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TERRITORY OF ALASKA

DEPARTMENT OF MINES

COLLEGE, ALASKA

Report of Investigations and Itinerary of J. C. Roehm, Associate Mining Engineer, in the Circle Mining Precinct, Alaska.

July 14, to July 20, 1949

Summary Report of Precinct.

A total of 12 placer operations were engaged in mining within the Circle Precinct during the season of 1949. These operations consisted of two operating dredges, eight hydraulic-bulldozer operations, and two hydraulics. A total of 74 men were employed in mining within the precinct, of which a total of 71 were directly engaged in mining, two were prospecting for lode, and one prospecting for placer. Ten of the twelve placer operations were visited, and one lode prospect was examined. Good road transportation is a factor within this district, which accounts for the numerous operations during this period of adverse mining. Most operators haul their own oil and supplies by truck. Most placer mining in the past and at present consists or is confined to creek pay, of which the greater portion has been mined. There remains, however some virgin creek pay on most creeks, and a considerable amount of side and low bench pay. While this side and bench pay is lower grade, the present methods of mining utilizing bulldozers to push material infront of nozzles and nozzling into boxes, is cheaper in many instances; than mining the bottom creek pay. This method under favorable conditions holds much promise for the future within the district. The granite areas and surrounding contacts are favorable for prospecting of the minerals, of tin, tungsten and gold.

July 14 Fairbanks to Eagle Creek.

John Frasca and Gibson (formerly John Frasca and Co.), are operating a bulldozer-hydraulic of the Berry Holding Co's ground on Eagle Creek. This company holds two and one half miles of ground on Eagle Creek. This season a mile ditch was constructed. This provides sufficient water for three giants with a hundred foot head. Former years a diesel pumping unit was used for hydraulic water, and the present water has reduced costs considerably. Hydraulic water is used in the spring and fall for stripping and thawing, and during mining to move material through the boxes. A D-18 International bulldozer is used for moving material to nozzles, and for stacking tailings. Five twelve foot steel boxes are used , set in bedrock on a grade of 12 inches to the box. Angle iron and steel rail riffles , set hungarian style, are used. The gold is nearly all coarse, very little fine, and has very little black sand associated with it. The gold fineness amounts to a price of $ 30.14 per ounce. The pay is uniform with a minable width at present ranging from 150 to 200 feet. Most of the pay is found on and in the fractured Schist bedrock. The depth of the muck and gravels ranges

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from 16 to 21 feet, ofwhich five feet is removed in stripping. The gravel is frozen, but thaws very readily after stripping. Additional pay on the sides makes a pay streak of over 500 feet in width. This is lower in gold content and the gravel and muck depth increases to 30 feet. Two nine hour shifts are worked. Mining this season has amounted to one cut, 160' x 135, completed in one month and a total of 128 ounces of gold was recovered. Work began in May and is expected to continue untill sometime in October. Five men are employed.

Mr. Miller of Miller House reported that high grade quartz was found in place at the head of Eagle Creek by an old prospector, known only as Tony. This was three years ago, and Mr. Miller believed it was the source of gold on Eagle Creek. The following spring, Tony died and the location was not revealed, as far as he knows. The quarts had considerable free gold showing.

July 15. Independence, Harrison, Miller and Mammoth Creeks.

A. A. Zimmerman is operating a hydraulic-bulldozer plant on Independence Creek. One cut, measuring 11,500 bed-rock-feet, had just been completed on date of visit. A total of 176 ounces of gold was recovered and this represents the last creek pay on the Moss Estate ground. Mr. Zimmerman is now preparing to mine the ground above, which he holds by staking. This ground was reported as averaging 40 cents per bed-rock-foot across a pay width from 70 to 100 feet. The grade on Independence Creek at the site of the present operation has a grade of approximately 100 feet to the mile. Hydraulic water with 100 foot head is obtained from a ditch. The gravels are coarse and angular and average three and one half feet in thickness. The muck ranges from one to three feet in thickness, which is stripped with bulldozer and hydraulic. The bedrock is fractured and flat lying mica schists of the Birch Creek series. The pay penetrates the bedrock from two to four feet. The greater amount of the gravel and bedrock is moved through boxes with nozzle. The T.D. 9 bulldozer is used for moving the side gravels and bedrock to nozzle and to stack tailings. A total of 48 feet of steel boxes with a 36 inch width and set on a grade of 12 inches to the box, is used. Due to the great amount of large rocks, double riffles are used. They consist of steel plates with 3/4 inch holes set over angle iron hungarian type. This allows the rocks to pass through the boxes very easily and a greater efficiency of water is obtained. The gold is medium to fine and of heavy weight. The fineness give a value of $ 26. Four men are employed and one shift worked.

