DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

FIELD TEAM, REGION II

FINAL REPORT

Contract Idm-E351

by

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Docket No.:	DMEA-2265
Commodity:	Monazite-Columbium-Tantalum
Contract date:	June 23, 1952
Completion date:	August 23, 1953

PADDY FLAT PLACER DEPOSIT
Paddy Flat Mining District
Valley County, Idaho

Spokane, Washington

July 1954

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INTRODUCTION

This report describes a project carried on by Cosumnes Gold Dredging Company, Inc., under a exploration contract with the Defense Minerals Exploration Administration to prospect a monazite-columbium-tantalum-bearing placer deposit at Paddy Flat, Valley County, Idaho.

Summary and Recommendations

Thirty-five drill holes in this placer deposit indicated at least 30,000,000 cubic yards of gravel having an average depth of approximately 12 yards. A composite sample from the drill holes was concentrated in the laboratory, recovering a monazite concentrate estimated to be equivalent to 0.42 pounds per cubic yard of original gravel. The recovered columbium-tantalum minerals were negligible.

A Certification of Discovery or Development is not recommended because this exploration project did not disclose a placer deposit which could be profitably exploited for its monazite and columbium-tantalum mineral content. The property has been adequately prospected, and it is recommended that any future applications for Government exploration assistance be denied.

LOCATION AND ACCESSIBILITY

The Paddy Flat placer deposit is located in Valley County, Idaho. The deposit may be reached readily by driving about 3 miles north of Donnelly on Highway 15, then east about 9 miles on a mountainous, dirt county road to the Paddy Flat Forest Service Guard Station. Refer to figures 1, 2, and 3 for the location and approximate areal extent of the deposit.

The placer is located in a valley having a general north-south direction at an elevation of about 5,000 feet and experiences sub-zero winter weather and heavy snows. The summer weather is mild and pleasant. The north end of the valley extends about a quarter of a mile north of the county road and is heavily wooded. South of the county road the valley extends a distance of 1½ miles and is sparsely wooded.

PROPERTY

Although title records of ownership have not been searched, the mining properties under lease, lease options, and options to purchase, or held by placer mine locations, by Cosumnes Gold Dredging Company, Inc., appear to consist of three groups of properties in the Paddy Flat mining district along the North Fork of Gold Fork River, Valley County, Idaho. Figure 2 shows the locations of some of these properties and the ones which were prospected under the contract.

Most of the project contract work was confined to the C. V. Loomis property and land immediately adjacent to it. An Owner's Consent to Lien agreement, which is part of the DMEA exploration project contract, infers that an agreement dated November 9, 1951, between Clarence V. Loomis and Vida Loomis, parties of the first part, and G. M. Standifer and Merrill Yost, parties of the second part, who, in turn, assigned their interest to Cosumnes Gold Dredging Company, Inc. The terms of the agreement were not disclosed, but figure 2 indicates that about 600 acres were involved which are believed to be owned by virtue of homestead patents.

There seemed to be some question as to the validity of the locations of the Zircon and Ilmenite claims throughout the duration of the project. Reportedly, three different sets of locators staked overlapping claims at approximately the same time. Presumably, the issue has never been settled.

The third property consisted of a group of 19 placer mining claims situated in the same general area as the other properties. A Quit Claim Deed, No. 44241, dated April 7, 1952, by Frank McElhone and Betty McElhone, his wife, of Fields, Oregon, deeded the 19 claims listed below to George Denison of Weiser, Idaho. An earlier Quit Claim Deed, No. 44254, dated November 9, 1951, by Harold Hollman and Irma Hollman, his wife, of Downeville, California, also deeded 11 of these same claims to Raymond M. Carrey of Weiser, Idaho. An Owner's Consent to Lien was granted by the Carreys and Denisons, which is also a part of the DMEA exploration project contract.

Claim locations are filed in the office of the County Recorder, Valley County, Idaho.

Claim	Approx. Acres	Location	Book of Placer Mining Claims: Book	Page
Half Moon #1	160	T. 16 N., R. 4 E. of B.M.	?	?
Half Moon #2	160	T. 17 N., R. 4 E. of B.M.	?	?
Half Moon #3	160	T. 17 N., R. 4 E. of B.M.	?	?
*Half Moon #4	40	SE¼NE¼ sec. 34, T. 17 N., R. 4 E. of B.M.	5	530
*Half Moon #5	40	T. 17 N., R. 4 E. of B.M.	?	?
*Half Moon #8	160	T. 17 N., R. 4 E. of B.M.	5	122
*Elk Group	160	SW¼ sec. 26, T. 17 N., R. 4 E. of B.M.	5	534
*Jeep Claim #1	160	Sec. 27, T. 17 N., R. 4 E. of B.M.	5	532
*I Found It	160	Sec. 30, T. 17 N., R. 5 E. of B.M.	5	538
*Full Moon	160	Sec. 21, T. 17 N., R. 4 E. of B.M.	5	531
*Owl Group	160	Secs. 30 and 31, T. 17 N., R. 5 E. of B.M.	5	537
*Mink Group	160	NW¼ sec. 26, T. 17 N., R. 4 E. of B.M.	5	533
*Swamp Group	160	NE¼ sec. 27, T. 17 N., R. 4 E. of B.M.	5	536
*Beaver Dam	160	W½ sec. 31, T. 17 N., R. 5 E. of B.M.	5	535
Bing #1	160	?	5	332
Bing #3	160	?	5	419
Old Gold	160	?	5	420
Lost Cat	160	?	5	421
Ranger	160	SE¼ sec. 27, T. 17 N., R. 4 E. of B.M.	6	9

*Claims quit claimed to Raymond M. Carrey

The several leases and agreements are believed to have been terminated by Cosumnes Gold Dredging Company, Inc., after completion of the project field work.

The Paddy Flat placer deposit is located in a valley and is covered by heavy timber at the northern end and sparsely wooded to the south.

Several bench cuts and two old abandoned ditches for conveying water indicate that portions of the southeast corner of the deposit were placer mined for gold years ago.

THE PROJECT

The occurrence of monazite in the Paddy Flat gravels was reportedly noted by Raymond M. Carrey several years ago. During the summer of 1951 Messrs. Merrill Yost and E. Knutsen of the Cosumnes Gold Dredging Company, Inc., became interested in Paddy Flat Valley and drilled three holes with a churn drill. One hole was drilled near the junction of Kennally Fork and Gold Fork, another near the Forest Service guard station on Rapid Creek, and the third on the Loomis homestead on Camp Creek. Samples from all of the holes contained monazite, magnetite, ilmenite, and garnet. Four holes were also drilled near the junction of Kennally and Powelson Creeks and showed black sands containing monazite. Several samples were taken of exposed gravel banks, which also showed the presence of monazite.

The apparent size of the deposit and quantity of monazite in the drill hole samples seemed sufficiently interesting to warrant further exploration. An application for a DMEA exploration project contract in the amount of $19,055 was filed November 12, 1951. The application proposed a 5-month drilling campaign and concentration of the drill hole samples in a pilot plant. Later, a more specific revised proposal was submitted. This application was approved and a contract in the amount of $28,825 was granted June 23, 1952.

The project was divided into two stages. Stage I specified drilling ten 20-inch diameter holes with a clam shell drill to an approximate depth of 35 feet each and concentrate the material from the drill holes in a pilot plant and have the concentrate samples analyzed. Stage II, which was contingent upon the results of Stage I and the approval of the Field Team, consisted of not more than 50 additional drill holes, concentration of the drill hole samples, and analysis of the samples.

A barn near Cascade, where power and water were available, was remodeled to house the pilot screening-gravity concentration plant. The plant consisted of scales, a 24-by 30-inch laboratory-size revolving trommel with five-eighths-inch and 10-mesh screens, and a 3½-by 7-foot laboratory Wilfley shaking table and accessory equipment.

Pilot plant operating procedure was to receive the sample by truck from the drill site and weigh it wet. Occasionally, moisture determinations of the samples were made; otherwise, the moisture was estimated. The entire sample was fed to the trommel. The plus 10 mesh minus five-eighths inch, the plus five-eighths inch and sludge products were also dried and weighed.

The minus 10-mesh sands were tabled to recover a black sand concentrate and tailing which were dried and weighed. Gravel sizes were determined to provide data for possible future use in estimating the amount of material the jigs would be required to handled on a dredge.

Nine black sand concentrate samples were submitted to Dings Magnetic Separator Company at Milwaukee, Wisconsin, for high intensity magnetic separation laboratory tests to separate the concentrate into its various components, i.e., magnetite, ilmenite, zircon, garnet, monazite and tailing. The results were poor because clean separations were not attained by their magnetic separator with the result that monazite was present in several products and the monazite concentrate was contaminated with other minerals and too low grade to be salable. It was evident that a Carpco high tension separator, such as is used at the Boise, Idaho monazite concentration plant, would be required to make a satisfactory separation.

A composite sample of black sand concentrates from 14 drill holes was beneficiated at the laboratory of Porter Bros. Corporation at Boise, Idaho. This laboratory is basically equipped with an attrition mill, tables, dryer, screens, low intensity magnetic separator, Dings cross belt magnetic separator, and Carpco high tension separator. Treatment is similar to the one employed to beneficiate black sands from the dredges near Cascade, Idaho, to a monazite concentrate.

Nine major products were recovered and further concentrated by tabling at the Bureau of Mines laboratory at Albany, Oregon, and the various products analyzed. See table 9 for detailed results of these tests.

Composite samples of 14 of the Paddy Flat drill holes were analyzed by methods developed by the Geological Survey in the course of a study of placer deposits in west-central Idaho. The analyses were by John Kolars, who has made many of the Survey analyses. The procedure followed by Kolars is outlined in table 6. Table 2 is a summary of the mineral content of the 14 samples and table 2a lists the detailed descriptions of the heavy minerals according to each fraction.

A novel 22-inch clam shell bucket shaft sinking drill was used instead of the conventional type churn drill. This drill is

mounted on a 2-ton truck and is powered by an independent 125 c.f.m. portable air compressor. The string of tools with the clam shell bucket at the end is raised and lowered by a Gardner-Denver 5-cylinder air-driven hoist. The bucket is actuated by air with a closing pressure of 8,000 pounds per square inch on the jaws and is rotated a quarter of a turn each time through a ratchet making a smooth, round hole. This particular drill rig is capable of handling a 16- to 36-inch bucket. The weight of the string of tools is about 1,480 pounds. The drill operates by lowering the string of tools into the hole, driving the teeth into the ground, closing the jaws of the bucket and hoisting the loaded bucket to surface. When the ground is hard, the bucket is raised several feet above the bottom of the hole and dropped to imbed the bucket teeth in the ground.

The casing is conventional threaded casing with a drive shoe and drive head. When the casing has been driven to the desired depth, the drive block is removed by relieving the air pressure on the teeth, releasing the block. Then the dirt is dug out of the inside of the casing to the bottom of the drive shoe and the operation repeated. When a boulder is encountered that is too large for the bucket, it is usually broken with dynamite. Casing is pulled by a split-pulling head screwed onto the top joint. The tools serve as a pulling hammer and the casing is hammered out in the usual manner.

Seven of the 10 holes drilled for Phase I reached bedrock. With the exception of holes PF-102Y and PF-105Y, the holes were located on the rim of the deposit. Since the black sand concentrate samples were not beneficiated to a clean monazite concentrate at the time of the drilling during Stage I, the decision to start Stage II was based on hand-panning results and the fact that there appeared to be a large yardage of gravel.

Upon the completion of a total of 35 holes, the Operator was satisfied that there was a large enough deposit to dredge, and the field work was terminated before the completion of the 50 holes provided for in Stage II. Another reason for shortening the drilling at Paddy Flat was that the Operator was eager to complete the drilling at the White Hawk deposit in White Hawk Basin at an elevation of 6,100 feet and 45 miles southeast of Paddy Flat before the winter set in.

The drilling was not done on a planned grid; instead, holes were drilled indiscriminately here and there as is evident by referring to figure 3 showing the location of the drill holes.

Many of the holes failed to reach bedrock principally because the holes were not cased and caved. When a hole caved, it was considered completed. Hole No. PF-110Y was drilled to a depth of 84 feet which was the depth limit of the drill. Failure to case the holes was

not the fault of the Operator. Casing had been on order for months with the Yuba Manufacturing Company, San Francisco, but deliver was not made until the contract had been almost completed.

GEOLOGY

General statement. The principal bedrock types of the Long Valley-Cascade Valley area, of which the Paddy Flat mining district is a part, are (1) gneissic and granitic rocks of the Idaho batholith, overlain unconformably by (2) Columbia River basalt flows. Paddy Flat is a small north-south lowland, aligned with the much larger Cascade Valley on the south, and paralleled by Long Valley on the west. The geologic relationships indicate that these lowlands were formed by block faulting in late Tertiary and Pleistocene time. Paddy Flat is underlain chiefly by gneissic granite, with one remnant of basalt, preserved in the western part of the lowland, in fault contact with gneissic rock of the ridge that separates Paddy Flat from Long Valley.

The deposits explored by the Cosumnes Gold Dredging Company, Inc., are a complex assemblage representing at least three Pleistocene glacial stages, and possibly one or more interglacial stages. The deposits are "nested", that is, each younger unit lies in a valley cut on the next older unit. The complexity of these nested fills, and a heavy cover of soil and vegetation, made it impossible to gain more than a generalized picture of the geology during the brief period spent in Paddy Flat in the course of a reconnaissance study of placer deposits of west-central Idaho (TEM 473 and 602).

Interpretation of the geology of the Paddy Flat deposits is based in large part on general principles developed in the regional study. References to the preliminary reports on that study, cited above, will eliminate the need for extended explanations here.

Origin of the deposits. The oldest of the Paddy Flat deposits makes up a ridge between Rapid Creek and Kennally Fork. The deposit is locally at least 180 feet thick, from below the level of the present streams to the ridge crest. In some places bedrock crops out high on the slopes of the ridge. The deposit is, therefore, interpreted as a thick fill in a former bedrock valley, the trend of which did not correspond exactly with the trend of the present ridge. The topographic relations, deep weather of the deposit, and the fact that it contains a high proportion of granitic pebbles (TEM 602) suggest that it is glacial outwash of early Pleistocene age. Smaller bodies of similar deeply weathered gravels occur on high terraces on the east side of Kennally Fork, as much as 300 feet above the stream, and at the level of Paddy Creek north of the junction of Paddy Creek and Camp Creek. Very small amounts of gold in these remnants of the oldest of the Paddy Flat deposits led to considerable prospecting and some scale placer mining years ago.

Late Pleistocene outwash deposits are represented by (1) moderately weathered gravels making up a dissected bench between Camp Creek and Rapid Creek, and (2) slightly weathered gravels of a low terrace on the east side of Rapid Creek. Both of these deposits can be traced northward, up Rapid Creek, into moraines showing corresponding degrees of weathering.

Gravel deposits on a bench between Paddy Creek and Camp Creek, and on a bench west of Paddy Creek, are higher above the present streams than the late Pleistocene outwash deposits and are, therefore, probably somewhat older. Because neither of these high bench deposits can be traced upvalley into moraines, it is uncertain whether they were formed in a glacial or an interglacial stage. An interpretation of origin based chiefly on the mineralogy will be outlined below.

Because of its low altitude, the headwater part of Paddy Creek was not glaciated during the late Pleistocene stages; gravels of the Paddy Creek valley floor are, therefore, normal stream deposits, rather than glacial outwash.

Table 7 shows the mineral composition of a total of 87 samples, divided into groups on the basis of these five geologic units, and several other minor units. This total includes composite samples for the 14 Cosumnes drill holes listed in tables 2 and 2a; grab samples collected from the spoil heaps adjacent to 15 additional Cosumnes holes; samples of various types from surface exposures of gravel and bedrock; and bar samples from the beds of the present streams. Much of this data, as that bearing on the heavy mineral content of the bedrock, is of academic interest only and has no place in this report. The mineralogic data for 49 samples taken from the five main depositional units mentioned above is summarized in table 8. It should be noted that the sampling was not systematic and that there is considerable variation in mineralogy within each of the depositional units. The figures in the table are averages of the samples, with no attempt at weighing; they would not be sufficiently accurate for appraisal purposes if any of the deposits were close to the economic borderline. In this respect the table merely confirms the conclusion based on the drilling; namely, that there is not enough monazite in any of the deposits to support a mining venture at the present time. The figures in the table are sufficiently representative to serve as a basis for discussion of the geologic factors that explain differences in grade between the different Paddy Flat deposits, and between these deposits and those now being dredged in the neighboring Cascade Valley.

Amount of total concentrate. One of the most important of the several factors bearing on concentration of heavy minerals by a stream is the degree of weathering of the bedrock in the source areas; other things being equal, the more thorough the weathering of the bedrock, the larger the concentrate (TEM 602). A systematic decrease in

the amount of heavy mineral concentrate in the three progressively younger glacial outwash deposits in the Paddy Flat district conforms with the progressively shorter duration of the interglacial periods during the Pleistocene (TEM 602). The oldest outwash (Rapid Creek-Kennally Fork Ridge) averages 37 pounds per cubic yard; the intermediate outwash (Camp Creek-Rapid Creek Bench) averages 29 pounds; and the youngest outwash (Rapid Creek Terrace) averages 20 pounds.

A second factor involves a difference between two processes of erosion; namely, glacial erosion versus normal stream erosion. Other things being equal, deposits of glacial outwash ordinarily make poorer heavy mineral concentrates than the deposits of normal streams (TEM 602). This principle is illustrated by the high total concentrate of the Paddy Flat Valley floor deposit (46 pounds per cubic yard), in contrast with the average of the three outwash deposits mentioned above (29 pounds per cubic yard).

A third factor, the importance of which can be demonstrated elsewhere, is rate of upbuilding of the deposit; other things being equal, the total concentrate is inversely proportionate to the rate of deposition (TEM 602). A fourth factor, which obviously lies behind all of the others, is the bedrock content of the heavy minerals. These last two factors are difficult to evaluate in a district as imperfectly known as Paddy Flat. Some combination of them, or perhaps of all four factors, may explain the exceptionally low total concentrate (17 pounds per cubic yard) in the Paddy Creek-Camp Creek bench deposit.

Magnetite content of the deposits. In general, the magnetite content of placer deposits varies erratically throughout west-central Idaho. There is reason to believe (see below) that this is due chiefly to selective destruction of magnetite by humic acids on boggy floodplains; a stream with a high content of magnetite entering a floodplain or boggy meadow usually carries little of this mineral at the lower end of the swampy segment of its valley floor. There is, therefore, no consistent relationship between the magnetite content of the bedrock of a given drainage basin and the deposits derived from that drainage basin under different conditions; moraines, glacial outwash, and the deposits of non-floodplain streams may carry high proportions of magnetite, while deposits of floodplain streams from the same source areas may contain almost no magnetite. The gross variations in magnetite content (from zero to as much as 70 percent) tend to mask the meaning of the percentage weights of all of the other minerals in a suite of samples. For this reason, table 7 shows the weight of the total concentrate in pounds per cubic yard, the percentage weight of magnetite, the percentage weights of all of the other minerals calculated on a magnetite free basis, and finally, the amount of the important placer minerals in pounds per cubic yard. This arrangement eliminates the distorting effect of magnetite on the percentage weights of the other

heavy minerals, which is critical for most geologic purposes and brings out also the amounts of these minerals per unit volume, which is significant for economic purposes.

In contrast with the bench and terrace deposits of the Paddy Flat district, which average about 50 percent magnetite in the heavy mineral fraction, the beds of the modern streams generally carry very low percentages of this mineral. For example, the Paddy Creek and Camp Creek gravels contain less than 1 percent of magnetite where these streams are meandering on boggy valley floors. The magnetite content of the gravels of these and other modern streams varies somewhat from place to place in the district, the variations being clearly dependent on local contamination where the streams are cutting sidewise into older high magnetite deposits. An exceptionally high magnetite content in the lower part of Kennally Fork is due to heavy contamination by tailings from placer workings on Kennally Fork Terraces. Because the modern stream gravels are derived from the same drainage basins as the glacial outwash, it is evident that the differences in magnetite content are due to conditions of deposition.

In view of these relations, lenses of low magnetite gravel that occur from place to place as interbeds in the high magnetite deposits of the Paddy Flat district are interpreted as having been formed under temporary or local floodplain conditions during the periods of upbuilding of the glacial outwash deposits. It is likely that some deposits with a low over-all average of magnetite, as those comprising the Paddy Creek-Camp Creek Bench, were formed under valley floor conditions approximating those of the present time. The unusually high content of magnetite indicated by a few samples from the bench deposits west of Paddy Creek (70%), together with the subangular shapes and generally poor sorting of the pebbles, suggest that these consist of slope wash derived from the adjacent hills by local, non-floodplain streams.

Monazite content of the deposits. Monazite occurs as an accessory mineral in the granitic rock of the Idaho batholith. Numerous samples of bedrock and residual soil indicate that a north-northeasterly-trending belt of gneissic granite, in which the Paddy Flat drainage basin lies, contains very much less monazite than an adjoining belt of massive granite, on the east, from which the Cascade Valley deposits were derived. These belts are not sharply defined, and the monazite is not uniformly distributed in either of them; nevertheless, the sampling indicates that the average content of monazite in the eastern granitic belt probably exceeds that in the western gneissic belt by at least 10 times. For this reason, it is unlikely that concentrations of monazite comparable in grade with those in Cascade Valley could have been formed in Paddy Flat even under favorable conditions.

The percentage weight of monazite in the three main glacial outwash deposits varies in the same sense as the weight of the total heavy mineral concentrate in these deposits, and probably for the same reasons. The proportion of monazite in the heavy mineral fraction averages 2.5 percent in the oldest outwash (the Rapid Creek-Kennally Fork Ridge); 1.3 percent in the intermediate outwash (the Camp Creek-Rapid Creek Bench); and 0.04 percent in the youngest outwash (the Rapid Creek Valley Floor and Terrace), as calculated on a magnetite free basis. The corresponding figures for these three deposits in pounds per cubic yard are 0.4, 0.2, and 0.04. The low monazite content of the Paddy Creek-Camp Creek Bench deposits (0.2 pounds), and the bench deposits west of Paddy Creek (0.01 pounds), both mainly of local origin, reflect the low average and variable monazite content of the local bedrock. The relatively high proportion of monazite in the Paddy Creek Valley Floor deposit (2.2%) reflects a somewhat higher content of monazite in the bedrock in the upper drainage basin of this stream, and possibly some reconcentration of monazite from the adjacent bench deposits. The actual amount of monazite in the Paddy Creek deposits (0.6 pounds, the highest in the district) is a result of the combination of (1) a relatively high percentage weight, and (2) the high total concentrate characteristic of normal alluvium as opposed to glacial outwash.

Other radioactive minerals in the deposits. Xenotime, a close associate of monazite, occurs in the Rapid Creek-Kennally Fork Ridge deposits and in bar samples from Kennally Fork; the amount is usually less than 0.1 percent of the total concentrate. A few grains of euxenite were found in 5 of the 87 samples. Allanite occurs throughout the district in amounts ranging from zero to 0.5 pound per cubic yard.

Conclusion. The relatively poor concentration of monazite in the deposits of the Paddy Flat district, in contrast with the deposits of the neighboring Cascade Valley, is due (1) to a low content of monazite in the bedrock, and (2) the fact that most of the deposits are glacial outwash. Sampling of surface exposures over the entire district indicates that no sizable high-grade deposits are present, and that the drilling data obtained in the DMEA project provides a good general appraisal of the monazite reserves.

Exploitation Possibilities

Recoverable reserves:

The mineral content of the black sands was estimated in the 8 products resulting from mineral separation determinations of each of the black sand concentrates from 14 drill holes made by John F. Kolars.

The weighted average of 14 black sand concentrate samples indicates that the original placer gravel contains the following mineral content per cubic yard. Please refer to table 2 for details.

Monazite	0.3	lbs.	per	cu.	yd.
Magnetite	18.9	"	"	"	"
Ilmenite	11.6	"	"	"	"
Garnet	3.4	"	"	"	"
Black sand concentrate	60.0	"	"	"	"

The results of the combined tests made at the Porter Bros. Corporation laboratory and the Bureau of Mines laboratory at Albany, Oregon, are shown in table 9 in the Appendix.

The tests indicated that although tantalum-columbium minerals were present in the black sand samples, the final concentrates were too low grade and of negligible amounts to be marketable or of interest.

A monazite concentrate analyzing about 0.18 percent U_3O_8 and 48.2 percent REO was recovered. Approximately 0.28 pound of combined U_3O_8 and REO was recovered per cubic yard of original gravel, which is equivalent to about 0.42 pound of monazite containing 67 percent REO. This concentrate would have to be upgraded to at least 55 percent REO to be salable without penalty.

A bare minimum of 1 pound of monazite per cubic yard of gravel under average conditions is generally considered the break-even point with monazite at $375 per ton or 18-3/4 cents per pound. The cost of beneficiating the black sand concentrate to a marketable monazite concentrate will add several cents per cubic yard of gravel to the actual dredging costs.

Mr. Merrill Yost, general manager, was considering the recovery and beneficiation of by-products from the black sand concentrates in addition to the monazite. He was of the opinion that the magnetite could be economically smelted to pig iron in an electric furnace and the ilmenite smelted to recover titanium dioxide for paint pigment and pig iron. The garnet would be recovered for sale as abrasives.

Mr. Yost made the following estimates in the Operator's final project report dated October 26, 1953.

