Curry

Crystal Creek
E. E. Nichols
file

COPY

CRYSTAL CREEK
OREGON MINING PROPERTY

PROPERTY: Consists of all mineral and water rights and the rights to mine without obstruction, covering 824 acres of Patented land in Section 1,2,11, Twp. 32 S; R 15 W; W.M.

LOCATION: Located 7 miles East of Cape Blanco in Curry County, Oregon, being 3 miles east of Roosevelt Highway at Sixes P. O., Oregon. Lying between Sixes River on South and Crystal Creek to the North. There is an old wagon roadway in from Sixes leading to the property, 1½ miles of which are now overgrown with high brush.

ELEVATIONS: These are close approximations and may be checked with U.S. Geological Survey, Oregon, Port Orford Quadrangle.

East Side deposit	805 ft.
West Side deposit	700 ft.
Dam site in NE ¼ of NE ¼ Sec. 1, Twp. 32 S.; R. 15 W; W.M.	1190 ft.
Crystal Creek at property	560 ft.
Sixes River 1 mile South	100 ft.
Roosevelt Highway opposite (West side of property)	75 ft.

DEPOSIT: The material to be worked consists of fine Quartz Serpentine sand, light yellow and gray in color on top of a hog back ridge commencing in west central portion of Section 1 and extending 3/4 mile southwesterly through Section 2, Twp. 32 S; R. 15 W; W.M. with irregular width of an average 1/4 plus mile containing 200 acres, more or less. The material is 15 to 40 ft. deep and measured to yield 5,000,000 cubic yards. 85% of broken down mass will pass a 30 mesh screen with values evenly divided in all sizes.

The material extends from bedrock to 15 inches from surface. In places it contains strata of compressed sand which yields to 50 lb. pressure and are pulverized by means of hydraulic monitor. The ratios of concentration varies throughout the deposit.

There are no boulders, scarcely any gravel. No cemented gravel.

The bedrock is serpentine and borings show an even favorable slope. The surface is covered with high brush and some trees.

CHROME: A breakdown made by J. H. Crockett Co./gave 6% or 120 lbs of chromics per ton of material in place. A composite sample of material from 10 bored holes assayed by Abbott A. Hanks, Inc., San Francisco, Calif., showed 34.8 lbs. chrome oxide per yard. Lab. #38721.

No field test has been made for chrome. U.S.Government purchases concentrates at Grants Pass, Oregon.

PRECIOUS METALS

VALUES: Two hundred tests mostly from bored hole core samples, by fire and K.C.N. and also field tests and hydraulic mining on "pilot plant" scale indicate average gold values of over 65¢ per cubic yard, well distributed.

Platinum and Iridium are present, but are spotted. Test runs of several ton justify a safe estimate of 35¢ per cu. yard at present price. Total $1.00 per yard exclusive of chrome.

Most of the values, both gold and platinum group, are free and they are fine; they are not encased, do not float and do not follow the chrome or mag. sand to a high concentration. A 7 to 1 concentrate is easy to obtain and cyanide without grinding saves over 90%. Gold, platinum group recovered on table after cyanide.

The Eastern portion of this property has somewhat higher values and deeper deposit. 50 acres were here measured to contain 2,000,000 yds with gold values 80¢ per yd. and platinum group estimated at 40¢ cu. yd.(2740 lbs. to yd.).

SAMPLING: All of the mining ground has been bored and tested by field tests for precious metals.

In boring holes, the top 15 inches were cased off with short lengths of 6 in. well casing and all the core spread on a sampler's canvas 15' x 15', quartered down and sent to laboratory. The common quantitative analysis, K.C.N. solution, is the most accurate to use. Fire assays are often incorrect on account of the nature of material unless made by those accustomed to fine gold assaying. When used, 4 assay tons should be charged to each crucible and average taken. Wood & Co., Denver, Colorado, are experienced sand assayers, also Morse Laboratories, Sacramento, Calif.

It is useless to try to make concentration tests and savings with the conventional "long tom"or "rocker" and expect to get colors, or to pan expecting to see colors. Amalgamation of the original material is exceptionally poor. Most of the colors are coated and dirty and not perceptible to the eye until scrubbed, melted, or treated with a caustic leach.

WATER SUPPLY: Water rights on South Fork of Crystal Creek.
Permit #9994 from State Engineer, Salem, Oregon

Water measured April, 1936 by hydraulic engineer (F.Brown, E.M.)

Dam site in NE ¼ of NE ¼
Sec. 1, Twp. 32 S; R. 15 W; W.M.

Elevation	1190 ft.
Floor "Big Pit" elevation	765 ft.
Depth of water at dam site	14 in.
Creek width	28 ft.
Velocity	2.21 ft. sec.
Cubic ft. sec.	15.08
Volume of water	6766 G.P.M.

6600 ft of pipe required.

Water discharge and pressure will depend on size of monitor and pipe used. A standard installation using 4000 G.P.M. will breakdown and wash 2000 yards in 24 hours. The volume of water will vary with the seasons, more in winter and less in summer and naturally from year to year. Usually seasons will permit hydraulic mining throughout most of the year with no shutdown. Abundance of water for other methods. A bulldozer could be used to augment tonnage if any shortage in summer. Average annual precipitation 67 in.; May 3.62 in., June, July and August together 2.87 in., Sept. 3.05 in.; other months 5 in. or over. Rainfall data from Government files, Port Orford, Oregon, 1929.

RECOVERY: The cheapest breakdown would be by monitor. A plant with capacity of 1000 yards per day is contemplated increasing to 2000 yds. later. The cost of installation is estimated at $35,000.00 to $40,000.00, main expense being pipe line 1½ miles; cost of operating 30¢ per yd. for precious metals. Five men to a shift are all required for 1000 yd. plant.

For testing and pilot plant operation we had the services of P. Langdell, E.M., a practical mining man from Colorado experienced with similar material.

FLOW SHEET: The final flow sheet was proved up by running many thousands of yards; it is, as follows:

(1) Breakdown with monitor. (Other methods just as good but cost more)
(2) From pit to large bunker on side hill by gravity.
(3) From bin to semi-automatic concentrators by gravity, making concentrate not over 10 to 1. (We ran mostly at 7 to 1.) (See note A below.)

(4) Concentrates from tables to cyanide tanks for gold, by gravity. (There are other methods.)
(5) Platinum and iridium picked up by running discharge tailings from cyanide tanks over table. (Using gravity and running over burlap box 10' x 25' as good as any and better than most for saving the platinum group.)

This method of recovery will save most of values. Closer savings can be made at expense of time and capacity which crowd the point of diminishing net returns.

NOTE "A" The concentrating boxes 10' x 25' are semi-automatic. Each unit has a capacity (for concentrates seven to one) of 200 tons in 24 hour day; two men can operate a battery of 5 to 7. Six units would be required for 1000 yds. They can be made on ground at cost of approx. $225., per unit. Specifications and desk model available.

General: A number of similar properties have been worked out in this vicinity at the old price of gold, $20.67 oz. They used mostly burlap and riffles, saving up to 50%. Among them were Eagle Mine north of Bandon and Logan Mine, Josephine County, reported to have produced some millions in gold and platinum. No known recent operations.

Small town hotels, restaurants, auto camps and rooming houses are at Port Orford, 6 miles south of Sixes P.O. on good highway so that living accommodations on the property are not required.

An electric power line is along the Highway, 3 miles distant.

The bank mass weighs 2740 lbs. per yd., a 7 to 1 concentrate 3850 lbs. per yd.

BUILDINGS: There are none. Brush fires destroyed those formerly built.

EQUIPMENT: No equipment remains on the property.

DUMP ROOM: At mouth of pits toward Crystal Creek, or toward Sixes River or into Ravine at N.W. on property; falls of 150 ft. upwards and tailings would be on property.

CLIMATE: Every day all year round for mining. Delightful except in Winter when rainy. Seldom any frost.

There is no limiting factor. The brush which is high in places makes it a little inconvenient for sampling, that is all. 10 acres can be cleared in a week or less with a bulldozer and this is enough to keep the plant running for a year or more. This property should be worked out in from five to ten years.

Gross indicated mineral content of deposit -

Gold, platinum, iridium	4½ Tons
Chrome	75,000 "

Oregon State Department of Geology & Mineral Industries' examination dated Jan. 19, 1942 includes maps and is substantially in accord with the above, although Chrome is not covered and platinum is valued at the price then prevailing, $40. to $43. per oz. (Copy on file.)

456 Post St.
San Francisco, Calif.

(Signed) J. N. Watt

Dec. 20, 1952

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon
January 15, 1942

CRYSTAL CREEK MARINE SANDS (placer) Sixes River area.
(Watt placer)

An old "back beach" at an elevation of 800 feet is composed of loosely consolidated sand. It contains considerable black sand but data are not available on quantity or quality. The placer has been worked for gold and platinum and good recoveries are reported. The property may be worthy of examination for the black sand material.

Owner: J. N. Watt, Bank of America, Sacramento, California.

Location: Portions of Sec. 1, 2, and N½ NE: Sec. 11, T. 32 S., R. 15 W., at an elevation of 800 feet, between Crystal Creek and Sixes River, about 3 miles east of Sixes.

Area: Approximately 800 acres as follows: NE¼ NE¼, S½ NE¼, S½ NW¼, N½ SW¼, S W¼ SW¼, all in Sec. 1. NW¼ NE¼, S½ NE¼, SE¼ NW¼, NW¼ SW¼, S½ SW¼, SE¼ all in Sec. 2. N½ NE¼ of Sec. 11. These data from sketch map by owner.

History: There are two old hydraulic pits on the property, the one at the north being the larger. In the work of 1910, a #2 giant sluiced the sand to sluice boxes and riffles; concentrates from the riffles were worked over a Wilfley table. Recoveries were reported as 25-35¢ per yard with 50 per cent recovery. There appears to be no data on production records.

Topography: The property lies on a flat topped area between Crystal Creek and Sixes River, it is quite flat. Elevation is 800 feet. Canyons are steeply incised. Rainfall is abundant, typical of coastal area and year around operation is feasible. There is ample water supply and Crystal Creek could be dammed for hydraulic water and water power.

Development: The two pits mentioned under "History". The old pipe is rusted out and buildings are beyond repair.