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Harrison Creek Mining Co., are operating on Harrison creek with a crew of six men, under the management of Ray Hamilton. This operation consists of a bulldozer-hydraulic with boxes set in bedrock and material moved to nozzles with bulldozer. Tailings are stacked with bulldozer. One ten hour shift is worked, and todate one cut 150' x 80' has been mined. One half mile of ditch furnished water for two giants. The pay width averages 80 feet with the gravels ranging from 5 to 8 feet in thickness and covered with 2 to 3 feet of muck. Gravel and muck is frozen, but thaws very readily upon stripping. The bedrock is various types of Birch Creek Schists, highly fractured and slaby. The goldis coarse with average black sands associated, and averages 30 cents to the bed-rock-foot. The fineness of the gold give returns of $ 28.50 per ounce. Four 12 foot boxes are used with a 6 foot plate at entrance. Steel hungarian and steel rail riffles are used. The pay appears to be evenly distributed, and there appears to be considerable minable ground above the present workings. KK-50-17

Kelly & Wilkenson R. R. are doing exceedinly well with a hydraulic-bulldozer operation on Miller Creek, one mile above Miller House. The pay is mainly confined to a right limit low bench, and after stripping and thawing, the ten foot thickness of gravel is rapidly pushed down grade to nozzles and thence through boxes. The pay averages 30 cents per bed-rock-foot. he gravels are covered with 5 to 15 feet of frozen much, which is thawed by hydraulic giants. The pay was reported to extend upstream for a mile on the bench and thence drops into creek and ranges from 100 to 150 feet in width. The best shift this season netted $ 550 in gold in ten hours. Water is pumped for pressure in the thawing nozzles and sluice water used in the boxes. Capacity of mining is limited to rate of thawing. Operating the G.M.C. Diesel on the pumps and the D-8 caterpillar makes an operating cost of one third the total for diesel oil alone. The efficeincy of this type of operation is to be found in the fact that one man with caterpillar moved material downgrade to nozzles and sluice water in front of boxes, and thence stacks tailings as sluice water works gravel through boxes. This is a three man operation. KK-50-27

There appears to be several of the known placer creeks in this district which has low grade bench or side pay and to which this type of mining could be applied. Utilizing bulldozers and setting boxes in order that material moves as much with gravity is an important factor. Stacking tailing angle-wise rather than cross-ways with the bed of the stream is also economical.

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The Berry Dredging Company started dredging this season on June 9th and operated on two ten hour shifts and one four hour shift. Mr. Christianson is manager for the company and reports that the operation is just breaking even this year. A total of fifteen men are employed with nine on the dredge, three operating bulldozers and hydraulic in stripping and two cooks. They are operating on the holdings of the Berry Holding Company and have in addition four claims leased from the Woods Estate. Stripping is done with hydraulic and bulldozers, which allows the ground to thaw, and the total cost averages between three and four cents per cubic yard. The pay was reported as averaging twenty five cents per cubic yard. Diesel fuel costs thirty cents per gallon delivered and the average wage is two dollars per hour.

This Walter Johnson dredge has 62 close-connected buckets of three and one half foot capacity, and handles from 2000 to 2500 yards daily. It is of the flume type with both line and spud anchorage. It has a maximum digging depth of fifteen feet below water line. The average depth of gravels after stripping ranges from six to seven feet. The length of the flume is one hundred and twenty feet and steel slot riffles are used. The dredge is powered with a D-13000 Caterpillar diesel, that operates the bucket line and a large screen for rocks. Another D-13000 Caterpillar runs a 125 volt generator that furnishes power for two De Laval pumps. An average of two hundred and fifty gallons of diesel oil is used daily. A boiler is used on the dredge for heat.

Safety Measures

Sheet metal guards were found in place over the V-type belts on both pumps. Gas pipes as guard rails were found in good condition along and around the belts operating the bucket line and screen. Screen guards were around all large pulleys. A large sheet metal guard enclosed the large gears of the bucket line shafts. Metal guards were found around all floor line pulleys. There has been special measures to provide this dredge with safety devices, and the general condition as to safety are herewith reported as good. The first aid cabinet in the control room was found well supplied.

July 16. Miller house to Deadwood Creek.

KK-50-65

The Deadwood Creek Mining Company is operating with dragline, bulldozer and hydraulic on Deadwood Creek at the mouth of Switch Creek. Four men are employed, working one shift. The company own fourteen claims on Deadwood Creek and have four others under lease. The gold at the present location of operation is confined mainly in the fractured granite bedrock. Tongues of granite occur in the schist belt, both of which are fractured and makes for a very expensive operation. The method of mining consists

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of stripping with bulldozer and hydraulic, thence bulldozing material in front of boxes set in bedrock and thence using hydraulic nozzle to force material through boxes. The dragline is used for stacking tailings. A fan-shaped steel plate is used on the front of the boxes. Mercury is used in the boxes and angle irons, hungarian type, are used as riffles. The pay was reported as averaging twenty cents per bedrock foot on gravel that ranges from seven to eight feet in thickness. Last year a total of 800 ounces was recovered with a total operating cost of $ 20,000. The fineness of the gold gives a value of $ 27.00 per ounce and an occassional nugget up to three dollars is found.