	Total dredgable gravel	35,000,000 cu. yds.	
Magnetite	15.1 lbs/cu.yd. @ 1/2¢/lb. f.o.b. Donnelly, Ida.	$0.075	
Ilmenite	7.7 lbs/cu.yd. no quotation	0.00	
Garnet	3.6 lbs/cu.yd. @ 2½¢/lb. f.o.b. Donnelly, Ida.	0.09	
Monazite	1.2 lbs/cu.yd. @ 18¢/lb. f.o.b. Donnelly, Ida.	0.216	
	Total value per cubic yard		$0.381
	Dredging cost per cubic yard	$0.120	
	Royalty	0.038	
	Black sand beneficiation, administration, shut-downs, engineering, transportation, etc.	0.140	
	Net operating costs before taxes, interest and amortization		0.298
	Net operating profit before taxes, interest and amortization		$0.083

Yost concluded: "Due to the high cost and extremely difficult separation of the sands we would not be interested in proceeding with the project. The margin is too close for the high capital investment."

The fallacy in the estimates lies in the fact that the monazite content is about a quarter of Yost's estimate and the gross magnetite content is probably too low to warrant the capital expenditure for an electric furnace plant. The quality of the garnet for abrasive purposes has never been determined.

The extremely irregular spacing of the bucket drill holes and the fact that many of the holes did not reach bedrock because of caving for lack of casing makes it impossible to estimate the volume of gravel in the deposit with any degree of accuracy. The actual cubic yardage of gravel in the deposit will be greatly in excess of the following calculations simply because the holes did not bottom at bedrock.

Figure 3 shows the location, hole number, hole depth, holes in the gravel channel used for calculating gravel yardage and approximate

outline of the channel. The following factors were considered in delineating the deposit:

1. Comments of Mr. Yost on individual drill hole logs regarding feasibility of dredging various areas.

2. Depth of gravel to bedrock.

3. Estimated monazite and black sand concentrate per cubic yard of gravel based on Cascade pilot plant test results.

4. Bedrock outcroppings.

5. Topography of the ground, especially high steep benches.

The deposit was outlined on the map and arbitrarily divided into five areas which were measured on a map having a scale of 1 inch equals 400 feet. Figure 3 has a scale of 1 inch to 800 feet. The areas were converted to square yards and an arithmetical average depth of the holes in and bounding each area was used for calculating the volume of each block.

The estimated volume by areas showed the following total cubic yardage for the deposit.

Area No. 1	10,661,700 cubic yards
Area No. 2	4,928,200 cubic yards
Area No. 3	1,671,100 cubic yards
Area No. 4	8,340,300 cubic yards
Area No. 5	886,100 cubic yards
Total	26,487,400 cubic yards

See Table 3 for calculations.

The arithmetical average depth of the holes in the channel times the surface area of the deposit checks reasonably well with volume when the prismoid method of calculation is used.

12.2 yds. deep x 2,463,300 sq. yds. = 30,052,260 cubic yards

Yost estimated 51,400,000 cubic yards by projecting hole depths to an imaginary bedrock.

The weighted average mineral content of the 14 samples shown in table 2 was applied to the total volume of gravel in the whole deposit. The volume-assay product for each prismoid was considered an unnecessary refinement of calculations because of too many unknown factors. The monazite content of the 14 samples was within a reasonable range of magnitude so that the weighted average assay was applied throughout the deposit. Refinements in calculations would have been more in order if the grade of gravel was borderline.

The black sand concentrates from the dredges near Cascade that are shipped to the Boise beneficiation plant contain a considerable amount of slimes accumulated from the muddy water in the dredge ponds. An unhealthy dust hazard is created when the concentrates are dried in a rotary kiln. The slime dust coats the monazite particles thereby partially insulating them from the Carpco high tension separator rotor, as well as coating the revolving rotor and changing the gap between the electrode and rotor. This slime condition causes inefficient and erratic operation of the separator.

No actual tests were made to determine the percent monazite recovered in the black sand concentrate by the dredge. Reportedly, the dredges near Cascade recover better than 90 percent under normal operating conditions. This would seem to be a reasonable estimate to assume for a Paddy Flat dredging operation.

Based on the estimated contents of the black sand concentrate samples (table 9), the rough dredge concentrate might contain approximately the following:

Magnetite	26	percent
Ilmenite-garnet	28	"
Monazite	1	"
Others (quartz, feldspars, etc.)	45	"

If the magnetite were discarded on the dredge with a wet magnetic separator, the weight of concentrate would be reduced about 26 percent and the monazite content increased to roughly 1.3 percent.

The Boise sand plant is believed to recover about 90 percent of the monazite from the black sand dredge concentrate. This seems to be a reasonable recovery to assume that could be recovered from a Paddy Flat black sand concentrate. The estimated over-all monazite recovery from the gravel to marketable monazite concentrate would approximate 80 percent in a plus 60 percent R.E.O. product.

The beneficiation process would probably be somewhat similar to the Boise plant. The net black sand concentrates would be dried, screened to discard the plus 20-mesh sands, remove the ilmenite by Carpco high tension separators, then remove and discard the non-magnetics by Carpco induction rolls and beneficiate the monazite inmultiple pole Dings electromagnetic separators, discarding the quarts, faldspar and zircon tailings.

Summary of Factual Data

Work

The contract was in the amount of $28,825, of which $25,942.50 was the Government's participating share. A preliminary audit of the accounts shows $15,849.23 was spent on the project, of which amount the Government contributed $14,193.22.

Thirty-five 22-inch diameter clam shell bucket drill holes were drilled, aggregating 1,106 lineal feet, which excavated about 108 cubic yards of gravel samples. Final calculations show the drilling cost $14.33 per foot, equivalent to $146.75 per cubic yard of gravel samples excavated.

Depending upon the depth of the hole, a quarter of, half of, or the entire sample excavated from the hole was trucked to the pilot plant at Boise for concentration. Approximately 46 cubic yards of sample was concentrated in the pilot plant.

Detailed costs are given in the Appendix.

Equipment

The following items of equipment were purchased new for the contract and are stored at the Surcease Mining Company warehouse, Randsburg, California.

Item	Purchase price
10 steel casing, 22" OD x 11/32" x 3' long 10 steel couplings, 1" x 6" x 5", 10-11/16", bent	$1,685.13
1 drive shoe 1 drive cap	465.55
1 fabricated steel pulling head	429.27
2 - #15 Vulcan pipe tongs	130.20
2 - 25-ton hydraulic jacks	160.60
	$2,870.75

The casing, couplings, drive shoe and drive cap were custom built by Yuba Manufacturing Company, San Francisco, California, and although never used probably will have little resale value.

The Operator has waived his equity in this equipment.

The equipment has been advertised for sale and bids have been solicited from likely prospective purchasers without success.

Since the casing, coupling, and drive shoe and cap are custom made the final disposition will probably be for scrap.

Discussion of Conclusions

The Operator was well equipped with a 22-inch clamshell bucket drill, portable air compressor, trucks and a competent, experienced drill crew. Failure of the Yuba Manufacturing Company to deliver the casing, couplings, drive shoe and cap made it necessary to terminate holes when caving occurred. This could have been prevented if the casing had been available throughout the project. The casing was finally delivered at the end of the project when it was no longer needed. The deposit was considerably deeper than the estimated 35 feet in some places so that even with the 30 feet of casing on order the same caving condition would have prevailed on the deeper holes.

The Operator, represented by Mr. Merrill Yost, general manager, is a competent placer-dreding operator with many years experience and was sincere and diligent in prosecuting the drilling and sampling. Minor difficulties were experienced with their bookkeeping.

The actual drilling operations, except for the inability to case holes, was quite satisfactory. The drilling program seems poorly planned as evidenced by the irregular spacing of the holes and large areas in the central part of the gravel channel that were only sparsely drilled. The southern portion of area 1 was heavily drilled. Area 4, which was the largest, was barely drilled and then only on the rims of the channel.

The concentration of the drill hole samples to black sand concentrates at the pilot plant was reasonably well done. The final concentration of the black sand concentrate to recover a marketable monazite concentrate is a complex process which the Operator did not fully understand nor was capable of accomplishing for lack of proper equipment and trained personnel.

The 35 drill holes tested the placer deposit reasonably well. The monazite content of the drill hole samples was fairly uniform and averaged about 0.4 pound per cubic yard. Under present economic

conditions, approximately 1 pound per cubic yard is a bare economic minimum at which a dredging operation can be conducted.

Operators were under the false impression that by-product magnetite, ilmenite, and garnet concentrates could be profitably marketed and with the returns from the monazite result in a successful operation.

No recommendations for further exploration are warranted.

Enclosures(3)
Distribution:
DMEA(4)
USBM(5)
Dockst
USGS(SRO)
Mackin
Bardill
Armstrong

APPENDIX

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Detailed Summary of Project Costs

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2 - Claim Map with drill hole locations. *

3 - Areal Map showing drill hole locations and gravel channel.*

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2 - Summary of Estimates of Contents of Black Sand Concentrates and Gravel.

2a- Detailed Description of Heavy Mineral Contents of Drill Hole Samples.

3 - Paddy Flat Placer Yardage Calculations.

4 - Estimated Mineral Content of Paddy Flat Placer Deposit.

5 - Description of Drilling Conditions and Estimated Mineral Content.

6 - Procedure Used in the Mineralogical Analysis of the Drill Hole Placer Concentrates.

7 - Heavy Mineral Content of Paddy Flat Placer Samples. *

8 - Summary of Mineralogical Data of Paddy Flat Placer Samples.*

9 - Summary of Beneficiation Tests on Composite Sample of Paddy Flat Placer Black Sand Concentrates.

Procedure Used by Porter Bros. Corporation for Concentrating Black Sand Concentrates.

Copies of field logs of all drill holes. *

* See folder

APPENDIX

Detailed Summary of Project Costs

Costs to drill 1,106 feet of holes, sample and concentrate approximately 46 cubic yards of sample in the pilot plane.

Item	Total Cost		Unit cost per foot of hole including sampling and sample concentration	
(2) Labor & Supervision:				
Labor	$4,894.70		$4.42	
Supervision	1,260.00	$6,154.70	1.14	$5.56
(3) Operating Materials and Supplies:				
Gas and Oil	1,172.02		1.06	
Miscellaneous supplies	401.34	1,573.36	.36	1.42
(4) Operating Equipment:				
Rental	750.00		0.68	
Purchase	2,870.75		2.60	
Depreciation	422.49	4,043.74	0.38	3.66
(6) New Buildings, Improvements, etc.		1,170.65		1.06
(7) Miscellaneous				
Repairs to Equipment	1,206.29		1.09	
Sampling and analysis	953.19		0.86	
Payroll taxes, liability insurance, etc.	735.62	2,895.10	0.67	2.62
(8) Contingencies		12.18		0.01
GRAND TOTAL		$15,849.23		$14.33

Note: The unit costs appear excessive but transportation of equipment to and from California is included along with labor costs for trucking samples from the drill site to the pilot plant at Cascade, purchase of casing equipment that was not used because of late arrival, excessive truck repair costs, etc.

These costs have been taken from the final audit which is still subject to approval by Washington, D. C.

More realistic actual drilling cost estimates were made by Mr. Yost during Phase II of the project that do not include transportation of equipment to and from California, pilot plant concentration of samples, moving to and from Cascade, nor transportation of samples from the Paddy Flat drill site to the pilot plant at Cascade. Holes are 22" in diameter.

Resume by Mr. Yost

Total feet drilled in 21 working days	830
Total hours drilling and lost time	168
Drilling time, hrs.	121
Lost time, hours	47
Feet drilled per hour actual drilling time	6.86
Feet drilled per hour total time	4.96
Total number of holes	25
Average depth of holes, feet	33.2
Minimum depth, feet	6
Maximum depth, feet	78

Breakdown of lost time

Moving, hours	18
Fuel and greasing time, hours	4
Repairs, hours	18-3/4
Waiting for access road construction, hours	6-1/4
Total lost time, hours	47

21-Day Operating Costs

Labor (driller and helper)	$602.88
Fuel	164.22
Lubricating oil	14.07
Repairs	71.25
Depreciation	150.00
Supervision and Administration	166.00
Total cost	$1,168.42
Cost per foot of hole drilled	1.41

TABLE 1

Cosumnes Gold Dredging Co.
Valley County, Idaho

SUMMARY OF CLAMSHELL DRILLING AND PILOT WASHING PLANT DATA
PADDY FLAT PLACER DEPOSIT, IDAHO

Docket No. DMEA 2265
Contract Idm-E351

Data taken from Company's drill and pilot washing plant logs

Hole No.	1952 Date Hole Started	Ended	Hole depth Feet	Displaced vol. of hole Cu.Yds.	Weight percent of gravel sizes -10 mesh	+10 mesh -5/8"	+ 5/8"	Sludge	Estimated moisture %	Estimated wt. per cu.yd. of dry gravel Lbs.	Estimated lbs. of concentrate per cu.yd. of dry gravel
PF 101 Y *	7/17	7/17	18 BR	1.73	52	16	25	7	5	2830	9.6
# 102 *	7/17	7/18	10	0.98	40	23	35	2	5	3120	58.5
# 103 **	7/18	7/18	15 BR	1.46	36	14	40	10	5	2850	23.0
104 *	7/18	7/19	28 BR	2.64	33	15	43	9	5	3020	14.5
# 105 *	7/23	7/25	27 BR	2.63	49	17	33	1	15	3300 e	137.0
# 106 **	7/19	7/19	20 BR	1.95	53	22	22	3	10	3000 e	43.1
# 107 *	7/21	7/23	31	3.02	52	18	29	1	10	3300 e	65.2
# 108 *	7/28	7/28	26 BR	2.53	59	14	26	1	10	3000 e	30.5
# 109 *	7/28	7/30	20 BR	1.95	40	29	31	0	10	3300 e	52.1
# 110 *	7/30	7/30	84	8.19	60	11	28	1	15	3200 e	52.2
# 111 *	8/4	8/6	78	7.60	60	--	34	6	10	3260	101.0
112 *	8/6	8/6	31 BR	3.0	44	--	56	0	6	?	10.0 ***
# 113 *	8/7	8/8	70	6.82	51	--	49	0	13	?	30.3 ***
# 114 *	8/8	?	66	6.43	50	--	50	0	10	?	55.7 ***
# 115 *	8/11	8/12	57	5.55	48	--	52	0	10	?	36.0 ***
# 116 **	8/12	8/13	36	3.31	47	--	48	5	15	3200 e	75.9
117	8/13	8/13	13 Bedrock came to surface. Sample not concentrated.								
118	8/13	8/13	6 Bedrock came to within 5 feet of surface. Sample not concentrated.								
# 119 *	8/14	8/14	36	3.51	47	--	48	5	?	?	56.5 ***
120 **	8/14	?	39 BR	3.8	58	--	39	3	8	3330	30.5
121 *	8/15	8/15	24	2.3	?	?	?	?	10	3300	5.0
122 *	8/15	8/16	15	1.48	?	?	?	?	10	3220	9.1
# 123 **	8/16	8/18	40	3.9	49	--	45	6	15	3720	50.0
# 124 **	8/18	8/19	41	4.0	58	--	38	4	12	?	40.0 ***
# 125 **	8/19	8/20	15	1.3	49	--	49	2	20	3200 e	74.3
126 **	8/20	8/21	23	2.24	45	--	51	4	20	2800	27.7
127 **	8/21	8/21	37	3.6	35	--	59	6	17	?	22.2 ***
# 128 *	8/21	8/22	44 BR	4.0	27	--	68	5	14	?	33.5 ***
129 **	8/22	8/22	15 BR	1.46	53	--	43	4	18	?	75.0 ***
130	8/23	8/23	5 BR Bedrock came to within 5 feet of surface. Sample not concentrated.								
# 131 *	8/23	8/25	55	5.36	56	--	39	5	10	?	51.2 ***
132 *	8/26	8/26	29	2.83	34	--	66	--	11	?	41.1 ***
133 *	8/26	8/26	22	2.0	29	--	69	2	5	?	8.0 ***
# 134 *	8/26	8/27	20	1.95	69	--	26	5	14	?	48.0 ***
# 135	8/27	8/27	10	0.98	58	--	42	--	--	?	77.0 ?

Note:
- * 1/2 hole sample.
- ** 1/4 hole sample.
- *** Based on concentrate weight divided by displaced volume of hole. Other estimates presumably based on actual gravel weights.
- # Used for yardage calculations.
- BR Hole reached bedrock. Clamshell hole diameter, 22".
- e Estimated - no basis for estimate is given.

TABLE 2

Cosumnes Gold Dredging Co.
Valley County, Idaho

SUMMARY OF ESTIMATES OF CONTENTS OF BLACK SAND CONCENTRATES AND GRAVEL
PADDY FLAT PLACER DEPOSIT, IDAHO

Docket No. DMEA 2265
Contract Idm-E351

Sample No.	Estimated Contents of Black Sands Concentrates 1/ 3/						Hole Depth, Feet	Estimated Pounds per Cubic Yard of Original Gravel 2/						Lbs. Black Sands Conc. per cu.yd.
	% Magnetite	% Ilmenite	% Garnet	% Monazite	% Zircon	% Mafic Blacks		Magnetite	Ilmenite	Garnet	Monazite	Zircon	Mafic Blacks	
PF 105 Y	31.5	28.6	4.3	0.92	0.8	9.8	27	43	39	6	1.2	1	13	137
PF 110 Y	39.9	12.2	2.8	0.19	0.6	1.8	84	21	6	1	0.1	--	9	52
PF 111 Y	46.6	12.2	3.5	0.30	Tr	3.0	78	47	12	4	0.3	Tr	3	101
PF 113 Y	43.6	17.5	4.1	0.93	0.3	1.1	70	12	5	1	0.3	Tr	--	30
PF 114 Y	19.8	21.3	8.9	0.52	0.1	3.3	66	11	12	5	0.3	--	2	56
PF 115 Y	43.9	15.9	7.6	0.08	0.1	2.5	57	16	6	3	0.03	--	1	36
PF 116 Y	34.0	18.2	4.0	0.60	Tr	2.4	36	26	14	3	0.5	--	2	76
PF 119 Y	28.2	24.8	10.9	1.01	0.5	3.7	36	16	14	6	0.6	--	2	57
PF 123 Y	27.0	9.5	11.3	0.40	Tr	4.5	40	13	5	5	0.2	--	2	50
PF 124 Y	14.3	24.2	8.6	0.51	--	8.9	41	6	10	3	0.2	--	4	40
PF 125 Y	16.7	20.8	10.7	0.39	Tr	9.1	15	12	15	8	0.3	--	7	74
PF 128 Y	3.3	25.2	3.8	0.12	1.0	13.7	44	1	9	1	0.04	--	4	34
PF 131 Y	10.0	34.7	2.5	0.90	0.4	8.2	55	5	18	1	0.5	--	4	51
PF 134 Y	16.3	18.7	13.2	0.43	Tr	12.9	20	8	9	7	0.2	--	6	48
Weighted average							47.4	18.9	11.6	3.4	0.3	--	--	60

Note: * Excluded.

1/ Estimates based on mineral separation determinations and grain counts by John F. Kolars, University of Washington.

2/ Calculations based on estimated contents of black sand concentrates 1/ and estimated pounds of black sands per cubic yard of gravel determined in pilot washing plant.

3/ Balance of black sand concentrates consists of quartz, feldspar, and other miscellaneous light minerals.

Example of Minerals Separation Determinations

Drill Hole No. PF 105Y

Total weight of sample 10.0 gms.
Weight of light minerals 2.96 gms.
Weight of heavy minerals 7.04 gms.
% weight of heavy minerals 70.4

Fraction	Wgt. gms.	Content of heavy minerals						
		Magnetite	Ilmenite	Garnet	Monazite	Zircon	Mafic Blacks	Other
1. +20 mesh	0.26	---	0.05	0.14	---	---	0.04	---
2. magnetite	3.13	3.13	---	---	---	---	---	---
3. Franz, 0.275 amps.	1.61	0.02	1.59	T	---	---	---	---
4. " 0.4 "	0.52	---	0.22	0.29	---	---	0.01	---
5. " 0.5 "	0.85	---	---	T	---	---	0.85	---
6. " 0.8 "	---	---	---	---	0.06	---	0.10	0.17
7. Ht, (heavy)	0.33	---	---	---	0.03	0.08	---	0.20
8. Bt, (light tails)	2.96	---	---	---	---	---	---	---
Total minerals in samples, gms.		3.15	1.86	0.43	0.09	0.08	1.00	0.37
% minerals in heavy minerals		44.7	40.7	6.1	1.3	1.1	14.0	5.2

TABLE 2a
(Supplements Table 2)

Docket No. DMEA 2265
Contract Idm-E351

DETAILED DESCRIPTION OF HEAVY MINERAL CONTENTS OF DRILL HOLE SAMPLES

By John F. Kolars

Drill Hole PF 105Y:

1. 55% garnet; 10% qtz waste; 20% il; 15% mafic blacks.
2. 100% mgt.
3. Very few garnet; 1% mgt & hem. after mgt; 99% il.
4. 55% garnet; 43% il; 2% mafic blacks.
5. Few grains epidote; 100% mafic blacks; few garnet.
6. 50% epidote; 30% mafic blacks; 15% monazite.
7. 25% zircon; few epidote (?); few rutile; 60% apatite (?); 10% monazite.
8. 25% (approx) qtz; 75% feldspars.

Drill Hole PF 110Y:

1. 5% mafic blacks; 25% garnet; 1 grain kyanite (?); 10% sillimanite (?); 30% qtz & waste; 30% il; 1 grain epidote; 3 grains sphene.
2. 100% mgt.
3. 10% hem. after mgt (pseudomorphic); 90% il.
4. 25% garnet; 15% hematite after mgt; 60% il.)
5. 5% epidote; 2% garnet; 20% hem. after mgt;) Few grains leucoxene few pseudomorphs after pyrite; 70% mafic blacks.)
6. 65% epidote; 15% garnet; 10% mafic blacks; 1% leucoxene; 5% monazite; 1% hematite & limonite.
7. 50% sillimanite (?); 15% zircon; 20% sphene; few rutile; 10% waste & apatite (?); few monazite.
8. 25% qtz/ 75% feldspars; (some yellow qtz).

Drill Hole PF 111Y:

1. 25% garnet; 10% sillimanite; 10% spheno; 15% il; 40% waste; 2 grains epidote.
2. 100% mgt.
3. 5% hematite after mgt; few grains garnet; 95% il; (few leucoxene coating).
4. 35% garnet; 5% hem. after mgt; 60% il; 1 or 2 grains epidote.
5. 5% garnet; 1% epidote; 2% hem. after mgt; 92% mafic blacks (allanite).
6. 75% epidote; 6% monazite; few leucoxene; 10% garnet; 9% mafic blacks; few hem. & limonite; one or two radio blacks.
7. 40% sillimanite; 55% sphene; 1% zircon; few rutile, few epidote; few dark waste; 3% monazite.
8. 30% qtz (1/3 yellow) / 70% feldspars.

Drill Hole PF 113Y:

1. 30% garnet; 5% sillimanite; 20% sphene; 20% il; 5% epidote; 10% qtz; 5% zircon.
2. 100% mgt.
3. 3% hem. after mgt; 97% il; few garnet.
4. 30% garnet; 65% il; 5% hem. after mgt.
5. 8% garnet; 5% epidote; few xenotine; 20% hem. after mgt; 72% mafic blacks.
6. 70% epidote; 10% mz; 10% garnet; 5% mafic blacks (allanite; few spinel; few leucoxene.
7. 35% sillimanite; 3% zircon; 45% sphene; few rutile; 3% dark waste; 1 or 2 spinel; 8% monazite.
8. 60% feldspars / 40% qtz (1/2 yellow).

Drill Hole PF 114Y:

1. 20% garnet; 5% sphene; 3% sil; 25% il; 2% mafic blacks; 45% waste.
2. 100% mgt.
3. 3% hem. after mgt; few garnet; 97% il.
4. 55% garnet; 45% il; few leucoxene.
5. 3% epidote; trace xenotine; 6% garnet; 90% mafic blacks (some micas); few hem. after mgt.
6. 65% epidote; 10% monazite; 15% garnet; 10% mafic blacks; few sillimanite; few sphene; few leucoxene.
7. 3% monazite; 50% sillimanite; 30% sphene; 2% zircon; 5% waste; 10% apatite (?); very few spinel.
8. 40% qtz / 60% feldspars - Few micas; 1 pyrite.

Drill Hole PF 115Y:

1. 70% garnet; 15% sphene; 10% il; 5% waste; few epidote; 1 or 2 sili.
2. 100% mgt; very few garnet.
3. Trace garnet; 1% - 2% hem. after mgt; 98% il.
4. 50% garnet; 50% il; few pseudomorphs after mgt. (hematite).
5. 5% garnet; 1 grain zircon; 1/2% epidote; 20% hem. after mgt; 74% mafic blacks.
6. 65% epidote; 3% monazite; 12% garnet; 14% mafic blacks; very few garnet; 1% hem. after mgt; very few leucoxene.
7. 1% monazite; 1/2% rutile; 2% zircon; 40% sillimanite; 55% sphene; few grains mafic blacks.
8. 50% qtz / 50% feldspars. Frequent yellow qtz.

Drill Hole PF 116Y:

1. 10% sphene; 25% garnet; 25% il; 30% qtz waste; few mafic blacks.
2. 100% mgt.
3. 1% garnet; few hem. after mgt; 99% il.
4. 40% garnet; 5% hem. after mgt; 55% il.
5. 3% epidote; 3% garnet; few leucoxene; 94% mafic blacks.
6. 12% monazite; 10% garnet; 10% mafic blacks; 3% hem. & limonite; 65% epidote.
7. Few zircon; very few rutile; 50% sillimanite; 45% sphene; 5% monazite.
8. 25% qtz / 75% feldspars.

