with, but not part of Lake Lahontan.

The 600 Level has by far the best exposure of wanted ore as compared with the other three levels, and it is by no means completely developed at the present time.

Southwest of the shaft, a continuous ore-shoot over 750 ft. long is exposed between Chutes 17 and 35W. I believe that this oreshoot goes into the hanging wall of the drift between Chutes 26 and 28. This can be proven by a very few feet of crosscutting.

At Chute 17, there is similar evidence, although not so strong as at 28W. Between Station 624, near Chute 17, and Station 627, there is a gap of 600 ft. of drift, with little or no fluorspar. At both ends of this gap, walls with fluorspar swing into the hanging wall, and would, if continued, meet. It is easily possible that there is a hanging-wall loop here, with sizeable ore. In any case, this should be investigated by a crosscut from the Main Shaft, or by advancing the crosscut at Station 627.

Ten samples were taken on the 600 Level West; 10 were taken in the three winzes. The level samples averaged 60.0% CaF2, across a width of 4.76 ft., plus. In practically every case, both in the winzes and on the level, the entire width of the vein could not be sampled. I judge that, in mining for mill feed, the average stoping width will be about 8 ft.

At the extreme southwest end of this oreshoot, where it appears to go into the hanging wall of the drift, Sample 3122 gave 66.3% across 4.0 ft. plus. 750 ft. distant, at the extreme northeast end of the oreshoot as exposed, Sample 3120 gave 53.7% across 7.0 ft.

The three winzes are at Chutes 6, 13 and 10, and vary from 25 to 45 ft. in depth. They were obviously driven in the search for shipping ore, and, in sampling, it was clear that every sample represented but a fraction of the total width that will eventually be stoped for mill ore.

Since these samples are at the lowest horizon in the mine (600 to 650 ft.), they are summarized as follows:

Winze No.	Sample No.	Width	% CaF2	Av. Width	Av. %
27	3122	4.0' plus	73.3		
	3121	2.3 "	64.6		
	3060	6.0 "	67.2	3.5'	62.8

6. GEOLOGY (Continued)

Mines No.	Sample No.	Width		CaF_2	Av. Width	Av. %
10W	3112	3.0'	plus	89.6		
	3109	1.0	"	65.0		
	3111	3.0	"	86.0	3.5' plus	85.4
10W	3115	3.0'	plus	72.5		
	3114	3.0	"	70.5		
	3116	3.0	"	60.0		
	3086	3.0	"	66.0	3.5' plus	67.6
	Average of all 8 mines ---				3.0' plus	61.2

In addition, Diamond Drill Hole No. 6, drilled by the Bureau of Mines, cut the vein almost exactly in its projected position at 650 to 656 ft. along the drill hole. (See Bureau of Mines, Fig. 12). This 6.0 ft. section is directly down the dip from Mine 8W, and is 510 ft. down dip from the 400 Level, or 700 ft. down dip from surface. The assay for this 6.0 ft. was 80.66% CaF_2. (See Fig. 12)

This discovery is, of course, sensational, and should be corroborated by sinking and drifting as soon as possible. At the point where the drill cut the vein, a vuggy condition was encountered, and the core recovery was low in quantity, but very high in quality, as the 80.66% assay shows. The footwall was not reached, and the hole was abandoned. According to the best information that I have received, it is entirely possible that the major portion of the vein is beyond the present bottom of this hole.

In any case, this hole has positively proven three very important points, viz., (1.) that the andesite host-rock exists to at least 700 ft. down the dip of the vein; (2) that the Main Vein, and presumably the fault which it follows, persists to the same depth; (3) that high-grade fluorite persists to this depth.

Considering these facts, and the known length of mineralization on the order of 2500 to 3000 ft., I consider it reasonable to estimate the depth of the orebodies to be on the order of 1000 ft.

An interesting point in this connection is the fact that the wells drilled by the Government in the flat between the Baxter Property and Eureka are about 2000 ft. lower than Baxter's and contain so much fluorine that the water is not recommended for human consumption. (Info. from S.O.S.E.) What connection, if any, there is between the fluorine content of this large body of underground water, and the probable depth of the Baxter orebodies is conjectural, but its mere existence, combined with the near-by presence of some

millions of tons of fluorine-bearing calcite (aside from the orebodies itself), indicates that in this vicinity there is a concentration of fluorine, of which the Baxter Mine may be one of several or many expressions. In other words, the district should be prospected thoroughly for fluorspar.

To return to our discussion of the 400 level, the results of sampling are summarized as follows:

Sorting	Length	No. Samples	Av. Width	Av. CaF_2
NW Drift	700'	10	4.75'	60.0%
3 Winzes	65' max.	10	3.8'	61.3%
NW Hole 6	6' width	1	6.0 plus?	80.60%

This is an impressive showing, and augurs well for the future of the mine.

Back of the Hole or No. 2 Shaft, on the 400, ore has been mined for about 200 ft. along strike, and undoubtedly continues below the level, but it is not as wide or as promising in appearance as in the SW orebody. A rather flat raise to the SW is indicated, for the entire mine.

At the extreme NW end of the 400, along the Barnett Vein, considerable mill ore is indicated for about 300 ft. As mentioned above, one sample gave 81.1% across 11.0 ft. But 3 samples were taken here, averaging 69.8% across an average 8.0 ft. width.