Geology: Bedrock is serpentine and its surface is slightly fissured and the hardness varies. The sand is light yellow, gray, and in places red, brown, and coal black; it contains streaks of pea-gravel; it is moderately indurated, enough to stand with vertical banks but not enough to hamper handling with a hydraulic giant. Most of the sand will pass a 30 mesh screen. Overburden averages 8 inches. An average analysis of the sand indicates:

Quartz	55%
Other light minerals	21%
Olivine	11%
Garnets	2%
Magnetics	5%
Chrome	6%

Extracted from report supplied by J. N. Watt.

702 Woodlark Building
Portland, Oregon

Depth of the sand is not indicated.

The gold may be coated with oxides and does not plate or amalgamate readily. Treatment with KCN is suggested.

The deposit is an old beach that has been elevated as part of Diller's peneplain.

Economics: About 2 million yards have been explored and yardage of 5 million is assumed.

Informant: J. N. Watts, 1/15/42

Report by: RCT 1/15/42

CURRY COUNTY OREGON

CRYSTAL CREEK PLACER

1. Located 7 miles East of Pacific Ocean opposite Cape Blanco, Curry County, Oregon, and 3 miles East of Roosevelt Highway at Sixes, Oregon. Dirt road to property. Between Sixes, River and Crystal Creek. (Mr. G. A. Wells, Sixes, Oregon, lives near. There is a road to property but no equipment.

2. 800 acres patented land of which approximately 200 acres are mineral bearing. Elevation 800 feet.

3. All conditions favorable for placer mining year round. Water rights on Crystal Creek, good head, plenty of dump room, no boulders, very little gravel, banks 15 to 40 feet; overburden 2 feet of sandy loam soil, approximately 5,000,000 yards pay dirt ready to mine.

4. Material: Quartz serpentine sand light yellow in color - "Marine Sand". Material has approximately 1% to 2% black magnetic sand and same amount of Chrome and titanium, depending on where sample is taken. Surface brush and timber.

5. Bedrock serpentine - borings indicate a favorable even slope.

6. One hundred assays, mostly from bored holes, indicate over 60¢ gold and 15¢ platinum per yard; nearly all values very fine. 2740 lbs. to yard. Test holes can be bored by 2 men with hand auger.

7. Method of recovering suggested: Rough concentrate and then cyanide: Laboratory tested by Techow Laboratories and Morse Laboratories, Sacramento.

8. For fire assay tests, use 4 assay ton samples.

Note: This material will not concentrate readily lower than 7 to 1 in pan. When panned down below this part of values go overboard with Ruby sand.

Part of gold is coated and does not amalgamate and the coating prevents high concentration or separation on riffles. Cyanide cuts the coating rapidly.

A 15% concentrate is easy to obtain with very little loss and cyanide without grinding recovers over 90% of gold.

The values are free and recovery is cheap and simple by this method. Cyanide consumption only 1 lb. to ton of concentrate.

There are also appreciable quantities of chrome, zirconium and titanium.

J. N. Watt, Owner
c/o Bank of America
Sacramento, California

EXCERPT FROM J. H. CROCKETT E. M. REPORT

In panning this particular material about a third of the contents remain in the pan consisting mostly of this black material, iron, rubby sands, chromic iron, ETC.

Separation analysis by G. H. BRADFORD, E. M., resulted in the following quantities per ton of material in place:-

QUARTZ SAND	1,405	Pounds
SERPENTINE SAND	450	"
GARNET STONES	100	"
MAG. IRON	20	"
CHROME IRON	25	
TOTAL	2,000	

My own finding indicate the following parts per ton of material in place:-

QUARTZ (SI) Granuals - 1,100 pounds			55%
Some fine light material probably from matrix of bed rock	420	pounds	21%
OLIVINE GRAINS - Bed Rock	230	"	11%
GARNETS (small jewels)	40	"	2%
MAG. AND SLIGHTLY MAG. FE.	90	"	5%
CHROMICS	120	"	6%
TOTAL - -	2000	"	100%

Aurum $1,440. per Ton 900 F.

Other metalics - kind and value not determined.

Microscopical examination of the material as a bulk does not bear out the schedule as shown above, but this point is not essential, it seems, as the different strata through out the deposit will have different rations of concentration and constitutionality.

Suffice to say that the material as a whole will concentrate to less than a third of the whole very rapidly as a study of the proportions will show and while the many labratory tests and sluice box tests indicate that a concentrate of 15% would be in order I am inclined to believe that, as a general course, a concentrate of about twenty-five percent will give and all-around practical result. This one-fourth savings will be easy to maintain even tho it is a little leaner in values.

The concentrate so far examined would weigh about 3800 pounds per yard.

The mining of the property does not present any problem, but rather the recoveries should have some study to determine the best practice to follow.

P
Y

MORSE LABORATORIES

September 3, 1937

Report
No. 3384

Mr. J. N. Watt
Bank of America
Sacramento, Calif.

Cyanide test - Submitted 8/23/37
Oregon property without grinding.

Head sample assayed	.87 p. Ton
Head samp. conc. to 20%	$3.50 p. Ton
Amount of ore	500 grams
Ore crushed to	as concentrated
Amount of Cyanide sol. used	2500 c.c.
Ratio of solution to ore	5 to 1
Strength of cyanide solution	2.1 lb. p.t.sol.
Strength after agitation	1.9 lb. p.t.sol.
Time of agitation	12 hrs.
Cyanide consumption	1.0 lb. p.t.ore
Lime required	1.8 lb. p.t.ore

Assays

Head assay	$3.50 p.T
Tailings after agitation	.35 p.T
Amalgamation of agitation tailings	.07 p.T
Final tailings	.28 p.T

Percentage of extraction of the concentrates - 92.0%

In addition to the above the head sample contains
Platinum - $ .51 p.T
figured at $51 per oz

Signed by

G. H. Morse

Feed, Soil,
Milk, Fertilizer
and Sanitary Water
Analysis

MORSE LABORATORIES
Industrial Analytical Chemists

Agriculture : Bacteriology : Mining

Amalgamation and
Cyanide Tests
Ore Analysis
Assaying

316 Sixteenth Street

Sacramento, California

Phone 3-6348

December 18, 1941

Mr. J. N. Watt
Bank of America
Sacramento, Calif.

Ore Analysis - submitted 11/29/41

Sample sand

Gold - - - - - - - - - - - - - - - -	$ .52 per Ton
figured at $35 per oz.	
Platinum - - - - - - - - - - - - - -	$ .97 per Ton
figured at $36 per oz.	
Zirconium (ZrO_2 - - - - - - - -	.56 %

Signed

by_____
G.H.Morse

tate Department of Geology and Mineral Industries

702 Woodlark Building
Portland 5, Oregon

Report by Randall E. Brown
Date of visit: Jan. 19, 1942

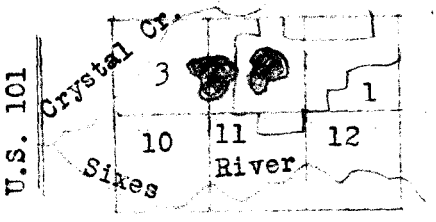
WATT BLACK SAND DEPOSIT Sixes District Curry County

Owner: J. N. Watt c/o Bank of America, Sacramento, California

Area: 800 acres patented land, 200 acres mineral bearing.

Location: Located between Crystal Creek and the Sixes River about 2.5 miles east of U.S. Highway 101 and the town of Sixes, Oregon. 40 miles south of Coquille, the nearest railhead.

Property includes parts of Secs. 1, 2, and 11, T. 32 S., R. 15 W., outlined in the following diagram. The mineral-bearing areas lie in Sec. 2, T. 32 S., R. 15 W. as outlined by Diller in the U.S.G.S. Port Orford Folio.



History: Has been tested for gold and platinum. No record of any production is known.

Topography: Located on the marine terrace at an altitude of 1000 feet. The deposit occupies the crest of the ridge between Crystal Creek and the Sixes River, and is the only part of the area that could be worked. Vegetation is heavy on the slopes of the ridge and includes considerable timber, but the mineral-bearing part of the claim is covered only by salal, blackberry bushes, and small alder thickets.

Numerous small streams rise in the area, but sufficient water for a concentrating plant could not likely be obtained above an altitude of 500 to 600 feet. Mr. Watt stated that water rights are owned.

A road 2.5 miles long connects U.S. Highway 101 with the deposit. The grade is gentle and the road rises 1000 feet in 2.5 miles. The road is usable but difficultly accessible for one mile in winter. The last mile and a half of road has not been used for years, is overgrown by brush, littered with fallen trees and partly washed out.

Development work: The only development work examined was an open cut on the north side of the ridge crest and a trench to the east of the cut, both at the eastern end of the road.

Geology: Placers - a flat placer deposit, estimated by Mr. Watt to average about 15 feet in thickness. Covers 200 acres within the claim boundaries. The deposit, where examined, consists of a uniform buff-gray sand with an occasional zone of gray silt and carbonaceous material, probably indicating a lagoon deposit.

The black sand present in the deposit is disseminated throughout the buff sand and is not concentrated in lenses, bands, or streaks. Black sand estimated to aggregate less than 10 percent of the whole.

Bedrock is serpentine and Myrtle sandstone, presumably with a favorable even slope.

Mining and metallurgy: In the recovery of gold and platinum a 7 to 1 concentrate, according to Mr. Watt, is the lowest concentration that can be obtained by gravity. Further concentration was suggested to include cyanidation, which cuts the oxide coatings on the particles.

Tests run on the sand indicate that a 15 percent concentrate can be recovered and that 90 percent of the gold can be recovered by cyanidation.

Gold assays 60¢ per yard, platinum 15¢ per yard, according to Mr. Watt.

The weight of the sand is stated to be 2740 pounds per yard, or 102 pounds per cubic foot.

Estimates and Summary by owner from data on file.

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PROPERTY: Consists of all mineral and water rights and the rights to mine without obstruction, covering 824 acres of Patented land in Sections 1, 2, 11, twp. 32 S.; R. 15 W; W. M.

LOCATION: Located 7 miles East of Cape Blanco on Pacific Ocean in Curry County, Oregon, being 3 miles East of Roosevelt Highway at Sixes P. O. Oregon. Lying between Sixes River on South and Crystal Creek to the North. There is an old wagon roadway in from Sixes leading to the property.

ELEVATIONS: These are close approximations, and may be checked with U. S. Geological Survey, Oregon, Port Orford Quadrangle.