Drill Hole PF 119Y:

1. 55% garnet; 25% il; 10% qtz waste; 10% sphene; 2 grains sil.
2. 100% mgt.
3. Few hem. after mgt; very few garnet; 100% il.
4. 48% garnet; 50% il; 2% mafic blacks; very few hem. after mgt.
5. 1 grain monazite; 2% epidote; 20% garnet; 78% mafic blacks.
6. 15% monazite; 10% garnet; very few pink garnet; 20% mafic blacks (allanite ?); 55% epidote; few dark leucoxene.
7. 8% zircon; few rutile; very few malacon; 4% monazite; 45% sphene; 37% sillimanite; few hematite after mgt.
8. 40% qtz / 60% feldspars.

Drill Hole PF 123Y:

1. 5% sillimanite; 2% epidote; 20% il; 30% qtz waste; 5% garnet (orange). Plus 38% (pink) garnet.
2. 100% mgt.
3. 1 or 2 garnet; 10% hem. after mgt; 90% il.
4. 60% garnet; 40% il; 1 grain sil; very few hem. after mgt; 1 grain sphene.
5. 15% garnet; few epidote; 85% mafic blacks.
6. 15% garnet; 5% monazite; few hem. after mgt; few leucoxene; 15% mafic blacks; 60% epidote.
7. .04% zircon; 60% sillimanite; 1% monazite; 3% garnet; 5% dark waste; 30% sphene.
8. 45% qtz (over 1/2 iron-stained); 55% feldspars.

Drill Hole PF 124Y:

1. 25% garnet; 10% sillimanite; 10% il; 15% mafic blacks; 5% sphene; 35% qtz waste.
2. 100% mgt.
3. 100% il; few garnet.
4. 40% garnet; 60T il; few hem. after mgt.
5. 8% garnet; 1 sphene; 1 sil; few hem. after mgt; 92% mafic blacks.
6. 5% monazite; 15% garnet; 50% epidote; 30% mafic blacks; few sillimanite; few hematite after mgt.
7. 2% monazite; 25% sphene; few rutile; few garnet; 60% sillimanite; 10% apatite and/or waste.
8. 50% qtz / 50% feldspars.

Drill Hole PF 125Y:

1. 50% garnet; 15% qtz waste; 25% il; 3% sphene; 3% mafic blacks; 3% sillimanite; few epidote.
2. 100% mgt; 1 grain sphene.
3. Very few garnet; 100% il.
4. 55% garnet; 45% il.
5. 8% garnet; few epidote; 92% mafic blacks.
6. 7% monazite; 10% garnet; 53% epidote; 30% mafic blacks; few hem. after magnetite; few micas.
7. 1% zircon; 50% sphene; 10% apatite and/or waste; 35% sillimanite; 2% - 3% monazite.
8. 30% qtz; 70% feldspars.

Drill Hole PF 128Y:

1. 15% garnet; 55% qtz waste; 20% mafic black; 10% il.
2. 100% mgt.
3. 100% il.
4. 15% garnet; 85% il.
5. 3% garnet; few epidote; 97% mafic blacks; few il.
6. 1% - 2% monazite; 2% - 3% garnet; 40% mafic blacks; 55% epidote; few hematite after magnetite.
7. Few monazite; few rutile; 25% sphene; 15% zircon; 35% qtz and/or apatite; 25% sillimanite.
8. 75% feldspars / 25% qtz.

Drill Hole PF 131 Y:

1. 65% qtz waste; 10% garnet; 2% sillimanite; 5% mafic blacks; 10% epidote; 5% ilmanite.
2. 100% mgt.
3. 100% il.
4. 10% garnet; 90% il; very few epidote.
5. 3% garnet; 2% epidote; 95% mafic blacks.
6. 10% - 12% monazite; 5% garnet; 20% mafic blacks; 1/2% dark leucoxene; 60% epidote; 1/2% hem. after mgt.
7. 2% monazite; 40% sphene; 25% sillimanite; 5% zircon; very few malacon; few epidote; very few rutile.
8. 30% qtz / 70% feldspars.

Drill Hole PF 134 Y:

1. 45% garnet; 5% mafic blacks; 10% sphene; 5% epidote; 15% qtz waste; 15% il; 5% sillimanite.
2. 100% mgt.
3. Very few garnet; 100% il.
4. 65% garnet; 35% il.
5. 5% pink garnet; few epidote; 1/2% hem. after mgt; 94% mafic blacks.
6. 8% monazite; 12% garnet; 25% mafic blacks; 55% epidote.
7. 43% sillimanite; 52% sphene; very few garnet; few rutile; 1/2% zircon; very few epidote; very few mafic blacks.
8. 60% feldspars / 40% qtz.

TABLE 3

Docket No. DMEA 2265
Contract Idm-E351

PADDY FLAT PLACER YARDAGE CALCULATIONS
Cosumnes Gold Dredging Company
Valley County, Idaho

Area No. 1 Aver. depth 48.8 feet or 16.3 yds.

$$\frac{36.676 \text{ sq. in.} \times 160{,}000}{9} = 654{,}090 \text{ sq. yds.}$$

$$654{,}090 \times 16.3 = 10{,}661{,}700 \text{ cu. yds.}$$

Area No. 2 Aver. depth 25.1 feet or 8.38 yds.

$$\frac{33.08 \text{ sq. in.} \times 160{,}000}{9} = 588{,}090 \text{ sq. yds.}$$

$$588{,}090 \times 8.38 = 4{,}928{,}200 \text{ cu. yds.}$$

Area No. 3 Aver. depth 28.25 feet or 9.42 yds.

$$\frac{9.98 \text{ sq. in.} \times 160{,}000}{9} = 177{,}400 \text{ sq. yds.}$$

$$177{,}400 \times 9.42 = 1{,}671{,}100 \text{ cu. yds.}$$

Area No. 4 Aver. depth 27 feet or 9.0 yds.

$$\frac{52.13 \text{ sq. in.} \times 160{,}000}{9} = 926{,}700 \text{ sq. yds.}$$

$$926{,}700 \times 9 = 8{,}340{,}300 \text{ cu. yds.}$$

Area No. 5 Aver. depth 22.8 feet or 7.58 yds.

$$\frac{6.58 \text{ sq. in.} \times 160{,}000}{9} = 116{,}900 \text{ sq. yds.}$$

$$116{,}900 \times 7.58 = 886{,}100 \text{ cu. yds.}$$

ESTIMATED TOTAL CUBIC YARDS 26,487,000

TABLE 4

Docket No. DMEA 2265
Contract Idm-E351

ESTIMATED MINERAL CONTENT OF PADDY FLAT PLACER DEPOSIT
Cosumnes Gold Dredging Company
Valley County, Idaho

Estimated total cubic yardage of deposit: 26,487,000

Magnetite: Estimated 18.9 lbs./cu.yd. of gravel

$$\frac{26,487,000 \times 18.9}{2000} = 250,302 \text{ tons}$$

Ilmenite: Estimated 11.6 lbs./cu.yd. of gravel

$$\frac{26,487,000 \times 11.6}{2000} = 153,624 \text{ tons}$$

Garnet: Estimated 3.4 lbs./cu.yd. of gravel

$$\frac{26,487,000 \times 3.4}{2000} = 45,028 \text{ tons}$$

Monazite: Estimated 0.28 lbs./cu.yd. of gravel

$$\frac{26,487,000 \times 0.28}{2000} = 3,708 \text{ tons}$$

Black sands concentrates: Estimated 60 lbs./cu.yd. of gravel

$$\frac{26,487,000 \times 60}{2000} = 794,610 \text{ tons}$$

TABLE 5

DESCRIPTION OF DRILLING CONDITIONS AND ESTIMATED MINERAL CONTENT
PADDY FLAT PLACER GRAVELS
Cosumnes Gold Dredging Company
Valley County, Idaho

This information was copied verbatim from "Concentrating Data and Estimates" reports, under the heading "Remarks", for each drill hole and was supplied by Mr. Merrill Yost, general manager of the company at the project.

Hole PF 101Y: 18' deep

This hole on bench gravel to the east of upper Paddy Flat Creek proper. Medium gravel, no clay, easy digging and stood well. The gravel was damp and we allowed 5% for moisture. Soft granite bedrock.

The concentrates showed very little magnetite. Most of the blacks were ilmenite, monazite and garnet. Panning estimate of concentrates by drill log 7½ lbs/cu.yd.

Hole PF 102Y: 10' deep

This hole is in the Paddy Flat Creek bed at a point about 1/2 mi. above the present road crossing. Coarse clean gravel was encountered with heavy concentrates. Panning estimate was low. Estimated concentrates per cu. yd. 35 lbs.

This hole was not finished to bedrock due to caving. The casing had not arrived.

The concentrates in this hole showed about 40% magnetite, the balance ilmenite, garnet and monazite and considerable zircon. Probably 30% ilmenite, about 1 lb. monazite and 5 lbs. of garnet to the cu.yd. Zircon probably 1/2 lb/cu.yd.

Hole PF 103Y: 15' deep

This hole is located 2000 ft. east of Paddy Flat proper on the south side of the road about 50 ft. This was bench gravel and did not show very well in concentrates. The estimate by panning was 16 lbs/cu.yd. Considerable monazite probably 1 lb/cu.yd. Zircon 1/2 lb., about 50% ilmenite and 5% magnetite. Garnet about 2 lbs./cu.yd. This ground is easy digging with medium coarse gravel. Soft granite bedrock.

Hole PF 104Y: 28' deep

This hole is on the road from Paddy Flat to the Ranger Station. It is 1500 ft. east of Hole No. PF-103Y about 100 ft. to the south of the road.

The gravel was somewhat heavier than 103. There was some coarse wash up to 15" in size. However, the concentrates did not show much. Probably 50% ilmenite, 1/4 lb. monazite, Tr. zircon, and 1 lb. garnet. This is definitely an outwash of glacial gravel and has not concentrated. Excellent dredging gravel. Panning estimate 38 lbs. overestimated.

Hole PF 105Y: 27' deep

This hole is located in Paddy Flat proper about 100 ft. south of bridge across stream. This hole tended to slough near the surface. Water was encountered at about 6 ft. The above values were calculated by weight. The gravel was exceptionally heavy and very wet when weighed. This is ideal dredging gravel. Heavy concentrates. Probably 50% magnetite, 25% ilmenite, 1-1/2 lbs. monazite, 8 lbs. garnet, 1 lb. zircon.

Panning estimate 67 lbs. Under estimate of concentrates.

This checks with hole put down by C. G. D. Co. in Nov. 1951. This hole to 16 ft. made 134 lbs. of concentrates.

Hole PF 106Y: 20' deep

This hole is 1500 ft. east of hole No. PF-104Y on the north side of the road from Paddy Flat to the Ranger Station. This is in the bench gravel between Paddy Flat and Rapid Creek. No true bedrock was encountered but a granite sand which may have been bedrock. The panning of the concentrates did not show very well but when the sample was run it did much better than the panning showed.

The panning result showed only 10 lbs/cu.yd. This hole should be rechecked from the remaining sample.

Hole PF 107Y: 31' deep

This hole is located about 800 ft. east of the bridge in Paddy Flat on the south side of the road about 50 ft. Medium coarse gravel with heavy concentrates. Easy digging, very little clay. Good dredging ground.

This showed about 45% magnetite and about 30% ilmenite. Probably 1 lb. of monazite, 10 lbs. of garnet, 1 lb. of zircon per cu. yd. Due to the sloughing at the water level the hole over run the actual displacement. Due to this ground being exceptionally heavy 3300 lbs. to the cu.yd. was allowed. 1/2 of the hole was concentrated.

40 lbs. of concentrates per cu. yd. estimated. This was under the actual.

Hole PF 108Y: 26' deep

This hole is located about 2000 ft. east of the Ranger Station on the bench near Rapid Creek. Due to sloughing all values were calculated by weight. Good dredging section of gravel. This showed 40% magnetite and about 20% ilmenite. The monazite, garnet and zircon did not show up very well.

Panning estimate 32 lbs. of concentrates per cu. yd.

Hole PF 109Y: 20' deep

This hole is located to the east of Rapid Creek about 800 ft. and to the south of the road to Kennally Creek about 1000 ft. This gravel was very coarse and heavy. The concentrates were 40% garnet. The balance magnetite and ilmenite. There was very little monazite and zircon. Probably 1/2 to 1/4 lb. to the yard.

There were many cobbles 15" in diameter.

There was a slight overrun on the gravel due to the large cobbles.

Panning estimate of concentrates 41 lbs. to cu. yd.

This gravel is distinctly different than Paddy Flat Creek and the bench between the two. This is clean, coarse hard granite gravel and tight throughout.

Hole PF 110Y: 84' deep

This hole is located about 3000 ft. south of the Rapid Creek bridge on the left side of the Sloans Point trail about 200 ft. east of the Sloan's point trail sign. This gravel is entirely different from any in the vicinity. Apparently it is a very old channel and does not conform to the topography of the area. Bedrock was not reached in this hole as 85 ft. was the length of the line on the drill. The concentrates were increasing with depth. About 54% magnetite and 25% ilmenite. Probably 1 lb. of monazite, 4 lbs. of garnet, 1 lb. of zircon to the cu.yd. This hole gives distinct evidence of a big yardage of this gravel. It is easily dug and free of excessive clay. Very good dredging ground.

The panning estimate is 62 lbs. of concentrates to cu.yd.

This area warrants further investigation by drilling to delimit the gravel area.

Hole PF 111Y: 78' deep

This hole is located 250 ft. west of the sign (Sloan's Point Trail) and 500 ft. west of hole No. PF-100Y. Clean gravel. Exceptionally heavy with heavy concentrates. Hole not bottomed. 45% magnetite and 25% ilmenite. Probably 1 to 1-1/2 lbs. monazite, 4 lbs. garnet, 1 lb. zircon. This hole is probably near center of deep channel. Water from 30 ft. down.

Panning estimate 58 lbs. underestimated.

1/2 of hole run.

Hole PF 112Y: 31' deep

This hole is out of main channel.

Did not calculate in results.

Hole PF-113Y: 70' deep

This hole in channel not bottomed due to caving at depth.

Hole PF-114Y: 66' deep

This hole in channel gravel.
Not bottomed due to caving.

Hole PF-115Y: 57' deep

This hole is in channel gravel.
Not bottomed due to caving.

Hole PF-116Y: 34' deep

This hole is located about 1200 ft. south of Holes PF-100 and PF-111 and is the hole to the east of the road about 900 ft. Due to not having casing this hole began to slough at 34 ft. and caused the over-run in the weight of the gravel. The panning estimate was 30 lbs. to the cu.yd. (underestimated). This hole was definitely in the deep channel and should be put on down to bedrock as all holes in this area improved in concentrates with depth. Typical dredging gravel. 45% magnetite, 25% ilmenite, probably about 1/2 lb. monazite, 3 lbs. garnet, and 1 lb. zircon. 1/4 of hole run.

Hole PF-117Y:

Bedrock came to surface. Hole not concentrated.

Hole PF-118Y: 6' deep

Hole not sampled as bedrock came to 5 ft. of surface.

Hole PF-119Y: 36' deep

This hole in channel. Not bottomed due to caving.

Hole PF-120Y: 39' deep

This hole is located on the ridge between Rapid Creek and Kennally Fork about 1500 ft. north of hole PF-113Y. This hole is definitely on the high east rim of the deep channel. This hole should not be included in the ultimate calculations of yardages and depths as it is on the rim and is inaccessible for dredging purposes.

This hole was dry. The gravel was small and sandy.

Due to the position of this hole no estimates were made and sample was retained. Not sent to Dings for separation.

Hole PF-121Y: 24' deep

This hole not in channel gravel. Should not be used in calculating.

Hole PF-122Y: 15' deep

This hole not in channel gravel. Should not be considered in evaluation.

Hole PF-123Y: 40' deep

This hole is about 1000 ft. south of the Ranger Station. This gravel was very coarse and had considerable glacial cobbles. This hole was not bottomed due to lack of casing. It is believed that the deep channel runs under this glacial outwash. This hole should be bottomed to determine this.

The same proportion holds in this hole as others except there was considerable more garnet. Probably 45% magnetite, 30% ilmenite, 6 lbs. of garnet, 1/2 lb. monazite and 1 lb. zircon. Typical dredging ground. Panning estimate 23.4 lbs. conc. cu.y.d (underestimated).

Hole PF-124Y: 41' deep

This hole is in channel. Not bottomed due to caving.

Hole PF-125Y: 15' deep

This hole is located about 1000 ft. west of hole 124 and near Camp Creek. There was a glacial outwash of about the first 10 ft. of this hole and large cobbles. Due to a 20" cobble in the side of the hole at about 10 ft. in depth that fell into the bottom of the hole it was abandoned. This also accounts for the excessive weight of gravel for the volume. At about 14 ft. a clean pegmatite gravel was encountered and was very high in concentrates. Probably 200 lbs. per cu.yd. at 16 ft. when a rock about the size of the hole dropped in and the driller was unable to get it out. This hole will probably be redrilled. The calculations on this sample was by weight using 3200 lbs./cu.yd.

Hole PF-126Y: 23' deep

This hole was mostly clay and hence the light weight per cu.yd. dry.

This area definitely has too much clay and too low grade in concentrates. This area will have to be delimited. This hole is about 1700 ft. north of the lower bridge on Camp Creek. This hole contains the usual minerals in about the same proportion as others. However, the monazite and zircon are almost negligible.

In my estimation this hole should not be considered in values or yardage calculations.

Hole PF-127Y: 37' deep

This hole out of channel. Do not figure in estimates.

Hole PF-128Y: 41' deep

This hole in channel. Not bottomed due to caving.

Hole PF-129Y: 15' deep

Heavy clay. Hole in channel not to bedrock due to caving. No casing.

Hole PF-130Y: 5' deep

Hole not concentrated as bedrock came to within 5 feet of surface.

Hole PF-131Y: 55' deep

Hole not to bedrock due to caving. Hole on channel gravel.

Hole PF-132Y: 29' deep

Hole not in channel. Not used in calculations.

Hole PF-133Y: 22' deep

This hole not in channel. Should not figure in calculations.

Hole PF-134Y: 20' deep

This hole in channel gravel. Not to bedrock due to caving and casing not arrived.

Hole PF-135Y: 10' deep

Hole not bottomed due to loose sandy streak at 10 feet. No casing as yet. Hole on channel gravel.

TABLE 6

Docket No. DMEA 2265
Contract Idm-E351

Procedure Used in the Mineralogical Analysis of the Drill Hole Placer Composites

The following procedure is used by the U. S. Geological Survey in the study of placer samples from deposits in west-central Idaho. The pan or table concentrate samples are weighed dry and the weight is recorded. The sample is then cut to approximately 10 grams by use of a Jones splitter. The "10 gram" split is then separated as follows:

Step #1. A hand magnet separates the "10 gram" split into magnetite and non-magnetite fractions.

Step #2. A 20 mesh screen separates the non-magnetite fraction into plus and minus 20 fractions.

Step #3. A heavy liquid, bromoform, divides the minus 20 fraction into a bromoform sink product including all the heavy minerals and a bromoform float product including quartz, feldspar, mica, and other light minerals.

Step #4. A Frantz Isodynamic Magnetic Separator is used to fractionate the bromoform sink product. A relatively high angle forward slope, 35°, and cross tilt, 30°, are used on the Frantz separator chute. Contamination and loss at these high angles is prevented by covering the chute. By varying the amperage at constant voltage, 110 volts DC, the bromoform sink product is split into five products, as follows:

"Ilmenite fraction", 0.2 3/4 amps., dominantly ilmenite.

"Garnet fraction", 0.4 amps., dominantly garnet and ilmenite.

"Mafic mineral fraction", 0.5 amps., dominantly hornblende, also allanite, xenotime, columbite, etc.

"Monazite fraction", 0.8 amps., dominantly monazite and epidote, also euxenite, etc.

Frantz heavy mineral tailings fraction, dominantly sphene, apatite and zircon, also anatase, kyanite, leucoxene, sillimanite, spinel, rutile, etc.

By these methods, the "10 gram" split is divided into final fractions, as follows:

Fraction #1. Non-magnetite, plus 20 mesh.

Fraction #2. Magnetite.

Fraction #3. Frantz "ilmenite fraction".

Fraction #4. Frantz "garnet fraction".

Fraction #5. Frantz "mafic mineral fraction".

Fraction #6. Frantz "monazite fraction".

Fraction #7. Frantz "heavy mineral tailing fraction".

Fraction #8. Bromoform float product, light minerals.

Step #5. All of the fractions are weighted to a $\pm$ 0.01 grams and the weights recorded. The fractions usually contain more than one mineral, and while most of the grains of any given mineral are usually in the same fraction, some grains of the given mineral may be in the adjoining fractions. For this reason, visual estimates are made under a binocular microscope of the percentage of each mineral type in each fraction. From these, the percentage weights of minerals in the heavy minerals portion of the "10 gram" split are computed. These percentage weights also represent the percentage weights of minerals in the heavy minerals portion of the original pan concentrate. Pounds per cubic yard represented by the heavy minerals in the original sample are computed from the weight of the pan concentrate less the weight of the light minerals and constants depending upon the pan size used. The weight of the light minerals is calculated from the weight of the bromoform float product. Finally, the percentage weights of the various minerals are recalculated in terms of pounds per cubic yard.

Fragments of euxenite are readily and accurately recognized by treating a part of each #6, 0.8 amp, fraction with hydrofluoric acid as follows: A representative split is cut out of the #6 fraction; it is covered with several drops of 48% HF in a polyethylene dish; it is allowed to react for about two minutes at room temperature and then is rinsed with water, dried, and examined under the microscope. Euxenite is coated with a thick fragile green- or blue-tinted white reaction rind which makes it distinguishable from all other HF reactants. Yellow monazite, which is unaffected, is readily and positively distinguished from sphene, which takes on a thin white frosty HF reaction coating.

Cosumnes Gold Dredging Co.
Valley County, Idaho

Docket No. DMEA 2265
Contract Idm-E351

TABLE 9

SUMMARY OF BENEFICIATION TESTS ON COMPOSITE SAMPLE OF PADDY FLAT PLACER BLACK SAND CONCENTRATES

Product	Weight %	Wgt. %	ANALYSES, PERCENT Cb	Ta	U_3O_8	REO	$(Zr/Hf)O_2$	$\left(\frac{Hf}{Zr/Hf}\right)100$	PERCENT RECOVERY Cb	Ta	U_3O_8	REO	$(Zr/Hf)O_2$	ESTIMATED LBS. RECOVERED PER CU. YD. OF ORIGINAL GRAVEL 3/ REO	U_3O_8	$(Zr/Hf)O_2$	Magnetite
*Slime	2.651				< 0.02	0.40											
*Magnetic 1/	26.255																15.75
*Ilmenite-garnet	28.275		0.92	0.52	0.18												
Quartz-zircon	31.305	100.00					2.47	2.4					100.00				
Table conc.		3.55					5.10	2.4					73.41			0.416	
*Table tailing		96.45					0.68						26.59				
*Monazite-magnetics	3.547	100.00			0.002	0.27					100.00	100.00					
Table conc.		0.60			0.18	24.3					15.34	55.00		nil	nil		
Table tailing		99.40			< 0.02	0.12					84.66	45.00					
*Cb Magnetics	2.024	100.00	0.82	0.74	0.07				100.00	100.00	100.00						
Table conc.		0.77	2.0	1.0	0.18				1.86	1.04	1.96						
Table tailing		99.23	0.82	0.74	0.07				98.14	98.96	98.04						
*Cb Non-magnetics	0.233	100.00	0.68	0.41	0.11				100.00	100.00	100.00					nil	
Table conc.		15.42	1.1	0.66	0.30				25.05	25.05	43.86						
Table tailing		84.58	0.60	<0.5	0.07				74.95	74.95							
Monazite concentrate	0.972				0.18	48.2								0.28 2/			
*Monazite tailing	4.738				0.09	0.12											
	100.00																

*Minor metal minerals content and grade of product considered too low to include as recoverable minerals.

1/ Assayed 62.3% Fe, 0.37% P, and 1.98% TiO_2

2/ 0.28 lbs. REO/cu. yd. equivalent to 0.42 lbs/cu.yd. of monazite containing 67% REO.

Note: Composite sample was separated into slime, magnetic, ilmenite-garnet, quartz-zircon, monazite-magnetics, columbium magnetics, columbium non-magnetics, monazite concentrate, and monazite tailings at the Boise laboratory of Porter Bros. Corporation. See "Porter Test Procedure" in Appendix for details.

Table concentration tests made at Bureau of Mines, Albany, Oregon.

3/ Based on estimated 60 lbs. black sand concentrate per cu. yd. of gravel.

PROCEDURE USED BY PORTER BROS. CORPORATION
FOR CONCENTRATING BLACK SAND CONCENTRATES
BOISE, IDAHO

The procedure employed in beneficiation of black sands is outlined below.

1. Screen on 20 mesh, crush the plus 20 mesh to minus 20 mesh in a set of laboratory rolls, and combine the two fractions of black sands.