There is about 8000 ft. of drifting in this mine, and virtually no crosscutting, which is badly needed, and is certain to be profitable.

There are about 240 chutes, from 100 or more of which the Bureau of Mines pulled samples, of stope fill, which averaged 30%.

Following M. E. Thurston's report (U.S.G.S.) in 1945, the Bureau of Mines did over 1000 ft. of bulldozer trenching, and drilled 7 diamond-drill holes totalling over 3000 ft.

I judge from the location of the holes that the primary object of this drilling campaign was to secure information concerning the lateral extent of the orebodies, and of course its width and CaF_2 content. For example, Holes 1, 2, 3, and 4 are closely bunched, obviously for good reason, and are located about 300 ft. SW from the most southwesterly workings. Hole 5 is similarly located at the northeast end, while Holes 6 and 7, approximately 1800 ft. apart at their objectives, and 1400 ft. apart at their respective collars, are the only ones that might be expected to give any information concerning the orebodies at depth.

6. GEOLOGY (Continued)

Holes 1 and 2 were drilled less than 100 ft. west and east, respectively, from Shaft No. 5. Hole 1, 403 ft. deep, was expected to cut the vein at about 250 ft. from its collar, but apparently failed to do so. But two samples, both under 1% are reported. ?

Hole 2 hit the vein in its projected position at 152 to 153 ft. from the collar (140 ft. below the collar of Shaft 5). The hole was drilled to 220 ft. along the 60° hole. 6 ft. assayed 12.6% by sludge and 7.7% by core. This difference is noteworthy.

Hole 3 was drilled 161 ft. to develop the so-called Bulldozer Vein, which is, on surface about 300 ft. in the hanging wall of the Main Vein. The Bulldozer Vein projects to a point about 160 ft. down Hole 3, but the best showing in the hole was from 78 ft. to 93.5 ft., which averaged, from 3 samples, 6.5%. The first 3.5 ft. of this section gave 10.0%, followed by 3.0 ft. of 7.0%.

Hole 4 was drilled to 666 ft. depth, and was intended to develop both the Bulldozer Vein (at 620 ft.) and the Main Vein (at 610 ft.). 38 samples were assayed from this hole, 36 of them being sludge. Across the Bulldozer Zone, from 368 to 410 ft., eight sludge samples averaged 2.5%, the highest being 3.76%, from 410 to 415 ft. This was but slightly better than above and below this zone.

The Main Vein zone was apparently encountered at its projected position, where 6.70% material was found from 587 to 600 ft. At 625.5 ft., 0.7 ft. of core gave 78.00%, this being the only assay from the hole, worthy of being called ore. The point where this was found is 125 ft. below the 600 Level, and 140 to 200 ft. northwesterly from the most southwesterly point on the 600 where ore is known to exist.

Beyond the 78.00% assay above mentioned, there were 2.0 ft. assaying 2.0%, and then 2.5 ft assaying 1.00%, up to 631.5 ft. The hole was continued to 638 ft., at 60°. Possibly this long hole should have been drilled further, to provide for the possibility of the vein having steepened. Actually, however, the vein appears to be flattening slightly with depth.

Hole 5 was drilled to 655 ft. depth. 28 sludge samples and 3 core samples were taken, the highest being 5 ft. assaying 7.66%, from 274.5 to 279.5 ft. These 31 samples covered 165 ft. along the hole, and averaged 1.8% Sb_2S_3.

This hole starts on the hanging wall side of the Barnett Fault, and passes through it at 275 ft. depth, diagonally at 45°. The lower 375 ft. are entirely in the footwall of the Barnett Fault, and could not have cut the Main Vein, except possibly the faulted segment.

5. GEOLOGY (Continued)

Hole 6 was drilled to 663 ft. depth, and shows, from 21 samples covering a length of 120 ft. an average of about 3%. (This compares with Hole 6, which had 30 samples covering 190 ft. out of 880 ft., with an average of 2.4%. This is mentioned in order to emphasize the hanging wall mineralization.)

The core from 653 to 663 ft. is reported as carrying 96.06% CaF_2. The drill did not penetrate the footwall, at which point the hole was lost. (656'.)

This is a very interesting locality, aside from the surprisingly high assay obtained at this point, for the reason that the Main Vein, the Bulldozer Vein and the hanging wall split all strike toward this vicinity. The best correlation, however, is as the downward continuation of the Main Vein.

Hole 7 was drilled to a depth of 619 ft., and may have encountered the vein, although this is not certain. In any case, no assays of consequence were obtained. The bottom of this hole is in the region to which the Barnett Fault projects, which may account for the low assays. On the other hand, there is fairly strong evidence that the orebody as a whole rakes to the southwest, and the bottom of this hole thus would be under it. The information given by this hole appears to me to be negative, particularly as contrasted with Hole 6, which is positive, and decidedly encouraging.

The depth of the andesite, and the basement on which it rests may be very important points in connection with the depth of the commercial portion of this fluorspar orebody. They are referred to, by Thurston, as volcanic tuffs and flows, and I am informed that this sections led to this classification.