East Side deposit	805 ft.
West Side deposit	700 ft.
Dam site in NE 1/4 of NE 1/4 Sec. 1, Twp. 32 S.; R. 15 W; W. M.	1050 ft.
Crystal Creek at property	560 ft.
Sixes River 1 mile South	100 ft.
Roosevelt Highway opposite property	75 ft.

DEPOSIT: The material to be worked consists of fine Quartz Serpentine sand, light yellow and grey in color on top of a hog back ridge commencing in west central portion of Section 1 and extending 3/4 mile Southwesterly through Section 2, Twp. 32 S.; R. 15 W; W. M. with irregular width of an average 1/4 plus mile containing 165 acres. The material is 15 to 40 feet deep and measured to yield 5,000,000 cu. yards. 85% of broken down mass will pass a 30 mesh screen and most of it a 60 mesh screen with values evenly divided in all sizes.

Innumerable tests mostly from bored hole core samples by fire and K.C.N. and also field tests and hydraulic mining on "pilot plant" scale indicate average gold values of over 65¢ per cubic yard, well distributed.

Platinum and Iridium are present, but are spotted and values not fully known. Test runs of several tons justify a safe estimate of 20¢ per cu. yard at present prices.

The material extends from bedrock to 1 foot from surface. In places it contains some strata of compressed sand which yields to 50 lb. pressure and would be pulverized by means of hydraulic monitor.

One representative breakdown made by G. H. Bradford E.M. gave the following quantities per ton of material in place viz.

Quartz Sand	1405 pounds
Serpentine Sand	450 "
Garnet Stones	100 "
Mag. Iron	20 "
Crome Iron	25 "
Total	2000 "

This schedule may vary depending where sample is taken, as the ratios of concentration vary throughout the deposit.

There are no boulders, scarcely any gravel, and an occasional small rock.

WATER SUPPLY: Water rights on South Fork of Crystal Creek, Permit #9994 from State Engineer, Salem, Oregon, calls for head gate 4 ft. by 4 ft. 25 cu. feet.

Water measured April 1936 by hydraulic engineer.

Dam site in NE 1/4 of NE 1/4
Sec. 1, Twp. 32 S.; R. 15 W; W.M.

Elevation	1050 ft.
Floor "Big Pit" elevation	765 ft.
Depth of water at dam site	14 in.
Creek width	28 ft.
Velocity	2.21 ft. sec.
Cubic ft. sec.	15.08
Volume of water	6766 G.P.M.

6600 ft. of pipe required.

Water discharge and pressure will depend on size of monitor and pipe used. A standard installation using 4000 G.P.M. will wash 2000 yds. up in 24 hours and have more nozzle pressure than required.

Working the deposit by mechanical means would require much less water than by monitor.

The volume of water will vary with the seasons more in winter and less in summer and naturally from year to year. Usual seasons will permit hydraulic mining throughout the year with no shut down. Some years would require less than 5 in. nozzle for two or 3 summer months. Abundance of water for other methods. Shortest supply on record was dry season of 1939 when supply was 1000 to 1200 G.P.M. at dam site in summer.

So far in 1947 the rainfall is much below normal. Average precipitation: May 3.62 in., June, July and August together 2.87 in., Sept. 3.05 in., other months 5 in. or over. Rainfall data from Government files, Port Orford, Oregon.

There is a small branch creek on west end of property which runs most of the year, but has no mining value and a few small water springs, including one in each of the pits.

SURFACE: Port Orford cedar was cut and logged off the mining ground more than 30 years ago. Most of the ground is now heavily grown over with forestration of both first and second growth fir, large tall alders, salmon berry brush, vines, etc.

Approximately 40 acres were cleared and grain crops grown on a portion of the property where mining on "pilot plant" scale was first conducted at what is called "Big Pit" which had 200 ft. face and 40 banks now caved down.

This portion was kept fairly clear till 15 yrs. ago, but is now thick brush and alders, including bottom of "Big" and "Little" pits.

Land clearing is an item of expense, but not serious on account of yardage exposed: around "Big Pit" one acre cleared will expose 40,000 yds. so 10 to 15 acres cleared per year will likely keep ahead of mining operations for 2 or 3 years.

RECOVERY: Most all gold will be fine and free, requiring a weak cyanide or other caustic bath to permit higher concentration or amalgamation. The colors are coated and dirty and not perceptible to the eye till scrubbed, melted, or treated with a caustic leach.

For operation, a set up is suggested wherein the entire face material would be routed over burlap cathhers overlaid with 1 in. wire screen mesh or in lieu rough concentrators having capacity such as slow moving wide canvas belt with riffles automatically dumping into bin underneath. In this manner a practical concentrate of $4 to $7 per ton may be obtained quickly and cheaply. From here, and without any grinding, a simple cyanide bath to promote amalgamation is all that is required for the gold.

The platinum group can now be recovered and will come clean and bright over any standard concentrator.

The mill located on a hillside will permit the material to be conveyed to and discharged from it by gravity.

The owner's experience and the experience and opinion of those conducting laboratory and field tests brought the conclusion that the above is a cheap, practical, workable method that will show a wide margin of profit; 35¢ to 45¢ per yard, depending on ground being worked.

Ordinary tables adjusted for this material give good results similar to good panning, but have not sufficient capacity for volume needed.

An old time western pocket miner, with years of experience with his pan (few are left) will produce a ten to one concentrate with scarcely any loss, while an ordinary panner, such as is found in the average laboratory, will produce a seven to one concentrate, losing 20%. This last result is similar to field tests under working conditions with adjusted burlap lined 20 ft. riffle box.

With higher concentration than above too much fine gold rolls off with ruby sand.

Rule of thumb: if any crome sand is going over you are losing gold.

It is believed that taking up to 20% loss in concentrating and getting volume will produce practical and more satisfactory results than saving a few more cents.

Two similar properties were worked out at old price of gold, $20.67 oz., using only riffles and burlap and saving around 50%. First was "Whiskey Hill" north of Bandon (30 miles North of Sixes) worked out before 1900 and second the Eagle Mine ~~near California border about~~ 30 miles ~~South~~, said to have produced $7,000,000.

Small town hotels, restaurants, auto camps and rooming houses are at Port Orford, 6 miles South of Sixes P.O. on good highway so that living accommodations on the property are not required.

MORSE LABORATORIES:
KCN Test Report No. 3384 8-23-37.
Crystal Creek Without Grinding

Head sample-place material	Gold	$0.87 Pr. T.
20% Concentrate		3.50 " "
Mat. as concentrated		500 Grams.
KCN Sol.		2500 CC
Ratio		5 To I
KCN Strength		2.I # Ton.
After agitation		I.9 # #
Time		12 Hrs.
KCN Consumption per T Mat.		I.0 #
Lime required		I.8 "

Assays:

Heads	$3.50 Pr. T.
Tails after Agitate	.35 " "
Amalgamation of Ag. Tails	.07
Final tails	.28

Percentage Extraction of Conc. 92%
In addition the sample contained platinum @ $51.00 Oz.
$0. 51 per ton.

Signed G.H.Morse.

Techow Lab. No. 11375 April 8th. 1936.

Mat. sample	A. -----	Au Pr. T.	$0.35
Ditto	B. ----	" " "	0.35
	C. ---		0.52
	D. -----		0.70
	E. -----		0.58
	12 ----- ---		1.40
	13 --- ---		0.62
	14 ---		0.52
	15------- -----		0.62
	17 --- ---		0.87

Average ten 65 3/10th Cents per ton.
" " 89 9/10th " " yard, or 2740 Lbs.
" of Cert. No. 11316-20 Holes $0.77 6/10th. T.

Signed W. Techow.

Techow Laboratories; 620 Eye Street, Sacramento, Calif.
July 23rd. 1937.
No. 12743.

Big Pit and Small pit.

50 Oz. Panned to Conc.		7.5 Oz.
Conc. Ratio	100 to 15	
Heads gold		$0.87
Conc. " -------		4.37

Extraction - 75.2%
Au. at $35.00 Oz.
Signed W. Techow.

Techow Lab. Oct. 26th. 36. No. 12059.

Mr. Wells Sample west end Prop. Au. $0.35 Ton.
or per yard 0.48
(Same as Morse test No. 1872)

Signed W. Techow

Morse Lab. 12-8-36 Report No. 2040.

Large pit Gold per ton $0.78

Signed G.H.Morse.

STRAUB MFG. CO.
507 Chestnut Street, Oakland, Calif.
12-7-36.

Gold assay Crystal Creek
5-assay tons Av. Gold .017 Oz. $0.60 T.
Big Pit (same as Morse 0.79 T.
By F.B.Weld, Chief Metalurgist.

Morse Lab. Oct. 13th. 1936 Rep. No. 1837.
PLATINUM ANALYSIS
Mat. 0.01 Oz. Ton
This was Composite of Report No. 1794.
Signed G.H.Morse.

Morse Lab. Aug. 10th. 1937.
No. 3230
Gold Assay.
Sample No. 1 Comp. Sample 2 pits. $0.87 Ton
Signed G.H.Morse.

CALIFORNIA MCVAN COMPANY: NOV. 22nd. 1933.
Sixes Oregon Prop.
Head Sample 0.03 Oz. gold $0.62 Ton.
From your 50# sample.
C. Tilton Assayer.

Morse Lab. Dec. 7th. 1936. No. 1919.

No 1	heads big pit	Per ton	$ 1.56
2	---	----	1.30
3	----	----	1.40
4	small pit		.87
5-	" "	------	.70
6	ground to 200 Mesh	-----	.63
7-	Conc. to 25 to 1	---------	6.30
8-	" to 18 to 1	----	4.90
9-	to 20 to 1	--------	17.20
10	Black sands only		1.75
11	Cyanide test		
	Heads		1.56
	KCN Tails without grind		.17
	KCN Grind to 100 Mesh		.11

Signed G.H.Morse

NOTE: Above values are expressed mostly in tons. A measured yard weighed 2740 lbs.

EXCERPTS: W.J. Rattle, E.M.
Denver, Colo.

"In all my drilling no rocks or boulders were encountered to retard hydraulicing. In fact it is ideal ground to work with giant and the climate is such that it can be worked the year around."

"The natural conditions seem to be very favorable.""Plenty water and fall; plenty of dump ground into the valleys and plenty of ground to work." "No contamination of creeks running through the farms." "Good roads to property except last three miles nearest property." "This can be put in shape for $500.00." "Good harbor at Port Orford, nine miles from the property for small craft."

