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Item 1

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October 1, 1954

INFORMATIVE MEMORANDA, DUTCH FLAT PLACERS

BY DON B. SEBASTIAN

Mr. Frederick Reel's comprehensive report following this, fully explains itself. I only wish to comment briefly on certain matters which I feel those who participate with us should know.

I became interested in the Nevada property through Mr. Reel, as he knew I had been looking for something outstanding to get back into the mining business.

We definitely have it! I can say this absolutely without reservations. First, we have the full log reports of the Humphrey Engineering Co. of Denver, Colorado, who spent some \$20,000. on testing and sampling. Then, we have the results of engineering done by the present owners, several of whom are now operating officials of the Kennecott Copper Co. They, in turn, brought Nicholas B. Crawford, Geological-Metallurgical Consulting Engineer of Kennecott Copper Co., into the picture. Mr. Crawford personally supervised much of the engineering and sampling before we took over.

Subsequently to the above work, two of the largest dredging companies sampled the property and also approved it. Therefore, we believed we had finally found the right one, however, Mr. Reel could not accept the word of anyone until he had personally examined the property. His report, which follows, gives it his unqualified approval.

The total expenditures on the property to date, including our own, will exceed \$100,000. Also, we have approximately 80,000,000 cubic yards of material tested, blocked and ready to run. In addition, we have a like amount of material, not yet fully tested, which gives every indication of carrying comparable values.

I have personally leased this property and will assign the lease to a corporation to be known as "Primary Metals, Inc." as soon as the financing is completed.

The new tax bill just signed by the President gives us a 23% allowable depletion, as we come under the heading of Strategic Mining.

I consider we have a highly efficient and competent mining organization, with years of experience which is ready to handle operations. Its personnel and background follows.

*Don B. Sebastian*

FREDERICK REEL, CHIEF CONSULTING ENGINEER

43 years mining experience, all parts of the world. Formerly with Guggenheims as Assistant to E. J. Franklin of the executive staff, engaged in mining, design, construction, operation. With John Kiddie operating Arizona Copper. Former partner with A. B. Dodd, Dean of American Engineers. Handled such accounts as Southern Belle, Southern Cross, Mipah, Gold Roads and many South American and Mexican surveys. Consulting Engineer for Wall Street interests, including Tom Woodleton, Major Sissons, Whiting Bros. and Curb Exchange reports. Chief Consultant for Philadelphia Syndication headed by his father, including such men as George Blair, B. R. Taylor, Drexel interests and the Curb Exchange, reporting on mines for Syndication in Cobalt District, Canada - Medas District - Porcupine District - Goldfield - Rawhide and Tonopah Districts, Nevada. Consultant for Bethlehem Steel Group, Senator Kurst, John J. Raskob, Dr. Babcock, etc., etc.

For years specialized in complete mine analyses; operational programs and special confidential reports. Has contributed many technical articles to mining publications.

FRANK JANNEY OF SALT LAKE CITY, UTAH - Will Assist Mr. Reel  
As Superintendent and Resident Engineer.

Member of famous mining family, his father having served for years as General Superintendent of Kennecott Copper Company.

Frank Janney has spent last 18 years with Kennecott Copper Co. He is young, active, efficient and understands his job. Also understands Dutch Flat property thoroughly.

GEORGE MULLIN (KENNECOTT COPPER) - ASSAYER

In both laboratory and field work. He will handle millheads and assays under Janney. Efficient and expert in his line.

DON QUIST, MASTER MECHANIC

Many years experience at Kennecott Mines. Will take charge of mechanics for Primary Metals, Inc.

TED WOODWARD, SECURITY MAN

Member Peace Officers' Association. Has been with large plants, including Moore Dry Dock, Oakland, during last war. Will take over duties of plant security in all its phases.

DON B. SEBASTIAN - PRESIDENT - Headquarters: San Francisco.

1. Ten years with Rock Island Railroad, Chicago, Assistant Manager, Mining & Fuel Department and Purchasing Agent. Declined offer to become Manager of department to enter coal business.
2. Became President Groveland Coal Mining Co., Chicago, with affiliated companies, viz: Bickett Coal & Coke Co., Chicago Sandoval Coal Co., Franklin County Coal Co. Combined paid in capital \$5,500,000. Daily production 10,000 tons of coal, contracted to railroads. 7,500 employees. After seven years, sold stock interests and moved to California.
3. Dealing in real estate, construction, finance and insurance in Los Angeles and Santa Barbara for himself.
4. During last war, Manager of Housing & Transportation for Kaiser Shipyards at Richmond, California, with 93,000 employees. Also member of Labor-Management Committee. Later transferred to Henry J. Kaiser's General Offices at Oakland as Department Manager of Construction, Purchasing and Real Estate. Resigned to again start own business.
5. Since January 1949 in San Francisco, engaged in real estate, finance and investment business.

R E P O R T  
O N  
D U T C H   F L A T   P L A C E R S  
(HUMBOLDT COUNTY)  
N E V A D A

Frederick Reel  
Consulting Engineer  
724B - Bay Street  
San Francisco 9, California

## DUTCH FLAT PLACERS

( Humboldt County )

NEVADA

### PROPERTY

The property owned and controlled by The Dutch Flat Mines, Inc., consists of some 2000 acres of ground, more or less, of which there are 19 unpatented lode mining claims (that have no bearing on or concern with this report) and approximately 1440 acres, more or less, of placer deposits. The two properties contact and merge with each other on the west slope of the Hot Springs Range. In several instances the placer deposits overlay the lode claims or are interwoven between them in the form of gulches and canyons and open cuts.