I know of no local geological work which would assist in determining this point, but it is a matter of common knowledge that the Tertiary andesites, andesite tuffs, and similar rocks in this portion of Nevada frequently descend to depths far beyond the probable lower limit of this fluorspar orebody.

If, however, the andesite host rock is relatively shallow locally, i. e., on the order of 1000 to 1200 ft., there may be a basement contact, with shattering, which has allowed the formation of large orebodies.

This is merely a long-range possibility. For the present, development work should be confined to the exploitation of the Main Vein and the Barnett Vein, and the search for parallel veins.

8. ORE ESTIMATE

The following is an estimate of the present ore position of the mine, including the dumps:

Locations	Tons	% Gold
1. Dumps	24,000	40.07
2. Stope Stills	80,000	38.00
3. To be mined 600' Level to Surface, 5' above and below 100', 200', and 300' Levels, 30' x 6' x 1800'	22,188	86.50
2' of wall to be mined 2' x 320' x 1800'	82,470	60.00
4. Below 600' Level 5% 750' x 4.12' x 875'	99,049	60.00
	308,212	49.083
5. Inferred Ore		
Above and below 600' Level 33		
600' Level extension to 37		
Extension below 600' Level 37		
Split Vein above and below 600' L. (Referred to by Greenan)		
Extension split veins above and below 600' Level	100,000	50.00
Probable extension at depth below 775' Level 37		
Total Tons	408,212	Average 49.083%

All sampling was done under the supervision of our engineers, James O. Greenan and E. J. O'Boyle, both of whom are reputable men with many years of supervisory and administrative experience in successful mining operations. All mine and dump samples were assayed by Abbott A. Banks, Inc. of San Francisco, and their results are appended.

(1) Dump samples were taken in amounts of two to three tons each from the main dump, broken down to 1-1/2 inch and cased and quartered down to a 15 lb. sample. Nine such samples were taken and these dumps were measured to contain approximately 18,000 tons. Many smaller irregular dumps, certain to contain more than 6,000 tons, were not measured or sampled and by observation it is obvious that the average grade of material is 15% to 20% higher than that of the main dump. The average grade for all dumps should exceed the 40.07% estimated.

6. ORE RESERVES (Continued)

(2) The reserve of stope fills is probably the most difficult tonnage to determine due to the irregularity with which the stopes are filled and also due to the fact that many of the stopes are inaccessible because they are filled from the levels immediately above and we can only assume that they are almost completely filled. Our figure for grade on these fills is from the U. S. Bureau of Mines who are reported to have taken samples from 100 of the chutes underground, a composite averaging 38% CaF_2.

(3) The ore to be mined between the 650' level and the surface exists as ore in place as pillars, vein material remaining over and under the 100', 200' and 300' levels, and a minimum thickness of two feet of the present walls of the entire vein. It is proposed to use top slice stoping to recover a maximum of all three types of ore.

On the average there is a stope height of more than 10 feet of ore left above and below the tracks of the various levels, however, accounting for the ore removed for chutes and manways we have calculated only 3 feet above and 3 feet below or a total of 10' for each of the three levels. A width of 6 feet and a strike length of 1000 feet out of a total mined length of 2000 feet is conservative. The grade of 38% is predicated on the weighted average grade of the stope fills, the dumps and the ore that has been shipped. (60,000 tons @ 38%)

The 2 feet of wall to be mined from the presently stoped areas is an estimated thickness that can be taken. Inspection of the stopes where irregular blasting has been done along the walls will confirm that this thickness is an absolute minimum of unbroken ore that will be available. Surprisingly, there is a considerable amount of ore on the walls that appears to be of shipping grade and it is not clear why it has not previously been mined. It is quite impossible to systematically sample this ore but by comparison with ore sampled in other sections of the mine the grade will exceed 40% CaF_2.

(4) The highest grade of ore to yet be mined is below the 600' level south over a strike length of 750 feet. A weighted average of 20 samples taken along this level and from the three winzes below indicates a width of 6.12 feet and a grade of 60.83% CaF_2. This is not the actual width that will ultimately be mined as in almost every location where a sample was taken in this section very good milling ore is plainly seen to be continuing in both walls. In other words, it is probable that the stoping width will be more nearer on the order of 8 feet of a slightly lower grade of ore below the 600' level. Inspection of the mine from the surface to the 600' level shows no decrease in the strength of mineralization or width of vein. For this reason, we feel assured of ore conditions similar to those on the 600' level to a depth below the level equal to one-half the strike length, or 375 feet.

6. ORE RESERVES (Continued)

(d) "Inferred" ore as classified in the foregoing table is probably more assured than this name implies. Although, of course, some of this ore is blocked out, it is visible on one side and in each instance there good geological evidence of persisting to the extent that a substantial tonnage of good milling ore, in total, can be produced. The extension of ore below the projected 775' level is the only exception to the above.

We, therefore, have 509,212 tons of assured ore averaging 63.880% CaF_2 and a total, including inferred ore of 608,212 tons averaging 63.287% CaF_2. Considering the several thousands of tons of small high grade dumps on the surface that were not sampled or assayed, our average grade will exceed 63% CaF_2.

Ore that may be mined NE of the Barnett Fault and which is plainly evidenced by outcrops of milling grade has not been considered here.