2. Attrition the material in a laboratory size WEMCO attrition mill for 20 minutes at 80% solids.

3. Deslime the attritioned product by decantation to simulate classification at 100 mesh.

4. Dry both fractions and weigh the slime portion.

5. Pass the sand through a Dings magnetic roll to remove magnetite as a finished product.

6. Pass the non-magnetic from Step 5 through a laboratory inducted roll (Magnetic separator) to remove an ilmenite garnet concentrate of low monazite and columbium mineral value. This separation is obtained by employing a low magnetic flux in the machine and several passes are required to yield a product suitable to be discarded. The ilmenite garnet fraction is the magnetic fraction.

7. Pass the non-magnetic product from Step 6 through the laboratory induced roll at maximum magnetic flux to produce a rejectable quartz-zircon concentrate (non-magnetic).

8. Pass the magnetic fraction from Step 7 through a laboratory electrostatic separator to produce a monazite fraction and a columbium fraction. Several passes are required to effect a satisfactory separation, and the cleaner tails produced are retreated, so that only the two final products result from the separation.

9. Pass the monazite fraction from Step 8 through a crossbelt separator set to pull minerals of greater magnetic susceptibility than monazite, thereby producing a non-magnetic product containing the greater part of the monazite.

10. The monazite fraction from Step 9 was tabled to produce a finished monazite concentrate and a rejectable tailing.

11. Pass the columbium fraction from Step 8 through a crossbelt separator set to pull ilmenite, garnet, and other minerals of higher magnetic susceptibility than columbium-bearing minerals to produce a non-magnetic fraction containing the greater part of the columbium minerals. As the non-magnetic fraction was of insufficient weight to allow for a satisfactory table separation, these products have been shipped as is. Actually, a gravity separation is required on these samples to separate the columbium minerals from sphene, quartz, etc.

The outline above briefly describes the concentration procedures employed on these samples and simulates the proposed treatment on Bear Valley black sands. We have found that in semi-continuous operation, we are able to make a much better separation than when treating small samples in a batch operation such as was required on these samples.

HEAVY MINERAL CONTENT OF PADDY FLAT PLACER SAMPLES

Table 7

Rapid Creek-Kennally Fork Ridge

Type of Sample	Sta. No.	Total Conc. #/1 yd³	Pan Eff. %	Magnetite	Ilmenite	Garnet	Mafic Bks.	Allanite	Epidote	Sphene	Monazite	Radio-Bks	Zircon		Anatase	Apatite		Kyanite		Leucoxene		Pyrite	Rutile	Sillimanite	Spinel		Xenotime
Bench gravel	18-56#31	17	83	9.	77.	8.	1.	x	1.	x	2.8		x							x				x			x
Bench gravel	18-56#32	23	91	73	21	1.8	1.2	0.3	2.	x	0.1		x							x				x			x
Bench gravel	18-55#73	59	84	x	80	13	0.4		0.2		5.		x							x				x			x
Drill Hole (composite)36' deep	PF119Y	44	78	36	32	14	4.8	x	3.	4.	1.3		0.6							x			x	3.			
Drill Hole (composite)34' deep	PF116Y	51	67	51	27	6	3.6		3.	3.	.9		x							x			x	3.			
Drill Hole (composite)57' deep	PF115Y	28	77	57	21	10	3.2	x	3.	3.	0.1		0.1							x			x	2.			
Drill Hole (composite)66' deep	PF114Y	36	65	30	33	14	5.		3.	3.	0.8		2.			x				x				4	x		x
Drill Hole (composite)70' deep	PF113Y	23	77	56	23	5.	1.4	x	4.	4.	1.2		0.4							x			x	3.	x		x
Drill Hole (grab sample)31'deep	PF112Y	5.3	74	9.	68	9.8	?	x	0.5	2.7										x							x
Drill Hole (composite)78' deep	PF111Y	60	75	63	16	4.7	4.	x	3.	4.	0.4	T	x										x	3.			
Drill Hole (composite)84' deep	PF110Y	34	65	62	19	4.	2.8		3.	1.	0.3		0.9			x		?		x		x	x	3.			
Soil, of Bench gravel	18-54#46	2.5	83	66	23	5.	3.	+	2.	x	0.2		5.(?										x				
South Valley Side-Kennally Fk.																											
Bench gravel (w. pit)	18-55#62	36	88	85	13	1.4	++	x	0.2	x	++		T														x
Bench gravel	18-55#61	22	81	78	15	3.	0.9	x	3.	x	0.5		T									x		x	x		x

x Indicates the presence of the mineral without regard to quantity.

T, +, and ++ Are semi-quantitative symbols indicating a progressive increase in amount between 0 and 0.1%

HEAVY MINERAL CONTENT OF PADDY FLAT PLACER SAMPLES

Table 7

Camp Creek - Rapid Creek Bench

Type of Sample	Sta. No.	Tot. Conc. # 1 yd³	Pan Eff. %	Magnetite	Ilmenite	Garnet	Mafic Bks.	Allanite	Epidote	Sphene	Monazite	Radio-Bks	Zircon	Anatase	Apatite	Kyanite	Leucoxene	Pyrite	Rutile	Sillimanite	Spinel	Xenotime
Small dry wash in Bench Gravels	18-55#25	21	84	0.3	41	50	2.7	x	2.		1.7		x(?)							x	x	
Bench gravel, Pit, 18' deep	18-55#24	16	88	69	12	13	3.	0.3	2	0.6	++		x					x		x	x	
Drill Hole (composite) 15' deep	PF 125Y	49	66	25	32	16	14		4.	4.	0.6		x		x					3.		
Drill Hole (composite) 20' deep	PF 134Y	34	71	23	26	19	18		4.	5.			x						x	4.		
Drill Hole (composite) 41' deep	PF 124Y	29	73	20	33	12	12		4.	4.	0.7				2.				x	10(?)		
Drill Hole (composite) 40' deep	PF 123Y	33	66	41	14	17	6.8		5.	4.	0.6		x				x			8.		
Drill Hole (grab sample) 20' deep	PF 106Y	4.1	77	31	43	13	5.7	0.4	3.	x	2.2		x							x	x	x
Drill Hole (grab sample) 26' deep	PF 108Y	18	87	83	6.6	3.1	2.4	0.1	1.		0.7		x					x		x	x	
Bench gravel, 20' Road Cut	18-54#45	28	93	86	7.4	3.	1.2	0.1	0.9	+	0.1		x		x		x	x	x		x	
Small stm on Bench gravels	18-54#50c	36	80	1.7	25	44	22	2.	3.	x	0.9		x					x	x	x	x	
Older Bench gravels (higher)	18-54#50d	1.5	73	26	52	9.5	4.5	0.6	4.	x	0.6		x		x	?	x		x	x	x	
Older Lag gravels	18-54#49D	3	65	24	25	18	24	+	25	x	0.6		?						x		x	
Camp Creek sample	18-55#26	11	87	0.3	56	23	14	x	5.	x	0.2		?		x	?			x		x	
Camp Creek sample	18-55#7	47	81	0.4	59	20	11	6.1	1.6	x			x						x	x	x	

x Indicates the presence of the mineral without regard to quantity.

T, +, and ++ Are semi-quantitative symbols indicating a progressive increase in amount between 0 and 0.1%

HEAVY MINERAL CONTENT OF PADDY FLAT PLACER SAMPLES

Table 7

Rapid Creek Valley Floor & Terrace

Type of Sample	Ste. No.	Total Conc., # 1 yd3	Pan eff., %	Magnetite	Ilmenite	Garnet	Mafic Bks	Allanite	Epidote	Sphene	Monazite	Radio-Bks	Zircon		Anatase	Apatite		Kyanite		Leucoxene	Malacon	Pyrite	Rutile	Sillimanite	Spinel		Xenotime
Drill Hole (grab sample)																											
20' BR. deep	PF 109Y	17	88	51	9.4	33	5.5	0.3	0.7	x	0.2	T	x											x			x
Stm sm, Rapid Cr. bar.	18-54#11	28	88	45	13	35	4.4	0.6	0.6	x	0.4	T	+									x			x		
Stm sm, " ", boulder payment	18-54#0	3.9	68	6	19	46	13	x	3.		0.5		T												x		
Stm sm, Rapid Cr,	18-57#51a	15	80	3.	12	61	13	1.	1.	+	++		x										x	x			
Soil, Wisc. Moraine	18-57#51b	2.66	73	24	10	49	12	0.7	12	x	+		x								x			x			

x Indicates the presence of the mineral without regard to quantity.

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HEAVY MINERAL CONTENT OF PADDY FLAT PLACER SAMPLES

Table 7

Paddy Creek-Camp Creek Bench & Bench West of Paddy Creek Type of Sample	Sta No.	Total Conc. # 1 yd³	Pan Eff. %	Magnetite	Ilmenite	Garnet	Mafic Bks.	Allanite	Epidote	Sphene	Monazite	Radio-Bks	Zircon		Anatase	Apatite		Kyanite		Leucoxene	Malacon	Pyrite	Rutile	Sillimanite	Spinel		Xenotime
Paddy Cr.-Camp Cr. Bench																											
Older Gravel, Placer Pit (Basaltic gravel)	18-55#38b	28	91	86	10	++	1.	0.2	2.	x	+		x							x							x
Bench gravel, Placer Pit (older?)	18-55#27	23	87	T	42	38	15	0.8	2.	0.7	1.3		+										x	1.	x		
Bench gravel, Placer Pit	18-55#38a	28	85	73	25	0.4	1.7	0.5	2	?	++																
Drill Hole (grab sample) 23' deep	PE 126Y	10	75	6.2	69	11	6.9	0.3	4.6	x	0.7		x											x			
Drill Hole (grab sample) 37' deep	PF 127Y	10	80	24	61	5.9	4.2	0.4	1.8	x	1.		x														
Drill Hole (composite) 55' deep	PF 131Y	35	69	15	50	3.6	12		6.	4.	1.3		.6							x	x		x	2.			
Drill Hole (grab sample) 10' deep	PF 135Y	6.3	69	0.3	43	39	10	0.9	4.	x	0.4		x											x	x		
Bench gravel (road cut)	18-54#48	4.4	70	6.7	57	13	8	0.8	11	x	0.5		2(?)					?		x			x		x		
Drill Hole (grab sample) 28' BR deep	PF 104Y	9.9	87	67	23	4.8	1.7	0.1	2	x	0.8		x											x			x
Drill Hole (grab sample) 15' BR deep	PF 103Y	2.6	71	6.4	72	13	33	+	5.	x	+		x									x		0.3	x		x
Bench gravel, 8' Pit	5-17#4	27	77	0.4	83	23	7.3		3.		1.		T										x				
Small Creek with Lag gravels	5-18#3	23	68	11	70	0.6	8.5		x		4.6		0.6			x											
Bench West of Paddy Creek																											
Drill Hole (grab sample)	PF 130Y	6.0	79	87	5.4	+	0.2	0.3	4	x	+		x											x			
Drill Hole (grab sample)	PF 129Y	43	87	53	27	0.1	3.7	0.1	1.	0.2	0.1		x											x			
Drill Hole (composite)	PF 128Y	19	58	5.7	43	6.5	23	x	6.	3.	0.2		2.										x	3.			

x Indicates the precence of the mineral without regard to quantity.

T, +, and ++ Are semi-quantitative symbols indicating a progressive increase in amount between 0 and 0.1%.

HEAVY MINERAL CONTENT OF PADDY FLAT PLACER SAMPLES

Table 7

Paddy Creek Valley Floor

Type of Sample	Sta. No.	Total Conc. # 1 yd3	Pan. Eff. %	Magnetite	Ilmenite	Garnet	Mafic Bks.	Allanite	Epidote	Sphene	Monazite	Radio-Bks.	Zircon		Anatase	Apatite	Kyanite		Leucoxene		Pyrite	Rutile	Sillimenite	Spinel		Xenotime
Stm, sm, Paddy Cr.	18-55#39	44	84	4.5	56	10	19	0.5	7	x	0.5		?										x	x		
Drill Hole (grab sample) 22'deep	PF 133Y	3.6	79	70	18	1.7	2.	++	0.2	x	+		x										x			
Drill Hole (grab sample) 29'deep	PF 132Y	18	72	30	44	8.4	9.1	0.7	5.9	x	0.1		x										x			
Drill Hole (grab sample) 31'deep	PF 107Y	90	83	44	35	9.3	8.6	0.4	2	x	0.5		x										x			
Drill Hole (composite) 27' deep	PF 105Y	97	70	45	41	6.	14		2.		1.6		1.		3.							x				
Stm sm, Paddy Cr.	5-18#43a	13	88	0.3	68	21	5.2	0.6	0.4	x	2.9		x										x			x
Drill Hole (grab sample) 10'deep	PF 102Y	46	78	18	50	13	12	0.6	2.		1.8		x								x		x	x		x
Stm sm., Paddy Cr.	5-18#2a	60	78	0.1	33	44	16		0.9		4.6		x											x		

x Indicates the presence of the mineral without regard to quantity.

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HEAVY MINERAL CONTENT OF PADDY FLAT PLACER SAMPLES

Table 7

Large Streams and Miscellaneous Samples

Type of Sample	Sta. No.	Tot. Conc., # 1 yd³	Pan Eff., %	Magnetite	Ilmenite	Garnet	Mafic Bks.	Allanite	Epidote	Sphene	Monazite	Radio Bks.	Zircon	Anatase	Apatite	Kyanite	Leucoxene	Pyrite	Rutile	Sillimanite	Spinel	Xenotime
Stream sample, N. Fork Gold Fork, coarse gravel	18-55#28	33	82	24	23	44	4.4	0.7	0.6	1	0.4		T						x		x	
Stream sample, Kennally Fork, side bar	18-56#33	41	85	43	45	0.4	4.1	3	3	x	T		x									x
Stream sample, Kennally Fork	24-55#55a	5.7	76	34	40	20	+	x	x	x	4.4	T	x					x				x
Stream sample, Kennally Fork (poor sample)	24-55#18	2.9	72	7.1	37	23	0.9	0.9	0.9		27		+								x	x
Stream sample, Powelson Cr.	24-55#16	73	81	19	45	33		2.	+		3.	T					x					x
Miscellaneous																						
Terrace sample, Paddy Cr., Basalt gravels	18-55#67	85	91	52	38	28	4.	0.3	1.1	x	0.3		x				x				x	x
Old gravels? resting on Latah-Basalt sluff	18-55#66a	5.4	84	44	39	8.9	5.	0.3	1.	x	0.3		x				x				x	x
Latah sands	18-55#66	0.06	34	14	71	+		T	+	x	5.		x				x					x

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T, +, and ++ Are semi-quantitative symbols indicating a progressive increase in amount between 0 and 0.1%.

HEAVY MINERAL CONTENT OF PADDY FLAT PLACER SAMPLES

Table 7

Local samples related to bedrock

Type of Sample	Sta. No.	Total Conc. #/1 yd3	Pan Eff., %	Magnetite	Ilmenite	Garnet	Mafic Bks.	Allanite	Epidote	Sphene	Monazite	Radio Bks	Zircon	Anatase	Apatite	Kyanite	Leucoxene	Pyrite	Sillimenite	Spinel	Xenotime
WEST																					
Weathered bedrock (uncontaminated)	18-56#35	4.4	68	86	5.1	T	2.2	0.6	3.	x	T		x								
Local Stream	18-56#34	42	93	68	25	4.	0.2	++	0.1		2.5		x				x			x	x
Weathered bedrock (uncontaminated) coarse cgn	18-56#30	4.4	69	93	4.	+		0.6	0.6				x		x						
Local stream (associated basalt)	18-55#69	1.5	59	2.4	70	T	12	2.	9.	x	T		x				x				
Soil (biotite gneiss)	18-55#71	6.0	66	81	9.	T	4.	0.3	3.	x			x		x			x			
Local Stream	18-55#72	56	92	82	14	+	1.7	0.3	1.	x	+		x				x				
Local Stream	5-18#8	9.4	77	39	52	1.7	1.3		2.	0.3	0.5		x		x		x			x	x
Local Stream	5-18#41	19	87	46	30	0.2	1.7	1.	3.	x	++		0.2							x	
Weathered bedrock uncontaminated biotite	5-18#42	0.8	48	81	2.4	T	7.	x	7.		T		7.					x		x	
NORTH																					
Weathered bedrock, uncontaminated biotite gneiss	18-55#38	0.3	32	85	14	T	++	x	3.	x			T							x	
Soil	5-18#44i	0.6	69	78	3.	+	7.		8.		+		++								
Weathered bedrock, uncontaminated biotite gneiss	5-18#44c	0.1	48	7.1	57	+	+	14			+		T							x	
Weathered bedrock, uncontaminated biotite gneiss	5-18#44b	0.06	21	29	57	+	+		+		+		+		x					x	

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HEAVY MINERAL CONTENT OF PADDY FLAT PLACER SAMPLES

Table 7

Local samples related to bedrock

Type of Sample	Sta No.	Total conc. #1 yd3	Pan Eff. %	Magnetite	Ilmenite	Garnet	Mafic Bks.	Allanite	Epidote	Sphene	Monzonite	Radio Bks	Zircon		Anatase	Apatite		Kyanite	Leucoxene		Pyrite		Sillimenite	Spinel		Xenotime
NORTH (continued)																										
Local Stream	5-18#44a	30	81	2.2	38	27	26		2.		5.8		T										x	x		x
Weathered, biotite gneiss	18-54#49d	0.3	41	T	5.	+	54	x	38		T		5.											x		
EAST																										
Mortored bedrock, cgn-like	18-54#12	3.1	75	91	3.2	+	T		2.	x	T		T													
Weathered bedrock, cgn-like	24-55#13	0.3	76	73	+	+	T		+	x	10		T						x		x					
Weathered bedrock	24-55Z15	0.2	79	T	46	T		+		x	+		x													
Weathered bedrock	24-55#16a	0.9	83	67	22	+		+	2.	x			x								x					
Weathered bedrock, white pegmatite	24-55#55	1.3	81	73	19	+		+	2.		T		x								x					x
SOUTH																										
Soil of medium grained biotite gneiss	24-55#58	13	87	91	5	0.1	0.3	0.1	2.	0.3	T?		x						x							
Local Stream	24-55#59	57	83	94	2.5	++	0.7	0.2	1.4	x	T		+													x
Weathered, coarse biotite gneiss	24-55#61a	2.5	73	92	0.3	T	T	1.	2.8	x	T										x			x		

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SUMMARY OF MINERALOGICAL DATA OF PADDY FLAT PLACER SAMPLES

Table 8

Type of Sample	Number of Samples Averaged	Total Concentrate	Pounds per Cubic Yard				Magnetite Percent of total conc.	Percent Exclusive of Magnetite				
			Magnetite	Ilmenite	Garnet	Monazite		Ilmenite	Garnet	"Mafic Blacks"	Epidote	Monazite
Rapid Creek-Kennally Fork Ridge	11	37	22	8.	2.7	0.4	60	55	18	6.5	5.5	2.5
Camp Creek-Rapid Creek Bench	10	29	14	6.1	4.5	0.2	47	40	29	13	5.1	1.3
Rapid Creek Valley Floor Terrace	5	20	10	1.8	6.1	0.04	50	18	61	12	1.6	0.4
Paddy Creek-Camp Creek Bench	12	17	1.5	11	2.4	0.2	9	69	16	11	6.2	1.3
Bench west of Paddy Creek	3	23	16	3.3	0.1	001	70	48	2	11	13	0.1
Paddy Flat Valley Floor	8	46	19	16	4.6	0.6	41	60	17	15	3.2	2.2

COMMONWEALTH GOLD DREDGING CO.
Cascade, Idaho.

Hole No. 101 Depth of Hole 18 Ft. Cons Cu. Yd. 10 Property CARREY & DENNISON Date 7/21/

Screen Analysis and Microscopic Estimates

Mineral	Total Sample %	-14 +20 %	-20+30 %	-30+50 %	-50+100 %	-100 %	Lbs. Cu. Yd.	Value. Cu. Yd.
Magnetite	4.89	—	4	10	3.2	3.3		
Ilmenite	38.98	40	40.0	40	40.0	35		
Garnet	12.75	40	40.0	20	10.0	2		
Zircon	2.58	—	—	—	2	7		
Monazite	4.30	—	3.0	2.0	4.0	8.		
Quartz	27.43	20	10.0	20.0	30	35		
Others	9.46	—	3	8	11	9.7		
Wt. in Mgm.	100	2.5	5.0	23.5	46.5	22.5		

Remarks:

M. Goss

COSURNES GOLD DREDGING CO.
Cascade, Idaho

Hole No. 102 Depth of Hole 10' Wt. Cons Cu. Yd. 58.5 Property PF Date 7/25

Screen Analysis and Microscopic Estimates

Mineral	Total Sample %	-14 *20 %	-20*30 %	-30*50 %	-50*100 %	-100 %	Lbs. Cu. Yd.	Value. Cu. Yd. ¢
Magnetite	27.20	.575 10.0	3.47 35.0	11.15 47.0	9.65 29.0	2.45 9.0	15.9	4
Ilmenite	27.02	2.35 41.0	3.47 35.0	6.50 27.0	9.30 28.0	5.4 20.0	15.6	4
Garnet	6.80	2.23 39.0	1.97 20.0	1.72 8.0	.66 2.0	Tr	4.0	10
Zircon	1.80	0 Tr	0 Tr	.12 .5	.33 1.0	1.35 5.0	1.0	2.5
Monazite	1.14	0 Tr	0 Tr	.48 2.0	.66 2.0	Tr	.67	12.0
Quartz	29.56	.46 8.0	.59 6.0	2.47 10.0	10.0 30.0	16.10 60.0	17.3	
Others	6.08	.1 2.0	.39 4.0	1.32 5.5	2.66 8.0	1.61 6.0	3.6	5. Au
Total	100	5.75	9.95	24.1	33.2	27.0	58.5	37.5
Wt. in Mgs.	17.430	1000	1730	4200	5790	9710		

Remarks: Magnetite and Ilmenite estimated at 1/4 c/lb
(Iron ore is $8.00/Ton and Ilmenite $18.00 to $25.00/Ton)

Magnetite and ilmenite estimated at 1/4 c/lb
(Iron ore is $8.00/ Ton and Ilmenite $18.00 to $25.00/Ton

CONTINENTAL GOLD MINING CO.
Cascade, Idaho.

Hole No. 103 Depth of Hole 15 Wt. of Conc. 8.25 Oz. Wt. Prop. ___ Date 7/21/
CARREY & DENNISON 7/21/

Screen analysis and Estimates

Mineral	Total Sample	-14+20	-20+30	-30+50	-50+100	-100	Value Oz. Wt.
Magnetite	15.0	2	3	10	35	33	
Ilmenite	38	40	40	40	30	35	
Garnet	12	30	30	20	15	5	
Zircon	—	—	—	—	5	7	
Monazite	—	—	3	2	4	3	
Quartz	26	18	5	15	25	20	
Others	9						
Gold							
Wt. in Mgms.	100						

Values calculated in cents per lb. Magnetite ___, Ilmenite ___, Garnet ___, Monazite ___
Zircon ___, Gold @35.00 dollars per Oz.

Remarks:

MR. YOST

[redacted]

CONSOLIDATED GOLD MINING CO.
Grangeville, Idaho.

Hole No. 107Y Depth of Hole 31' Ft. Cons/Cu. Yd. 61# Property P.F Date 7/27/[illegible]

Screen Analysis and Microscopic Estimates

Mineral	Total Sample %	-14 +20 %	-20+30 %	-30+50 %	-50+100 %	-100 %	Lbs. Cu. Yd.	Value. Cu. Yd.
Magnetite	18.98	.08 2	1.94 20	12.2 34	3.76 11	6	1.10	
Ilmenite	30.19	1.26 30	3.88 40	9.2 26	12.3 36	25	4.15	
Garnet	5.42	1.26 30	1.16 12	1.8 3	1.02 3	Tr		
Zircon	.67	—	—	Tr	.171 0.5	3	.5	
Monazite	.143	—	—	.18 0.5	.171 0.5	0.5	.08	
Quartz	40.60	1.47 35	2.13 22	11.6 33	15.4 45	60	10.0	
Others	4.26	.13 3	.60 6	1.23 3.5	1.57 4	5.5	.43	
Wt. in Lbs.	100	4.2	9.7	35.4	34.1	16.6		

Remarks:

Sample: 6138 Lbs Dry Wt.
Total Cons: 124 Lbs — 2.02% —
Au 10.7¢/yd³

COSUMNES GOLD DREDGING CO.
Cascade, Idaho.

Hole No 108 Depth of Hole ~~[illegible]~~ 26' Wt. Cons/Cu. Yd. 30.6 # Property P.F. Date 7/19/52

Screen Analysis and Microscopic Estimates

Mineral	Total Sample %	-14*20 %	-20*30 %	-30*50* %	-50*100	+100	Lbs. Cu. Yd.	Value. Cu. Yd.
Magnetite	40.2	2.4 40.0	6.8 40.0	12.0 40.0	16.0 45.0	8.0 25.0		
Ilmenite	18.8	1.2 20.0	3.4 20.0	6.0 20.0	7.0 20.0	1.2 10.0		
Garnet	10.22	.15 25.0	3.4 20.0	4.5 15.0	.7 2.0	.12 1.0		
Zircon	.95	—	—	—	.35 1.0	.6 5.0		
Monazite	.46	.03 0.5	.05 0.3	.5 0.5	.17 0.5	.06 0.5		
Quartz	23.0	.6 10.0	2.5 15.0	4.5 15.0	8.8 25.0	6.6 55.0		
Others	6.62	.3 4.5	.8 4.8	2.8 9.5	2.3 6.5	.42 3.5		
Wt. in Mgs.	100	6.0	17.0	30.0	35.0	12		

Remarks: ~~5~~ AT .11 Mg Au Cons
1¢/yd³ Au

[illegible] Co.