The placer claims are designated as: Dutch Flat Placers Nos. 1 and 2; North Side; South Side; Lower Flat and sections of S. P. R. R. lands.

The land slopes gently from the Hot Springs Range in a westerly direction to the valley floor. This valley is known as Eden Valley and is hemmed in by the Santa Rosa Mountains to the west and the Hot Springs range that foothill the Osgood Mountains to the east.

The land is void of timber and contains only sporadic patches of sage-brush. This eliminates any clearing problems.

### LOCATION

The property lies in the Paradise Mining District, Humboldt County, Nevada. It is some 38 miles from Winnemucca via the circuitous route we were forced to take because of the closing of the main road to the property. The 38 mile trip to the mine was negotiated over U. S. Highway 40 as far as Golconda some 15 miles due east of Winnemucca. At this point we turned off to the north and resumed the balance of the trip over desert roads. When the main road to the mine is re-surfaced and opened again, in the near future, by the state it will lop off about 17 miles of unnecessary travel.

DUTCH FLATS is a centralized area of mineralization and is almost completely surrounded by mines that have enjoyed the limelight of productivity. To the east, about 8 miles distant, in the Osgood Mountains are the U.S. Vanadium, Getchell, O'Leary and Riley Mines. To the west, about 15 miles distant, in the Santa Rosa Range are the Old National Gold mine and the Cadere Quicksilver mine that had the distinction of breaking many records for productivity and values. To the north, about 10 miles, in the Hot Springs Range is the Cahill quicksilver mine. In addition to these mines many new prospects that show untold possibilities are now in the making. Uranium has been discovered in the immediate district. Some of these new discoveries are working furiously in the process of development . . . . others are shipping.

The elevation at the mine is 4534 feet, just 200 feet higher than at Winnemucca.

Eight months out of the year the weather is mild. July and August are hot and dry. In December and January there is a very light snow-fall in the valley but of no important consequences. This, then, would mean that the weather conditions are conducive to year round operation.

Winnemucca is the county seat. It has a population of around 3000 people. It has schools, churches, hotels, motels and shopping centers. It is reached by two railroads Southern Pacific or Western Pacific; main highway 40 from Reno to Salt Lake City passes directly through the town.

Camp and mining supplies may be procured in Winnemucca.

### IMPORTANT DATUM

There is water on the property supplied by a well that has been dug some 3 miles from the present millsite. This well is situated in the valley floor almost on a straight line to the west of the property. The water is pumped into a 3 in. pipe and conveyed some 1-1/2 miles where a booster pump gives it the final impetus over a 500 foot raise. Two tanks store the water against useage. At the time of my inspection the well was choked with silt that had come in during flash floods. It will require cleaning out -- new casings inserted -- or cemented off.

While the water supply from this well has been adequate for the rather shiftless and non-descript type of mining that has been engaged in up until now I would strongly urge that the well be deepened and enlarged so that sufficient water could be developed comparable with full scale operation. Or, that a new well be sunk closer to the scene of activity.

The California Pacific Utilities Corp. have a high tension power line extending through the valley as far as the town of Paradise. This line is just 4 miles due east of the mine and 1 mile east of the pumping station at the well.

If the mine power consumption is not too heavy this line can be tapped at this point. If it should exceed the load limit, then, a line can be brought in from the main highway at Button Point, a distance of some 8 to 10 miles.

Five major Oil Companies at Winnemucca specialize in making tank mine deliveries of gasoline, diesel fuel, fuel oil, greases and propane gas.

Relative to the History of the property I have obtained, through rather exacting and painstaking questioning of mining men in particular and laity in general, information of importance purporting to show that the mine, even though improperly and inadequately handled on past attempts at operating it will, when properly financed, equipped and managed, become one of the district's important producers.

A property of such magnitude and with such unlimited possibilities as this one cannot be underestimated or its potentialities ignored.

A careful study of the property brings to light an enviable record of heavy and nugget-gold recovery. The ground was originally staked out by a Dutch Fred who worked the ground spasmodically as either inclination or necessity demanded. On each occasion when he left his "diggings" and went to town his "poke" was filled with nuggets. This happened with such regularity that the names Dutch Fred -- Dutch Flat -- and nuggets became synonymous.

In Cinnabar Gulch at the base of Hot Springs Range, and overlapping it in spots, this same Dutch Fred took out \$225,000.00 by hand mining. All heavy gold and nuggets. This information has been authenticated by Dutch Fred's partner, and, I am told, is of record.

In addition to this a group of snipers -- all working by hand, extracted some \$75,000.00 from the gravels. These represent only a few of the "known" recoveries that have been made. Yet, in spite of these pick-and-shovel operations, the limited area in which they worked has hardly been scratched.

As I have mentioned before the entire holdings of the Dutch Flat Mines, Inc. embraces both the lode and placer deposits. Such holdings consisting of two diversified and distinctive methods of operation could very well prove more of a liability than an asset. To better qualify this statement let me add that as the property now stands neither the lode nor the placer ground

has been worked to any successful conclusion due, in the main, to the fact that finances as, and when procured, had been dissipated in a vain effort to develop both mines simultaneously rather than concentrating on one phase of operation to the exclusion of the other. That is why I recommended interest be shown only in the placer deposits.

Records presented me show that three major dredging companies have sampled and accepted this property. The first: A large Denver concern spent many months and thousands of dollars thoroughly sampling the ground preparatory to operation. They put in over 76 test holes, four feet in diameter and from surface to bedrock. Bedrock being, at no point, less than 40 feet in depth. In their assays only commercial heads were logged, high-grade values being thrown into the discard. (These logs were at my disposal). Equipment was moved onto the property and operation about to start when the war order L208 was put into effect and closed them down.