A few large glacial bowlders were noted in the gravels, however there appeared to be no evidence of direct glaciation on the creek. The mouth of Switch Creek is about a claim length below the main granite contact that crosses Deadwood creek. The minerals cassiterite, wolframite, and scheelite were identified in the concentrates. This schist-granite contact is well exposed on the ridges up Switch Creek and on the north or left limit of Deadwood Creek. This would be a very favorable area to recommend to prospectors seeking these minerals. The eight mile stretch of road from the Circle Hot Springs road is passable with car, but needs better drainage and gravel in some sections. A few hundred dollars spent on this road would put it in good year round condition. Three operations, Deadwood Mining Co., Landlow and the P,R.&H.Mining Company , use this road.

J. N. S. Landlow has been operating a hydraulic placer operation on Switch Creek, tirbutary of Deadwood Creek every year since 1916. Most years, as this year, he operates alone. He holds six claims, four or which have been mined to date. His method of mining is both unique and efficient. Each year he strips and mines one cut, usually 150 feet by 100 feet. Stripping is done with nozzle in the spring. Thence boxes are set in the last years cut on bedrock, this is permissible due to 100 foot to the mile grade of the creek. Then three giants are set up along with the line from his ditch, one giant is set at the end of the boxes for stacking tailings, and one giant on each side of the cut on the upper end. He sets his giants at the proper angle and mining proceeds nearly as well as if he had three additional men hired. In the fall he cleans his cut. Last year he had low ground and only cleaned up thrity ounces. This year he has better ground.

KK-50-20

Mr. Landlow reports that lode tin was found in place a number of years ago at the head of Cripple Creek, tributary of Switch Creek, and one mile up from its mouth on Deadwood Creek. The tin was black but occurred in granite. Several types and phases of granite were noted along the banks and cuts on Switch Creek. Prospecting may be warranted with regard to this occurrence. A narrow but hard road extends up Switch Creek from Deadwood to the mouth of Cripple. Cripple is a small side stream less than a mile in length. Thus Cripple Creek is nine miles by road off the Circle Hot Springs road.

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The newly organized P. R. & H Mining Company started operations this year on May 15th. Their location is on Claim No. 38 Below held by Casper Ellingen on Deadwood Creek. The pay along this section of Deadwood Creek is scattered and distributed over a wide width and low in grade. Nine cents per bedrock foot was recovered from two cuts mined this season with the depth of gravel ranging from six to eight feet. KK-50-12

The method of mining consists of stripping with bulldozer, which allows the gravel to thaw. Thence the gravel is bulldozed from the two sides to the center and in front of the boxes. Thence a large volume of sluice water moves the material through the boxes. A small dirt dam thrown up with bulldozer provides sluice water. Tailings are stacked with bulldozer. Four men operate two shifts and to date 80,000 bed-rock-feet have been cleaned,

Mr. Karstens has organized the Lake View Mining Company, and he has started hydraulic operations on Portage Creek, three miles south and east of Circle Hot Springs. This creek was formerly mined by Bergstrom and Savage. This company has twelve claims leased from the Espes Estate. Mr. Karstens has discovered that good pay exists in the fractured bedrock to a depth of five feet. He is attempting at the present time to mine this bedrock with bulldozer and hydraulic. A small shovel may be purchased for this work. The pay was reported as averaging from forty to fifty cents per bed rock-foot. Water is pumped at the present time, but next year a ditch is to be constructed. Pannings from the fractures in the bedrock by the writer showed a good gold content. It is very possible that Mr. Karstens will make a successful operation, if he can moved the bedrock economically. The dragline operation by Bergstrom and Savage did not recover the bedrock pay, but recovered a low gold content in the gravels. Two men are employed in this operation.

July 17. Circle to Hughes Mt., Woodchopper and Coal Creeks.

Paul A. Connell has twenty lode claims located in the vicinity of Hughes Mountain, which is located a short distance inland from the north bank of the Yukon River at a point twenty-eight miles upriver from Circle. KK-51-4 Mr. Connell has been trapping and prospecting in this vicinity for twelve years. He claims to have received first hand information on the approximate location of the telluride discovery made by Mr, Hughes about the year 1900. The short adits driven into the sloping banks by Mr. Hughes in his attempt to relocate the supposed vein, are all sloughed and not accessible. Mr. Hughes related to Connell, that following the discovery of the vein, that the bank had slide and caved off, covering the vein. Neither Mr. Hughes workings nor Mr. Connell's prospecting, since, have not revealed the existence of this telluride vein.