7. METALLURGY

After a preliminary investigation of the Hunter deposit and reference to general practice in the production of fluorspar concentrates, it was decided that the ore could best be treated, and most inexpensively, by heavy media separation of the coarse ore and straight flotation of the fine fraction. With this in mind, samples of both dump and underground ore were separately taken, as previously mentioned, and shipped to San Francisco to the Western Machinery Company, who screened this material through a 10 mesh screen, retaining the +10 mesh for heavy media tests and forwarding the -10 mesh to The Galigher Company in Salt Lake City, Utah for flotation tests.

The results, as evidenced by the metallurgical reports appended, indicate an average recovery by the two-circuit mill of approximately 93.5% of the total head during the initial period when the dumps are being treated as about half of this material will go to each circuit. When straight mine run ore is treated, about 70% of which will go to the HMS circuit and 30% to flotation, the average recovery is about 91%. These figures are based on a recovery of 87.6% in the HMS unit and 97.3% in the flotation circuit on dump ores. A similar recovery is made by the HMS plant on underground ore and flotation recovery is 97.8% on this material.

More complete analyses of the concentrates made from underground ores than are included in the attached metallurgical reports are as follows:

HMS Concentrate:

CaF_2	SiO_2	$CaCO_3$	$MgCO_3$	Fe_2O_3	Al_2O_3
92.[illegible]%	6.[illegible]%	0.[illegible]%	trace	0.[illegible]%	trace
Pb	Cu	Zn	Ba	S	Loss on Ignition
none	none	none	none	trace	0.[illegible]%

7. METALLURGY (Continued)

Flotation Concentrate:

CaF_2	SiO_2	$CaCO_3$	$MgCO_3$	Fe_2O_3	Al_2O_3
97.7%	1.0%	0.60%	0.064%	0.043%	1.0%

Pb	Cu	Sn	Bi	S	Loss on Ignition
None	None	0.002%	None	None	0.36%

The attached metallurgical reports are believed to be sufficiently explanatory with the exception of the matter of water supply. We are advised that the flotation circuit will require water at the rate of 40 G.P.M. and that the HMS circuit will require 60 G.P.M. and that 50% of this total requirement may be recovered by thickening, thus indicating a necessary supply of 50 G.P.M. of new water.

Eastern Machinery Company estimates a cost per ton for heavy media separation, on a basis of 15 tons per hour, of 23 cents, exclusive of feed preparation and water supply. It is not anticipated that this operation will exceed a rate of more than 200 tons per day (approx. 8 T.P.H.) and also it is a fact that water and power will be more expensive here than in the usual operation. H.M.S. operating costs, therefore, should approximate the following:

Media Loss (Ferro-silicon and Magnetite)	$0.0500
Labor and Supervision	.2025
Water	.1610
Power	.1750
Misc.	.2000
	$0.8885 Per Ton

Flotation costs will be higher for obvious reasons, principally because of higher than normal reagent costs and the additional cost of drying the concentrate. Grinding costs are, on the other hand, very low. Following are the estimated costs of flotation:

Reagents	$0.6000
Labor and Supervision	.7150
Water	.1050
Power	.5010
Drying Concentrates	.2250
Soda, Lime, Misc.	.2000
	$2.4000 Per Ton

In the above calculations, power was determined to cost 1.5 cents per KWH and water at the rate of .025 cents per gallon.

There is ample space on the mine property and just below the mill-site for tailings disposal.

6. PROJECTED SCHEDULE OF PRODUCTION

We are concerned about the supply of labor as it will affect ore production in the event that the military draft will reduce the number of miners available for this operation. Filling of the dumps will keep the concentration units operating at capacity during the first months; however, it is possible that mine production might be reduced to a scale of 200 tons per day. Should this occur the heavy media unit would operate intermittently.

The heavy media plant being considered is of the smallest capacity manufactured, but even so, is rated by Western Machinery Company, the makers, as being capable of treating 10 tons of this ore per hour. On this basis we will consider the monthly capacity as being 6,000 tons. Of the 24,000 tons of dumps, approximately one-half will screen to +10 mesh and, therefore, will go to the heavy media unit. At 6,000 tons per month this will mean two full months of capacity production in this plant and with the head value being 48% CaF_2 and the +10 mesh at 53.57% CaF_2, with a recovery of 97.5%, there is an indicated monthly production of 1533 tons of metallurgical grade concentrate averaging 98.25% CaF_2 and 0.25% SiO_2.

The flotation unit is rated at 75 tons per day and should treat 2,500 tons per month, taking six months to clean up the dumps. The -10 mesh dump material tested by Gallagher assayed 51.45%. The unsampled but higher grade dumps will increase the average grade of all dumps; however, at the rate of 2,500 tons per month and a recovery of 97.5%, production will be on the order of 1051 tons per month of acid grade spar of a grade of 97.7%.