The second dredging company also sampled and, intent on immediate operation, optioned the ground. For two years they "Paid off" on these options while awaiting a court settlement that had tied up two of their boats in litigation. Further options were never granted by the mine owners.

The third dredging company, thoroughly satisfied with the ground sought to secure a lease on a minimum royalty basis thereby holding the property until such time as their present dredging job was completed. As this might entail several years of waiting, the lease was refused. The following is very pertinent information: "Directly following this a C. F. Robb of Princeton, Indiana and the Hartshorn family of Danville, Illinois leased the ground from the owner T. A. Cowan. They set up a small pilot washing plant, did some testing preparatory to operation, but Mr. Hartshorn died before they had the property into operation. Since he was the spark-plug of the whole deal, it fell apart when he died. T. A. Cowan then agreed to give a \$40,000.00 mortgage for the pipelines, tanks, trucks, pumps, etc. that these people had assembled. He (T. A. Cowan) tried to operate, but he was trucking gravel to a stationary plant and never had a chance to make anything. When Mr. Harmon and myself came into the picture and set up the corporation (Dutch Flat Mines, Inc.), we agreed to give a percentage of the stock sales to these people. However, we never sold enough stock to matter. I have called Mr. Robb on the telephone and he agreed to take 20% of our royalty until \$40,000.00 was paid back."

The foregoing information was furnished me by Mr. Merwin G. White, Secretary-Treasurer of the Dutch Flat Mines, Inc. It might also be well to mention at this time that Mr. White is the chief Chemist and Assistant Superintendent of Kennicott Mining Company.



Since the Dutch Flat Mines, Inc. is the certified owners of the entire Dutch Flat Area and has, of late, been revitalized by the addition of experienced and professional mining men, whose present duties are foreign to placer operations, it was recommended by them and agreed upon by the corporation to lease the ground to a reputable and qualified operator. So, through professional as well as personal contacts between the writer and the Salt Lake City group the Dutch Flat Property was offered, unsolicited, to Mr. Don. B. Sebastian and his associates. It might be well to add, at this time, that in spite of the several attempts to mine this ground there never has been any intelligent program adopted, or sufficient finances allocated, or a true knowledge of what to do, or, how to do it, or proper methods employed to give a factual picture of its true merits. The old aphorism is most certainly applicable to the occasion 'that good mines are never FOUND but, rather, are MADE'.

In my opinion Dutch Flat placers constitutes a vast area of highly commercial minerals consisting of gold, cinnabar and schoelite with enrichments occurring from time to time in favorable concentrating spots.

### EQUIPMENT

The following equipment is now on the ground and at the operator's disposal:

1. A water well. - *caved*
2. Two pumps ... one a lifter the other a booster. - *?*
3. Two water tanks (redwood) capable of 35,000 gallons storage. - *REPAIR - ?*
4. A pilot washing plant with trommell screen.
5. Sluices and jigs.
6. Tool House at Mill site. - *Badly weathered*
7. Dormitory to house 10 men. - *? REPAIR*
8. Cook house. - *O.K.*
9. Blacksmith Shop with forge, anvil and tools. -
10. A chilian type mill. *?*
11. Two tugger hoists (gas driven) - *MAYBE*
12. One mine compressor. - *IR 200 REPAIR*
13. Two banks of retorts. - *N.G.*
14. 3 miles of 3" pipe line from pump to tanks. *Rusted*
15. All buildings wired for electricity. - *?*
16. Two trucks that might be salvaged - *WRECKED - Robbed*  
(in need of repair).
17. Roads in place to and on the property.

## GEOLOGY

After considerable study of the district in general and this property in particular I am of the opinion that the mineralized values in the alluvial deposits are the direct result of three specific occurrences.

1. By the vast floods and upheavals attendant with the latter part of the Tertiary period during which the Humboldt river could have broken through and become an important factor in conveying and depositing the vast assortment of values and materials now so pronouncedly exposed in the breccia of the east wall of Cinnabar Gulch.
2. The result of glaciation as exemplified in the importation of rock masses and gravels foreign to the district.
3. By severe weathering processes through many epochs of time resulting in the laying down or depositing of the mineralized wealth in the gravels with the gold and cinnabar contents being further augmented by the constant erosion taking place in the lode deposits that abut the gravels to the east. While scheelite is disseminated regularly and in more than commercial quantities throughout the entire gravel deposits a complete absence of opelite and garnet either in place or as float would, in my opinion, substantiate the theory that this particular mineral is foreign to the immediate vicinity. Sample pieces of "scheelite float" extracted from the breccia in Cinnabar Gulch tallied in texture, type and character to ores now being mined and processed in close proximity to the property, or, as far away as some forty to fifty miles distance.

These scheelite rock specimens contained scheelite crystals in every detail and character to those found in the placer gravels.

Since, then, neither <sup>epidote</sup> opelite nor garnet has been found on the property it is quite obvious and patent that its presence does not spring from any contact deposit on the property but rather is the aftermath of tidalur invasions of violent and gigantic proportions. So much for the scheelite.

Samples of the gold and cinnabar were carefully studied. They were found to be of two types. The one course, angular and rough revealing they had not traveled very far. The other medium fine to fine and being smooth and water-rounded.

This disclosed they had traveled considerable distance and were, without doubt, part and parcel of the conglomerate sedimentation that were laid down in the early ages and left for future generations to discover and develop.