Jamaica, I Dak.

Sale No. F 112 Date of sale 1940 at, of [illegible] Co. Ia. Inv. ____ Date ____

P.F. 116 78

Screen analysis are estimated

Mineral	Total Sample	-100+[illegible]	-200+[illegible]	-30+[illegible]	-50+100	-100	Value Co. Ia.
Magnetite	46.0%	46.					
Ilmenite	13.8%	13.8					
Garnet	5.7%	5.7					
Zircon	1.4%	1.4					
Monazite	1.4%	1.4					
Quartz	31.7%	31.7					
Others							
Gold							

Pt. in gms.

Values calculated in cents per lb. Magnetite 1½, Ilmenite 3.2, Garnet 15.0, Monazite 22.0

Zircon 3.2, Gold [illegible] dollars per oz.

Remarks: 56.2 Cu. Yd.

Elevation

Coordinates

CONSUMNES GOLD DRE[illegible]NG CO.

FIELD LOG

Page 1 of PF10[illegible]

DEPTH FEET	DEPTH IN.	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		✓		✓	✓		✓	Top Soil	Red
2		✓		✓	✓		✓	" "	"
3		✓		✓	✓		✓	Med gravel	Gray
4		✓		✓	✓			" "	"
5		✓		✓	✓		✓	" "	"
6		✓		✓	✓		✓	" "	"
7		✓		✓	✓		✓	" "	"
8		✓		✓	✓		✓	" "	"
9		✓		✓	✓		✓	" "	"
10		✓		✓	✓		✓	Fine Clay + Sand	Red
11		✓		✓	✓		✓	" "	"
12		3		✓	✓		✓	" "	"
13		3		20	10		✓	" "	"
14		4		20	10		"	Gravel Brown	Brown
15		4		30	15		"	Clean Gravel	White
16		1		15	5		½	" Or Coarse 8"	"
17		1		5	5				
18		1		5	5			Gran Brk Soft.	
				22" Hole					
				Sample split ½					
				Mz Est			12	LBS	
				Mag			10	"	
				IL			5	"	
				Zircon			1	"	
								Mt. Yost	

Date Commenced 7/07/52

Date Finished 2 PM 7/19/52

Tract Carney + Dennison

Panner: Day ..... Night .....

Drill Runner: Day ..... Night .....

Date ..... Shift ..... Line No. .....

Hole No. PF-10-Y

Drill No. .....

Total Depth 17 FT

Bedrock Soft Granite

Water Level 16 FT

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev.
Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of PF-10

DEPTH FEET	DEPTH IN	MZ LBS YD³	Au	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZR O/G LBS YD³	FORMATION	REMARKS
1								Top Soil	Roots + Leaves
2		Tr		1	Tr			" "	
3		"		5	1			Clay Sm Sand	
4		"		5	1		½	" Fine Sand	Blue + Gray
5		"		15	5	1	½	Gravel Clay	Gray (Tight)
6		1		40	20	2	1	" Clean	Oxidized
7		1		"	"	"	"	" "	
					Moved			Hole Boulder	3 FT Diameter
					Moved			10' North	
[illegible]		1		35	20	2	1	Gravel + Sand	
[illegible]		1½		"	"	"	"	" "	
10				Hole shutting				2 FT	
								Large Quartz Bolders	
				No Bottom Hole stopping					
				Moved Hole To Sand plant					
				on 7/21/52					

Date Commenced 7/17/52 - 2:00 P.M. Date Finished

Tract

Panner: Day Night

Drill Runner: Day Bob Bo Hero

Date Shift Line No.

Hole No. PF-10 Y Drill No. 1

Total Depth 10 FT Bedrock No

Water Level 3 FT

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev. _____

Coordinates _____

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of PF10

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1.		1/2		10	5	Tr	1/2	Sandy Loam	
2		"		"	"	"	"	Gr. Sm Clay	
3		"		"	"	"	"	Medium Clay	
4		"		"	"	"	"	"	
5		2		1	20	2	1	Coarse-Medium Gr	Red
6		"		2	"	1	1	"	"
7		"		2	15	1	1	"	"
8		1		2	5	1	1	"	"
9		2		2	15	1	1	"	"
10		3		1	7	2	1/2	Good Gravel Firm Brown	
11		2		2	10	3	1/2	Good Gravel Firm	Quartz Gravel
12		1		1	15	3	1/2	"	"
13		2		1	15	3	1	"	Dec. Gran Cobbles
14		1		1	15	3	1/2	"	Tight
15		1		1	10	2	Tr	Bedrock	Soft Granite

Good Dredging Gravel.

Digging Section 15 Ft.

Monazite Coarse

Blacks Ilmenite and Uranium?

1/4 of Hole is sample taken To Sand plant

7/18/52

Date Commenced 7/18/52 (11 AM Date Finished 7/18/52 1 PM

Tract Carney + Denison Panner: Day Yost Night

Nr. Main Road Away Between PF + RS Drill Runner: Day Bob Pattom Night Tom

Date _____ Shift _____ Line No. _____ Hole No. PF-10B-Y Drill No. _____

Total Depth 15 Bedrock 14 1/2 Water Level 7 FT.

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
S. SAND
G. GRAVEL
CL. CLAY
ST. STICKY
MD. MEDIUM
M. MUCH

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of [redacted]

PF104

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		Tr		tr	1	Tr	Tr	Surface Loam	
2		1/2		1	5	Tr	Tr	" "	
3		1		1	15	Tr	1/2	Gravel Sm. Clay	Same as
4		1		1	15	Tr	1/2	" Clean	Hole PF-106-Y
5		2		1	20	1	1	" "	
6		1		1	20	1	1	" "	
7		2		tr	30	1	1/2	" "	
8		1		1	15	1	1/2	Coarse Gravel	
9		3		10	75	3	1	" "	
10		3		5	60	2	2	" "	Tight gravel
11		1		5	40	2	2	" "	12" Cobbles
12		1		5	40	1	2	" "	"
13		1/2		2	50	1	3	" "	"
14		1		10	100	5	3	" "	"
15		1		5	50	3	1	Sand + Gr. Loose	change Gr. Med.
16		1		3	30	2	1	" "	"
17		1/2		100	10	5	1	" "	
18		1/2		60	10	5	1	" "	
19		1/2		50	5	5	1	" "	
20		1/2		20	3	5	2	Sand, Gr. + Clay	Change
21		1		30	2	6	1	" "	
22		1		20	1	3	1/2	" "	
23		1		20	1	4	1	" "	
24		1		20	1	4	1	" "	
25		1		20	1	4	1	" "	
26		1		20	1	4	1	" "	
27		1/2		5	Tr	Tr	Tr	Brk Gray Granite	
28								" " "	

Date Commenced 7/18/52 - 2 PM

Date Finished 7/19/52

Tract Carey & Denison

[redacted] E - of Hole PF104Y Nr Road

Panner: Day ..... Night .....

Drill Runner: Day R Pullen Night .....

Date ..... Shift ..... Line No. .....

Hole No. 104Y Drill No. .....

Total Depth 28 ft Bedrock 27 soft

Water Level No

ABBREVIATIONS

T. TAILINGS
F. FINE
S. SAND
G. GRAVEL
ST. STICKY
MD. MEDIUM

COSUMNES GOLD DREDGING CO.

FIELD LOG

Elev.

Coordinates

Page 1 of ~~[illegible]~~ P-10-

DEPTH FEET	DEPTH IN	MX LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1								Foam & [illegible]	
2								" "	
3								Blue Sand	
4		1.25	Lbs Cons			Cu	Yd.	Red sand + Gravel	Heavy Cons
5		3		30	75	2	2	" " "	Md " " Inc
6		2		50	75	2	2	" " "	" (Light)
7		2		50	75	2	2	" " "	" "
8		3		50	75	2	2	" " "	Inc Mx
9		5		50	75	2	3	" " "	" "
10		1/2		20	30	7	2	Clay + Sand	
11		1/2		30	30		3	Sand Fine Gravel	less Cons
12		1/2		30	30	5	3	" " "	
13		1/2		30	30	5	3	" " "	Inc Mx
14		1/2		30	30	5	3	" " "	
15		2		30	30	5	3	" " "	
16		2		30	30	5	3	Red sand Md Gravel	
17		2		30	30	5	3	" " " "	Inc Mx
18		4		30	30	5	3	" " " "	
19		4		30	30	3	1	Gray Clay	(less Cons)
20		2		20	20	3	4	Gray sand Md. Gravel	Inc Cons
21		4		30	30	2	4	" " " "	
22		4		30	30	2	4	Gray Clay some sand	Less Cons
23		3		20	20	2	4	Medium Gravel sandy	Inc Cons
24		4		30	30	2	5	Clay Gray Tight + Sticky	
25		4		35	35	2	5	Medium Gravel sand	Inc Cons
26		5		40	40	2	5	Brk Gray Granite	
27		Very Little Cons						Tight + Sticky	

1/2 of Hole Taken to sand plant on 24 + 25th of July

Date Commenced 7/23/32 11:15 AM Date Finished 7/25/32

Tract Geary + Dinison Paddy Flat Panner: Day ..... Night .....

Drill Runner: Day R. Pefle Night .....

Date 7/23/32 Shift 1 Line No. ..... Hole No. ~~[illegible]~~ 1057 Drill No. 1

Total Depth 27 Bedrock 26 Water Level .....

ABBREVIATIONS

ST. STICKY

Elev.

Coordinates

COSUMNES GOLD DREDGIN

FIELD LO.

Page 1 of PF10

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1			1/2	1/2	1/2	Sandy Top Soil	
2		1			1/2	1/2	1/2	Large Gravel Some sand	
3		1			1/2	1/2	1/2	" " " "	(Granit Boulders)
4		1			1/2	1/2	1/2	" " " "	" "
5		1			[illegible]	1/2	1/2	Medum Gravel Clean sand	(Granit & Quartz
6		1			1/2	1/2	1/2	" " " "	Gravel)
7		1			1/2	1/2	1/2	" " " "	
8		2			8	2	1/2	" " " "	(Water)
9		2			8	2	1/2	" " " "	Ine in Cons
10		2			8	2	1/2	Gray Clay	
11		2			8	2	1/2	" "	
12		2			8	2	1/2	Medum Gravel	
13		2			8	2	1/2	" "	
14		2			8	2	1/2	" "	
15		2 1/2			8	2	1/2	Gray clay	
16		2 1/2			10	2	1/2	" Sand Little clay	
17		2 1/2			10	2	1/2	" " " "	
18		2 1/2			10	2	1/2	Gray sand Medum Gravel	
19		2 1/2			10	2	1/2	" " "	"
20		2 1/2			10	2	1/2	" " "	"
								No Bed	
								1/4 of Hole in sample	
								taken to sand plant	
								on 7/19/52.	

Date Commenced 7/19/52 12:30 Date Finished 7/19/52. 12:30 PM.

Tract Garney & Dinson Paddy Flat Panner: Day ..... Night .....

Drill Runner: Day R Patterson

Date ..... Shift ..... Line No. ..... Hole No. 108Y Drill No. .....

Total Depth 20 Bedrock No Water Level .....

ABBREVIATIONS

Elev.

Coordinates

MUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of PF-10

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1								Brown Top Soil	
2		1		10	10	1/2	1/2	Gray Sand	
3		1		10	10	1/2	1/2	" " Some Gravel	
4		1		10	10	1/2	1/2	Medium Clear Gravel	
5		1 1/2		10	10	1	1/2	" " "	
6		1 1/2		10	10	1	1/2	Large Clean Gravel	Caving a little
7		2		25	25	2	1/2	" " " "	Logs
8		2		30	25	2	1/2	" " " "	Standing Good
9		2		30	25	2	1/2	Clay Dark Gray (Tight)	
10		2		30	25	2	1/2	" " " "	"
11		2		30	25	2	1/2	" " " "	"
12		2		30	25	2	1/2	" Sand	
13		2		30	25	2	1/2	" "	
14		1		15	15	1	Tr	" "	
15		1/2		10	10	1/2	Tr	Sand + M Gravel	
16		1/2		10	10	0	Tr	Clay	Tight + Sticky
17		1		10	10	1	Tr	Medium Gravel	
18		1/4		5	5	1	Tr	Clay (less Cars)	Tight
19		1/2		5	5	1	Tr	Clay	"
20		3/4		10	10	1	1/2	Fine Gravel	
21		3/4		15	15	1	1/2	Medium Gravel Clean Sand	
22		2		20	15	1	1/2	" " "	" (Coarse Mz)
23		2		20	15	1/2	1/2	" " "	"
24		2		20	15	1/2	1/2	" " "	"
25		2 1/2		20	15	1/2	1/2	" " "	" (Running)
26		2		20	15	1/2	1/2	" " "	" "
27		2		15	10	1/2	1/2	Running to much to go on Down	
28		"		"	"	"	"	Drop Casing	Prop Cas.
29		"		"	"	"	"	" "	Finish
30		"		"	"	"	"	" "	Pull
31		1		"	"	"	"	" "	

Date Commenced 7/21/92 10:00 AM Date Finished 7/23/92 10:30 AM

Tract Garvey Ditch Paddy Flat Panner: Day ..... Night .....

Drill Runner: Day R Patton Night .....

Date 7/21/92 Shift 1 Line No. .....

Hole No. 01 Drill No. 1

Total Depth 31 Bedrock 31 Water Level 5 FT

ABBREVIATIONS

T. TAILINGS
F. FINE
S. SAND
G. GRAVEL
ST. STICKY
MD. MEDIUM

Elev. ____

Coordinates ____

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of PF10

DEPTH FEET	DEPTH IN	MX LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1/4		15	15	1/2	1/4	Sandy Loam	
2		1/4		15	15	1/2	1/4	" "	
3		1/4		15	15	1/2	1/4	Corse Gravel + sand	(Granite Gravel)
4		1/4		15	15	1/2	1/4	" " "	" "
5		1/4		15	15	1/2	1/4	Clean Sand	
6		1/4		15	15	1/2	1/4	" "	
7		1/3		15	15	1/2	1/4	" "	
8		1/3		15	15	1/2	1/4	" "	
9		1/3		15	15	1/2	1/4	" "	
10		1/3		15	15	1/2	1/4	" "	
11		1/3		15	15	1/2	1/4	Clean Sand Large Gravel	
12		1/2		15	15	1/2	1/4	" " " "	
13		1/2		15	15	1/2	1/4	Large Gravel (Quartz) Tight	
14		1/2		15	15	1/2	1/4	" " " Tight	
15		3/4		15	15	1/2	1/2	" " "	
[illegible]		1		20	20	1	1/2	Medium Gravel Large washed Bould	
17		1		20	20	1	1/2	" "	(Inc Cons)
18		1		20	20	1	1/2	Brown Sand	
19		1		15	15	1	1/2	" "	
20		1		15	15	1	1/2	" " Md Gravel	
21		1		15	15	1	1/2	" " " "	
22		1		15	15	1	1/2	" " " "	
23		1		15	15	1	1/2	" " " "	
24		1 1/2		15	15	1	1/2	" " " "	
25		1 1/2		15	15	1	1/2	" " " "	
26		1						Bed Rk Gray Granite	
27		Grit							
28				25	15	3	1/4	Clean Sand Md Gravel	
29								Hole to Sand Rock	
[illegible]		4		25	15	3	1/4	" " "	
30		4		25	25	3	1/4	7/28/52 " "	(Inc. Mzl)
31								Grit	

Date Commenced 7/26/52 1:30 PM

Date Finished 7/28/52 10:45 AM

Tract Carr + Dawson

½ Mile from Ranger station

Left from Rebecca

Panner: Day ____ Night ____

Drill Runner: Day Phil Night ____

Date 7/26/52 Shift 1 Line No. ____

Hole No. 104 Drill No. 1

Total Depth 26 ft Bedrock 25 ft

Water Level 10 ft

ABBREVIATIONS

T. TAILINGS	S. SAND	ST. STICKY
F. FINE	G. GRAVEL	MD. MEDIUM
C. COARSE	CL. CLAY	M. MUCH
V. VERY	SM. SOME	L. LOOSE

Elev. ____

Coordinates ____

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 Pit 1091

Depth Feet	Depth In	Mt Lbs Yd³	Au Lbs Yd³	Fine Lbs Yd³	Mo Lbs Yd³	Gr Lbs Yd³	ZrO_2 Lbs Yd³	Formation	Remarks
1		1/2		10	10	3	Tr	Sandy Loam	
2		1/2		10	15	3	Tr	" "	
3		1/2		10	10	3	Tr	Gravel	
4		3/4		15	15	3	1/3	" Tight	Increasing Boulde
5		3/4		15	15	4	Tr	" "	
6		3/4		15	15	5	1/3	" " large Boulders	
7		3/4		15	15	5	1/3	" " "	"
8		3/4		15	15	15	1/3	" " "	"
9		1/4		15	15	15		" " "	"
10		1/4		25	20	15		" " "	"
11		1/4		25	20	20	1/3	" " "	"
12		1/3		25	25	20	2	" " "	"
13		1/3		25	25	20		" " "	"
14		1/3		25	25	20	2	" " "	" (with clay)
15		1/3		15	20	8	1	" " "	"
16		1/3		15	20	8	1	" " "	Coarse
17		1/3		15	20	8	1	" " "	"
18		1/3		15	20	8	1	" " "	"
19		1/2		15	20	8	1	" " "	"
20		1/2		15	20	8	1	" " "	"
								Bed Rock Gray Granite	

1/2 of Sample Taken to Sand Plant

7/30/52

Date Commenced 7/28/52 12:30 Date Finished 7/30/52 10:00 AM

Tract Cosumnes Dredge Panner: Day ____ Night ____

Date 7/28/52 Shift ____ Line No. ____ Drill Runner: Day R Patton Night ____

Hole No. 1091 Drill No. 1

Total Depth 20 Bedrock 20 Water Level 4 ft

T. Tailings
F. Fine
C. Coarse

ABBREVIATIONS

S. SAND
G. GRAVEL
CL. CLAY

ST. STICKY
MD. MEDIUM
M. MUCH

COSUMNES GOLD DREDGING CO.

Elev.

Coordinates

FIELD LOG

Page 1 of 8-11

DEPTH FEET	DEPTH IN.	MX LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GA LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1		10	10		Tr	Brown sand Md Gravel	Quartz
2		1		10	10		Tr	" " " "	"
3		1		10	10		Tr	" " " "	"
4		1		10	10		Tr	" " " "	"
5		1		10	10	Tr	Tr	" " " "	"
6		1		10	10	1/4	1/2	" " " "	"
7		1		10	10	1/4	1/2	" " " "	"
8		1		10	10	1/4	1/2	" " " "	"
9		1 1/2		15	15	1/4	1/2	" " " "	"
10		1 1/2		15	15	1/4	1/2	" " " "	"
11		1 1/2		15	15	1/4	1/2	Sand Sme sc/l Gravel	
12		1 1/2		15	15	1/4	1/4	" " "	"
13		1 1/2		15	15	1/4	1/4	" " "	"
14		1 1/2		15	15	1/4	1/4	" " "	"
15		1 1/2		15	15	1/4	1/4	" " "	"
16		1		10	10	1/4	1/4	Clean Gray Sand	
17		1		10	10	1/4	1/4	" " "	
18		1		10	10	1/4	1/4	" " "	
19		1		10	10	1/4	1/4	" " "	
20		1		10	10	1/4	1/4	" " "	
21		1		15	15	1/4	1/4	Clean sand small Gravel (inc co	
22		1		35	35	Tr	1/4	" " "	"
23		1		35	35	Tr	1/4	" " "	"
24		1		35	35	Tr	1/4	" " "	"
25		1 1/2		35	35	Tr	1	" " "	" inc Mz
26		1 1/2		35	35	Tr	1	" " "	"
27		1 1/2		35	35	Tr	1	" " "	"
28		1 1/2		35	35	Tr	1	" " "	"
29		1		35	35	Tr	1/2	Yellow sand sm Gravel	
30		1		35	35	Tr	1/2		
31		1		35	35	Tr	1/2	Gray sand + Gravel	
32		1		35	35	Tr	1/2	" " "	
33		1		20	15	"	"	"	
34		1		"	"	"	"	Gray G. Sand Till	Soft.

Date Commenced 7/30/12

Date Finished

Tract Garney + Dinison

Panner: Day Night

Drill Runner: Day B Patton Night

Date Shift Line No.

Hole No. 110Y Drill No. 1

Total Depth Bedrock

Water Level

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. ST[illegible]
MD. [illegible]M
M. [illegible]
[illegible]

CONSUMNES GOLD DREDGING CO.

Coordinates

FIELD LOG

DEPTH FEET	DEPTH IN	Sn LBS YD³	Au LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
31		1		25	20	Tr	1	Brown Sand Md Gravel	
32		1		25	20	Tr	1	" " "	
33		1		25	20	Tr	1	" " " Course Gravel	
34		1		30	30	Tr	1	" " "	"
35		1		30	30	½	1	" " "	"
36		1		30	30	½	1	" " "	"
37		1		30	30	½	1	" " "	"
38		1		30	30	½	1	" " "	"
39		1½		40	40	½	1	" " "	" INC Course
40		1½		40	40	½	1	" " "	"
41		1		40	40		1	Sand Brown	
42		1		40	40	Tr	1½	" "	Damp & Sticky
43		1		25	25	Tr	1½	" "	
44		1		25	25	Tr	1½	" "	
45		1		25	25	Tr	1½	" "	Cus increase
46		1		25	25	Tr	1	Course Med	
47		1		50	50	Tr	2	"	
48		1		50	50	Tr	2	" "	
49		1		50	50	Tr	2	" "	
50		1		50	50	Tr	2	" "	
51		1		75	75	Tr	3	" "	
52		1		75	75	4	3	" "	
53		1		50	50	3	3	" "	
54		1		75	75	3	3	" "	Grey Cl
55		1		75	75	3	3	" " "	
56		2		60	60	5	2	" " "	Light Cl.
57		2		60	60	5	2	" " "	
58		2		60	60	5	2	Clean Quartz Gravel	
59		2		60	60	5	2	" " "	
60		2		60	60	5	2	Sand Md Gravel	
61		2		60	60	5	2	" " "	
62		2		60	60	5	2	" " "	
63		2		60	60	5	2	" " "	
64									

Date Commenced

Date Finished

Tract

Panner: Day Night

Drill Runner: Day Bob Patton Night

Date Shift Line No.

Hole No. Drill No.

Total Depth Bedrock

Water Level

ABBREVIATIONS

T. TAILINGS

S. SAND

ST. STICKY

Elev. _____

Coordinates _____

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 2 of 11

DEPTH FEET	DEPTH IN	Mz LBS YD³	Au LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	Gr LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
15		1		15	15	1	1½	Sand & Md Gravel	
16		1		15	15	1	1½	" " "	
17		1		15	15	1	1½	" " "	
18		1		15	15	1	1	" " "	
19		1		25	15	1	1	" " "	
20		1					1	Coarse Gravel loose	
12		1		25	25	1	1	Gray Clay	
13		1		25	25	1	1	Coarse Gravel	
14		1		25	25	1	1	" " " + sand	
15		1		25	25	1	1	Yellow sand + Corse Gravel	
16		1		25	25	1	1	" " " "	
47		1		25	25	1	1	" " " "	
48		1		25	25	1	1	" " " "	
49		1		25	25	1	1	" " " "	
50		1		25	25	1	1	" " " "	

Drilled to 85 Ft. Cons increased with depth. M. Yost.

Date Commenced _____ Date Finished _____

Tract _____ Panner: Day _____ Night _____

Drill Runner: Day _____ Night _____

Date _____ Shift _____ Line No. _____ Hole No. _____ Drill No. _____

Total Depth _____ Bedrock _____ Water Level _____

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

COSUMNES GOLD DREDGING CO.

Page 1 of 8 PFN

FIELD LOG

Coordinates

DEPTH FEET	DEPTH IN	MX LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		½		10	10	½	½	Red Gravel	Tight
2		½		10	10	½	½	" "	"
3		½		10	10	½	½	" "	"
4		½		10	10	½	½	" "	"
5		½		10	10	½	½	" "	"
6		½		10	10	½	½	" "	"
7		½		10	10	½	½	" "	"
8		½		10	10	½	½	" "	"
9		1		10	10	1	1	[illegible] Gravel	[illegible]
10		½		3	3	[illegible]	½	[illegible]	
11		½		3	3	[illegible]	½		
12		½		3	3	[illegible]	½		"
13		½		3	3	[illegible]	½		
14		1		5	3	[illegible]	1		
15		1		10	10	"	1	Grey Sand	"
16		1		10	10	"	1		
17		1		10	10	"	1		"
18		1		30	30	"	1		"
19		1		30	30	"	1	Red Sand Sand-Gravel	"
20		1		"	"	"	1	" "	"
21		1		"	"	"	1	" "	"
22		1		"	"		1	" "	"
23		1		"	"		1	" "	"
24		¾		25	25		1	" "	"
25		¾		25	25	"	1	" "	"
26		¾		25	25	"	1½	" "	"
27		¾		25	25	"	1½	" "	"
28		1		25	25	2	2	" "	"
29		1		25	25	2	2	" "	"
[illegible]		1		25	25	2	2	" "	"
[illegible]		1		25	25	2	2	" "	"
[illegible]		1		25	25	2	2	" "	"
[illegible]		1		30	30	2	2	" "	"
[illegible]		1		30	30	2	2	" "	"

Date Commenced 8/14/52 Date Finished

Tract Carey & Dennison Panner: Day C. Looms Night

Drill Runner: Day P. Patton Night

Date 8/14/52 Shift Line No. Hole No. 111Y Drill No.