"Gold and platinum, all fine." "No gold incased.""None found in black sand." "Will require special treatment." "This can be done and a saving made." "I looked over the country carefully and found other places where these old beaches existed but did not see a place where every thing was favorable to operate as was on this property." "Either no water or no dumping ground and not accessible by roads." "This property has all of these advantages."

NOTE:
Mr. Rattle is mentioned in reports on Lake Superior mines. Has had Hydraulic experience in Alaska.

G.H. BRADFORD, E.M.
Consulting engineer for John Treadwell

"It averaged from all results and working factors - $1.00 per cubic yard."

"GEOLOGY." "Shells and other evidence of marine life indicate the deposit to be an ancient sea beach sand, mostly soft and loose. Layers of strata of compressed sand break up easily with fifty pounds pressure. The surface is covered with brush and timber but can be cleared at reasonable cost by hand labor at about $50.00 to $100.00 per acre. One acre contains enough for two months run with one giant. Land clearing expense is not important."

There are appreciable quantities of iridium; titanium and zirconium. Very little gravel and no rock. A thirty mesh screen will pass nearly all of the broken mass."

Communicated to R. Anderson
by his engineer Spring 1936.

"Assays were for gold only. (20 bored holes)
Fire assays by Techow Certs. #11316 and #11373
26¢ to $1.86 per ton average $0.77 6/10 ton.
The ground carries some platinum and other minerals.

My examination covered 50 acres in central portion of the property which has an average depth of 25 ft. to bed rock proving approx. 2,000,000 yds. of good pay dirt.

Float Sheet #1
(Showing futility of trying for high concentration without a caustic bath)

Head Sample 0.70 ton

TESTING: Testing has been done by hydraulic mining on "pilot plant" scale, field tests and by shafts and boring holes. Some shafts still stand with walls intact, others have caved in. It was found by offset bored holes that boring gave same results and was much quicker. Hundreds of borings have been made covering all of the property. Some holes are spotted on maps available; all were staked and numbered at the time, none since 1939.

The boring was done by hand with "3 in." soil augers manufactured by Iwan Bros. South Bend, Ind., and usually available at implement stores. These are slightly less than 3 in. diameter, bring up the core, and make a hole 4 in. at bottom and 5 in. at top.

Three and four ft. lengths of half inch pipe were used for extensions. It was found that six men under the direction of an engineer will bore and quarter down 12 to 15 average holes per day. A 25 ft. tripod with rope and pulley was used to advantage in hoisting the auger and saves time on the deeper holes.

In boring holes, the top foot was cased off with short lengths of 6 in. well casing and all of the core spread on a sampler's canvas 15' x 15', quartered down and sent to laboratory. The common quantitative analysis, K.C.N. solution, is the most accurate to use. Fire assays are often incorrect on account of the nature of material unless made by those accustomed to fine gold assaying. When used, 4 assay tons should be charged to each crucible and average taken.

It is useless to try to make concentration tests and savings with the conventional "long tom" or "rocker" and expect to get colors, or to pan expecting to see colors. Amalgamation of the original material is exceptionally poor.

TERMS: Customary terms are contemplated on 10% royalty basis for ten years, during which the deposit should be worked out. Details as agreed to. Interview before examination desirable.

OWNER: The owner and writer is 69 yrs. old and retired. For 19 years prior to June 1943, general appraiser for largest bank in the West. For 2 years prior to November, 1946 one of adjudicators at San Francisco for U. S. Veterans' Administration. For 55 years by avocation horticulturist and miner on West Coast. Owner of above described property for 25 years. If financial data is desired, kindly have Dunn & Bradstreet make special report. Their agent will be furnished financial statement, bank references, and any other data.

The above information is given so that a prospective lessee may determine upon his own examination which is naturally a prerequisite to a lease.

J. N. Watt
56 Broadway
Los Gatos, California

J. N. Watt

4-1-47

CURRY COUNTY OREGON

CRYSTAL CREEK PLACER

1. Located 7 miles East of Pacific Ocean opposite Cape Blanco, Curry County, Oregon, and 3 miles East of Roosevelt Highway at Sixes, Oregon. Dirt road to property. Between Sixes, River and Crystal Creek. (Mr. G. A. Wells, Sixes, Oregon, lives near. There is a road to property but no equipment.

2. 800 acres patented land of which approximately 200 acres are mineral bearing. Elevation 800 feet.

3. All conditions favorable for placer mining year round. Water rights on Crystal Creek, good head, plenty of dump room, no boulders, very little gravel, banks 15 to 40 feet; overburden 2 feet of sandy loam soil, approximately 5,000,000 yards pay dirt ready to mine.

4. Material: Quartz serpentine sand light yellow in color - "Marine Sand". Material has approximately 1% to 2% black magnetic sand and same amount of Chrome and titanium, depending on where sample is taken. Surface brush and timber.

5. Bedrock serpentine - borings indicate a favorable even slope.

6. One hundred assays, mostly from bored holes, indicate over 60¢ gold and 15¢ platinum per yard; nearly all values very fine. 2740 lbs. to yard. Test holes can be bored by 2 men with hand auger.

7. Method of recovering suggested: Rough concentrate and then cyanide: Laboratory tested by Techow Laboratories and Morse Laboratories, Sacramento.

8. For fire assay tests, use 4 assay ton samples.

Note: This material will not concentrate readily lower than 7 to 1 in pan. When panned down below this part of values go overboard with Ruby sand.

Part of gold is coated and does not amalgamate and the coating prevents high concentration or separation on riffles. Cyanide cuts the coating rapidly.

A 15% concentrate is easy to obtain with very little loss and cyanide without grinding recovers over 90% of gold.

The values are free and recovery is cheap and simple by this method. Cyanide consumption only 1 lb. to ton of concentrate.

There are also appreciable quantities of chrome, zirconium and titanium.

J. N. Watt, Owner
c/o Bank of America
Sacramento, California

CRYSTAL CREEK, MARINE SANDS, PLACERS.
SIXES, OREGON.

LOCATION:-

About eight miles East from Cape Blanco, Pacific Ocean Coast at 800 feet elevation.
Three miles Easterly by dirt road from RedWood Highway No. 101, in Curry County, Oregon.
Mr. G.A.Wells-Guide. Resides at Sixes.(He charges $6.00 per day for self and Ford Delivery Truck.)

PROPERTY:-

800 acres, patented. Over two hundred acres mineral bearing. Water right and dam sight upon property. Dumping ground on the property and immediately back of the pits, down the side of the mountain.
Plentiful timber-both first and second growth. Considerable small brush and tall, commercialy used alder. About forty-fifty acres clear of brush or timber but overgrown with vines and grass. Some old decayed down timber. Roadway all along property.

MATERIAL:-

Ancient marine sands; most of which passes thirty mesh screen. Small percentage small gravel near bed rock in some places.
Values to grass roots except lean in last two surface feet. Depth-surface to serpentine bed rock, 6 to 40 feet. One-two million yards require very little land clearing before mining.
Entire property will yeild up about five million yards to mine.
There are lumps and small cakes of sand all through the deposit which break up and dissolve readily in the air and water or by agitation and abrasion or by crushing. Material washes from place very easily. Values are very fine gold and platinum. Concentration in riffles or otherwise to 15% is the best that the results from many labratory tests indicate. Attempts to concentrate beyond this causes the values to wash away with the black sands and ruby cyrstals.
Over 100 assays indicate values of over sixty cents gold and 15¢ platinum, per yard. Weight per yard-2740 pounds.

Equipment suggested:-

One and one half mile pipe line; possibly excavating equipment; recovery plant and living accomodations.

RECOVERY METHOD SUGGESTED:-

Concentration and cynidation from which a recovery of over 90% can be maintained without grinding.

CAPITALIZATION SUGGESTED:-

GROSS- $25,000.00

Property for sale or lease on 10-12½-15% royalty basis, to responsible operator.

SUBMITTED BY -

J.H. [illegible]; AGENT.
1146 11TH.AVE.,
SEATTLE, WASHINGTON.

MR. J.N.WATT: OWNER.
C/O Bank of America,
8Th. and J. St's.,
Sacramento, Calif.

APPEND:-

Note; The values do not "save" by the conventional Long Tom or rocker testing methods but rather require the attention of persons skilled in the proceedure of concentration and treatment. JHC.

State Department of Geology and Mineral Industries

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Portland, Oregon
January 15, 1942

CRYSTAL CREEK MARINE SANDS (placer) Sixes River area.
(Watt placer)

An old "back beach" at an elevation of 800 feet is composed of loosely consolidated sand. It contains considerable black sand but data are not available on quantity or quality. The placer has been worked for gold and platinum and good recoveries are reported. The property may be worthy of examination for the black sand material.

Owner: J. N. Watt, Bank of America, Sacramento, California.

Location: Portions of Sec. 1, 2, and N½ NE: Sec. 11, T. 32 S., R. 15 W., at an elevation of 800 feet, between Crystal Creek and Sixes River, about 3 miles east of Sixes.

Area: Approximately 800 acres as follows: NE¼ NE¼, S½ NE¼, S½ NW¼, N½ SW¼, SW¼ SW¼, all in Sec. 1. NW¼ NE¼, S½ NE¼, SE¼ NW¼, NW¼ SW¼, S½ SW¼, SE¼ all in Sec. 2. N½ NE¼ of Sec. 11. These data from sketch map by owner.

History: There are two old hydraulic pits on the property, the one at the north being the larger. In the work of 1910, a #2 giant sluiced the sand to sluice boxes and riffles; concentrates from the riffles were worked over a Wilfley table. Recoveries were reported as 25-35¢ per yard with 50 per cent recovery. There appears to be no data on production records.

Topography: The property lies on a flat topped area between Crystal Creek and Sixes River, it is quite flat. Elevation is 800 feet. Canyons are steeply incised. Rainfall is abundant, typical of coastal area and year around operation is feasible. There is ample water supply and Crystal Creek could be dammed for hydraulic water and water power.

Development: The two pits mentioned under "History". The old pipe is rusted out and buildings are beyond repair.

Geology: Bedrock is serpentine and its surface is slightly fissured and the hardness varies. The sand is light yellow, gray, and in places red, brown, and coal black; it contains streaks of pea-gravel; it is moderately indurated, enough to stand with vertical banks but not enough to hamper handling with a hydraulic giant. Most of the sand will pass a 30 mesh screen. Overburden averages 8 inches. An average analysis of the sand indicates:

Quartz	55%
Other light minerals	21%
Olivine	11%
Garnets	2%
Magnetics	5%
Chrome	6%

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Depth of the sand is not indicated.