In my opinion this particular ground is one of the most vital and important concentrating centers I have had the pleasure of examining. And, as a consequence thereto, is quite capable of producing materials, both in quantity and quality, far in excess of the heads that had been planned, tested and contemplated.

The country rock of the entire area is Andesite, which is an eruptive rock and similar in many respects to trachyte.

The vast yardage of materials to be worked consists of compacted detritus (alluvial materials that have worn off through erosion from solid bodies). The entire alluvium consists of graduated pieces of quartz, free gold, basalt, magnetite, crystals of cinnabar, crystals of scheelite and a vast assortment of rock particles peculiar unto the remotest eras of time. Through heat, pressure and drying out processes they have compacted together in what might appear to be conglomerate masses. The breccia (rock of angular fragments cemented together) forming the east wall of Cinnabar Gulch produces a vivid display of these conglomerates. This breccia produces a working face of some thirty-five to forty-feet in height. It was from gravel within a few feet west of this wall that Dutch Fred took out the \$225,000.00 in gold. I am told by Mr. Cowan that the many displays of rock formations on the property are of such fundamental and informative propensities that the School of Mines from Nevada University bring their classes in mineralogy there for exploratory excursions.

The entire conglomerate when opened up contains seams of calcite in which the scheelite crystals are found. All the scheelite crystals are, when cleansed and screened, of a brownish hue.

In no instance whatsoever did the material gum or ball up in the process of washing as many cemented gravels will do. As soon as water was applied to it it would disintegrate. This, then, eliminates any conjectures or possibilities of impedimentation in an operational program.

## FINDINGS

It would require twelve months at least to properly inspect, sample and block out ground on a property of this magnitude. However, as I have said before, we were greatly aided and abetted in our task since previous reputable organizations had sunk test holes to bed rock and had exposed various breccia by open cuts and trenching. This greatly simplified our work and enabled us to check carefully and intelligently on their logs.

My examination of the property must not be misconstrued or misinterpreted. My mission consisted entirely of studying the ground closely from the standpoint of ascertaining, in my judgment, its most economical operational advantages. To check carefully the various datum that had been presented such as maps, assay sheets, boundaries, extent of ground, water conditions, equipment, reports, sampling logs, etc, etc and to ascertain their authenticity and accuracy. Checking is as follows:

MAPS: I found the maps in perfect order as represented having been compiled from the survey by F. R. Leary as of October 15th, 1940 and circulated "in effect" as of June 20th, 1952.

ASSAY SHEETS: The assay sheets as compiled by Merwin G. White, an outstanding metallurgist and chemist, pertained only to the lodes. These assays ranged from a \$9.80 per ton in gold to \$441.70 per ton. This, in part, could give some idea where the erosive gold is coming from. Two samples of lode cinnabar cut by Nicholas B. Crawford, Geological-Metallurgical Consulting Engineer of Tooele, Utah were as follows, quoting his report:

"One sample cut across 29 feet yielded .42 per cent mercury equivalent to 8.4 pounds per ton (\$22.26 per ton at present prices as of January 1952.) Another sample cut across a 29 foot face yielded .08 per cent mercury". In checking these same spots but on the placer structure we got values of Mercury .04 ... 0.08 ... 0.32 ... The material sampled was in the form of granular particles. This check would more than substantiate Mr. Crawford's assays ...

## BOUNDARIES

The boundaries were all clearly defined by proper markings. There were no fraction claims or other intrusions from outside sources to cloud the rights to divisional lines from the north to the south and from the east to the west. There were no legal attachments or other documents to cloud the title on file in the Court House at the County Seat in Winnemucca.

### EXTENT OF GROUND

According to information furnished by Mr. T. A. COWAN, one of the original owners and now President of Dutch Flat Mines, Inc., the placer deposits comprise a veritable domain lying between the booster pumping station to the west and the Hot Springs Range to the east.

I have divided the entire property into 3 sections or divisions. First: The upper section in close proximity to and abutting and overlapping the lode claims, including Idaho Gulch, Cinnabar Gulch and Salduras Canyon. Second: The middle section taking in the area west of the gulches and extending midway between the camp site and the washing plant. Third: All the ground comprising the sink or flat country.

I would approximate there are upwards of 18 to 20,000,000 cubic yards of material in the upper section. This section has a mean average depth of 40' to bedrock except in Cinnabar Gulch which shallows off somewhat.

I would approximate about 25,000,000 cubic yards of material in the middle section. The mean average depth in this area is 45' to bedrock.

In the sink, or flat area, where the average depth is 100' to bedrock, I would estimate some 50 to 60,000,000 cubic yards of material.

My overall estimation of dredgable ground, including all areas, would be between 85,000,000 cubic yards and 105,000,000 cubic yards.

In making this estimate of the total yardage underlying the property I have included ALL AREAS because I anticipate the same quality of values will continue both north and south of the prescribed "fringe" areas. Test holes within close proximity to the fringe lines convey no "petering" out of values.

### WATER

I have already described the water conditions. Again I repeat that additional waters must be developed to take care of full scale operation.

### EQUIPMENT

An inventory list has already been inserted in this report. I might, however, add at this time that the equipment is in need of repair....

REPORTS: FINDINGS - METHODS

Any mining property is evaluated on the basis of the ratio of its assets against its liabilities. The assets in this case constitutes the amount of workable ground and its adaptability to an economical operation together with the possibilities of developing additional reserve bodies of equally commercial importance. The liabilities would include poor working conditions, inaccessibility, lack of water, insufficient material to warrant setting up an operation and intrusions of elements that would hamper recovery.