Total Depth Bedrock Water Level

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE

S. SAND
G. GRAVEL
CL. CLAY

ST. STICKY
MD. MEDIUM
M. MUCH

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
35		1½		30	30	3	3	Med. Gravel	Firm
36		1½		"	"	"	"	" " "	
37		1½		"	"	"	"	" " "	
38		1½		35	40	3	3	" " "	Increase Mz
39		1½		35	40	3	3	" " "	" "
40		1½		35	40	3	3	" " "	Firm
41		2		35	40	4	3	Med. & Varis - Gravel	Increase Mz
42		2		35	40	4	3	" " "	Firm
43		2		35	40	4	3	" " "	"
44		2		35	40	4	3	" " "	"
45		2		35	40	4	3	" " "	"
46		2		35	40	3	3	" " "	"
47		2		60	40	3	3	" " "	Increase. Cons.
48		2		60	40	3	3	" " "	Firm.
49		2		60	40	3	3	" " "	"
50		2		60	40	3	5	" " "	Increas. Zr.
51		2		60	40	3	5	" " "	Firm.
52		2		60	40	3	5	" " "	"
53		2		60	40	3	5	" " "	"
54		2		60	40	3	5	" " "	"
55		2		60	40	3	5	" " "	"
56		2		60	40	3	5	" " "	"
57		2		60	40	4	5	" " "	
58		2		60	40	4	5	" " "	
59		2		60	40	4	5	" " Granit Sand	Water "
60		2		70	50	4	5	" " " "	Firm Increase. Co
61		2½		70	60	4	5	" " " "	" " "
62		2½		70	60	4	5	" " " "	
63		2½		70	60	4	5	" " " "	" " " " Wet
64		3		100	100	5	7	" " " "	Increase Cons.
65		3		100	100	5	7	" " " "	Firm.
66		3		100	100	5	7	Clay & Sand	"
67		3		50	50	3	5	" " "	Decrease. Cons.
68		2		30	60	3	5	Granit & Gr. Sand	Firm.

Date Commenced

Date Finished

Tract Carey & Dennison

Panner: Day C. Loomis Night

Drill Runner: Day R. Patton Night

Date 8, 4, 22 Shift Line No.

Hole No. 111Y Drill No.

Total Depth Bedrock

Water Level

ABBREVIATIONS

T. TAILINGS

F. FINE

S. SAND

ST. STICKY

Elev.

COSUMNES GOLD DREDGING CO.

Coordinates

FIELD LOG

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
69		3		50	50	3	5	Granit + gr sand	Fine
70		3		50	50	3	5	" " " "	"
71		3		50	50	3	5	" " " "	"
72		3	Tr	50	50	3	5	" " " "	"
73		3		50	50	3	5	" " " "	"
74		2½		50	45	2	5	" " " "	"
75		2½		50	45	2	5	" " " "	"
76		3		50	50	6	5	" " " "	"
77		3		50	50	6	6	" " " "	"
77		3		50	50	6	6	" " " "	"

½ Sample
Taken to plant 8/7/52

Hole about 360 ft West from Sign Board on Shoal Point Road

Date Commenced 8-4-52

Date Finished 8-6-52

Tract Cary + Dennison

Panner: Day C.V. Loomis Night

Drill Runner: Day R. Patton Night

Shift Line No.

Hole No. 111Y Drill No.

Total Depth 78 Bedrock No Bdk.

Water Level

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
S. SAND
G. GRAVEL
CL. CLAY
ST. STICKY
MD. MEDIUM
M. MUCH

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZR LBS	FORMATION	REMARKS
1		1/4		5	5	TT	1	Granite Sand	Tight.
2		1/4		5	5	"	1	"	"
3		1/4		5	5	"	1	"	"
4		1/4		5	5	"	1/4	"	"
5		1/4		3	2	"	1/4	"	"
6		1/4		3	2	"	1/4	"	"
7		1/4		3	2	"	1/4	"	"
8		1/4		3	2	"	1/4	"	"
9		1/4		3	2	"	1/4	"	"
10		1/4		3	2	"	1/4	"	"
11		1/4		3	2	"	1/4	"	"
12		1/4		3	2	"	1/4	"	"
13		1/4		3	2	"	1/4	"	"
14		1/4		3	2	"	1/4	"	"
15		1/4		3	2	"	1/4	"	"
16		1/4		3	2	"	1/4	"	"
17		1/4		3	2	"	1/4	"	"
18		1/4		3	2	"	1/4	"	"
19		1/4		4	3	"	1/2	"	"
20		1/4		4	3	"	1/2	"	"
21		1/4		4	3	"	1/2	"	"
22		1/4		4	3	"	1/2	Granit Sand &	Gravel Large Med
23		1/4		4	3	"	1/2	"	" Coarse
24		1/4		4	3	"	1/2	"	"
25		1/4		4	3	"	1/2	"	"
26		1		5	5	"	3/4	"	"
27		1		5	5	"	3/4	"	"
28		1		5	5	"	3/4	"	"
29		1		15	10	2	1/2	"	"
30		1		15	10	2	1/2	"	"
31		1		5	5	2	1/2	"	"

This Hole is located About 50 ft East of Mark on Tree Dated 10/27/51. This Tree is Marked Z.I.Y. Sample taken From Co Clay By Tree 10/27/51

Date Commenced 8-6-52

Date Finished 8-6-52

Tract CARRY & DENNISON

Panner: Day C. V. LOOMIS

Drill Runner: Day B PATTON

Date ..... Shift ..... Line No. .....

Hole No. 112Y

Total Depth 31

Bedrock 31

Water Level No water

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of PF1

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1		4	4	1/4	1/4	GRANIT SAND & G.	TIGHT
2		1		"	"	1/4	1/4	" " " "	" "
3		1		4	4	1/4	1/4	" " " "	" "
4		1		5	3	1/4	1/2	" " " "	"
5		1		5	3	1/4	1/2	" " " "	"
6		1		5	3	1/4	1/2	" " " "	"
7		1		5	3	1/4	1/2	" " " "	"
8		1		5	3	1/4	1/2	" " " "	"
9		1		5	3	1/4	1/2	" " " "	"
10		1		5	3	1/4	1/2	" " " "	"
11		1		5	3	1/4		GRANIT SAND & CLAY	"
12		1		5	4	TR	1/2	" " "	LOOSE
13		1		5	4	TR	1/2	GRANIT SAND	"
14		1		5	4	TR	1/2	" "	"
15		1		5	4	TR	1/2	" "	"
16		1		5	3	TR	1/2	" "	"
17		1		4	3	TR	1/2	" " SM. GT. G	DECREAS. CONS
18		1		4	3	"	1/2	" " " "	LOOSE.
		1		4	3	"	1/2	" " " "	"
		1		4	3	"	1/2	" " " "	"
		1		4	3	"	1/2	" " " "	"
		1		4	3	"	1/2	" " " "	"
22		1		4	3	"	1/2	" " " "	"
23		1		4	3	"	1/2	" " " "	"
24		1/2		3	3	"	1/4	" " " "	DECREASE CONS
25		1/2		3	3	"	1/4	" " " "	" "
26		1		6	5	1	1/4	BROWN GRANIT S. G.	INCREASE CONS
27		1/2		3	3	1/4	1/4	" " S	DECREASE "
28		1/2		3	3	1/2	1/2	" " "	" "
29		1/2		3	3	1	1/2	GRAY GRAN SAND	" "
30		1/2		3	3	1	1/2	" "	" "
31		1		3	3	1	1	GRAVEL MED. COARSE	INCREASE CON
32		1		3	3	1	1	" " "	DECREASE "
33		1		3	3	1	1	" " "	" "
34		1		6	6	1	1 1/2	" " "	INCREASE "

Date Commenced 8-7-52

Date Finished CONTINUED ON PAGE

Tract CARNEY & DENNISON

Panner: Day C. V. LOOMIS Night

Drill Runner: Day B. PATTON Night

Date Shift Line No.

Hole No. PF 113Y Drill No.

Total Depth Bedrock

Water Level

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY
S. SAND
G. GRAVEL
CL. CLAY
SM. SOME
ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Continued From Page 2 of PF113

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
35		1		5	5	1	1	Gravel Med Coarse	Loose.
36		1		5	5	1	1	" " "	"
37		1		5	5	1	1	" " "	"
38		1		5	5	1	1	" " "	"
39		1½		7	5	1	1½	Brow Sand & Gravel	"
40		1½		7	5	1	1½	" " "	"
41		1½		7	5	1	1½	" " "	"
42		1½		5	5	1	1½	" " "	"
43		1½		5	5	1	1½	" " "	"
44		1½		5	5	1	1½	" Sm. Cl.	Sticky
45		1½		5	5	1	1½	Brown Sand " "	Water.
46		1½		2½	2½	TR.	1½	" " "	Sticky
47		1½		2½	2½	"	1½	" " "	" No wate
48		1½		3	3	"	1½	" " "	" " "
49		1½		4	3	"	1½	Increase Const	" " "
50		1½		4	3	"	1½	" "	" " "
51		1½		4	3	"	1½	" "	" " "
52		1½		4	3	"	1½	" "	" " "
53		1½		4	3	"	1½	" "	" " "
54		1½		4	3	"		Med. Gravel	Loose " "
55		1½		50	50	"	1½	" "	" " "
56		1½		50	50	"	1½	" "	" " "
57		1½		50	50	"	1½	" "	" " "
58		1½		50	50	"	1½	" "	" " "
59		1		45	35	"	1½	Decrease Cons.	" Some wa
60		1		45	35	"	1½	" "	" " "
61		1		45	35	"	1½	Granit Sand	
62		1		45	35	"	1½	" "	"
63		1½		45	35	1	2	" " Some Clay	"
64		1½		25	25	1	3	" " "	Decrease Co
65		2		25	25	1	4	Med Gravel "	Loose.
66		2		25	25	1	4	" "	"
67		2		25	25	1	4	" "	"
68		2		25	25	1	4	" "	"

Date Commenced 8-7-52

Date Finished Continued on Page 3

Tract Carey & Dennison.

Panner: Day C. Loomis Night

Drill Runner: Day R. Patton Night

Date Shift Line No.

Hole No. PF 113 Y Drill No.

Total Depth [redacted] Bedrock Mic

Water Level 45 FT

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

CONTINUED FROM PAGE 2

FIELD LOG

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
69		½		25	25	1	4	Med Gravel	Loose.
70		½		25	25	1	4	" "	"

Date Commenced 8-7-52

Date Finished 8-8-52

Tract Carey & Dennison

Panner: Day C.Y. Loomis Night

Drill Runner: Day B Patten Night

Date Shift Line No.

Hole No. PP 113Y Drill No.

Total Depth 70 Bedrock None

Water Level 45 FT

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY

ST. STICKY
MD. MEDIUM
M. MUCH

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of PF 1

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1		8	7	1	1	Red Gravel Brown	Clean Red
2		1		8	7	1	1	" " "	" "
3		1		8	7	1	1	" " "	" "
4		1		8	7	1	1	" " "	" "
5		1		8	7	1	1	" " "	" "
6		1		8	7	1	1	" " "	" "
7		3/4		8	4	1	1	" " "	" "
8		3/4		8	4	1	1	Fine Gray Clay	
9		3/4		8	4	1	1	" "	"
10		3/4		8	4	1	1	Sand	"
11		3/4		8	4	1	1	Fine Gravel	Brown
12		3/4		8	4	1	1	Grey "	Grey
13		3/4		8	7	1	1	" "	"
14		3/4		8	7	1	1	" "	"
15		3/4		8	7	1	1	" "	"
16		3/4		5	5	3/4	1	Brown Gravel Clay	Brown.
17		3/4		5	5	3/4	1	" " "	"
18		1		5	5	1	1	Med. Brown Gravel	"
19		1		5	5	1	1	" " "	
20		1		30	30	10	1	" " "	Increase Con
21		1		30	30	10	1	" " "	Loose. Wate
22		1		30	30	10	1	" " "	"
23		1		15	15	5	1	Grey Gravel & Clay	~~Light Brown~~
24		1		15	15	5	1	" " " "	" "
25		1		15	15	5	1	" " " "	" "
26		1		15	15	5	1	" " " "	" "
27		1/2		5	5	3	1/2	Quartz Gravel	Loose decreas
28		1/2		5	5	3	1/2	" "	"
29		1/2		5	5	3	1/2	" "	"
30		1/2		5	5	2	1/2	Quartz Gravel & Clay	"
		1/2		5	5	2	1/2	" " "	"
		1/2		10	10	1	1/2	Quartz Gravel Fine	Increase Con
33		1/2		10	10	1	1/2	" "	Loose
34		1/2		10	10	1	1/2	" "	"

CONTINUED ON PAGE 2

Date Commenced 6-8-52

Date Finished

Tract Carey & Dennison

Panner: Day G. Y. Lewis Night

Drill Runner: Day B. Patton Night

Date Shift Line No.

Hole No. P.F. 114 Y Drill No.

Total Depth Bedrock

Water Level

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
35		1/2		10	10	1	1	Quartz Gravel Fine	Loose
36		3/4		10	10	1	2	" Some Clay	"
37		3/4		10	10	1	2	" " "	"
38		3/4		10	10	1	2	" " "	"
39		1		15	15	1	2	" " Brown	Increase Cons
40		3/4		5	5	1/4	2	" Gravel Clay	Decrease "
41		3/4		5	5	1/4	2	" " "	Tight Clay
42		3/4		5	5	1/4	2	" " "	"
43		1		25	25	15	1	Quartz Gravel Med.	Brown Loose
44		1		25	25	15	1	Quartz Gravel Med.	Clean
45		1		25	25	15	1	" " "	Clean - Loose
46		1		25	25	15	1	" " "	"
47		3/4		5	5	5	1/2	Light Grey Sand Clean	Decrease Cons.
48		3/4		5	5	5	1/2	" " " "	Clean & Loose
49		3/4		8	7	8	3/4	Med. Grey Gravel	" " "
50		3/4		8	7	8	3/4	" " "	" " "
51		1/2		5	5	5	3/4	Med. Gravel & Clay	Decrease Cons
52		1/2		10	10	10	3/4	Med Gravel Grey	Loose & Increase
53		1/2		10	10	10	3/4	" " "	" "
54		1/2		15	15	10	3/4	" " "	Increase Con
55		3/4		15	15	10	3/4	" " "	Loose
56		3/4		15	15	10	3/4	" " "	"
57		3/4		15	15	10	3/4	" " "	"
		3/4		15	15	10	3/4	" " "	"
59		3/4		10	10	5	1/2	" " "	Decrease Con
60		3/4		10	10	5	1/2	" " "	Clean & Loose
61		3/4		10	10	5	1/2	" " "	" "
62		3/4		15	15	8	3/4	" " "	Increase Cons
63		1		20	20	8	3/4	" " "	" "
64		1		20	20	8	3/4	" " "	Loose
65		1		20	20	8	3/4	" " "	"
66		1		20	20	8	3/4	" " "	"
67									
68									

Date Commenced 8-8-52

Tract Carrey + Dennison

Date ..... Shift ..... Line No. .....

Total Depth 68 Bedrock none

Date Finished .....

Panner: Day C. V. Loomis Night .....

Drill Runner: Day B. Patton Night .....

Hole No. PF 114 Y Drill No. .....

Water Level .....

ABBREVIATIONS

T. TAILINGS
FINE

S. SAND
G. GRAVEL

ST. STICKY
MD. MEDIUM

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1/2		5	5	1/2	1/2	Light to Med. Gravel	Loose
2		1/2		5	5	1/2	1/2	" " "	"
3		1/2		5	5	1/2	1/2	" " "	"
4		1/2		5	5	1/2	1/2	" " "	"
5		1/2		5	5	1/2	1/2	Firm Gravel	Firm
6		1/2		5	5	1/2	1/2	" "	"
7		1/2		5	5	1/2	1/2	" "	Tight
8		1/2		5	5	1/2	1/2	" "	"
9		1/2		5	5	1/2	1/2	" "	"
10		1/2		5	5	1/2	1/2	" "	"
11		3/4		10	10	1	1/2	Med Light Gravel	Firm. Increase C
12		3/4		10	10	1	1/2	" " "	"
13		3/4		10	10	1	1/2	" " "	"
14		3/4		15	15	1	3/4	Grey Gravel Sand	Loose Increas
15		3/4		15	15	1	3/4	" " "	"
16		3/4		15	15	1	3/4	" " "	
17		3/4		15	15	1	3/4	" " "	
18		3/4		25	25	1	1	Med Grey Gravel	Firm, Increase
19		3/4		25	25	1	1	" " "	"
20		3/4		25	25	2	2	" " "	"
21		3/4		25	25	2	2	" " "	Loose Gravel
22		3/4		20	20	2	1	" " "	" "
23		3/4		20	20	2	1	" " "	Decrease Con
24		3/4		20	20	2	1	" " "	Loose Med Grave
25		3/4		20	20	2	1	Med Brown Gravel	Light
26		3/4		20	20	2	1	" " "	"
27		3/4		20	20	2	1	" " "	"
28		3/4		15	10	1	3/4	" " "	Decrease Cons
29		3/4		15	10	3/4	3/4	" " "	" "
30		3/4		15	10	3/4	3/4	Med. Gravel & Clay	Tight.
31		3/4		15	10	3/4	3/4	" " "	"
32		3/4		15	10	3/4	3/4	" " "	"
33		3/4		15	10	1/2	3/4	" " "	"

Date Commenced 8/11/52

Date Finished Continued on Page 2

Tract Carey + Dennison

Panner: Day C.V. Loomis Night

Drill Runner: Day B. Patton Night

Reel Shift Line No.

Hole No. P.F. 115-Y Drill No.

Total Depth Bedrock

Water Level

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY
S. SAND
G. GRAVEL
CL. CLAY
SM. SOME
ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

CONTINUED FROM PAGE 1

FIELD LOG

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
35		1/4		5	5	TR	1	Grey SAND	Loose
36		1/4		20	20	1	1/2	" " + GRAVEL	INCREASE CONS.
37		1/4		20	20	10	3	" " "	Loose.
38		3/4		20	20	10	3	" " "	"
39		3/4		25	25	10	3	" " "	INCREASE CONS
40		3/4		25	25	10	3	" " "	Loose
41		3/4		25	25	10	3	" " "	"
42		3/4		15	15	5	2	" " "	DECREASE CONS.
43		3/4		10	10	3	1	" " "	Loose.
44		3/4		10	10	3	1	" " "	"
45		1/2		8	7	2	1	" " "	DECREASE CON
46		1/2		8	7	3	1	" " "	Loose Med. G.
47		1/2		8	7	3	1	" " "	" " "
48		1/4		8	7	3	1	" " "	" " "
49		1/4		8	7	3	1	" " "	" " "
50		1/4		15	15	5	1	Yellow & MARYS Gravel.	INCREASE CON
51		3/4		15	15	5	1	" " "	"
52		3/4		15	15	5	1	" " "	TIGHT
53		1		15	15	5	2	" " "	"
54		1		15	15	5	2	" " "	"
55		1		15	15	5	2	Large Granit Gravel	"
56		1		25	25	10	3	" " "	INCREASE CON
57		1		10	10	5	1	Med Gravel + White Sand	DECREASE SLUFF
58									+ RUNNING
59									

Date Commenced 8-11-52

Date Finished 8-12-52

Tract CARREY + DENNISON

Panner: Day CVLOMS Night

Drill Runner: Day B PATTON Night

Date Shift Line No.

Hole No. PF 115-Y Drill No.

Total Depth 57 Bedrock None

Water Level

ABBREVIATIONS

T. TAILINGS

F. FINE

S. SAND

G. GRAVEL

ST. STICKY

Elev. [redacted]

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of 9 PF116Y

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		3/4		10	10	1/2	1/2	Some Top Soil & Med G	Firm
2		3/4		10	10	1/2	1/2	" " " "	"
3		3/4		10	10	1/2	1/2	" " " "	"
4		3/4		10	10	1/2	1/2	" " " "	"
5		3/4		10	10	1/2	1/2	" " " "	"
6		1/2		5	5	1/2	1/2	Clay	Decrease Cons
7		1/2		5	5	1/2	1/2	Clay	
8		1		10	10	1/2	1/2	Med G	Increase Cons.
9		1		10	10	1/2	1/2	" "	Firm
10		1/2		5	5	1/2	1/2	Fine Sand.	Decrease Cons.
11		1/2		5	5	1/2	1/2	"	Loose Sand
12		1/2		5	5	1/2	1/4	"	"
13		1		20	20	1	1	Med Gravel	Firm Increase Con
14		1		20	20	1	1	" "	"
15		1		20	20	1	1	" "	"
16		1		20	20	1	1	" "	"
17		1		20	20	1	1	" "	"
18		3/4		15	15	3/4	3/4	" " Muddy	Loose Decrease
19		3/4		15	15	3/4	1	" Loose " "	Loose.
20		3/4		15	15	3/4	1	" " " "	"
21		3/4		15	15	3/4	1	" " " "	"
22		3/4		15	15	3/4	1	" " " "	"
23		3/4		15	15	3/4	1	" " " "	"
24		3/4		15	15	3/4	1	" " " "	"
25		1/2		10	10	1/2	3/4	Small G + Sand + Clay	Water Loose
26		1/2		10	10	1/2	3/4	Clay + Some Sand	Tight
27		1/2		10	10	1/2	3/4	" " " "	"
28		1/2		10	10	1/2	3/4	" " " "	"
29		3/4		15	15	3/4	1	Increase Cons.	"
30		3/4		15	15	3/4	1	Med Gravel	"
31		3/4		15	15	3/4	3/4	" "	"
32		1/2		10	10	1/2	1/2	" "	Decrease Cons
33		1/2		10	10	1/2	1/2	" "	Tight
34		1/2		10	10	1/2	1/2	" "	Sluffing In

Date Commenced 8/12/ Run 14 Hole Date Finished 8/13/52

Tract Carey - Denison. Panner: Day Kloomis Night

Drill Runner: Day B. Potts Night

Hole to good pay

Date Shift Line No. Hole No. PF116Y Drill No.

Total Depth 34 Bedrock None Water Level 25 ft.

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of PF 117

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1/2		2	3	TR.	0	Soil	STICKY
2		1/2		2	3	TR	0	"	"
3		1/2		2	3	TR	0	"	"
4		1/2		2	3	TR	0	"	"
5		1/2		2	3	TR	0	"	"
6		1/2		2	3	TR	0	"	"
7		1/2		2	3	TR	0	"	"
8		1/2		2	3	TR	0	"	"
9		1/2		2	3	TR	0	"	"
10		1/2		2	3	TR	"	Water & Gravel Mud.	"
11		3 1/2		10	10	1	TR	" " "	FIRM
12		3		5	5	2	"	Bed Rock - Granite	"

Date Commenced 8/13/52

Tract Carey + Dennison

Date Finished 8/13/52

Panner: Day C. Loomis Night

Drill Runner: Day [illegible] Night

Date Shift Line No.

Hole No. PF 117 Y Drill No.

Total Depth 13 FT Bedrock 12 FT

Water Level 10 FT

ABBREVIATIONS

T. TAILINGS S. SAND ST. STICKY

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of [illegible]

DEPTH FEET	DEPTH IN	MZ LBS. YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		4		15	15	TR	1	Soft Packed Gravel	Firm
2		4		15	15	TR	1	" " " "	" "
3		4		15	15	TR	1	" " " "	" "
4		4		15	15	TR	1	" " " "	Water Firm
5		4		15	15	TR	1	" " " "	" "
6		4		15	15	TR	1	" " " "	" "

Date Commenced 8/13/52

Tract Carey Dunmore

Date 8/13/52 Shift Line No.

Total Depth 7 ft Bedrock 6 ft

Date Finished 8/13/52

Panner: Day [illegible] Night

Drill Runner: Day [illegible] Night

Hole No. PF 115 Y Drill No. 1

Water Level 4 ft

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page I of PF 112

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		4	[illegible]	25	25	1	1	Sandy Loam	
2		4		25	25	1	1	" "	Loose
3		4		25	25	1	1	Med Gravel & Sand	"
4		4		25	25	1	1	" " "	"
5		4		25	25	1	1	" " "	"
6		2		10	10	1/2	1/2	" " "	"
7		2		10	10	1/2	1/2	" " "	"
8		2		10	10	1/2	1/2	" " "	
9		2		10	10	1/2	1/2	Clay Brown	
10		2		10	10	1/2	1/2	" " "	
11		1		10	10	1/4	1/4	Brown Sand	Loose
12		1		10	10	1/4	1/4	" "	
13		1		10	10	1/4	1/4	" "	
14		1		10	10	1/4	1/4	" "	
15		1		10	10	1/4	1/4	" "	
16		1		10	10	1/4	1/4	" "	
17		1		10	10	1/4	1/4	Gray Sand	
18		1		10	10	1/4	1/4	" "	
19		1		10	10	1/4	1/4	" "	
20		1		10	10	1/4	1/4	" "	
21		1/2		10	10	1	1	" "	
22		1/2		10	10	1	1	Gray Sand Md Gravel	Loose
23		1/2		10	10	1	1	" " " "	
24		1/2		10	10	1	1	" " " "	
25		1/2		10	10	1	1	" " "	
26		1/2		10	10	1	1	" " "	
27		1/2		10	10	1	1	" " "	
28		1/2		10	10	1	1	" " "	
29		1/2		15	15	3	2	" " "	Incl of Gravel
30		1/2		15	15	3	2	" " "	
31		1/2		15	15	3	2	" " "	Water-
32		1/2		15	15	3	2	" " "	
33		1/2		15	15	3	2	" " "	
34		1/2		15	15	3	2	" " "	

Date Commenced 8/14/52

Date Finished

Tract Gray & Denison

Panner: Day Lewis Night

Drill Runner: Day Pete Night

Date Shift Line No.