The gold may be coated with oxides and does not plate or amalgamate readily. Treatment with KCN is suggested.

The deposit is an old beach that has been elevated as part of Diller's peneplain.

Economics: About 2 million yards have been explored and yardage of 5 million is assumed.

Informant: J. N. Watts, 1/15/42

Report by: RCT 1/15/42

State Department of Geology and Mineral Industries

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WATT BLACK SAND DEPOSIT — Sixes District — Curry County

Owner:

J. N. Watt, c/o Bank of America, Sacramento, California.

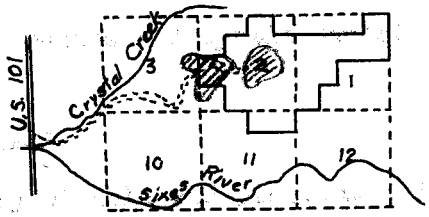
Area:

800 acres patented land, 200 mineral bearing. Placer property.

Location:

Located between Crystal Creek and the Sixes River about 2.5 miles east of U. S. Highway 101 and the town of Sixes, Oregon. Forty miles south of Coquille, the nearest railhead.

Property includes parts of Sec. 1, 2 and 11, T. 32 S., R. 15 W., outlined in the following diagram. The mineral bearing areas lie in Sec. 2, T. 32 S., R. 15 W., as outlined by Diller in the U.S.G.S. Port Orford Folio.



History:

Has been tested for gold and platinum. No record of any production is known.

Topography:

Located on the marine terrace at an altitude of 1000 feet. The deposit occupies the crest of the ridge between Crystal Creek and the Sixes River, and is the only part of the area that could be worked. Vegetation is heavy on the slopes of the ridge and includes considerable timber, but the mineral bearing part of the claim is covered only by salal, blackberry bushes, and small alder thickets.

Numerous small streams rise in the area, but sufficient water for a concentrating plant could not likely be obtained above an altitude of 500 to 600 feet. Mr. Watt stated that water rights are owned.

A road 2.5 miles long connects U. S. Highway 101 with the deposit. The grade is gentle and the road rises 1000 feet in 2.5 miles. The road is usable but difficultly accessible for one mile in winter. The last mile and a half of road has not been used for years, is overgrown by brush, littered with fallen trees and partly washed out.

Development work:

The only development work examined was an open cut on the north side of the ridge crest and a trench to the east of the cut, both at the eastern end of the road.

Geology:

Placers - a flat placer deposit, estimated by Mr. Watt to average about 15 feet in thickness. Covers 200 acres within the claim boundaries. The deposit, where examined, consists of a uniform buff-gray sand with an occasional zone of gray silt and carbonaceous material, probably indicating a lagoon deposit.

The black sand present in the deposit is disseminated throughout the buff sand and is not concentrated in lenses, bands or streaks. Black sand estimated to aggregate less than 10 percent of the whole.

Bedrock is serpentine and Myrtle sandstone, presumably with a favorable even slope.

Mining and metallurgy:

In the recovery of gold and platinum a 7 to 1 concentrate, according to Mr. Watt, is the lowest concentration that can be obtained by gravity. Further concentration was suggested to include cyanidation, which cuts the oxide coatings on the particles.

Tests run on the sand indicate that a 15 percent concentrate can be recovered and that 90 percent of the gold can be recovered by cyanidation.

Suggested capitalization by Mr. Watt: $25,000.

Unconfirmed reports state

Gold assays 60 cents per yard, platinum 15 cents per yard.

The weight of the sand is stated to be 2740 pounds per yard, or 102 pounds per cubic foot.

Report by: Randall E. Brown
Date of visit: January 19, 1942

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

BANK OF AMERICA
National Trust and Association
Savings
Sacramento - California

January 8, 1942

Mr. Ray C. Treasher, Field Geologist
State Department of Geology and Mineral Industries
State Assay Laboratory
400 East I Street
Grants Pass, Oregon

Dear Mr. Treasher:

As requested in your letter dated January 5, 1942, I am enclosing for you a copy of the J. H. Crockett, E. M., report covering the Crystal Creek Mining property in Curry County, Oregon, and would appreciate your returning this to me in the course of the next two weeks as it is the only copy I have.

CONFIDENTIAL

I am also enclosing a copy of an assay made by the Morse Laboratories showing gold platinum and zircon. This is the only assay I have had covering zircon but Mr. C. McBride, E. M., who spent two weeks up on the property a number of years ago for a Mr. Johnston told me that he made a number of tests for zircon and that the content was definitely worth while.

I only had one assay made for chrome and I do not believe the content is sufficient to amount to much without the other values for the reason that there is less black sand in the property than on the beach.

I might say that the Morse assay which is enclosed was from a sample of a 150 lb. bank run from the so-called "Big Pit" mentioned in the report.

Appreciating your interest, I am

Very truly yours,

J. N. Watt

JNW:jf
Enclosures

State Department of Geology and Mineral Industries

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Feed, Soil
Milk, Fertilizer
and Sanitary
Water Analysis

MORSE LABORATORIES
Industrial Analytical Chemists
Agriculture : Bacteriology : Mining

Amalgamation
and Cyanide
Tests Ore Analy
Assaying

Sacramento, California
December 18, 1941

Mr. J. N. Watt
Bank of America
Sacramento, Calif.

Ore Analysis - submitted 11/29/41

Sample sand

Gold - - - - - - - - - - - - - - - - - $ .52 per Ton
figured at $35. per oz.
Platinum - - - - - - - - - - - - - - - $ .97 per Ton
figured at $36. per oz.
Zirconium (ZrO_2 - - - - - - - - - - - .56 %

CONFIDENTIAL

Signed

by ____________
G. H. Morse

State Department of Geology and Mineral Industries

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Portland, Oregon

THE CYRSTALCREEK, MARINE SANDS, GOLD PLACERS. NEAR SIXES, CURRY COUNTY, OREGON.

A GENERAL REPORT BY

J.H. Crockett; E.M.
May -- 1939.

LOCATION:

The property is located about three miles Easterly from the main Redwood Highway number 101 at an elevation of about 800 feet. There are eight hundred and twenty four acres of patented land, about one fourth of which are mineral bearing, ancient, marine or lacus sands, 85% of which will pass thirty mesh screen.

On a straight line the property is about six miles Eastward from cape Blanco, Oregon coast line.

All of the property is owned by Mr. J. N. Watt; C/O Bank of America, 8th and J. St's., Sacramento, California. There is no debt of any nature against the property.

Map number one herewith will show the geographical location, ETC. Gold Beach, Oregon-is the County Seat.

Mr. G.A. WELLS; Farmer, residing at Sixes is a guide and familiar with the property and its boundries. He charges $6.00 per day for himself and use of his light Ford delivery truck. It is advisable to contact this man before attempting to go to the property.

ROADS:

A graveled road running in the direction of the property leaves the main highway just North of Sixes, running first through the Zumwalt ranch about a half mile then turning to the right going up the side of the hill; thence to the top of the ridge over dirt road. From here the road leads along the top of the hill and along side of the ridge through heavy growth of timber and brush and through four cattle gates until arriving upon the property. After crossing a few small errosion ravines the road leads to a clearing of about forty or fifty acres which lie on top of the ridge and running about N.E. and S.Westerly. This clearing is on top of part of the main body of the deposit.

The road from the Zumwalt ranch is so laid out that most any automobile could get over it in first and second gears but the road is not graveled or well drained and there are ruts and cross drain grooves leaving it very rough in places and not suitable to travel over with the modern, low gravity center, automobile on account the high centers.

The four gates along the road should be replaced with the conventional "Cattle Grills" to maintain cattle within fenced areas without the use of the gates.

At least 12-10 Foot sections of 8 Inch corrugated Galvanized culvert pipe should be placed below grade to drain various spring water and rain water from and across the roadway. Catipillar-bulldozer should be sent over the entire road and return which would fill in the ruts and law down the abundant growth of small brush and weeds along the road sides.

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WATER SUPPLY- Cont'd.

This was also born out by the fact by the greater volume of water flowing on the surface in the higher regions of Crystal Creek.

My findings do not bear out reports of others and especially that as shownin Mr. F.C. Browns report.

There are numbrous small water springs upon the property and a small stream of about 14 G.P.M. was flowing along the old sluice way of the "Big pit". The local guide advised this stream almost dries up by Fall. Also a small water flow was running from the South pit or so called "Small pit". This stream is continuous the year around, I am informed and seems to remain at about the same volume, namely about 10 G.P.M.

Both pits are grown over with heavy growth of alders and brush but bed rock is exposed in each.

Many fresh deer tracks were in evidence in the silt on the floors of the pits.

Additional water from the main Crystal Creek to the Northward could possibly be developed if greater volume was required, but I am of the opinion that sufficient water can be developed from the South Fork and off the property itself and conveyed by small steel pipe line to a compounding reservoir located nearer the actual working faces and I believe better control of the water could thus be maintained and give operators effecient and convenient, permanent water supply.

A person familiar with designing hydraulic lay out should be able to obtain a good water works from the foregoing plan and at nominal cost and at less cost as that shown by Mr. Browns report in his estimate for costs of "pipe line."

A feature of economy in operating is thus gained as a continuous flow into a reservoir with overflow spill way is self maintaining.

Working the deposit by mechanical means requires less water than as required by the older methods of operation. Therefore, I do not hesitate to state there is plenty water available, by gravity flow, at comparatively small cost. This is a commendable feature of the property.

Water rights have been deeded to present owner and further described in Vol. 16-Page 432-June 5th, 1916; Records of Curry Co. Oregon.

Water permit and Riparian rights No. 9994 as issued by State Engineer for head gate 4 ft. X 4 Ft.- Capacity- 25 Cu. Ft. - at Salem, the State Capital, Oregon. Letter extensions by State Engineer down to date.

BUILDINGS:

There are no standing buildings on the claims; brush fires having destroyed those formerly built. Common s-4SS lumber is quoted at $15.00 M. in the Valley.

A small portable mill operated by gasoline engine set up on the property would be a handy utility depending upon the nature of the operating set-up proposed.

Old settlers cabins on the property and adjacent are tumbled down wrecks of no value.

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EQUIPMENT:

All of the old pipe line and giant is completely oxidized away and of no value. Old pen-stock and flume are valueless. No equipment or implements remain on the claims.

