

14th February, 1938.

To:
The President and Board of Directors of
The Yukon Consolidated Gold Corporation, Limited,
700 Victoria Building,
Ottawa, Ontario.

Gentlemen:-

Herewith is submitted my report on the operations of The Yukon Consolidated Gold Corporation, Limited, for the year ending December 31st, 1937.

TITLES

On December 31st, 1936, the company was representing and renewing 1,668 placer mining claims on the Klondike River and Indian Creek watersheds which were either owned, leased or under option. Since that date, 16 claims have been added to our grouping, 29 claims were eliminated by extension of boundaries and 3 claims were dropped, leaving 1,652 claims being renewed on December 31st, 1937.

The company is also keeping the following Concessions or Leases in good standing:-

- ✓ Hydraulic Lease No. 1 (Anderson Concession) covering the lower 13,375 feet of Hunker Creek.
- ✓ Hydraulic Lease No. 5 (Bronson and Rae) covering the watershed of Bonanza Creek from a point 2-1/2 miles from its junction with the Klondike River upstream for a distance of 2-1/2 miles.
- ✓ Hydraulic Leases Nos. 2 and 8 (Doyle Concession) covering certain ground on the west side of Bonanza Creek between Boulder Creek and Fox Gulch.
- ✓ Hydraulic Lease No. 9 (Matson Concession) covering certain ground on the west side of Bonanza Creek between Adams Creek and Fox Gulch.
- ✓ Dredging Lease No. 18 (Boyle Concession) covering the watershed of the Klondike River, excepting the stream bed, from a point 1-1/2 miles above its mouth extending 6.72 miles upstream.
- ✓ Dredging Leases Nos. 23, 24, 25 (Guerin Leases) covering the lower fifteen miles of the stream bed of the Klondike River.

The company is maintaining the following Water Grants:-

Rock Creek Ditch (Grant No. 9129) 3,000 Miner's Inches from the Klondike River at a point $\frac{1}{3}$ of a mile above Rock Creek. Expires July 2, 1940.

North Fork Ditch (Grant No. 10) 20,000 Miner's Inches from the North Fork of the Klondike River. Expires December 24, 1950.

South Fork Ditch (Grant No. 14) 9,000 Miner's Inches from the South Fork of the Klondike River and 1,000 Miner's Inches from Lee Creek.

Dominion Ditch and Burnham-Jensen Ditch (Grant No. 9150) 1,000 Miner's Inches from Burnham Creek, 200 Miner's Inches from Cache Creek, 200 Miner's Inches from Arkansas Creek, 1,000 Miner's Inches from Jensen Creek, 1,000 Miner's Inches from Dominion Creek, 200 Miner's Inches from Washington Creek and 200 Miner's Inches from Gold Run. Expires February 27, 1954.

Quartz Creek (Grant No. 9068) 1,000 Miner's Inches from Quartz Creek at No. 12 Below A. Mack's Discovery. Expires February 28, 1938.

Sulphur Creek (Grant No. 9149) 500 Miner's Inches from Sulphur Creek at Claim No. 96 Below Discovery. Expires February 28, 1954.

Nevada Creek (Grant No. 9148) 200 Miner's Inches from Nevada Creek at a point 4,000 feet from its mouth. Expires February 27, 1954.

Calder Creek (Grant No. 9069) 1,000 Miner's Inches from Calder Creek at a point about one mile above its mouth.

Australia-Sulphur Ditch (Grant No. 9162) 2,000 Miner's Inches from Australia Creek. For 20 years from September 21, 1936.

The company also maintains two timber berths in good standing Nos. 25 and 26, covering a strip of the Klondike River valley one mile wide from a place called the Upper Ferry near the mouth of Bonanza Creek thence upstream a distance of ten miles. Berth No. 26 excludes certain land in the Klondike Government Concession, A. C. Bache homestead, land patented to A. Fournier, and land included in aviation field.

WORK ACCOMPLISHED, CONDITIONS, ETC.

The field work performed by the company during 1937 was made up of:-

- Operating Dredge No. 1 on Upper Dominion Creek.
- Operating Dredge No. 2 on Klondike River.
- Operating Dredge No. 3 on Lower Bonanza Creek.
- Operating Dredge No. 4 near Mouth of Hunker Creek.