Inspection of the ground at Dutch Flats reveals a tremendous deposit in size and quantity, already described. In the testing program carried on by three predecessors (very thorough and capable organization) and through very careful sampling, there is a block of ground in size, bulk and valuation that should insure and assure a steady operation of 5000 cubic yards per day over a period of some 10 years. This block of ground includes Cinnabar Gulch, Idaho Gulch, Salduras Canyon and the southern portion of Dutch Flat Placer No. 2. The area included in this block constitutes some one eighth (1/8) of the entire deposit and is situated in what has been termed and referred to as the alluvial fan.

According to datum and maps submitted additional ground in this same belt is of like valuation which could mean that another 10 years of blocking out could readily be accomplished.

My opinion is, that, irrespective of the valuations already established in this belt there is a strong likelihood of uncovering even greater values beyond the confines of this "fan" when pre-operation sampling and charting is started.

In all respects the mining assets at Dutch Flats completely overshadows the liabilities. The ground is accessible, there is water with additional supplies to be developed as, and when, needed at a nominal cost, there is sufficient material to warrant a major operation of many years duration; there are no severe handicaps to overcome such as material matting and balling up in the trommells or garnet that makes digging expensive and laborious or huge boulders that necessitate bulldozing.

The metallurgy produces a simplified flow-sheet that is both effective and economical. The entire deposit is loosely compacted and will yield to bulldozers, dragline buckets, carry-all and shovel procedure.

There is sufficient slope to enable drainage of water from any given operational point to a common reservoir from which the water could be returned

(by pumping) to the supply tanks thus conserving on the well water and reducing the distance of actual pumping by some two miles. This is known as the return pumping system.

In the digging program a system comparable to the "cut and fill" method employed in underground operation should be adopted. This would eliminate the possibility of dumping worthless tailings on workable ground.

All washing units accompanying the "diggers" should be mobile. The clean-up mill and recovery plant should be erected at a permanent, centralized spot. Every effort should be made to avail of the movement of pulp, slimes, waste and any and all other materials by gravity.

Since the ground contains such enrichments as are disclosed in testing and sampling especially within a radius of some 6 to 8 feet above bedrock I would highly recommend that the digging operation be dry rather than flooding the area for either Boat or Doodlebug, or any other form of "wet" operation.

However, in the instance of working the flat a different operational program should be adopted. Because of the great depth of material at that point and a more or less uniformity of finer values this ground should be flooded and a bucket line dredge installed. In this instance the theme of operation would be "quantity" because of the lower valuation of the gravels whereas, in the gravels to the east where values would be higher and enriched areas quite possible the theme would be quality. Thus, a smaller (dry) operation on the slopes should compensate just as handsomely as a larger "boat" operation on the flats.

At this point I would like to insert a few paragraphs from the report of Nicholas B. Crawford, a very distinguished Geological-Metallurgical Consulting Engineer. I quote: "Examination of bulk sampling of the placer deposit by persons interested in operating yielded some interesting information. Samples, taken in my presence, of several faces of gravel near the junction of El Paso and Idaho Gulches were cut down by screening. No attempt was made to determine values of recovery of gold or mercury, although the presence of both was noted. All efforts were made on determining the recoverable tungsten. Results of these tests yielded the following data: That more than 50% of the bulk of the gravel was removed by screening to 3/4 inch and that no appreciable values remained in the over-size: that none of the gold in the samples passed through a -20 mesh screen, but that part of the scheelite and the bulk of the visible cinnabar did pass this mesh; that the scheelite that passed through the -20 mesh was readily recovered on the concentrating tables; that the recoverable scheelite amounted to one pound of scheelite per ton, equivalent to one pound of tungsten per cubic yard. The recovered scheelite was free of deleterious elements and was readily cleaned to premium concentration."

He further adds: "Two samples taken at the contact of the andesite and the intrusive grano-diorite revealed and yielded .58 per cent W03 and 1.02 per cent W03, or 11.6 pounds and 21 pounds respectively of tungsten per ton."

Such samples would give a valuation of \$34.80 and \$63.00 per ton. According to this it is quite patent why I allude and refer to enrichments and why I strive to keep them in the background rather than include them in my mill-head specifications.

A run-down of the gold values as recorded in the log appeared as follows:

Cinnabar Gulch:	98¢; 96¢; 93¢; 89¢; 68¢; 91¢;	per cu. yd.
" Open:	95¢; 90¢; 89¢; 1.00; 69¢; \$1.01	" " "
Idaho Gulch:	86¢; 94¢; 60¢; 89¢; 90¢; 94¢	" " "
Dutch Flat No. 2:	92¢; 90¢; 95¢	" " "
At Jun. canyons:	92¢; 90¢; 89¢; 90¢; \$2.35	" " "

The owners assured me that only commercial grade assays were logged, high-grade assays were thrown out and discarded.

To gain a more comprehensive check of ALL values we triangulated the blocked area using the mill site as our western focal point, Cinnabar Gulch and El Paso Gulch as our eastern and northern base and the regions of Idaho Gulch as our southern base. We took samples at the mill site and found there Mercury .02 and tungsten 3/8 of 1 per cent. No gold assays were taken at spots where the assay values were already known.

500 feet from this spot we checked for cinnabar and tungsten. The values ran 1 pound to the cu. yd (which checked previous assays made by Merwin White, chief Chemist for Kennecott Copper) in scheelite and 60¢ per cu. yd in cinnabar. In Cinnabar Gulch the values varied as the farther north and east we traveled toward El Paso Peak the cinnabar values increased while the scheelite values sluffed off slightly. In endeavoring to take readings at this point we were forced to give up on the gold and cinnabar since at no time could we get what we considered a commercial sample due to the fact that each of our samples had been sweetened by heavy nugget gold and chunks of cinnabar the size of walnuts.