Hole No. PF 112 Y Drill No.

Total Depth Bedrock

Water Level

CONTINUED ON PAGE 2.

ABBREVIATIONS

T. TAILING
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 2 P.P. 1197

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
35		1		15	10	4	2	Med. Grey Granite	Loose.
36		1		15	10	4	2	" " " "	"
37									
38									
39									
40									

Date Commenced 8/14/52

Date Finished 8/14/52

Tract Carrey & Denison

Panner: Day Cykowis Night

Drill Runner: Day Patton Night

Date Shift Line No.

Hole No. P.P. 1197 Drill No.

Total Depth 36 Bedrock None

Water Level

ABBREVIATIONS

T. TAILINGS
P. PEAT
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

CONTINUED FROM PAGE 1

FIELD LOG

Page 2 of PF 12

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
35		2		5	5	5	1/2	Grey Sand + small Gravel	Loose
36		2		5	5	5	1/2	" " "	" "
37		2		5	5	5	1/2	" " "	" "
38		1		5	5	5	1/2	" " "	" "
39		1		5	5	5	1/2	Bed Rock, Decomposed	"
40								" " "	" "

Hole taken to Sand plant 8/15/52

Date Commenced 8/14/52

Date Finished 8/15/52

Tract Loomis

Panner: Day C. Evans Night

Drill Runner: Day B. Patten Night

Date Shift Line No.

Hole No. PF 12 ex Drill No.

Total Depth 40 ft Bedrock 3 ft

Water Level on water.

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of PF 12

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1/2	[illegible]	10	10	TR	1	SANDY LOAM	FIRM
2		1/2		10	10	TR	1	" "	"
3		1/2		10	10	TR	1	" "	"
4		1/4		5	5	TR	1/2	MEDIAM GRAVEL	"
5		1/4		5	5	TR	1/2	" "	"
6		1/4		5	5	TR	1/2	" "	"
7		1/4		5	5	TR	1/2	" "	"
8		1/4		5	5	TR	1/2	" "	"
9		1/4		5	5	TR	1/2	" "	"
10		1/4		5	5	TR	1/2	" "	"
11		1/4		5	5	TR	1/2	GRANIT SAND + CLAY	"
12		1/4		5	5	1/2	1/2	GRANIT MED GRAVEL	"
13		1/4		5	5	1/2	1/2	" " "	"
14		1/4		5	5	1/2	1/2	" " "	"
15		1/4		5	5	1/2	1/2	" " "	"
16		1/4		5	5	1/2	1/2	" " "	"
17		1/4		5	5	1/2	1/2	" " "	"
18		1/4		5	5	1/2	1/2	" " "	"
19		1/4		5	5	1/2	1/2	" " "	"
20		1/4		5	5	1/2	1/2	" " "	"
21		1/4		5	5	1/2	1/2	" " "	"
22		1/4		5	5	1/2	1/2	" " "	"
23		1/2		5	5	1/2	1/2	" " "	"
24		1/2		5	5	1/2	1/2	" " "	"
25		1/2		5	5	1/2	1/2	" " "	"
26		1/2		5	5	1/2	1/2	" " "	"
27		1/2		5	5	1/2	1/2	" " "	"
28		1/2		5	5	1/2	1/2	GREY GRANIT SAND + MED GRAVEL	FIRM
29		1/2		5	5	1/2	1/2	" " " "	" "
30		1/2		5	5	1/2	1/2	" " " "	" "
31		1/2		5	5	1/2	1/2	" " " "	" "
32		1/2		5	5	1/2	1/2	" " " "	" "
33		1/2		5	5	1/2	1/2	" " " "	" "
34		1/2		5	5	1/2	1/2	" " " "	" "

Date Commenced 8/14/52

Date Finished 8/18/52

Tract LOOMIS

Panner: Day C. VILLOONIS Night

Drill Runner: Day B. PETTE Night

Date Shift Line No.

Hole No. RF 12 Y Drill No.

Total Depth Bedrock

Water Level

CONTINUED FROM PAGE 2 ON

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

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DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1		5-	5-	1	1	Soil + Granit Sand	Firm
2		1		5-	5-	1	1	" " " "	"
3		1		5-	5-	1	1	" " " "	"
4		2		5-	5-	3	1/2	Med Gravel	Tight
5		2		5-	5	3	1/2	" "	"
6		2		5-	5-	3	1/2	" "	"
7		2		5-	5-	5-	1	"	"
8		2		5-	5-	5-	1	Clay	"
9		2		10	10	5-	1	Med Gravel	"
10		2		10	10	5-	1	" "	"
11		2		10	10	5-	1	" "	"
12		2		10	10	5-	1	" "	"
13		2		10	10	5-	1	" "	"
14		2		10	10	5-	1	" "	"
15		2		10	10	5-	1	Med Granit Gravel	"
16		2		10	10	5-	1	" " "	"
17		2		10	10	5-	1	" " "	"
18		2		10	10	5-	1	" " "	"
19		2		10	10	5-	1	" " "	"
20		2		10	10	5-	1	" " "	"
21		2		10	10	5-	1	" " "	"
22		2		10	10	5-	1	" " "	Loose
23		2		10	10	5-	1	"	"
24		2		10	10	5-	1	Granit Sand	"

Date Commenced 8/15/52

Date Finished 8/15-52

Tract Loomis

Panner: Day C. Loomis Night

Drill Runner: Day R. Pike Night

Date 8/15/52 Shift Line No.

Hole No. Drill No.

Total Depth 24 Bedrock None

Water Level

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of 122 PF 124

DEPTH FEET	DEPTH IN	MX LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
0		TR		TR	5	3	1/4	Hydraulic Tailings	Fine Sand.
1		TR		TR	TR			Soil	Firm Soil.
2		TR		TR		TR	TR		Loose
3		TR		TR		TR	TR		"
4		TR		TR		TR	TR		" Water.
5		1R		5	5	1/4	1/4	Increase Cons.	"
6		1/2		5	5	1/2	1/4	" "	"
7		1/2		5	5	5	1/4	" "	"
8		1/2		5	5	5	1/4	" "	"
9		1/2		10	10	10	1/2	Increase Cons	"
10		1/2		20	20	15	1/2	Coarse Gravel	Tight Tuc
11		1/2		20	20	15	1/2	" "	"
12		1/2		20	20	15	1/2	" "	"
13		1/2		20	20	15	1/2	" "	"
14		1/2		20	20	15	1/2	" "	"
15		1/2		20	20	15	1/2	" "	"

Date Commenced 8/15/52

Date Finished 8/16/52

Tract Lewis

Panner: Day C. L. Lewis Night

Drill Runner: Day B. Potter Night

Date Shift Line No.

Hole No. PF 124 Y Drill No.

Total Depth 15 ft Bedrock None

Water Level

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SH. SOIL

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev. [illegible]

Coordinates [illegible]

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of [illegible]

DEPTH FEET	DEPTH IN	MZ LBS/YD³	AU LBS/YD³	Fe_2O_3 LBS/YD³	IL LBS/YD³	GR LBS/YD³	ZrO_2 LBS/YD³	FORMATION	REMARKS
1		1/4		5	5	10	1	Soil	Firm
2		1/4		5	5	10	1	"	"
3		1/4		5	5	10	1	"	"
4		1/4		5	5	10	1	Coarse Gravel	Tight
5		1/4		5	5	10	1	" "	"
6		1/2		10	10	10	1	Increase cons	"
7		1/2		10	10	10	1	Coarse Gravel	Water
8		1/2		10	10	10	1	" "	Tight
9		1/2		10	10	10	1	" "	"
10		1/2		10	10	10	1	" "	"
11		1/2		10	10	10	1	" "	"
12		1	TR	10	10	25	1	" "	"
13		1	TR	10	10	20	1	" "	"
14		1	TR	10	10	20	1	" "	"
15		1	TR	10	10	20	1	Med Coarse Gravel	"
16		1		10	10	15	1	" " "	"
17		1		10	10	15	1	" " "	"
18		1		10	10	15	1	" " "	"
19		1		10	10	15	1	Med Gravel + Some Clay	
20		1		8	7	10	1	Decrease Cons.	Tight
21		1		8	7	10	1	Sand + Med. Gravel	" "
22		1		10	10	10	1	" " "	" "
23		1		10	10	10	1	" " "	" "
24		3		15	15	10	1	Increase Cons.	Yellow Sand + G
25		3		15	15	10	1	Med Gravel	Loose
26		3		15	15	10	1	" "	"
27		3		15	15	10	1	" "	"
28		1		10	10	5	1	" "	"
29		1/2		8	7	3	1/2	Sand + Some Grain Gravel Decrease	
30		1/2		8	7	3	1/2	" "	
31		1/4		8	7	3	1/2	Clay + Sand	Tight
32		1/4		8	7	3	1/2	Med Gravel + Sand	Firm.
33		1/4		10	10	4	1/2	" " "	Increase Cons
34		1/4		10	10	4	1/2	" " "	

Continued on Page 2.

Date Commenced 8/16/52

Date Finished

Tract Lo Mis.

Panner: Day Cy Lo Mis Night

Drill Runner: Day B Patton Night

Date Shift Line No.

Hole No. PF 1-2 Drill No.

Total Depth Bedrock

Water Level 7 ft

ABBREVIATIONS

T. TAILINGS
F. FINE
S. SAND
G. GRAVEL
ST. STICKY
MD. MEDIUM

COSUMNES GOLD DREDGING CO.

Continued from page 1

FIELD LOG

Page 2

Depth Feet	Depth In	Mz Lbs YD³	Au Lbs YD³	Fe_2O_3 Lbs YD³	IL Lbs YD³	Gr Lbs YD³	ZrO_2 Lbs YD³	Formation	Remarks
35		3/4		20	20	5	1	Med Gravel & Sand	Loose.
36		3/4		20	20	5	1	" " "	"
37		3/4		20	20	5	1	" " "	"
38		3/4		20	20	5	1	" " "	"
39		3/4		20	20	5	1	" " "	"
40		3/4		20	20	5	1	" " "	"

1/4 of the Tailings to Sand plant on 8/19/52

Date Commenced 8/16/52

Date Finished 8/18/52

Tract Loomis

Panner: Day Loomis Night

Drill Runner: Day [illegible] Night

Date ..... Shift ..... Line No. .....

Hole No. PF 1337 Drill No. .....

Total Depth 40 ft Bedrock None

Water Level .....

ABBREVIATIONS

T. TAILINGS	S. SAND	ST. STICKY
F. FINE	G. GRAVEL	MD. MEDIUM
C. COARSE	CL. CLAY	M. MUCH
V. VERY	SM. SOME	L. LOOSE

Elev. ' "

COSUMNES GOLD DREDGING CO.

Coordinates

FIELD LOG

Page 1 of 1-F1

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1/2		10	10	3	2	Sandy loam	Firm
2		1/2		10	10	3	2	"	"
3		1/2		10	10	3	2	Med Gravel	"
4		1/2		10	10	5	2	" "	"
5		1/2		10	10	5	2	Med. Gravel	"
6		1/2		10	10	5	2	"	"
7		1/2		10	10	5	2	Large Boulders	16" Boulders
8		1/2		10	10	5	2	" "	" Water
9		1/2		10	10	5	2	" "	"
10		1/2		10	10	3	1	Brown Sand + Med Gravel	Firm
11		3/4		15	15	3	1	Increase Cons "	Tight
12		3/4		15	15	3	1	Med Gravel	
13		1/2		10	10	2	1	Tight Sand	Fine Decrea
14		1/2		10	10	2	1	Loose "	Loose } Co
15		1/2		10	10	2	1	Sand + Small Gravel	Loose
16		1/2		10	10	2	1	" " "	"
17		1/2		10	10	2	1	" " "	"
18		1/2		10	10	2	1	" " "	"
19		1/2		10	10	2	1	" " "	"
20		1/2		10	10	2	1	" " "	"
21		1/2		5	5	1	1/2	Sand + Clay	Firm Decrease
22		1/2		5	5	1	1/2	" " "	" "
23		1/2		5	5	1/2	1/2	Sand Some Small G.	Loose.
24		1/2		5	5	1/2	1/2	" " " "	"
25		1/2		5	5	1/2	1/2	" " " "	"
26		1/2		5	5	1/2	1/2	" " " "	"
27		1/2		5	5	1/2	1/2	" " " "	"
28		1/2		5	5	1/2	1/2	" " " "	"
29		1/2		5	5	1/2	1/2	" " " "	"
		1/2		7	7	1/2	1/2	" " " "	Increase Con
		1/2		10	10	1/2	1	" " " "	" "
30		1/2		10	10	1/2	1	" " " "	" "
31		1		25	25	2	2	" " " "	Increase Cons.
32		1		25	25	2	2	" " " "	"
33		1		25	25	2	2	" " " "	Loose.

Continued on Page 2.

Date Commenced 8/18/52 Date Finished

Tract Loomis. Panner: Day C. Loomis Night

Drill Runner: Day E. Patton Night

Date Shift Line No. Hole No. P-F1-29 Drill No.

Total Depth Bedrock Water Level 8 ft.

ABBREVIATIONS

T. TAILINGS S. SAND ST. STICKY

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

CONTINUED FROM PAGE 1

FIELD LOG

Page 2 of PFH

DEPTH FEET	DEPTH IN.	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
35		24	[illegible]	25	25	1	2	Gravel Sand + Small G	Loose.
36		24		25	25	1	2	Clay + Sand.	Firm
37		24		20	20	1	2	Sand + Some Clay	Loose Decrea
38		24		20	20	1	2	" " " "	"
39		24		20	20	1	2	" "	"
40		24		25	25	1	2	Sand + Small G	Increase Con
41		24		25	25	1	2	" " "	" "

Date Commenced 8/15/52

Date Finished 8/19/52

Tract COMMIS.

Panner: Day CONNOLLY Night

Drill Runner: Day CATTON Night

Date Shift Line No.

Hole No. PFH 47 Drill No.

Total Depth 41 ft. Bedrock

Water Level

ABBREVIATIONS

T. TAILINGS

F. FINE

S. SAND

G. GRAVEL

ST. STICKY

MD. MEDIUM

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of PF 19

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1/4		5	5	3	1/4	SANDY LOAM	FIRM
2		1/4		5	5	3	1/2	COARSE GRAVEL	FIRM
3		1/4		5	5	3	1/2	COARSE FINE GRAVEL	"
4		1/4		5	5	3	1/2	" " "	"
5		1/4		5	5	3	1/2	" " "	"
6		1/4		5	5	3	1/2	" " "	"
7		1/4		5	5	3	1/2	RANGE BOLDERS & SAND.	LARG BOLDERS
8		1/4		5	5	3	1/2	" " "	" WATER
9		1/2		10	10	5	1/2	" " "	INCREASE CONS.
10		1/2		20	20	5	1/2	MED GRAVEL	FIRM.
11		1/2		20	20	5	1/2	" "	"
12		1		50	50	5	1	" "	"
13		1		50	50	5	1	" "	"
14		1		50	50	5	1	" "	"
15		1		50	50	5	1	" "	

Exceptional large Bolders of 15" to large to take from hole
also a very large amount cons.

Hole Taken to Sand
PLANT 8,20,52

Date Commenced 8/19/52

Date Finished 8/20/52

Tract LOOMIS

Panner: Day C. Wilcox Night

Drill Runner: Day P. Fitch Night

Date Shift Line No.

Hole No. PF 195 Drill No.

Total Depth 15 Bedrock none

Water Level 8

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE

S. SAND
G. GRAVEL
CL. CLAY

ST. STICKY
MD. MEDIUM
M. MUCH

Elev. _____

Coordinates _____

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page _____ of PF-12

DEPTH FEET	DEPTH IN.	MZ LBS/YD³	AU LBS/YD³	Fe_2O_3 LBS/YD³	IL LBS/YD³	GR LBS/YD³	ZrO_2 LBS/YD³	FORMATION	REMARKS
1		1/2		15	15	4	1	Sandy Loam.	Firm.
2		1/2		15	15	4	1	" "	"
3		1/2		15	15	4	1	" "	"
4		1/2		15	15	4	1	Med & varis Gravel	"
5		1/2		15	15	4	1	" " "	"
6		1/2		15	15	4	1	" " "	"
7		1/2		15	15	4	1	Sandy Clay	Tight
8		1/2		15	15	4	1	" "	"
9		1/2		15	15	4	1	" "	"
10		1/2		15	15	4	1	" "	"
11		1/2		15	15	4	1	" "	"
12		1/2		15	15	4	1	" "	"
13		1/2		15	15	4	1	Red Sandy Clay	"
14		1/2		15	15	4	1	Red Sandy Clay	"
15		1/2		15	15	4	1	" " "	"
16		1/2		15	15	4	1	" " Some Med Gravel	"
17		1/2		15	15	3	1	" " " "	"
18		1/2		15	15	3	1	" " " "	"
19		1/2		15	15	3	1	" " " "	"
20		1/2		15	15	3	1	Water. Sand & Med Gravel	
21		1/2		15	15	3	1	" Clay & Sand	Firm.
22		1/2		15	15	3	1	Sand & Small G	"
23		1/2		15	15	3	1	" " "	"
24									
25									

Sand very loose & Running. Drilled for two hours, making no headway. Loose sand & Water.

1/4 of Hole taken to sand plant $21.52.

Date Commenced 8/20/52 Date Finished 8/21/52

Tract Loomis. Panner: Day C. Loomis Night _____

Drill Runner: Day D. Pettiv Night _____

Date _____ Shift _____ Line No. _____ Hole No. PF 126 Y Drill No. _____

Total Depth 23 ft Bedrock none Water Level _____

ABBREVIATIONS

T. TAILINGS
F. FINE
S. SAND
G. GRAVEL
ST. STICKY
MD. MEDIUM

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of PF 12

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1/4		5	5	2	1/2	Sandy Loam	Firm.
2		1/4		5	5	2	1/2	Sand + Med G	"
3		1/4		5	5	2	1/2	" " "	Tight
4		1/4		5	5	2	1/2	" " "	"
5		1/4		5	5	2	1/2	" " "	"
6		1/2		10	10	3	1/2	" Increase cons.	"
7		1/2		10	10	3	1/2	" " "	"
8		1/2		10	10	3	1/2	Sandy Clay	"
9		1/4		5	5	2	1	" "	Decrease cons.
10		1/4		5	5	2	1	" "	Tight.
11		1/4		5	5	2	1	" "	
12		1/4		5	5	2	1	" "	
13		1/2		10	10	3	1	Sand + Small G	Loose Increas
14		1/2		10	10	3	1	" " " "	" Con
15		1/2		10	10	3	1	" " " "	"
16		1/2		15	15	3	1	" " " "	Increase Cons
17		1/2		15	15	3	1	" " " "	Loose. Water
18		1/2		15	10	3	1	" " " "	"
19		1/2		15	15	3	1	" " " "	"
20		1/2		15	15	3	1	" " " "	"
21		1/2		15	15	3	1	" " " "	"
22		1/2		15	15	3	1	Sand + Some Clay	Firm
23		1/2		15	15	3	1	" " Small Gravel	Loose
24		3/4		40	35	5	1/2	" " "	" Increase C
25		3/4		40	35	5	1/2	" " "	"
26		3/4		10	10	2	1/4	Clay + Sand	Firm. Decrease
27		3/4		10	10	2	1/4	" "	"
28		1/4		5	5	1	1/4	Decrease Cons. Clay	Tight.
29		1/4		5	5	1	1/4	Clay	"
30		1/4		5	5	1	1/4	"	"
31		1/4		5	5	1	1/4	"	"
32		1/4		5	5	1	1/4	"	"
33		1/4		5	5	1	1/4	"	"
34		1/4		5	5	1	1/4	"	"

Date Commenced 8/21/52 Date Finished 8/21/52

Tract Loomis. Panner: Day C.V. Loomis Night

Drill Runner: Day B. Patton Night

Date Shift Line No. Hole No. PF 127Y Drill No.

Total Depth 37 Bedrock None Water Level 16 ft

Continued on Page 2

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE

G. GRAVEL
CL. CLAY

ST. STICKY
MD. MEDIUM
M. MUCH

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 2 of PF 12

DEPTH FEET	DEPTH IN	MX LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
35		1/4		5	5	F	1/4	Gray Clay	
36		1/4		5	5	1	1/4	" "	
37		1/4		5	5	1	1/4	" "	
								1/4 of Hole taken to sand plant 8/22/52	

Date Commenced 8/21/52

Date Finished

Tract Loomis

Panner: Day C. Y. Loomis Night

Drill Runner: Day B. Patton Night

Date Shift Line No.

Hole No. PF 127Y Drill No.

Total Depth 37 Bedrock none Water Level 16

ABBREVIATIONS

T. TAILING
F. FINE
C. COA
V. VER

S. SAND
G. GRAVEL
CL. CLAY

ST. STICKY
MD. MEDIUM
M. MUCH

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of PP

DEPTH FEET	DEPTH IN	Au LBS YD³	Au LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		2		45	50	2	1	Sandy Loam	Firm
2		2		45	50	2	1	" "	"
3		2		45	50	2	1	" "	"
4		2		45	50	2	1	Med. Gravel	Tight
5		2		45	50	2	1		
6		2		45	50	2	1		
7		2		45	50	2	1		
8		2		45	50	2	1	Grey Sand	Firm Cl
9		1		10	10	1	1		
10		1½		15	15	1	1	Clean Grey Sand	Firm
11		1½		15	15	1	1	" " "	"
12		1½		15	15	1	1	" " "	"
13		2		15	15	2	1½	" " "	"
14		2		15	15	2	1½	" " "	"
15		1		5	5	½	¼	Clay & Sand	" Decrease
16		1		5	5	½	¼	Clay	"
17		½		15	15	½	¼	Brown Sand & Clay	Increase C
18		½		15	15	½	¼	" " "	
19		½		15	15	½	¼	Brown Sand	
20		½		15	15	2	1	Brown Sand & Sil	Firm.
21		½		15	15	2	1	" " "	"
22		½		15	15	2	1	Grey Sand	"
23		½		35	45	8	2	Med Gravel & Sand.	Increase
24		1		35	45	8	4	" Brown Gravel	"
[illegible]		1		35	45	8	4	"	"
[illegible]		1		15	15	4	1	Clay - Water	Tight Cl
[illegible]		1		15	15	4	1	"	
[illegible]		1		15	15	4	1	Clay & Br. Sand	Firm.
[illegible]		1		15	15	4	1	" " " "	"
[illegible]		1		15	15	4	1	" " " "	"
[illegible]		1		15	15	4	1	" " " "	"
[illegible]		1		15	15	4	1	Small Med Gr. Clay	Firm.
[illegible]		1		15	15	4	1	" " " "	"
[illegible]		1		15	15	4	1	" " " "	"

Continued on Page 2

Date Commenced Aug 21/52 Date Finished

Tracks 00 MIS. Panner: Day Cyl. Loomis Night

Drill Runner: Day B. Patten Night

Shift Line No. Hole No. PP 128 Y Drill No.

Depth Bedrock Water Level 26 ft

ABBREVIATIONS

S. SAND
G. GRAVEL
CL. CLAY

ST. STICKY
MD. MEDIUM
M. MUCH

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

Continued from Page 1

FIELD LOG

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
25		1		15	15	4	1	Med Gr. SAND & CLAY	FIRM
31		1		20	20	2	1	" " " " "	Increase Con
37		1/4		15	15	2	1	" " " " "	Decrease Con
38		3/4		15	15	2	1	" " " " "	Tight
39		1/2		40	40	1	1	BROWN SAND & SMALL G.	FIRM INCR
40		1/4		75	75	1	2	" " " " "	Increase
41		1/2		75	75	1	2	" " " " "	" " "
42								B. of Rock	
43								" " "	
44								" " "	

Left Hole Taken to Sand Plant

8/22/52

Date Commenced 8/21/52

Date Finished 8/22/52

Tract LOOMIS

Panner: Day C V LOOMIS Night

Drill Runner: Day R PATTON Night

Date Shift Line No.

Hole No. PF 1181 Drill No.

Total Depth 44 ft Bedrock 41 ft

Water Level 26 ft

ABBREVIATIONS

S. SAND
G. GRAVEL
CL. CLAY

ST STICKY
MD. MEDIUM
M. MUCH

C. COARSE

Elev. ..... COSUMNES GOLD DREDGING CO.

Coordinates ..... **FIELD LOG** Page 1 of PF 1

DEPTH FEET	DEPTH IN	MX LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		2		30	30	1	4	Sandy Loam	Tight
2		2		30	30	1	4		"
3		2		30	30	1	4		"
4		2		30	30	1	4	Brow Sand + small G	Tight
5		2		30	30	1	4		"
6		2		30	30	1	4		"
7		2		40	40	8	4	" " + Med G	Firm. Fine C
8		2		40	40	8	4		"
9		2		40	40	8	4	Grey Sand + Med G	"
10		2		40	40	8	4	" " Coarse G	" Water
11		2		40	40	8	4	" " "	" "
12		2	TR	40	40	8	4	" " " "	" "
13		3		100	100	15	4	" " " "	Increase Cons
14		3		100	100	15	4	" " " "	
15		3		100	100	15	4	" Bed Rock " "	

1/4 of Hole Taken To Sand plant on Aug 23, 52

Date Commenced 8/22/52 Date Finished 8/22/52

Tract Loomis - Ruby. Panner: Day C. V. Loomis Night

Drill Runner: Day B. Patton Night

Date ..... Shift ..... Line No. ..... Hole No. PF 129Y Drill No. .....