During the period the dumps are being treated, mining underground would proceed at the rate of 200 tons per day (average 55% CaF_2) which would be placed in stockpile. Screen tests of ore broken underground indicate that 140 tons of this will screen to +10 mesh and consist of feed for the HMD plant and the balance (60 tons) will be -10 mesh flotation feed. Thus, we have a maximum production schedule for the first year of operation based on ore tonnage produced, dumps treated, the respective grades of ore, recovery and concentrate produced as follows:

[illegible]

Months	Tons Treated	Grade CaF_2	Recovery %	Tons Conc.	Int. Grade
1	6000	52.57	97.5	1533	98.25
2	6000	52.57	97.5	1533	98.25
3	6000	51	97.5	2977	98.25
4	6000	51	97.5	2977	98.25
5	6000	51	97.5	2977	98.25
6	6000	51	97.5	2977	98.25
7	6000	51	97.5	2977	98.25
8	6000	51	97.5	2977	98.25
9	6000	51	97.5	2977	98.25
10	6000	51	97.5	2977	98.25
11	6000	51	97.5	2977	98.25
12	6000	51	97.5	2977	98.25
	72,000	48.00	97.5%	30,016	98.25%

6. PROPOSED SCHEDULE OF PRODUCTION (Continued)

Flotation

Months	Tons Treated	Grade CaF_2	Recovery %	Tons Conc.	Acid Grade
1	2000	61.45	97.0	1001	97.7
2	2000	61.45	97.0	1001	97.7
3	2000	61.45	97.0	1001	97.7
4	2000	61.45	97.0	1001	97.7
5	2000	61.45	97.0	1001	97.7
6	2000	61.45	97.0	1001	97.7
7	2000	70	97.0	1401	97.7
8	2000	70	97.0	1401	97.7
9	2000	70	97.0	1401	97.7
10	2000	70	97.0	1401	97.7
11	2000	70	97.0	1401	97.7
12	2000	70	97.0	1401	97.7
	24,000	60.71%	97.0%	15,022	97.7%

The foregoing schedule indicates an average grade of 97.1% CaF_2 for underground ore to be milled after the dumps have been treated. This ore would be mined from below the 400' level and mining would continue to depth in this section as long as the best grade of ore available could be taken from that area. The 400' level in this section and the mines average 60.08% CaF_2 by our sampling but the 97.1% figure has been used inasmuch as it is not much lower and is the grade that was mill tested. The 60.08% figure would, in any event, be slightly reduced if mining to keep over a greater width than was sampled.

Referring to "6. Ore Reserves" it would seem logical to first treat the dumps, followed by mining and milling of the ore below the 400' level. How much of this latter class of ore will ultimately be developed cannot now be known, but when it is exhausted then "Dump Fills" and ore "To be mined 400' level to surface" totalling 100,000 tons and averaging 65.0% CaF_2 can be milled and/or the "Inferred Ore" at 100,000 tons of 55% ore with a proportionate decrease in production compared to the first twelve month period. Adding to these two classes of ore the 24,000 tons below the 400' level i.e. we have a total, eliminating the dump ore, of 500,212 tons with an average grade of 60.55% CaF_2. If our correlating and analyses of underground ore will substitute for this tonnage, then we should have 70% or 350,000 tons of UG feed which will average approximately 65% CaF_2 and 115,524 tons of flotation circuit feed with an average grade of 64% CaF_2. Total production of concentrate, therefore, should be as follows:

	Tons Dat. Grade 92.38%	Tons Acid Grade 97.7%
Dump - RMS Feed 12000 T. x 30.97 % CaF_2 x 97.5% Rec. =	3,247	3,188
Flotation Feed 12000 T. x 51.45 % CaF_2 x 97.5% Rec.		
Mine - RMS Feed 350,000 T. x 65 % CaF_2 x 97.5% Rec. =	114,521	
Flotation Feed 115,524 T. x 64 % CaF_2 x 97.5% Rec.		76,032
	118,768	80,218

9. MARKETING

Obviously the best market for increased production of fluorspar from the Baxter property is the steel industry on the Pacific Coast. Prior to the San Francisco the handle fluorspar office that consumers in the Pacific Coast states are now taking delivery of fluorspar ore and concentrates at the approximate rate of 14,000 tons annually. It is estimated that we could get 7,000 tons of this business.

In the past the Baxter property has had sufficiently low production costs to be competitive in markets in all sections of the United States. The cost of beneficiating the ore by milling should not be so high as to change this competitive position largely because of the relatively high grade and purity of the ore to be treated. Although all marketable grades of fluorspar have been shipped, the bulk of it has been metallurgical grade which has gone to the Pacific Coast steel industry. The following is a complete list of buyers of fluorspar ore originating at the Baxter Mine since January, 1940:

California (11)

National Supply Co., Torrance
Pacific States Steel Corp., Niles
Bethlehem Pacific Coast Steel Corp., South San Francisco
Baker Co., Fontana or Baker
American Radiator & Standard Mfg. Co., Richmond
Kennedy Minerals Co., Los Angeles
Industrial Minerals & Chemical Co., Berkeley
L. H. Butcher Co., Los Angeles
General Metals Corp., Oakland
American Manganese Steel Division of American Brake Shoe Co., Oakland
Metal Thermit Co., South San Francisco

Washington (5)

Bethlehem Pacific Coast Steel Corp., Seattle
Isaacson Iron Works, Seattle
Pacific Car & Foundry Co., Renton
Washington Iron Works, Seattle
Olympic Portland Cement Co., Bellingham
Superior Portland Cement Co., Concrete

Oregon (2)

Balfour, Guthrie & Co., Ltd., Portland
Oregon Steel Mills, Portland

Illinois (1)