The scheelite at this point did register 1/2 pound in one showing and 1/8 of a pound in two others. We then followed our southern course along the breccia of the east wall of Cinnabar Gulch. At this point the scheelite came in strong again and the cinnabar sluffed off with readings of 1 pound of scheelite to the ton again and cinnabar measuring .04 per cu. yd. The southern most samples were taken in lower Idaho Gulch just below the point where Salduras Canyon and Idaho Gulch intersect. Here, as before, the tests tallied with those taken by the engineering staff of the owners, to wit: Gold better than 77¢ per cu. yd .. cinnabar .10 and scheelite 12 ozs.



I might add, at this point, that all our check samples were assayed by Abbott A. Hanks, Inc. and a complete summarization furnished by their Chief Chemist Mr. Martin P. Quist.

I wish also to state at no time were samples taken from bedrock. Rather, all samples were cut from points 11 to 18 feet above bedrock. In addition to our sampling many of the qualifying samples that were retained were made by the engineering staffs of reputable dredging operators as well as those furnished by Mr. Merwin G. White, Chief Chemist for Kennecott Copper Co.

It is indeed a perplexing problem placing an equitable evaluation on ground such as this where so many enrichments occur with such persistency and in so many unforeseen spots.

The following sample sheet compiled from cross-sectional sampling will, in part, illustrate my hesitancy in fixing a definite evaluation on the productivity of this unquestionably valuable deposit:

SAMPLE No. 1

Sample xx03  
West end of slope  
From 100 pounds material  
concentrated down:

<u>Gold per ton</u> 2000 lbs		Mercury @ \$ 3.30 lb.		Tungstic Oxide \$ 3.00 lb.	
Troy Ounces.	values @ \$ 35.00 oz.	Conc. from 100		Conc. 100 lbs.	
****	-----	-----		-----	
23.83	\$834.05	8.48%	\$559.68	38.12%	\$2287.20

SAMPLE No. 2

Screenings from 100 pounds (not concentrated). Sample x166

1.09      \$38.15      0.58%      \$38.28      2.92%      \$174.60

SAMPLE No. 3

West End of Gulch  
East End of Prop.

Gold: 1.47 Ozs--\$ 51.45    Mercury:0.12---\$ 7.92    Tungsten:0.23---\$ 13.80

SAMPLE No. 4

Sample No. 99 our survey... N. end road to property--screened:

Gold: .51 ozs--\$ 17.85 Mercury:0.11% \$ 7.26 Tungsten:0.66%--\$ 39.60

SAMPLE No. 5

Sample No. 100 our survey... N. side road above xx03

Gold: .045 --- \$ 1.57 Mercury:0.01% \$.66 Tungsten:0.05 \$ 3.00

SAMPLE No. 6

Sample 101 our survey... South side of road... screenings:

Gold: 1.44 oz---\$ 50.40 Mercury:0.04---\$ 2.64 Tungsten:0.32 \$ 19.20

SAMPLE No. 7

Sample 102 our survey... South side of road... 100' E. of 101

Gold: 3.10 ozs---\$ 113.50 Mercury:0.06%---\$ 3.96 Tungsten:0.60---\$ 36.00

SAMPLE No. 8

(Field Tests)

Sampled only for mercury and Tungsten... gold already established.

Mercury:0.02% --- \$ 1.32 Tungsten:.24% --- \$ 14.40

SAMPLE NO. 9

Field Test: Mercury:0.08%---\$ 5.28 Tungsten:.15% --- \$ 9.00

SAMPLE NO. 10

Field Test: Mercury:0.10%---\$ 6.60 Tungsten:.12%---\$ 7.20

SAMPLE NO. 11

Field Test: Mercury:0.18%---\$ 11.88 Tungsten:.40%---\$ 24.00

SAMPLE No. 12

Field Test: Mercury: 0.24% --- \$ 15.84      Tungsten: .48% --- \$ 28.00

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These assays represent only a few of the many samples taken and give a general idea of how values ran. In some instances the values and contents of scheelite would far surpass the cinnabar, and vice versa, depending on the area being sampled. Gold, in each instance was measured according to the logs at our disposal. A partial list of the gold values appear on page 12 of this report.

The material obtained for these samples represent the concentrates derived from not less than 30 lbs and not more than 100 lbs of mine run. Aside from washing and screening no other purifactory methods were employed to augment the values.

It is quite patent that such extraordinary values, such as these, could not persist in every foot of the entire area so, to allow for any barren spots or any miscalculations, I would recommend that a 70% deduction be taken from the total assay values thus placing the heads at \$ 9.00 per cu. yd. This would allow for any and all discrepancies or other unforeseen exigencies that might arise.

This valuation of \$ 9.00 per cu. yd. would seem a very fair representative evaluation of all materials--good, medium or quasi-overburden.

In handling material such as is contained in the Dutch Flat Placers several important factors must be taken into consideration. First, and foremost, it must be understood that in a loosely compacted area such as this the important values would naturally migrate toward bedrock. Therefore, ground from the surface down to a depth of 8 to 10 feet would possibly carry little values and could be termed quasi-overburden. However, from the 10 foot mark on down to bedrock the values increase in amazing proportions. The increase in values being attributed to the change in character of the mineral content from "fines" to "medium" to "coarse" and to even nugget magnitude. Naturally, the heavier the mineralized material the closer it will be to bedrock.