Total Depth 15 ft Bedrock 15 ft Water Level 10 ft

ABBREVIATIONS

Elev. ____

Coordinates ____

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 1 of PF

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1		15	15	8	1	Sandy Loam	Sandy Loam
2		1		15	15	8	1	" "	Fine.
3		1		15	15	8	1	Medum Gravel	"
4		1		15	10	8	1	" "	"
5		1		15	15	8	1	" "	"
6								Gr Brk	
7								" "	

Date Commenced 8, 23, 52

Date Finished 8, 23, 52

Tract Loomis

Panner: Day Loomis Night

Drill Runner: Day Patton Night

Date ____ Shift ____ Line No. ____

Hole No. ____ Drill No. ____

Total Depth 3 Bedrock 7

Water Level ____

ABBREVIATIONS

T. TRILLINGS
F. FINE
S. SAND
G. GRAVEL
ST. STICKY
M. MEDIUM

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

DEPTH FEET	DEPTH IN	MZ LBS/YD³	AU LBS/YD³	Fe_2O_3 LBS/YD³	IL LBS/YD³	GR LBS/YD³	ZrO_2 LBS/YD³	FORMATION	REMARKS
1		2		30	30	1	1	Coarse Gravel	Tight
2		2		30	30	1	1	" "	"
3		2		30	30	1	1	" "	"
4		1		20	20	1	1	Med Brown Gts.	Firm
5		1		20	20	1	1		"
6		1/4		5	5	1/4	1/4	Grey Granit Sand+G	" Decrease C
7		1/4		5	5	1/4	1/4	" " "	"
8		1/4		5	5	1/4	1/4	" " "	"
9		1/4		5	5	1/4	1/4	Clay Grey	Tight
10		1/4		5	5	1/4	1/4	Grey Sand	
11		1/4		5	5	1/4	1/4	Clay Grey	Tight
12		1/4		5	5	1/4	1/4		"
13		1/4		5	5	1/4	1/4	"	"
14		1		30	30	1/4	1/2	Grey Sand Small Gravel	Loose Increas
15		1		30	30	1/4	1/2	Brown Sand Gravel	
16		2		75	75	4	1	Grey Sand + Gravel	Increase
17		2		75	75	4	1	" "	"
18		2		75	75	4	1	" "	"
19		2		75	75	4	1	" "	
20		2		75	75	4	1	" "	
21		2		100	100	4	1	" "	Increase C
22		1/4		25	25	2	1/2	Brown Sand + Gravel	Decrease, Co
23		1/4		25	25	2	1/2	" " "	Loose.
24		1/4		25	25	2	1/2	Brown Sand	
25		1/4		25	25	2	1/2	" " "	"
26		1/4		25	25	2	1/2	" " "	"
27		1/4		25	25	2	1/2	Brown Sand & Small G	"
28		1/2		20	20	1	1/2	Redish Brow Sand	Loose Decrea
29		1/2		20	20	1	1/2	Light " "	" Water.
30		1/2		20	20	1	1/2	" " "	" "
31		1/2		20	20	1	1/2	" " "	"
32		1/2		20	20	1	1/2	" " "	"
33		1/2		20	20	1	1/2	" " "	"
34		1/2		20	20	1	1/2	" " "	"

Continued on Page 2.

Date Commenced 8/23/52

Date Finished

Tract Loom 15.

Panner: Day CY Loomis Night

Drill Runner: Day R Patten Night

Date Shift Line No.

Hole No. Drill No.

Total Depth Bedrock

Water Level

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
S. SAND
G. GRAVEL
CL. CLAY
ST. STICKY
MD. MEDIUM
M. MUCH

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

CONTINUED FROM Page I

FIELD LOG

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DEPTH FEET	DEPTH IN	MX LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
35		1/4		15	15	1/4	1	Sand & Some Clay	~~Loose~~ Tight
36		1/4		15	15	1/4	1	" "	Decrease Cons
37		1/4		15	15	1/4	1	Tight Clay	Tight
38		1/4		15	15	1/4	1	"	"
39		1/2		20	20	1	1	Brown Sand & Small G	Loose Increase
40		1/2		25	25	1	1	Grey Sand " "	" "
41		1/2		25	25	1	1	" " " "	"
42		1/2		25	25	1	1	" " " "	
43		1/2		25	25	1	1	Grey Sand & Gravel Some Clay	
44		1/2		25	25	1	1	" " " "	
45		1/2		25	25	1	1	" " " "	
46		1/2		25	25	1	1	" " " "	
47		2		100	100	2	2	" " & Small G	Clean Loose Incr
48		2		125	125	8	2	" " " "	" " Increase
49		2		125	125	8	2	" " " "	" "
[illegible]		2		100	100	5	2	" " " "	Decrease Cons
[illegible]		2		100	100	5	2	" " " "	Loose & Clean
52		2		75	75	5	2	" " " "	Decrease Cons
53		1/2		50	50	5	1	" " " "	" "
54		1/2		50	50	5	1	" " " "	Loose
55		1/2		50	50	5	1	" " " "	"
56									
57									
58									
59									
60									

Hole Taken To Plant, 8/25/52

Date Commenced 8/13/52

Date Finished 8/25/54

Tract Loomis.

Panner: Day C. V. Loomis Night

Drill Runner: Day B. Potter Night

Date Shift Line No.

Hole No. PF 131 Y Drill No.

Total Depth 55½ Bedrock None

Water Level 29½

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
[illegible]

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

COSUMNES GOLD DREDGING CO.

Coordinates

FIELD LOG

Page 1 of PF 13

DEPTH FEET	DEPTH IN	BE LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1/2		40	40	8	1	Sandy Loam	Firm
2		1/2		40	40	8	1	"	"
3		1/2		40	40	8	1	Blue Sand + Med G	Firm
4		1/2		40	40	8	1	" " " "	"
5		1/2		40	40	8	1	" " " "	"
6		1/2		40	40	8	1	" " " "	"
7		1/2		15	15	4	1/2	Brown Sand + Clay	Firm Decrease.
8		1/2		15	15	4	1/2	" " "	"
9		1/2		15	15	4	1/2	" " "	"
10		1/2		15	15	4	1/2	" " "	"
11		1/2		15	15	4	1/2	" " "	"
12		1/2		15	15	4	1	Redish Brown Sand + Clay	Firm.
13		1/2		15	15	4	1	" " "	"
14		1/2		75	75	2	1	Grey Sand + Gravel	Firm. Increase
15		1/2		75	75	2	1	" " "	"
16		1/2		75	75	2	1	Grey Sand "	Loose.
17		1/4		15	15	1	1	Grey Sand	" Decrease. C
18		1/4		15	15	1	1	" "	"
19		1/4		15	15	1	1	" "	"
20		1/4		15	15	1	1	" "	"
21		1/4		15	15	1	1	Sand + Clay	Water.
22		1/4		15	15	1	1	Red Sandy Clay	Tight
23		1/4		15	15	1	1	Grey Sand + Small G	"
24		1/4		15	15	1	1	Brown Sand + Clay	"
25		1/4		15	15	1	1	" " "	"
26		1/4		15	15	2	1	Sand + Small G	Firm.
27		1/4		50	50	2	1	" " " "	"
28		1/4		50	50	2	1	" " " "	"
29		1/4		50	50	2	1	" " " "	"
		At Hole Taken to Sand plant							8/28/52

Date Commenced Aug 26-52

Date Finished Aug. 26-52

Tract Loomis

Panner: Day O Loomis Night

Drill Runner: Day B Patton Night

Date ____ Shift ____ Line No. ____

Hole No. PF 1A1 Drill No. ____

Total Depth 29 ft Bedrock 29 ft

Water Level 31 ft.

ABBREVIATIONS

F. FAIRLY	S. SAND	ST. STICKY
F. FINE	G. GRAVEL	MD. MEDIUM
C. COARSE	CL. CLAY	M. MUCH

Dredge

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page I of PF

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1/4		15	15	5	1	Sandy Loam	Firm.
2		"		"	"	8	1		
3		1/4		60	60	8	1	Sand & Med. Cl	Firm Incre
4		1/4		60	60	8	1	" " " "	"
5		1/4		60	60	8	1	" " " "	"
6		1/4		60	60	8	1	" " " "	"
7		1/4		10	10	4	1	Sandy Clay Tight	" Decrease
8		1/4		10	10	4	1	" " " "	Tight.
9		1/4		2 1/2	2 1/2	1/4	1/4	" " " "	" Decrease C
10		1/4		2 1/2	2 1/2	1/4	1/4	" " " "	"
11		1/4		2 1/2	2 1/2	1/4	1/4	" " " "	"
12		1/4		2 1/2	2 1/2	1/4	1/4	" " " "	"
13		1/4		2 1/2	2 1/2	1/4	1/4	" " " "	"
14		1/4		2 1/2	2 1/2	1/4	1/4	" " " "	"
15		1/4		2 1/2	2 1/2	1/4	1/4	" " " "	"
16		1/4		2 1/2	2 1/2	1/4	1/4	" " " "	"
17		1/4		2 1/2	2 1/2	1/4	1/4	" " " "	"
18		1/4		2 1/2	2 1/2	1/4	1/4	" " " "	"
19		1/4		2 1/2	2 1/2	1/4	1/4	" " " "	"
20		1/4		2 1/2	2 1/2	1/4	1/4	" " " "	"
21		1/4		15	15	1	1/4	Water Y. Brown Sand	Loose Incre
22		1/4		15	15	1	1/4	" " "	"
		1/2 of Hole Taken to Sand Plant							
								8-29-52	

Date Commenced Aug 26-52

Date Finished Aug 26/52

Tract Coomis

Panner: Day CV Coomis Night

Drill Runner: Day Barton Night

Hole No. PF 1337 Drill No.

Water Level 21 ft

Shift Line No.

Total Depth 22 ft

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCK
L. LOOSE

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 7 of PF 1

Re Dig Hole # PF 1

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	FeO_2 LBS YD³	IL LBS YD³	GR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1½		10	10	2	1	Sandy Loam	Firm.
2		1½		10	10	2	1	" "	"
3		1½		10	10	2	1	" "	"
4		1½		10	10	4	1	Med Gravel + Sand	"
5		1½		10	10	4	1	" " "	"
6		1½		10	10	4	1	" " "	"
7		1½		10	10	5	1	" " "	"
8		1½		10	10	8	1	" " "	Water.
9		1½		10	10	8	1	Med Coarse Gravel	Firm
11		1½		15	15	8	1	" " "	" Increase Co
11		1		50	50	8	1	Med Gravel	" Increase Cons
12		1		50	50	8	1	" "	Firm.
13		3		75	75	8	2	" "	Increase Co
14		3		75	75	8	2	" "	Firm.
15		3		75	75	8	2	" "	"
16		3		75	75	8	1	6" of Clay	Tight
17		2		40	40	6	1	Yellow Sand + Med G	Firm Decrease
18		1		40	40	6	2	Grey Sand & Med G	Fr Loose.
19		1		40	40	6	2	" " " "	"
20		1		40	40	6	2	" " " "	"

Running in Clay Bed

End Hole 70 and plant

8-22-52

Date Commenced Aug 26 - 52

Date Finished Aug 27/52

Contract Loomis

Panner: Day C. Loomis Night

Drill Runner: Day R. Patton Night

Shift Line No.

Hole No. PF 134Y Drill No.

Auf Bedrock Gravel

Water Level 8 ft

ABBREVIATIONS

S. SAND
G. GRAVEL
CL. CLAY
BL. BOWL

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE

Elev.

Coordinates

COSUMNES GOLD DREDGING CO.

FIELD LOG

Page 2 of PF-1

DEPTH FEET	DEPTH IN	MZ LBS YD³	AU LBS YD³	Fe_2O_3 LBS YD³	IL LBS YD³	OR LBS YD³	ZrO_2 LBS YD³	FORMATION	REMARKS
1		1/2		5	5	5	5	Sandy Loam	Firm.
2		1/2		5	5	5	1	" "	"
3		1/2		5	5	5	1	" "	"
4		1/2		5	5	5	1	" "	"
5		2	5	25	25	20	1	Gravel	Firm
6				25	25	20	1		"
7		2		25	25	20	1	Grey Sand	Loose.
8		1		10	10	8	1	" " Decrease	" Water.
9		1		10	10	8	1	" "	"
10									

Date Commenced Aug 27-52

Date Finished

Tract 600 MB.

Panner: Day C. Kaomis. Night

Drill Runner: Day P. Patton. Night

Date Shift Line No.

Hole No. PF 13-Y Drill No.

Total Depth Bedrock

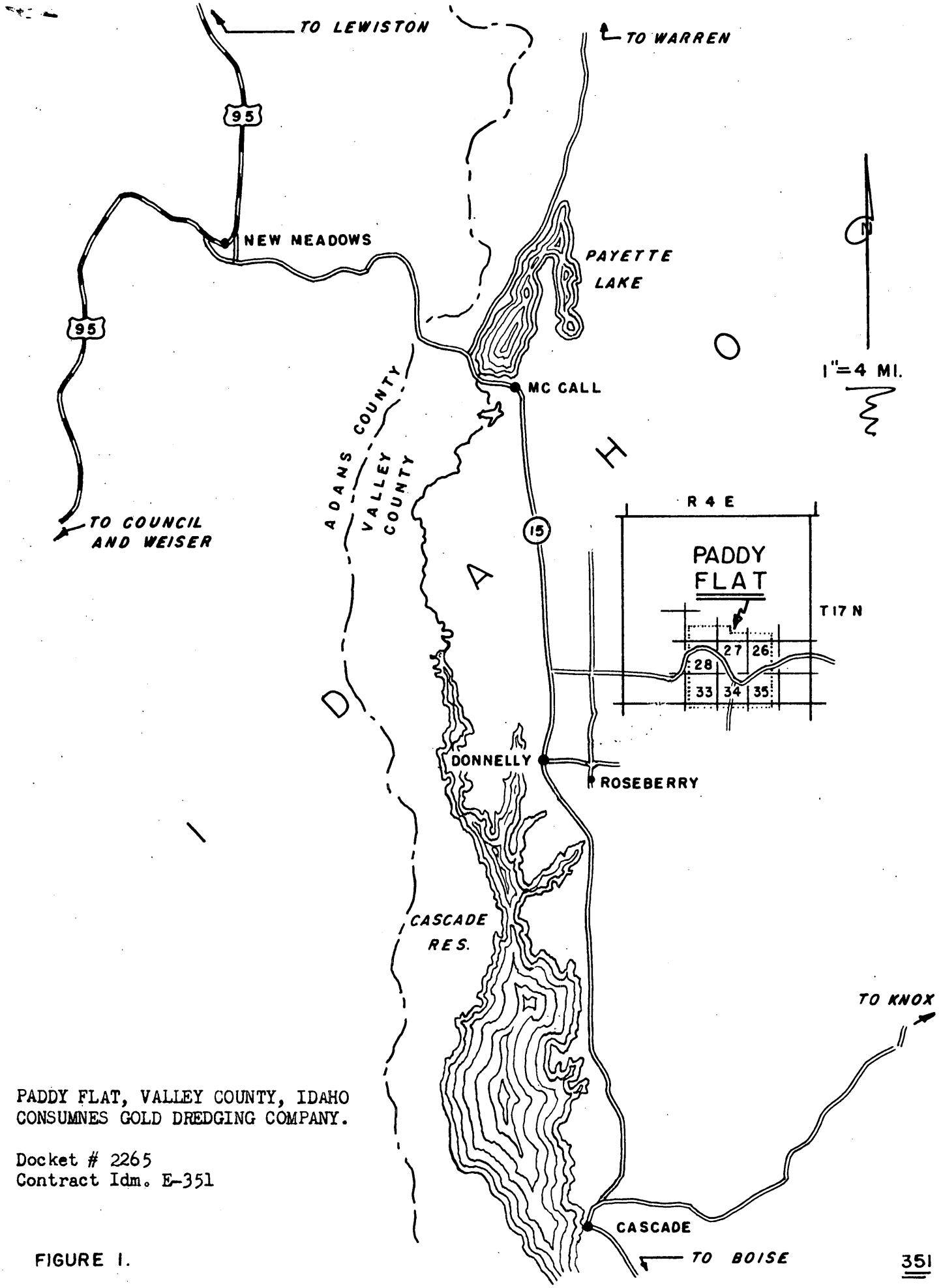
Water Level

ABBREVIATIONS

T. TAILINGS
F. FINE
C. COARSE
V. VERY

S. SAND
G. GRAVEL
CL. CLAY
SM. SOME

ST. STICKY
MD. MEDIUM
M. MUCH
L. LOOSE



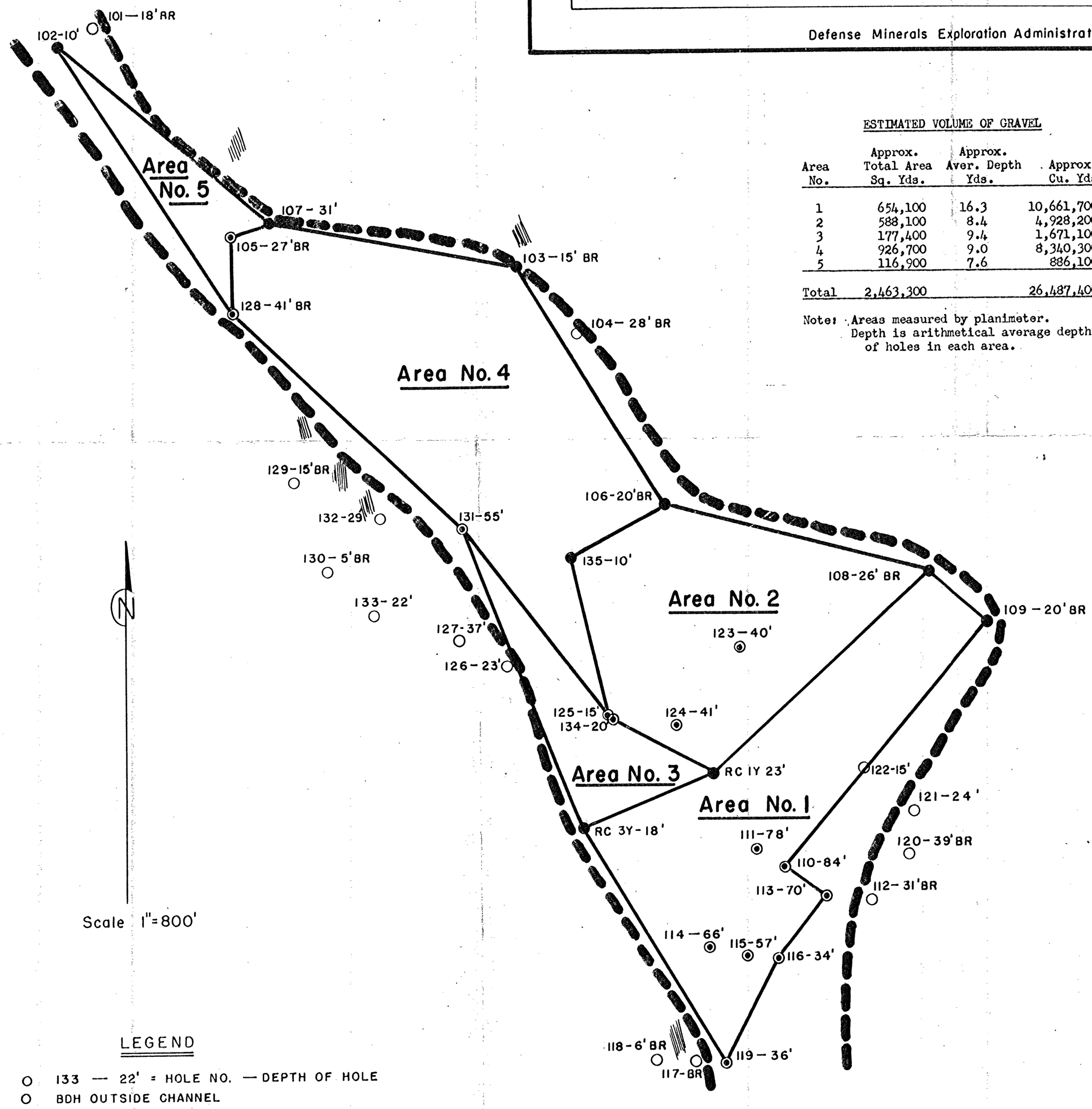
PADDY FLAT, VALLEY COUNTY, IDAHO
CONSUMNES GOLD DREDGING COMPANY.

Docket # 2265
Contract Idm. E-351

FIGURE 1.

U. S Department of the Interior

Defense Minerals Exploration Administration



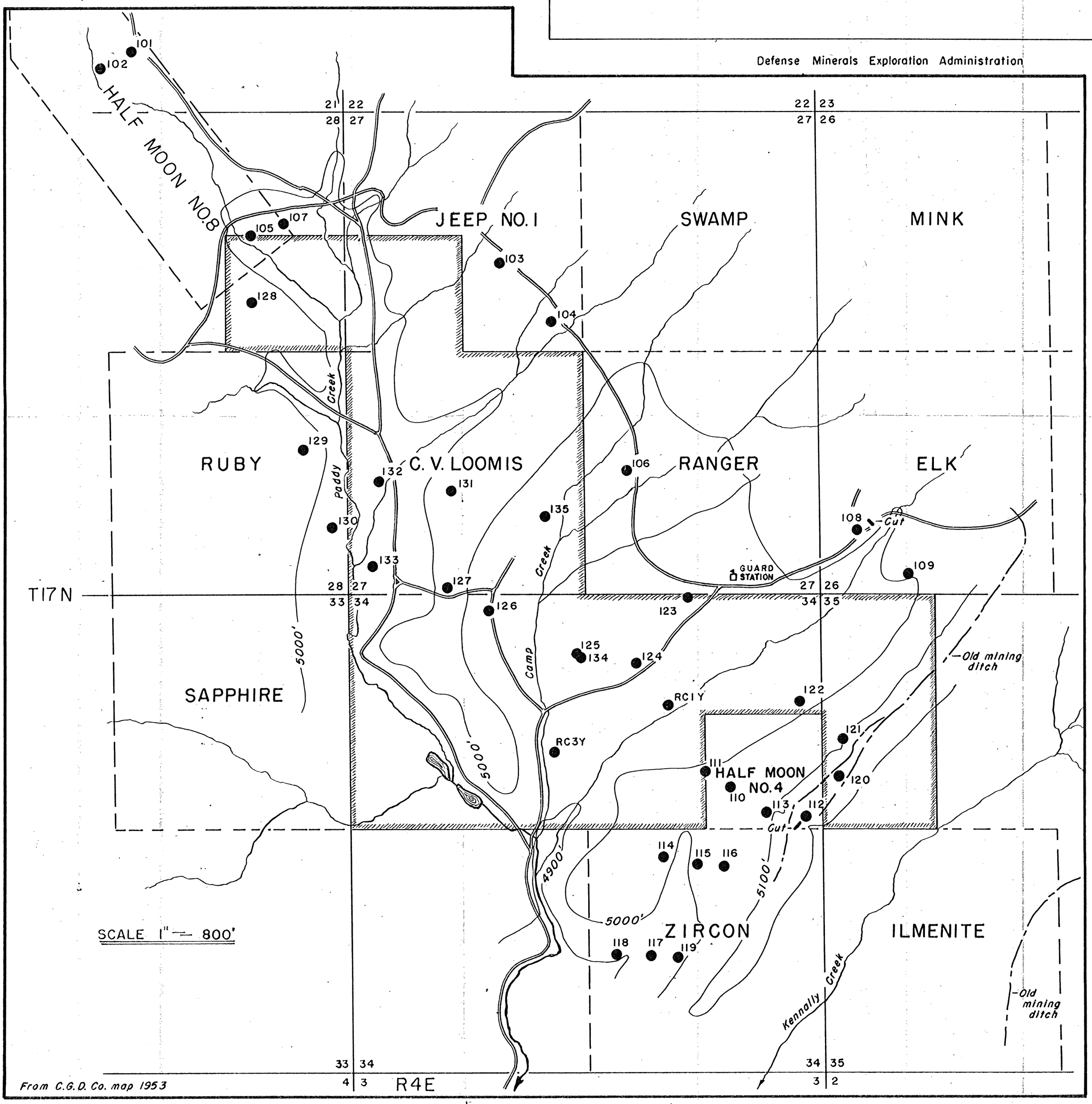
ESTIMATED VOLUME OF GRAVEL

Area No.	Approx. Total Area Sq. Yds.	Approx. Aver. Depth Yds.	Approx. Cu. Yds.
1	654,100	16.3	10,661,700
2	588,100	8.4	4,928,200
3	177,400	9.4	1,671,100
4	926,700	9.0	8,340,300
5	116,900	7.6	886,100
Total	2,463,300		26,487,400

Note: Areas measured by planimeter. Depth is arithmetical average depth of holes in each area.

Feb. 1954

Figure 3 — Location of drill holes in Paddy Flat placer area — Valley County, Idaho. Consumnes Gold Dredging Co. — Docket No. 2265 (monazite) Contract Idm. E - 351



From C.G.D. Co. map 1953

Figure 2.—Paddy Flat, Valley County, Idaho.