Continental Ore Co., Chicago

Arkansas (1)

Reynolds Metal Co., Bauxite

Delaware (1)

E. I. du Pont de Nemours & Co., Inc., Wilmington

New Jersey (1)

E. I. du Pont de Nemours & Co., Inc., Carneys Point

9. MARKETING (Continued)

A greater portion of the ore shipped has been handled by brokers although some has been sold directly. Brokers charge in one dollar per ton for selling. During recent months (up to early January) sales by Baxter, F. O. B. ore Fallon, Nevada, have netted $27-28 per ton for metallurgical grade and $32-33 per ton for acid grade. He has had no difficulty in selling all that he could produce at these rates in recent months regardless of consumer location in the East. A small production is now being made by the applicant and an order is now in hand for one carload (60 tons), which is the first ore produced since taking over the property, for $31 per ton. This is metallurgical grade and is to be shipped to the Seattle area. Recent correspondence with an Eastern broker indicates that such a price can be obtained for a similar grade of product for shipment to the East.

It is evident that the Pacific Coast cannot absorb the total production of this mine although additional aluminum and steel plants are seen to be constructed in this area. In any event this mine could ensure existing plants and any others that may yet be constructed of an adequate supply of fluorspar.

The steel and hydrofluoric acid industries which are principally located in the East would, of course, be the ultimate consumers of this excess. Whether the individual consumers will be in a position to purchase this excess beginning, say, five or six months from this date is not known. A review of the U. S. Bureau of Mines fourth quarter report for 1949 reveals that stocks in the hands of consumers and in inventory of mines at the end of the year amounted to only slightly more than a five months' supply at the rate of consumption during that year. It also seems significant that during 1949 domestic mines produced slightly less than 2/3 of the fluorspar consumed in the United States.

The tonnage of fluorspar held in government stockpile or that recently acquired by General Services Administration is not known although it is a fact that combined domestic production and general imports during 1950 amounted to less than 22,000 tons over and above domestic consumption. It is notable also that although imports increased in the fourth quarter over the third quarter, domestic production fell off 14% between these two periods.

Of serious interest is the fact that of 164,633 tons imported into this country last year some 77,411 tons originated in Europe. Had this supply, for any reason, been cut off, production in North America would have fallen 53,573 tons short of consumers' needs for the year.

Although the Baxter Mine has not been an important factor in regard to the total of domestic production, it did produce an average of almost 8,000 tons annually during the period 1942-1946. Production of

9. MARKETING (Continued)

high-grade shipping ore has about reached the vanishing point, whereas, a milling operation can produce on the order of 30,000 tons or more annually for several years. As previously stated, probably 7,000 tons can be marketed on the Pacific Coast which would leave some 25,000 tons per year available to Eastern consumers and for government stockpile.

Transportation rates from Fallon, Nevada to the Midwest and East are admittedly high. The present rate from Fallon to Chicago is $17.36 per ton (including tax) in carload lots. Negotiations have been under way for some time with the Southern Pacific Railroad to establish a more equitable rate. Basic Refractories, Inc., located at Gabbs, is shipping a magnesite product from Luning (100 miles south of Fallon) to Marlo, Ohio for $12.46 per ton, but we cannot get a comparable rate simply because we do not ship the same product. It is hoped that a rate of $15.50 from Fallon to Chicago can be secured.

Other established freight rates on fluorspar originating in Fallon are: San Francisco $6.36 per ton, Los Angeles $8.45, Portland and Seattle $11.74, Salt Lake City $8.20 and Carnegie District, Illinois $17.36.

Of some interest is the fact that a commission representing the Japanese government is now in this country (in the West) endeavoring to negotiate a contract for the supply of 3,000 tons per month of metallurgical grade spar for shipment to Japan. It has been known for some time here that the Japanese government has been expanding its steel production facilities, and there have been open bids in San Francisco for at least the past three years for iron ore for shipment to Japan.

So far as we know, there is only one hydrofluoric acid plant on the West Coast and that is operated by the General Chemical Divisions of Allied Chemical & Dye Corporation in the Los Angeles area. We assume that the supply of acid spar for this plant comes from their own properties located near Deming, New Mexico.

Pacific States Steel Corporation at Niles, California and the Kaiser Steel Company at Fontana it is understood, are both definitely planning to expand their production facilities by fifty per cent in the next six months. Both of these companies, at one time, were consistent buyers of spar from the Baxter Mine. Among many recent inquiries for fluorspar since acquiring this property is one in regard to supplying a new aluminum plant which we are advised is soon to be constructed near Kalispell, Montana.

There is little question that fluorspar demand in the Pacific Coast states is increasing materially.