Since weathering processes are constantly occurring along the lode structures that abut the placer ground the eroded detritus is carried off by the winter storms and re-deposited in the sands and gravels thus making the surface material less barren than would otherwise be the case. It would then be quite feasible to run all materials through the washing plant rather than treat the top layers as so much valueless overburden.

METHODS OF OPERATION

This report deals with the ground that extends eastward from what is known as the "fan" or Valley Floor (also part of the property to be worked) to the Hot Springs Range a distance of some one and a half miles in length and

3 miles in width with numerous draws and cuts and canyons feeding into the main artery. I would estimate there are upwards of 80,000,000 cu. yds. of material in this portion of the deposit basing my calculations on a mean average depth of 30 feet to bedrock. Because of the natural advantages of this ground a hydraulic operation would be both practical and economic. The gentle slope of the terrain from foothills to valley floor makes possible the washing down of ALL materials--passing the bulk through the screening and washing plant--and depositing, by gravity, all the tailings in a properly selected and constructed impoundment area along the edge of the "fan". These tailings confined to areas along the fringe of the fan would not affect the vast alluvial deposit that could be placed in operation following the hydraulical program, or, in conjunction with it, if desired.

The question of developing water in sufficient quantities to warrant hydraulicking became of paramount importance. From information furnished by Mr. Holtz and Mr. Willden, engineers for the U. S. Geological Survey, who were visiting the property sampling certain granite formations for geological data, we were assured that the possibility of developing large volumes of water was both plausible and possible. A digest of Bulletin No. 10 on Water Resources in Paradise Valley also furnished the following information: that the underflow of water out of Paradise Valley closely approximated 3,200 acre feet annually and that 23,000 acre feet of ground water is discharged by evaporation and transpiration. That Martin Creek produces a large underflow within close proximity to the operational point.

It is an established fact that aside from the underflow of Martin Creek the Little Humboldt and seventeen other creeks and streams contribute to the water supply in the basin. Further, and more conclusive evidence of the water volume can be derived from the statistics of the present well now in use at the mine. This well is down only 22 feet and produces at the rate of 500 gallons per minute through a 5 inch pipe. Constant pumping on a 24 hr. basis has failed to lower the water level at any time, even during the dry season.

Since the underflow of Martin Creek passes within close proximity to the scene of operation it would mean a well bored at any advantageous spot close to the slope would bring the water supply 1-1/2 miles closer to the mine thus effecting a saving of many thousands of dollars in putting in a new pipeline.

With the water problem practically solved and the hydraulic operation assured a few salient facts concerning this method of operation should be presented for consideration.

1. Hydraulicking is one of the most efficient and economic methods of operation.
2. It requires only a small crew to man it.

3. It permits of washing down material in narrow cuts and draws that could not be handled with shovel or dragline.
4. This system working in conjunction with either the Allis-Chalmers or Hewitt-Robins Tri-Plex pulsating screens should give a high ratio of concentrates.
5. The adoption of the Chiksan Intelli-Giant Monitor would expedite and reduce the cost of operation since it is designed with detachable nozzles to give a maximum breakage under any pressure from 30 to 300 pounds.
6. The giant monitor works off of 16 inch pipe reduced to 8 inch, or, 12 inch pipe reduced to 6 inch.
7. The bulk of the material could be handled by the 4-1/2 inch nozzle with a 50 pound pressure. Where the material was tightly compacted a suitable nozzle could be easily and readily installed, down to 1-1/2 inches if necessary, that would give a 300 pound pressure that would be more than sufficient to cut loose even the tightest material.
8. The consumption of water with this monitor is 4000 gallons per minute. And the breakage derived from 4000 to 6000 cu. yds. per day.

The pulsating screens erected in the main channel of the hydraulicking flow would be triple decked and serve a threefold purpose.

1. The main grizzly would serve as a scalper thus removing all heavy debris. This material would pass directly to the dump.
2. The second deck with a 1" matting would allow the heavier material to pass into sluice-boxes where any valuable oversized material could be recovered.
3. The third deck would be equipped with a -1/4 inch screen and the material from this screening would be dropped into flumes and carried by gravity to the mill for recovery treatment.

The flow-sheet then would be as follows:

1. Giant Monitor

## 2. Tri-Plex Screening

3. Furnacing all materials where the mercury would be extracted from the cinnabar.

4. Amalgamating for gold.

Flow sheet.

5. Concentration tables for the  
Tungsten...

6. Magnetic Separator to extract  
any mag. iron.

This process should give a premium quality tungsten with all other recoveries properly and adequately made in their respective sequences.

In an operation such as this it must be remembered that production will be controlled at all times by the amount of material the "furnace" can handle. And, since ALL material in the concentrates will pass directly through the furnaces the entire daily output will be governed entirely by this phase of the operation.

The most highly recommended furnaces have no "fixed" capacity loads. They have an output ratio of 30 to 50 tons -- or 40 to 60 tons per day depending entirely upon the character of the ore to be run.

The cinnabar ore that will be contained in the concentrates will be of the minus 1/4 inch variety therefore, needing no crushing or milling. This means a tremendous saving. It also means a maximum load can always be furnaced and because of its volatility this particular cinnabar ore can be handled speedily. The usual required furnace time for cinnabar is from 40 to 60 minutes per ton.

I recommend the Gould Furnace because it is the best suited to this particular ore... is portable and can be moved as, and when required. As Mr. Mike Gould stated while on the property his furnace could make a 98% recovery in mercury from this ore as it was ideal material in every respect.