Operating Dredge No. 5 on Dominion Creek near Sulphur.
Operating Dredge No. 6 on Dominion Creek near Sulphur.
Operating Dredge No. 7 on Quartz Creek.
Operation of Stripping and Thawing Plants at Arlington Area.
Operation of Stripping and Thawing Plants at Upper Dominion.
Operation of Stripping Plant at Middle Dominion.
Operation of Stripping and Thawing Plants at Granville and
Lower Sulphur.
Operation of Stripping and Thawing Plants at Middle Sulphur.
Operation of Stripping Plant at Upper Sulphur.
Operation of Stripping Plant at Quartz Creek.
Operation of North Fork Power Plant together with North and
South Fork Ditches.
Operation of Sulphur-Australia Ditch and Pumping Plant.
Operation of Quartz Creek Ditch and Pumping Plant.
Drill Prospecting of Hunker Creek.
Drill Prospecting of Eldorado Creek.
Drill Prospecting of Indian River below Mouth of Sulphur Creek.
Completion of Dredge No. 5 Re-construction.
Start of Dredge No. 8 Construction.
Start of Dredge No. 9 Construction.
Construction of Sulphur-Australia Ditch and Pumping Station.
Completion of Quartz Creek Ditch and Pumping Station.
Construction of Upper Sulphur Camp.
Construction of Middle Dominion Camp.
Construction of repair garage at Bear Creek.
Operation of Machine Shops and Garage at Bear Creek.
Operation of Transportation Department.
Operation of Electrical Repair Department.
Operation of Warehouse at Bear Creek.

During the peak of the season, the operations suffered from a shortage of labor, this shortage amounting to a maximum of approximately 50 men. Although we had many good men in our employ, the general average was not as good as in the past and nearly half were new at the work.

The basic wage scale remained the same as last year but we had to make advances in rates for skilled labor, such as carpenters and machinists in order to get the men and even had trouble getting the required number of men then.

The number of men employed on all operations of the company averaged 150 between January 1st and April 15th, 512 between April 15th and November 15th and 131 between November 15th and December 31st.

348,006 meals were served at the company camps at a cost of \$0.59 per meal. Camp costs amounted to \$0.11 per meal, making the total boarding cost \$0.70 per meal. Adding restaurant and roadhouse meals and Board allowance, the work was charged \$2.28 per shift for mess and camp expense.

The temperature conditions were much colder than last year and this was reflected in lower thawing and stripping progress.

The rainfall was above the average and well distributed and this made for a good water supply.

STRIPPING OPERATIONS

Arlington Area

A stripping plant was operated here for the benefit of Dredge No. 4. Water was supplied by the Rock Creek ditch from the Klondike River. It was boosted through two 10" centrifugal standard stripping pumps, each rated at 3,000 U.S. gallons per minute against a 150 ft. head. Stripping operations were interrupted for a good part of the season in order to make the water available for the thawing plant at this area.

The first men started during the week ending May 8th to get the plant ready for operation but a serious flood at this time caused much damage and actual stripping did not begin until May 29th, approximately three weeks later. Water was used throughout the season, when not required at the thawing plant, until October 1st when all stripping required to be done for Dredge No. 4 was completed. The plant was dismantled and made ready for transfer to Middle Hunker.

202,113 cubic yards of overburden were removed with 19,320 Miner's Inch Days of water at a duty of 10.46 cubic yards per M.I.D. Stripping was fairly easy except along the right limit where considerable tailings and slide rock were encountered. The run-off grade was flat and this limited the duty of the water.

The cost of this work was \$22,065.61 or 10.917¢ per cubic yard.

Middle Dominion Area

A stripping plant was started here during the summer to prepare ground for our Dredge No. 10 which is being brought into the country during 1938 and will be constructed during 1939.

Clearing of brush and construction of unloading platforms, to receive equipment, were commenced during the week ending May 22nd. Equipment started to arrive early in June and was assembled as fast as available.

Actual Stripping was commenced on July 22nd and continued until October 1st when the plant was closed down for the season. 150,755 cubic yards of overburden were removed with 23,883 M.I.D. of water at a duty of 6.31 cubic yards per M.I.D. The cost was \$18,946.51 or 12.566¢ per cubic yard.

This plant was continually handicapped by shortage of labor which prevented moving of equipment, at times when it should have been shifted, and cleaning up of debris to give the water a better chance to work on the muck, but a good clean job of stripping was accomplished.