10. EQUIPMENT AND FACILITIES REQUIRED

1) Water Well Drilling
3 - 8" holes cased to 400' ---------- $ 9,600

2) Camp Repairs, Road Improvement, and Enlarge Cookhouse ---------- 3,500

3) Hoist Motor (50 H.P.) and Install Hoist ---------- 2,500

4) Mine Compressor including Caterpillar Diesel Engine Drive (Installed)--- 7,825

5) Tanks, 2 -10,000 1 -1000 Gal. (oil), 3 -25,000 Gal. (water), (Erected) --------- 7,376

6) Crushing and Screening Plant - Including Installation

Ramp and 100-Ton Bin (Wood Construction) ----------	$ 3,000	
Grizzly over Bin set at 4" (20# rail) ----------	350	
Grizzly and Chute above Crusher set at 1" (30" x 8')--	250	
Crusher 10" x 20" and Building ----------	2,500	
Conveyor 24" x 80' plus Frame & Building @ $45 Lin.Ft.	3,600	
Screen-Double Deck-4' x 8' - 1/4" and 10 Mesh Screens, including Support and Building ----------	2,750	
2-Conveyors-18" x 80' plus Frame-without Building @ $30 Lin. Ft. ----------	4,800	
Electrical Wiring and Miscellaneous ----------	1,500	
		21,250

7) Tractor Bulldozer - Caterpillar D-6 with Type U Dozer ---------- 11,187

8) 3-Caterpillar Diesel Electric Sets, 75 KW including Freight to Mine(Inst) 31,952

9) 75-Ton Flotation Mill

100-Ton Bin (Wood Construction) ----------	$ 1,500	
Conveyor Feeder ----------	500	
Screen-Double Deck-3' x 6' - 10 Mesh and 35 Mesh -----	1,340	
Rod Mill - 3' x 6' ----------	9,500	
Conditioner - 6' x 6' ----------	900	
Reagent Feeders and Samplers ----------	2,500	
Rougher Flotation Cells - 6 - 36" Caligher and Cleaner Cells, 4 - 36" Caligher incl. auxiliary equipment---	6,780	
Elevator ----------	2,000	
Filter - Dorrco 6' x 5' - complete ----------	4,000	
Thickener - 20' ----------	2,260	
Rotary Drier and Auxiliary Equipment complete with Elevator and Concentrate Bins (200 T. Steel) -------	10,500	
		41,780

10) Flotation Mill Construction - 125% x Cost of Equipment & Materials, ---- 52,225
(41,780)

11) Heavy Media Separation Circuit (Erected)

150-Ton Bin (Wood Construction plus Ramp ----------	$ 5,000	
Feeder ----------	750	
Conveyor 18" x 60' plus Frame without Building -------	2,500	
Vibrating Screen D.D. - 4' x 6' - 1/2" and 10 Mesh Screens plus Support ----------	3,000	
Western Machinery Co. Heavy Media Separation Mill, 5' Cone - Capacity 10 tons per hour ----------	26,400	
Installation ----------	3,500	

10. EQUIPMENT AND FACILITIES REQUIRED (Continued)

11) Heavy Media Separation Circuit (Continued)

Conveyor 18" x 60' plus Frame without Building ----	$ 2,500	
Concentrate Bins (Steel) 300-Ton ----------	6,300	
Conveyor 18" x 100' plus Frame without Building ---	3,500	
Building 14' x 25' ----------	6,000	
Thickener 24' ----------	3,200	
Wiring, Piping, and Misc. ----------	3,500	
		$ 63,100

12) Inventory of Supplies and Spare Parts

Ferro Silicon, 15 T. @ $140 T. ----------	$ 2,100	
Magnetite, 3 T. @ $90 T. ----------	270	
Oleic Acid, 6,000# @ $29 Cwt. ----------	1,740	
Sodium Silicate, 20,000# @ $2.65 Cwt. ----------	530	
Misc. Supplies and Spare Parts ----------	2,500	
Diesel Fuel - 10,000 Gal. @ 13.25¢ ----------	1,325	
Dryer Fuel - 10,000 Gal. @ 10.6¢ ----------	1,060	
		9,525

13) Office Building ----------	3,000
14) Assay Laboratory ----------	2,500
15) Pump Power, Equipment, 8000' 4" Pipe Installed - Estimated ----------	20,000

16) Underground Development

Sink 400 South Winze from 446' Level to 525' Level, plus 31' for Pocket below 525' Level-110'@ $40/ft.	$ 4,400	
Drift 500' on 525' Level - 500' @ $20 per ft. ------	10,000	
Raises and Chutes - 525' Level - Stope Preparation--	5,000	19,400

17) Mucking Machine ----------	2,500
18) Pick-up Truck - G.M.C. 3/4 Ton ----------	1,875
19) Electric Welder ----------	450
20) Engineering and Design - Crushing and Screening, Flotation & H.M.S. Circuits ----------	10,000
21) Bunkhouses - 2 - 12' x 60' @ $10 per sq. ft., plus beds, mattresses, stoves ----------	17,280
22) General Manager, Purchasing Agent, San Francisco Office, and General Expense, Six Months @ $1500 per Month ----------	9,000
23) Contingencies and Working Capital ----------	51,175
Total Required	$400,000

10. EQUIPMENT AND FACILITIES REQUIRED (Continued)

1) The cost of drilling for water, as set up, is somewhat indefinite as it is impossible to know at what depth water may be found, in what amount, and whether it will be necessary to drill more than one well. At our request, Thomas V. Robinson, Ground Water Division, United States Geological Survey, made a preliminary examination and study of the geology, drainage, etc. of an area approximately one mile below the mine and proposed millsite, and it is his belief that the possibilities for water at this location are good. The price of $8 per foot for drilling and casing 8" holes is quoted by J. B. Reynolds, considered to be capable and the most reliable driller in the Fallon area.