At this point I would like to recommend the use of propane in preference to oil in the furnaces. It not only gives a more uniform heat but eliminates the possibility of soot that oil-fired burners are prone to emit thus contaminating the product. The distributors of propane in Winnemucca have agreed to place a 5000 gallon tank on the mine premises, at their expense, and to service same either at regular intervals or on short notice at the rate of 13¢ per gallon.

A schedule of operation pursuant to this report would consist of the following: One shift (8 hrs.) hydraulicking; Three shifts (8 hrs.) milling. In other words it would take 24 hours of milling to treat the bulk washed down in 8 hours of hydraulicking. Therefore, if at any time production is wished to be stepped up it can be accomplished only by adding additional units that would double or triple the capacity of the furnace and mill. And, also by adding two more shifts of 8 hours each to the hydraulicking crew without further expenditure of moneys for additional mining equipment.

The "step-up" or "unit" method is something that I highly recommend as I have learned from many years experience that it is not expedient to set-up a full scale operation on the strength of field and laboratory tests. For, while these findings may give an accurate insight into the characteristics and peculiarities of the material in question they cannot establish with any degree of certainty the main issue which is the ratio of concentration from the bulk material. Only actual operation can establish this important detail. Therefore, having only an estimated idea of what can be expected in this regard it behooves setting up for a smaller milling program on the unit basis. Then, when all the true facts have been fully established by actual operation the milling program can be increased to conform to and become commensurate with the daily mining out-put.

Such a procedure eliminates the possibility of over-spending in the "setting-up program" and enables the mining operation to actually pay for its own improvements and enlargements rather than through the channels of procuring additional investments.

#### EQUIPMENT FOR OPERATION

Gould Revolving Furnace (40 to 60 Ton capacity) . . . . .	\$ 40,000.00
Chiksan Intelli-Giant Monitor . . . . .	2,485.00
Swivel joint for same . . . . .	350.00
2 - Tri-Plex screens @ \$ 4000. Each... rated 800 tons per unit. . . . .	8,000.00
Flumes . . . . .	750.00
Mill Building . . . . .	10,000.00
Amalgamation barrel . . . . .	500.00
Concentration tables (4) Wilfley (used) . . . . .	3,000.00
Water development . . . . .	10,000.00
Pipeline for hydraulicking . . . . .	20,000.00
Ore storage bins at mill. . . . .	500.00
Assay equipment . . . . .	2,000.00
Magnetic Separator . . . . .	3,000.00
Tools . . . . .	750.00
Welding Equip. . . . .	500.00
Freight Charges . . . . .	5,000.00
2-Caterpillar Diesel Generators 50 KW's . . . . .	8,000.00
Wiring . . . . .	500.00
7-1/2 h. p. electric motor . . . . .	350.00
5 h. p. electric motor . . . . .	300.00
10 h. p. electric motor . . . . .	500.00
Storage tanks (used) . . . . .	7,500.00
Small trucks and car (transportation) . . . . .	5,000.00
Safety Appliances . . . . .	350.00

Total cost of equipment . . . . . \$ 124,235.00



A Break down of Personnel

Figured on a daily basis:

San Francisco Office . . . . .	\$ 85.00
Engineering Staff . . . . .	75.00
Superintendent . . . . .	30.00
	<u>\$190.00</u>

Total . . . . . \$190.00

Mining:

Nozzleman . . . . .	\$ 25.00
Flume Tender . . . . .	17.50
Roustabout . . . . .	15.00
	<u>\$ 57.50</u>

Total . . . . . 57.50

Master mechanic - Electrician . . . . . 25.00

Mill:

3 Furnace operators @ \$25.00 . . . . .	\$ 75.00
3 Millmen @ \$20.00 each . . . . .	60.00
2 Helpers @ \$17.50 each . . . . .	35.00
	<u>\$170.00</u>

Total . . . . . 170.00

Plant Security: . . . . . 25.00

Other Deductions:

Gas and Oil . . . . .	50.00
Propane . . . . .	30.00
Employee overtime allowances . . . . .	50.00
Insurance coverage . . . . .	40.00
Miscellaneous Expenditures . . . . .	<u>12.50</u>

Making a Grand Total per day . . . . . \$650.00

CAPITAL REQUIREMENTS

Cost of equipping mine and mill . . . . .	\$124,235.00
Operational Costs for Year's Program . . . . .	234,000.00
Reserve Fund . . . . .	<u>100,000.00</u>

Total . . . . . \$458,235.00

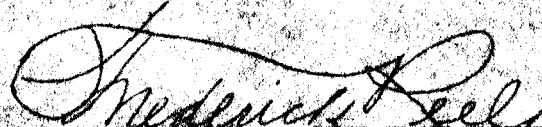


An operation along the lines as prescribed in this report should show the following margin of profit all based on an evaluation of \$9.00 continued, over-all heads.

1000 cu. yds. per day @ \$9.00 per cu. yd. . . . .	\$9,000.00
Entire cost of operation & Management . . . .	\$ 650.00
Royalties of 10% of gross . . . . .	900.00
	<u>\$1550.00</u>
Total cost deductions per day . . . . .	<u>\$1,550.00</u>
Net per day . . . . .	\$7,450.00

On the basis of only 1000 cu. yds. per day the mine  
shows a potential net profit of . . . . . \$223,500.00 per month.  
or \$2,682,000.00 per year.

If the values increase during the course of operation, then, naturally, the profits would be larger. Or, if the operation is stepped up to reach a maximum of 5,000 cu. yds. per day the net returns would be commensurate with such an operation. One fact, however, is quite patent that, no matter how much of this material is hydraulicked and treated each year there will be an abundant supply to warrant continued peak operation for 10 to 20 years.

  
Frederick Reel

October 1st, 1954