DEPOSIT:

The deposit extends as far as and beyond bore holes than have been made to determine the extent of the deposit. The entire body has not been exposed, satisfaction having been gained as to its size and value before hand. While only about two million yards have been explored it appears to be a fair and reasonable assumption that the property will yeild up five million yards of pay dirt.

The owner has, over a period of years, acquired the entire property through purchases and I must say this work has been well done.

The material to be worked here is a fine grained sand, most all of which will pass a thirty mesh screen. The same material extends from the bed rock to the grass roots though the top eight inches seems much oxidized, as would be expected, and finer grained. It is a soft loamy soil supporting an abundant growth of weeds and vine and in greater part a growing forest.

The material washes apart very readily and especially with the modern monitor but in working with monitor and caving off the deeper banks, the material would fracture off in large cubular blocks.

These blocks of sand resist decomposition but little, but all through the entire deposit about forty percent of the material seems to be small caked lumps of sand, many of which are the size of a lemon and larger. These many lumps dissolve when displaced and those that seem like soft stones in the gold pan readily break up when panning. This caked condition is likely due to former compression with the association or absorption of some light viscus film of flora or fauna origin.

Strata is easily distinguishable through out the banks some of which are strongly from and almost red, probably a ferric oxide stain. Near bed rock in many places there are patches of small gravel embedded in fine black sands. The gravel pellets are coated over, generally, with this black material as a film as is much of the gold particles. It is said much of this gravel will yeild two and three dollars per yard in gold as learned from former experiences.

In panning this particular material about a third of the contents remain in the pan consisting mostly of this black material, iron, rubby sands, chromic iron, Etc.

Separation analysis by G.H. BRADFORD, E.M. resulted in the following quantities per ton of material in place:

QUARTZ SAND	1,405	Pounds.
Serpentine sand	450	"
Garnet stones	100	"
Mag. iron	20	"
Chrome iron	25	"
	2,000	"

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DEPOSIT* Cont'd.

My own findings indicate the following parts per ton of material in place:

QUARTZ (SiO) Granuals	1100	Lbs.	55%
Some fine light material probably from matrix of bed rock	420	"	21%
OLIVINE GRAINS-Bed Rock	230	"	11%
GARNETS (small jewels)	40	"	2%
Mag. and slightly Mag.Fe.	90	"	5%
CHROMICS	120	"	6%
Total	2000		100%

Aurum $ 14.40 Per Ton 900 F.

Other metalics-kind and value not determined.

Microscopical examination of the material as a bulk does not bear out the schedule as shown above, but this point is not essential, it seems, as the different strata through out the depo it will have different ratios of concentration and constitutionality.

Suffice to say that the material as a whole will concentrate to less than a third of the whole very rapidly as a study of the proportions will show and while the many laboratory tests and sluice box tests indicate that a concentrate of 15% would be in order I am inclined to believe that, as a general course, a concentrate of about twenty five percent will give and all around practical results. This one fourth savings will be easy to maintain even though it is a little leaner in value.

The concentrate so far examined would weigh about 3800 pounds per yard.

The mining of the property does not present any problem, but rather the recoveries should have some study to determine the best practice to follow.

In fire assaying not less than 116.664 Grams or four assay tons, should be charged to each crucible as this then would give a reasonable average of the values and be representative. Of course the common quantitative analysts, the wet method, with KCN Solution is that to be preferred.

The material, generally, is light yellow, gray, and in places red and brown and coal black and streaks of pea-gravel, well eroded.

Besides the gold values there are evidences of other values as platinum and titanium. Rocks are very scarce in the deposit.

The bed rock is the usual rough serpentine and at top quite fragmentary and slightly fissured. There are both hard and soft zones within the oxidized contact with the sand deposit.

I did not learn the extent the values may or may not have impregnated the bed rock fissures and slivers, but assume from the appearances that there would be a slight movement of the values into the first few inches of the bed rock, though the washing of it may not prove profitable.

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DEPOSIT Cont'd.

The best values seem to be Southward and Eastward in the deposit and within the first few yards of the bed rock though the values are well distributed throughout the entire mass.

The only evidence I saw of good sized colors that could be manipulated with the fingers were those in a vial in possession of the owner and reported to have come from small ravines in the S.W. section of the deposit.

Each season small operators attempt to secure a working lease on these small ravines and to "Shovel in" during rainy weather and thus concentrate this heavier gold, in sluice boxes.

TAILING DUMP:

This feature of the property is ideal as tailings can be discharged just at the rear of the pits, both to the North and South as maps number one and three will show.

At no time would the tailings reach the flowing streams or cause polution of them as the entire dump would be upon the property.

RECOVERY OF VALUES:

Most all the gold recovered will be fine and free but requiring a weak cyanide or other caustic bath to permit amalgamation. But, here too, the KCN will rapidly absorb some of these fine values.

In the old workings of nineteen and ten, the set up was a number two giant and sluice boxes with riffles. Concentrates were cleaned out of the boxes from time to time and worked over a Wilfley table. While this method seemed satisfactory in part, less than half of the values were saved. The recoveries were only twenty five and thirty cents per yard; the "Fines" being washed over with the heavier sands.

I could not recommend the usage of the common sluice box set up as the agitation and surge of the materials in the riffles ? would be such that a good portion of the values would be urged along toward the tailing end. Rather, a set up wherein the entire face material was put through mechanical washer and concentrators or routed over specially constructed tables or burlap catchers with adjustable slope and under shallow water would be much more efficient and simple to maintain and operate once installed. Thus a high value concentrate could be obtained, say in value from four to eight dollars per ton. From here a simple cyanide bath to cause amalgamation together with, and, or, a mild cyanide agitation leach is all that is required.

The owner has spent much time, study and money in this matter of recoveries and this, together with the experiences of those conducting the laboratory testing, have concluded that this procedure will be the best and most practical and workable.

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TESTING:

Testing has been done by shafts, pits, boring and by actual hydraulic mining. Many holes have been bored to bed rock by 2½" earth auger by using ¾" galv. water pipe handle extensions, four feet long each section. This bores a hole three and a half inches in diameter at the bottom. The reaming makes the rest of the hole about four to six inches in diameter. A light tubing should be driven down into each hole to prevent "Leaning" the core sample, thus getting too low an average for the hole. Light casing or tubing should be taken to the field in lengths of two; four; six and eight feet, each, and worked down the bored hole the same as with churn drilling. The owner has learned that six men will drill down and quarter twenty holes per day. The old bore holes still stand and can be plainly seen, though grown over with grass and vine. A sampler's canvass sheet should accompany each bore hole and the sample quartered before leaving the hole and marker placed.

The old shafts to bed rock still stand with the wall intact and only require ladder or tackle to get access to bottom of them. Values are better with depth and in some instances run to several dollars per yard.

It is useless to attempt to make concentration tests and savings with the conventional "long tom" or "rocker" and expect to get colors. The colors are coated and dirty and require scrubbing, caustic leach or melting to get the values. Amalgamation of the original material is exceptionally poor.

The work requires the attentions of persons skilled in the art of concentration and mass treatment.

Herebelow following is a schedule of some of the tests, a study of which will give a general idea of the values and the eccentricities of the bulk material to be worked.

MORSE LABORATORIES: COMMERCIAL ANALYTICAL CHEMISTS
316 16th South, Sacramento, Calif. Phone Cap. 2227
Report No. 3304 Cyanide test - 994-37

Amt. Material ------ As concentrated.	500 Grams
Amt KCN Sol.	2500 CC
Ratio-solution to Mat.	5 to 1
Strength KCN Sol.	3.0 Lbs. Ton Mat.
Strength After ball mill grind	1.9 " " "
" " Agitation	1.85 " " "
Grind time	20 min.
Agitation time	8 hrs.
Total	8 1/3 Rd. Hrs.
KCN Consumption	.75 lbs.
Lime used	2.0 Lbs.

TESTING: cont'd.

Assays:

Heads per ton gold	$3.50
Ball mill tails	0.17
Tails	Nil.
Extraction after grind	98.5%
Final Extraction	99.9%

Signed by
C.H. Morse.

MORSE LABORATORIES:
KCN Test Report No. 3384 8-23-37
Crystal Creek without grinding

Head sample-place material	Gold	$0.87 Pr.T.
20% Concentrate		3.50 " "
Mat. as concentrated	500	Grams
KCN Sol.	3500	CC
Ratio	5 to 1	
KCN Strength	2.1 #	Ton.
After agitation	1.9 #	"
Time	12 Hrs.	
KCN Consumption per T. Mat.	1.0 #	
Lime required	1.8 #	

Assays:

Heads	$ 3.50 Pr. T.
Tails after Agitate	.35 " "
Amalgamation of Ag.Tails	.07
Final tails	.28

Percentage Extraction of Concs 92%
In addition the sample contained platinum @ $51.00 Oz.

Signed G.H. Morse

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MORSE LABORATORIES: Sept. 1937
No. 3383
CONCENTRATION TEST 8-11-37

No. 1 sample-composit from pits.

Head Sample Conc. to 15%	$3.50	Pr. T. Au.
Ditto 10%	5.85	" " "

No. 2 From pit.

Heads Conc. to 20%	$3.50
Heads Conc. to 15% by remove black sands	2.80
Black sands assayed	5.60

Signed G.H. Morse

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TESTING cont'd.

Morse Lab. Aug. 10th, 1937
No. 3230
Gold Assay.
Sample No. 1, Comp. Sample 2 pits, $0.87 Ton

Signed G.H. Morse

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Techow Laboratories, 620 I street, Sacramento, Calif.
July 23, 1937
No. 12743

Big Pit and Small pit
50 Oz. Panned to Conc. 7.5 Oz.
Conc. Ratio 100 to 15
Heads gold $0.87
Conc. gold 4.37
Extraction - 75.2%
Au. at $35.00 Oz.

Signed W. Techow

- - - - -

Straub Mfg. Co.
507 Chestnut Street, Oakland, Calif.
12-7-36
Gold assay Crystal Creek
6-assay tons Av. Gold .017 Oz. $0.60 T.
Big Pit (same as Morse) 0.79 T.
By F.-B. Weld, Chief Metallurgist

- - - - -

Techow Lab. No. 11375 April, 8, 1936

Mat. sample	A. -----	Au	Pr. T.	$0.35
	B. ----	"	" "	0.35
	C. ---			0.52
	D. -----			0.70
	E. -----			0.58
	12 -----	---		1.40
	13 ---			0.62
	14 ---			0.52
	15-----	-----		0.62
	17 ---		---	0.87

Average ton 65 3/10ths Cents per Ton
" " 89 9/10ths " " yard or 2740 lbs.
of Cert. No. 11316-200 Holes $0.77 6/10th T.
Signed W. Techow.