2) Minor repairs are necessary to some of the camp dwellings. Very minor improvements to the road between the mine and the highway are necessary. An extension of 15' on the dining room in the cookhouse is needed to accommodate additional men.

3) At present there is a hoist on the property that was purchased by Rector but was never installed. This appears to be an excellent hoist that could be suitable for the main shaft to replace the present gasoline engine driven hoist and would be capable of servicing this shaft to a depth of more than 1000'. It is without a motor or controls; however, a 50 H.P. motor will be ample for some time.

4) The mine compressor (Ingr-350 Cu.Ft.) is to be driven by a diesel engine (Caterpillar D-8500) and the price set up is the combined quotes of both of these companies.

5) The 1000 gallon tank is proposed for diesel fuel storage for the engine at the pump and well, one 10,000 gallon tank is for diesel fuel storage for the main power plant and mine compressor engine, the other 10,000 gallon tank is for light fuel oil storage for the flotation concentrate dryer. One of the 20,000 gallon tanks are for fresh water and the other is for mining water for the mill circuits. Prices have been secured from local fabricators who have also quoted delivery costs and erection costs have been added.

6) The costs of the crushing and screening plant have been estimated on an installed basis. The screen and conveyor costs were secured from manufacturers, and it is believed that a good used crusher can be obtained. Crushing is not a problem, as the ore is relatively soft and breaks into comparatively small fragments in mining. A large portion will pass through the grizzly set at 1".

7) The tractor bulldozer is a Caterpillar D-8 with Type U dozer complete and the price set is delivered at the mine. The bulldozer will be used largely for moving and disposing of the coarse ISM tailings.

8) The three Diesel-Generator Sets are Caterpillar D-13000 diesel engines, each driving a 75 KW generator (synchronized). These units are proposed in this number and individual capacities because three units can be in operation on two shifts (powering the mill circuits and mine hoist) and two units on the other shift to power only the mill circuits. During this latter shift, minor maintenance and repair work can be done on any one unit.

9) The millfeed bin could be constructed on the job. A used conveyor feeder can be secured at this price. The double deck screen ahead of the rod mill is quoted by Robins Conveyor Div. of Rexnord-Robins, Inc. The rod mill is a Marcy manufactured by Blue & Sealer Supply Co. Reagent feeders are Clarkson and samplers are Geary-Jennings. Conditioner and flotation cells complete are quoted by the Galigher Company. The classifiers are both quoted by Link-Belt Co. The Dorrco filter is made by Oliver United Filters, Inc. The rotary dryer is quoted by Stanford Steel Corporation and the concentrate bins by local fabricators.

10) The applicant has constructed most of the quicksilver furnace plants erected in the U. S. and elsewhere in the past 20 years, so is somewhat familiar with mill construction costs and the increase of these costs in recent years. Discussion with engineers of both The Galigher Company and Western Machinery Company, with both of whom we have worked very closely in this project, indicates that the total cost of erection of this type of mill, including the dryer and other facilities, will cost 125% of the bare cost of the foregoing items. Millsite topography, of course, was considered.

11) The cost of the EMS circuit was discussed thoroughly, item by item, with engineers of Western Machinery Co. who are recognized as important manufacturers and constructors of this equipment, and the figures given are largely theirs.

12) The inventory of supplies of ferro-silicon and magnetite consist of the original load (charge) plus two months' needs as delivery of ferro-silicon is slow. The sodium silicate inventory is sufficient for 40 days and the sodium silicate for 50 days. The inventories of fuel are capacity, the diesel fuel being ample for almost 30 days and the dryer fuel for 45 days.

13) 14) These two buildings will neither be large nor elaborate.

15) Prices have been secured from manufacturers of standard pumping equipment and Caterpillar for power equipment. Dealers in good used & new have given us a variety of quotations. The exact summer to the pumping investment is no more clear than the cost of drilling the wells, although we have assumed that water would be pumped 1-1/2 miles against a 600' head at the rate of 150 G.P.M. (8 hrs.)

16) This work is necessary during the period of mill construction to properly prepare the mine so that daily ore production of 200 tons can be secured.

10. EQUIPMENT AND FACILITIES REQUIRED (Continued)

17) Level development will require this equipment which can be obtained second hand.

18) Present equipment must be replaced.

19) Necessary equipment (000 amp.-electric drive)

20) Engineering and design and all legal and private will involve this expenditure.

21) Additional accommodations for increase in crew.

22) This cost will cover the salary of a manager, purchasing agent, stenographer-bookkeeper and San Francisco office expense.

23) This sum should be sufficient to cover any increase in the cost of equipment, supps, or other services during the period of construction and also for starting-up expenses.

11. FUNDS REQUIRED AND THE PURPOSE

Total funds required by this project amount to [illegible],000 as shown in (10).

Should this sum be very shortly made available, it would be our opinion that construction could be completed and full scale operations begun within four months. Certain good used equipment and materials are now available but these items are rapidly disappearing from the market. Any delays in financing will involve the purchase of more new, rather than used, equipment which could mean delays in deliveries and, therefore, postpone completion of construction and initial production.

Funds should be made available in four monthly installments, the first one to be made at the time the loan is authorized.