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Investigation reveals that the steep sloping bank in the vicinity of the supposed discovery is covered more or less with talus from the rim above; however there are numerous exposures of bedrock, which shows no evidence of veining for faulting, and which would indicate a bedrock displacement. The bedrock formation consists of Carboniferous shales of the dark graphitic type and beds of limestone both formations thinly stratified. The talus slopes rise from three to four hundred feet above the level of the river, and thence break off into low mountainous country to the north. This Carboniferous block of shales and limestones is exposed for a few miles along the north bank of the river. They are in contact with more recent lava flows on the west, and with younger sediments mixed with lavas on the east. The block is more or less covered on top with very recent sediments and river deposits of sands and gravels. The east contact of this block is located a half mile east or upstream from Connell's camp and occupied by a small stream, locally known as Phantom Creek. This creek was ascended by the writer for one and a half miles nearly to its head. Bedrock is exposed along its banks over the entire length. No quartz veins were noted, however, the younger sediments and inclosed lavas were found mineralized with pyrite in the numerous fractures. The evidence of hot springs and hot thermal water action was found , confined only to the younger sediments and lavas. Iron oxides are widely distributed, and the oxides of manganese, together with aluminum phosphate minerals and barite were noted as float. The latter three mineral occurrences probably represent secondary concentrations or weather remnants from the Carboniferous limestones.

Investigation in the supposed area of telluride occurrence, one half mile below Connell's camp, revealed no quartz or fault veins nor any evidence of mineralization that would indicate such. The bedrock is well enough exposed over scattered sections to well substantiate the above. Occassionally between and across the thin limestone strata, there occurs a small veinlet of white calcite, and inwhich a rare pyrite crystal was noted. The limestone and shales have a variable strike, east to northeast, and a dip from nearly horizintal to near vertical. They have been highly folded.

The lava area five miles downstream or west from Connell's camp rises abruptly from the river banks to heights of 500 to 1500 feet. Numerous small faults and possibly fissures have developed within the flows and these are prominent with their content of iron oxides. Hot thermal water action was noted in a few observed. Connell was advised to sample and have determinations from these fissures in his quest for the lost telluride vein.

Connell's prospecting has consisted mainly of gathering samples from various places in the surrounding territory. These samples were carefully look over and some were taken for determinations. Some were heavy oxides of manganese and iron oxides, which were found slightly radio-active. Aluminum-phosphate minerals were much in evidence in the collection.

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The Alluvial Golds, Inc., are operating the dredge on Woodchopper Creek this season with a total of 27 men employed. This four and one half cubic foot bucket capacity Walter Johnson dredge has an actual digging capacity ranging from 1500 to 2700 yards daily. Three eight hour shifts are worked with three men on two shifts and four men on the third shift. The dredge started digging on June 3rd and expects to run untill Oct. 15 to Nov. 1st.

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The muck is stripped off with bulldozer together with a few feet of the top gravels, which allows thawing. Apparently the black muck that covers or overlies a great many of the placer deposits in Alaska, consists of a composition or mixture of extemely fine volcanic ash and carbonaceous matter from vegetation, that forms a very efficient anti-thermal insulation blanket. Its removal allows the solar heat to thaw to remarkable depths in the frozen gravels in one season.

The dredge digs up to twenty five feet of gravel and the conglomerate bedrock. This bedrock contains numerous boulders and is extremely rough and uneven.

One man is employed on Coal creek, whom is engaged in stripping with bulldozer. Mr. Paddy was absent from this operation on date of visit and cost figures were not obtained, however, the men employed indicated that they were plenty.

Safety Conditions, on the dredge were found exceptionally good, and safety measures are very necessary on this dredge due to the intense bouncing of the bucket line on the hard conglomerate bedrock. All ground floor cable pulleys were found covered with guards. All belts and wheels were surrounded either with rail guards or screens. The girdies were surrounded with rail guards. The stairways, walkways and wallways contained 2x4 handrails. One safety feature, which has been installed on this dredge, and which would be recommended for all other dredges, is extensions on all grease cups and oil holes. This brings the cups and oilings away and out of reach of moving parts. There has been special attention paid to safety festures on this dredge, and no doubt they have been profitable expenditures. The first aid kit was found well supplied, and fire extinguishers were found in place.

Two other placer operations were reported and not visited in the Circle Precinct. They are as follows,

Martin Admik was reported mining alone with hydraulic on Boulder Creek, tributary of Coal Creek.

Charles Peterson was reported mining with bulldozer and hydrauelic with one man employed , 2 man operation, on Half Dollar Creek, over the divide from Portage Creek , south of Circle Hot Springs.

A prospector by the name of Martin was reported prospecting on Porcupine Creek in this district.

July 18, Circle to Fairbanks.