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TESTING cont'd.

MORSE LABORATORIES; Oct. 2, 1936 Report No. 1794

Hole No. 1 of 4	Per yard Au.	$3.35
No. 2 of 8	" "	1.67
No. 3 last 3 ft. Hole 8		.96
No. 4 Dump sample		.68
No. 5.Gilroy tails		.48

Signed G. H. Morse

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MORSE LAB. Oct. 13, 1936 Report No. 1837
PLATINUM ANALYSIS
Mat. 0.01 Oz. Ton
This was Composit of Report No. 1794
Signed G. H. Morse

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CALIFORNIA ORE PURCHASING COMPANY;
C. Tilton Assayer. No. 3003-3015 Aug. 28, 1919
Gold at $20.67

HOLE NO. 1	CORE AVERAGE	$0.18	35	Ft. Deep
" " A-2	"	0.10	30	"
B-2	"	0.36	32	"
B-3	"	.10	40	"
A-3	"	.36	45	"
A-4	"	.16	15	"
5-A	"	.52	18	"
5-B	"	.26	20	"
6	"	.05	21	"
7	"	.41	10	"
8	"	.26	6	"
9	"	.52	10	"
10	"	.16	6	"

The average at $35.00 Oz. is $0.62 Per Yard Au. and platinum 10¢ Yard.

Note: These tests are outside main body and too low to be representative of two or three million yards. Hole too large at top. JNW

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11.
TESTING cont'd.

MORSE LAB. Dec. 8, 1936
Report No. 1919

Sixes Oregon Property,
Gold assays:

No. 1 sample	Large pit	$1.56	Pr. Ton
2 "b	" "	1.30	" "
3 "	" "	1.40	" "
4 "	small "	0.87	" "
5 "	" "	0.70	" "
6	Large pit free gold	0.63	" "
7	Bl. sand only	1.75	" "
8 Cyanide test;			
	Heads	1.56	" "
	KCN Tails less grind	.17	" "
	KCN Tails with grind	.11	" "

Signed G.H. Morse.

* ** * * * * * * *

MORSE LAB. Dec. 7, 1936
Rep. No. 1989
Black sands, Crystal Creek
Titanium analysis
Sample contained black sand 0.88%
Bl. Sand contained Ti. 38.33%
Original Mat. Will contain .33% Ti.

THIS SHOWS HIGH TITANIUM. WITH PROCESSING? NO DOUBT HIGH GRADE PRODUCT COULD BE MADE.

Signed G.H. Morse

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MORSE LAB. 12-8-36 Report No. 2040

Large pit Gold per ton $0.78

- - Signed G.H.Morse
- - - - - - - - -

TECHOW LAB. Oct. 26, 1936 No. 12059

Mr. Wells Sample west end Prop. Au. $0.35 Ton
or per yard 0.48
(Same as Morse test No. 1872)

Signed W. Techow
- - - - - - - - - - -

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TESTING cont'd

MORSE LAB. Oct. 23, 1936
Report No. 1872
Sample from G. A. Wells, West end Gold per Yd. $.25
Signed G. H. Morse.
- - - - - - - - - -

TECHOW LAB. Oct. 19, 1936
Report No. 1851

No. 1, center big pit 10 pounds sand
Au. per yard $2.01
Signed W. Techow
- - - - - - - - - - -

TECHOW LAB. Sept. 9, 1936 No. 11909

Your 10 pound sample sand- Gold per ton $0.52
this is same as per yard 0.71

Signed W. Techow
- - - - - - - - - -

MORSE LAB. April 17, 1936 No. 1083

Big pit ------ Gold per ton $ 1.40
No. 2A2 Tailings from above after
running over burlap Gold per ton.35

Signed G. H. Morse
- - - - - - - - - - -

Techow Lab. July 25, 1935
Small pit gold per ton $0.70 or $0.95 9/10 Yard
Large pit " " " 1.05 or 1.94 "

Gold at $35.00 Oz.
Signed W. Techow
- - - - - - - - - - - -

CALIFORNIA MC VAN COMPANY Nov. 22, 1933
Sixes Oregon Prop.
Head Sample 0.03 Oz. gold $0.62 Ton
From your 50# sample.
C. Tilton Assayer
- - - - - - - - - - - - -

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MORSE LAB. Dec. 7th 1936 No. 1919

No. 1 heads big pit	Per Ton	$ 1.56
2 ---	----	1.30
3 ----	----	1.40
4 small pit		.87
5 " "	------	.70
6 ground to 200 Mesh	------	.63
7 Conc. to 25 to 1	---------	6.30
8 " to 18 to 1	----	4.90
9 to 20 to 1	--------	17.20
10 Black sands only	---------	1.75
11 Cyanide test		
Heads		1.56
KCN Tails without grind		.17
KCN Grind to 100 Mesh		.11

Signed G. H. Morse.

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Techow Lab. July 14th 1935

No. 10404

Small pit per ton gold $0.70
Large pit " " 1.05

Signed W. Techow

- - - - - - - - - - - - - -

MR. JOE AVENA; Marshfield, Oregon. Summer of 1938
Practical mining man, not an engineer.
Brought out ton material and concentrated on some sort of moving belt and KCN. Conc. obtained gold bead $0.50

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PAN-AMERICAN ENGINEERING CO.
820 Parker Street, Berkely Calif.
May 20th. 1938 Rep. No. 1120
Test for jigging
Crystal Creek sands. 50# Sample.
Concentrate 10 to 1.
Pulp disintegrated in water.
Jigged to conc. and tailings.
Concentrate amalgamated in barrel with caustic
Mercury panned out and parted with Nitric acid. leaving the gold.
Fire assayed sands to determine values.
Jig tails cyanided for gold.
Data:-

PAN-AMERICAN ENGINEERING CO., cont'd.

Data:-

	Weight	Au. per ton.	Au.%
Heads	100. %	9.54 ¢	100
Conc. Amalgam)	7.85%	3.9)	90.1
sands)		4.7)	
Tails KCN test	92.15%	0.94	9.9

CONCLUSION

Gold in the Material was	$0.9-54/100	Tons
saved in the jig was	0.8-6/10	"
In tails	0.0094	"

Percent recovery in the jig was 90.1%
Concentrate ratio was 12.7 to 1

By P. Malozemoff
Metalurgical Engineer

Note by JHC.
The values in the sands submitted are not representative of the true values generally found.

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TECHOW LABORATORIES:

No. 15496. June 13, 1939
Assay for gold Crystal Creek Property.

#1	per ton	$0.87
#2	"	0.70
#3	"	0.70
#4	"	0.70
#5	"	0.70
#6	"	.56
#7	"	.52
#8	"	.70
#9	"	.52
#10	"	.52
#11	"	.70
	"	

Gold at $35.00 Oz. 2 assay tons each charge
Signed by W. Techow.

The material as in place will weight about 2740 pounds per yard.

REPORTS AND EXAMINATIONS

The owner has the greatest fund of knowledge and facts pertaining to the property as he has made a diligent study of its features over a period of years during which time he has absorbed and acquired all of the important land and rights adjacent to the property.

G.H. BRADFORD; E.M. Excerpts from his report.
Deceased 1914 (Mr. Bradford-formerly consultant for the John Treadwell of Alaska.)

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BRADFORD REPORT cont'd.

"The gold and platinum content can safely be estimated at fifty cents per yard".

"It averaged from all results and working factors- $1.00 per cubic yard".

"GEOLOGY" "Shells and other evidence of marine life indicate the deposit to be an ancient sea beach sand, mostly soft and loose. Layers or strata of compressed sand break up easily with fifty pounds pressure. The surface is covered with brush and timber but can be cleared at reasonable cost by hand labor at about $50.00 to $100.00 per acre. One acre contains about fifty thousand yards of material or enough for two months run with one giant. Land clearing expense is not important.
There are appreciable quantities of iridium; titanium and zirconium. Very little gravel and no rock. A thirty mesh screen will pass nearly all of the broken mass."

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W. J. Rattle, E. M.
Denver, Colo. Excerpts.

Six bored holes went $1.14 per Cu. yard- gold.
Seventh hole went $5.70 per Cu. yard -gold.

"In all my drilling no rocks or boulders were encountered to retard hydraulicing. In fact it is ideal ground to work with giant and the climate is such that it can be worked the year around".

"The natural conditions seem to be very favorable. Plenty of water and fall; plenty of dump ground into the valleys and plenty of ground to work. No contamination of creeks running through the farms. Plenty of timber. Good roads to property except last three miles nearest property. This can be put in shape for $500.00. Good harbor at Port Orford, nine miles from the property for small craft."

"Gold and platinum, all fine. No gold incased. None found in black sand. Will require special treatment. This can be done and a saving made. I looked over the country carefully and found other places where these old beaches existed but did not see a place where every thing was favorable to operate as was on this property. Either no water or no dumping ground and not accessable by roads. This property has all of these advantages."

NOTE:
Mr. Rattle is mentioned in reports on Lake Superior mines. Has had hydraulic experience in Alaska.

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MR. C. MCBRIDE; E.M.
SACRAMENTO, CALIF. , Los Angeles, Calif.

Samples from W. Race Group Gold assay $0.91 Pr.T.
Retesting Browns field test showed 0.44 " "
NOTE: This represents about $1.13 Yard present price.

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J. N. WATT: Owner

July 14, 1935. Techow assays. 10404

Small pit per ton gold	$0.70
Large " " " "	1.05

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MR. F. C. BROWNS REPORT (Mr. Brown is an experienced, practical mining man.

Field Report and Examinations completed April 25, 1936 at Sixes, Oregon.

LOCATION:

The Crystal Creek placer mines are located in the Co. of Curry in the State of Oregon; Twp. 32 S., R. 15 W.; W.M. -nine miles Northeast of Port Orford and three miles from Sixes P.O. which is on the main U. S. route, 101, coast highway.

OWNER:

The property consists of 824 acres in sections 1, 2, 11 and examination of the records with the County Recorder, Mr. O. A. Walker, at the Co. Seat, Gold Beach, Oregon, show the titles clear and no leins and incumbrances on the property. They also show that Mr. J.N. Watt, of Sacramento, Calif., is the sole owner of this property.

WATER RIGHTS:

Old water rights acquired before present laws were effective, conveyed down by deed. Last conveyance to Mr. J.N.Watt, recorded in Vol. 16, Page 482, June 5, 1916 - Curry Co. Records.
Also riparian rights.
Also permit no. 994 from State Engineer, Salem, Ore.
Head Gate 4 Ft. X 4 Ft. Cap. 25 Cu. Ft.
Extention granted under letter Sept. 25, 1935 to Oct. 1, 1936, by letter.

WATER SUPPLY:

Dam sight	Elevation	1190 Ft.
Depth of water		14 inches in center
Creek width		28 feet
Velocity		2.21 feet Sec.
Cu. Ft. Sec.		15.08
Volume of water		6,766 G.P.M.

Water measurements taken from low water line.

Water pressure and Supply With Pipe Line Requirements, To wash 3,000 Yards Per Day- 24 Hours.

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Mr. F. C. Browns Report cont'd.

6,600 ft. 13" to 22" pipe with 13" inlet at monitor.
Elevation-monitor to dam 350 Ft.

Operating No. 5 Monitor with a 5" inch nozzle will give 215 Lbs. Pressure at monitor.
215 X 2.31 will give 497.65 Hd. Ft.
Water discharge with a number five monitor and a 5" nozzle will be 635.17 Cu. Ft. per Min. or 4,950 G.P.M.

Water supply at dam	6,766 G.P.M.
Water requirements	4,950 " " "
Water surplus	1,816 " " "

Any of the ground examined can be washed with less than 100 pounds of pressure and the above water supply and pressure properly handled will give a capacity of 3,000 yards per twenty four hour day and will permit operation of this placer ground on a very profitable basis.

A general sample of drill cores panned down to only fifty percent clean, assayed $43.20 per ton.

DRILLED HOLES, ASSAY RETURNS AND FIELD DATA:

No.	Depth	Gold per Yd. @ $35.00 Oz.
1	20 Feet	$ 0.4566
2	15 "	0.7766
3	18 "	0.4566
4	14 "	0.8206
5	10 "	0.4566
6	12 "	0.36
7	17 "	0.9466
8	10 "	0.7766
9	12 "	0.4566
10	15 "	0.9566
12	19 "	1.8666
13	12 "	0.8266
14	14 "	0.6939
15	16 "	0.8206
17	19 "	1.16
A.	33 "	0.4566
B.	41 "	0.4566
C.	31 "	0.6939
D.	16 "	0.9333
E.	28 "	0.6666

These assays were for gold only and all the ground that I examined carried some platinum and other by-products.
Weight of the material by test was 2740 Lbs. per yard.
Assays were by Techow No. 11316; 11373 in ten batch lots.

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Mr. Browns REPORT cont'd.

FLOW SHEET NUMBER ONE. AU. AT $35.00 Oz.

HEAD SAMPLE	GOLD	$0.70	Ton
Conc. 15 to 1	"	6.30	"
Conc. 20 to 1	"	4.20	"
Conc. 30 to 1	"	3.50	"
Ground to 60 Mesh. Conc.			
60 to 1	"	2.80	"
100 to 1	"	3.50	"
200 to 1	"	6.30	"

FLOW SHEET NUMBER TWO

HEAD SAMPLE	GOLD	$1.40	Ton
Conc. burlap method	"	1.60	per Yd.
Conc. plate gold		.26	" "
Tailings a trace.			

HEAD SAMPLE	"	0.70	Pr. Ton
Conc. on burlap	"	0.673	" yard
Conc. Plate gold	"	0.26	" "
Tailings trace.			

RECOVERIES:
After completing a flow sheet and making an analysis as to the most profitable way of recovering the gold vaules of the Crystal Creek Placer mines, I find it is not advisable to make a concentrate by tables.

In making this determination the flow sheet proved that over 90% of the gold is free and less than ten percent in the black sand or about $2.50 per ton.

A float test was made by assaying the head material, washing same and running the wash water through silk repeatedly a number of times. Finds-negative and no float gold.

Over 90% of the gold being free and our float test finds negative. I then made a flow sheet according to the most practical and profitable way of recovering the values.

This method is less expensive and more reliable than the table method of recovery, due to the fact that we can recover over 90% of the values with a velocity of 3 Sec. Ft. This will permit use of the full cutting and washing capacity of the monitor which is 3,000 Cu. Yards per 24 Hrs.

This method also eliminates smelter costs, boat charges, hauling charges and greatly reduces mining costs which should not exceed 3¢ per Cu. Yard

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Browns Report, cont'd.

ESTIMATE BILL OF MATERIAL FOR PIPE LINE.

DOUBLE RIVETED AND DOUBLE DIPPED SLIP JOINT SHEET STEEL PIPE.

300 Ft.	22"	16 G.	$	300.00
3,000 Ft.	20"	12		4110.00
2,000 Ft.	18"	12		2500.00
1,400 Ft.	15"	12		1498.00
100 Ft.	13"	12		100.00
1-22" to 20	Reducer	16		20.00
1-20 18	"	12		20.00
1-18 15		12		18.00
1-15 13		12		12.00
1-20"	Gate valve			50.00
1-15"	Gate			30.00
1-22"	Elbow	16		10.00
4-20"	"	12		40.00
3-18"	"	12		30.00
2-13"	" 45 D.	12		20.00
1-No. 5	Monitor ball bearing mounted			450.00
1-No. 5	Hoskins Deflector			56.00
	Total		$	9264.00
	Freight			800.00
	Labor to install			750.00
	Total costs			$10,814.00

BILL OF MATERIAL FOR RECOVERY PLANT
3,000 Yards per 24 hours

2,000 Ft. 2" T&G lumber			$ 100.00
1,000 Ft. 2X4 rough	2,000 1" rough		35.00
1- 10 Ft. X 6 Ft. steel plate			40.00
2- 6 Ft. X 8 Ft. X 1/8th" steel vats			50.00
60 sq. yds. Steel wire 1" Mesh			65.00
150 Ft. ½X1/8th Inch angle iron		$30.	125.00
Mess. screen, burlap, nails, Etc.			200.00
Engineering and labor			750.00
	Total		1395.00
Cost to install			300.00
Repair road			150.00
Dam const.			200.00
Buildings			600.00
Clearing land	Total		150.00
		$	2,795.00
	Pipe line		10,814.00
		$	13,609.00

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Mr. Browns Report - cont'd.

Please note field maps herewith and you will notice that my drilling was started in the center of section two, location, one, and as we moved East the assay reports were better and give an average for the last ten holes of $0.85687 per C. Yard, Au.

Also refer to the underground map and you will note I went to bed rock with holes No. A-B-C-D, and that it has a good grade of 1½% for hydraulic mining.

The conditions as a whole are ideal for hydraulic mining. The weather is good for all year operations. Plenty of water and levels that permit required pressure and more than enough tailing room with a 150 Ft. fall to bottom of tailing ground.

My drilling examinations cover 50 acres in central portion of the property which has an average depth of twenty five feet to bed rock, proving 2,000,000 Cu Yards of good pay dirt.

This is one of the best placer mines I have examined in this country or old Mexico.

The deposit covers many more acres which I have not fully tested.

All samples were assayed by a reliable, independent assayer, and the above engineering data for hydraulic mining is correct.

Signed: F. C. Brown

Note:

While I am not in accord with some of the figures, statements and assumptions contained in Mr. Brown's report it has been herein inserted for what it is worth. I am advised Mr. Brown's employers stopped further procedure. JHC.

CONFIDENTIAL

CLIMATILOGICAL DATA.

The climate seems to be most ideal for year around operations. A cross section of the pertinent data is herebelow given, which will speak for itself.

Taken from Gov't. Files, Port Orford, Oregon.

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	An.
			AVERAGE PRECIPITATION IN INCHES									
11.44	8.14	7.15	5.36	3.62	2.0	.45	.42	3.05	5.00	9.5	10.9	67
			AVERAGE SNOW FALL									
0.7	0.0	0.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	11
			AV. NO DAYS OF 0.01 OR MORE PRECIPITATION									
19	17	15	12	10	6	2	2	7	10	15	17	132
			AVERAGE TEMPERATURE									
45.9	46.6	47.9	49.6	51.8	55.3	56.3	59.2	57.7	44.5	49.7	47.2	52

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JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	AN.
AVERAGE MAXIMUM TEMPERATURE												
52.	53.	54.6	56.7	58.7	62.6	65.2	61.6	56.3	53.5	52.0	52.	58
AVERAGE MINIMUM TEMPERATURE												
39.5	39.7	40	42.	44.	47.4	50.8	50.5	49.5	46.9	43	40	44.5
HIGHEST TEMPERATURE												
70	76	79	78	84	80	86	85	89	86	78	71	89
LOWEST TEMPERATURE												
20	24	27	28	32	36	41	37	37	30	24	20	20
PREVAILING WIND												
S	S	N	NW	NW	NW	NW	N	N	N	S	S	NW

CONCLUSIONS:

This property is not the usual run of placer property where upon the gold values can be saved by the conventional methods. However, there is much yardage available and laying well and at good and consistent metallic value.

The problem, here, is not one of mining as the geographical location and the geophysical conditions are good.
The problem is to install proper method of concentration and treatment.

Simple concentration and concentrate treatment by cyanide seems to be a method of sure success and profit.

Testing out and sampling can be carried on at nominal costs.

The equipment suggested is about one mile 16 inch to 8 inch steel pipe line; reservoir at an elevation above highest plane of the deposit; a half mile of eight inch steel pipe line from reservoir to the work; hydraulic or mechanical excavating set up, such as boom drag line, Sauerman set up, bulldozer or shovel; washing and concentrating set up with recovery plant and living accomodations.

The recovery method suggested is rough concentration and cyanideation on the property. A recovery of over 90% should be fairly easy to maintain without grinding and at nominal expense.

A gross capitalization of thirty thousand dollars should be ample to put the property under profitable production.

The owner wishes to dispose of the property outright or will lease it out on a work out lease to good and substantial operators, on a royalty basis, provided owner is satisfied operators can and will go through to successful conclusion.

To such operators the owner will give the most fair terms and considerations and would like to retain the ground after all mining shall have been finished.

Any further information desired please feel at liberty to communicate with the undersigned or the owner direct.

Only the true facts pertaining to the property will be given persons interested.

Signed;

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