Granville and Lower Sulphur Area

A stripping plant was operated on this area to prepare ground for Dredges Nos. 5 and 6. During the first part of the summer, all of the water

was pumped from Dominion Creek but later, when the lower end of the Sulphur-Australia ditch system was put into service, that water was used for stripping on Lower Sulphur and the Dominion Creek water used entirely on the Granville Flat.

Eight men were started on March 22nd to get the combined stripping and thawing pump station ready for operation. The foundations had been prepared in 1936 but owing to the large amount of water in the creek at that time, the sumps had not been put in, and it was necessary to get these in before the water started running again. The last of six sumps was in place by April 6th and a small crew started laying pipe lines and setting giants.

On May 4th high water and a heavy run of ice completely destroyed the brush and gravel dam in the creek at the pump station, as well as the large waste gate, and undermined the downstream pump house. No attempt was made to replace the dam and waste gate until the flood had receded. A temporary barricade was put across the creek and stripping started by May 27th. The first work was cutting of drainage channels. The dredgeable area at this plant is nearly two thousand feet wide and is entirely on the right limit side of the creek channel. The overburden is approximately sixteen feet thick and is composed almost entirely of peat. The grade is quite flat and it is necessary to establish drains before effective stripping can be done. This is accomplished by laying pipe lines along the line of the drains and cutting the drains through the frozen ground with a stream of high pressure water, starting at the lower end of the drain and retreating as the drain is cut to grade. The contact of the water with the ground removes the frost and the high pressure tears out roots and obstructions so that the water is always in contact with a frozen surface. Progress is fairly slow being from seventy-five to one hundred and fifty feet every twenty-four hours in ground of this character and depth but it is the cheapest method we have developed.

Early in June, stripping was started at the mouth of Sulphur Creek to remove the overburden from an area which is to be thawed in 1938 for the benefit of Dredge No. 6. The depth of moss was found to be much less in this area and stripping was consequently easier. The drainage from this operation went into the channel of Sulphur Creek.

The first water from the Sulphur-Australia ditch system was received at 11:00 P.M. on August 17th and was used at the Lower Sulphur area. After this date all stripping in this area was done with ditch water, the water pumped from Dominion Creek being concentrated in the Dredge No. 5 area.

Stripping was closed down for the season on October 1st and the plant laid up for the winter.

618,303 cubic yards of overburden were removed from the Granville Flat area and 170,108 cubic yards from the Lower Sulphur area or a total of 788,411 cubic yards with 98,430 M.I. Days of water at a duty of 8.03 cubic yards per M.I.D.

The cost was \$65,873.31 or 8.355¢ per cubic yard.

Middle Sulphur

A stripping plant was operated here to prepare ground for our Dredge No. 8. The plant was laid and the pump stations set up in 1936, so very little work was required to get ready for operation this year. A small crew was started in the week ending May 1st to get the pipe line in shape and put the giants together. Very high water early in May caused trouble and extra expense and stripping was not started until May 13th. The work was concentrated on clearing up the area which had to be thawed during 1937 and particularly on the left limit side where the muck was deeper.

The overburden in this area is mostly a black muck with considerable brush and roots mixed in it along the right and a glacial silt with slide rock along the left limit. The dirty muck requires considerable hand work to pick up and burn the trash. The left limit formation takes careful handling to dispose of the silt without blocking the drains with slide rock. We were only partially successful in doing this but were getting the men better trained and so making better progress by the end of the season.

Water for stripping was taken from Sulphur Creek by two 10" Standard stripping pumps. The supply was variable and many times insufficient but generally favorable and above the average to be expected. After stripping was commenced at Upper Sulphur, considerable trouble was had at the pump station from dirty water and trash and extra help had to be put on to keep the screens clear.

Stripping was closed down on October 1st and the plant laid up for the winter. 435,861 cubic yards of material were removed with 35,355 M.I. Days of water at a duty of 12.34 cubic yards per M.I.D. The cost was \$26,027.94 or 5.971¢ per cubic yard.

Upper Sulphur

Stripping operations were started here for the first time during 1937 to prepare ground for Dredge No. 9. The equipment had to be brought in from the "Outside."

Two men were started here during the week ending May 29th cutting brush and building unloading platforms to receive equipment. The crew was increased as men were available and we were able to get a sufficient area cleared of brush and the plant set up so that actual stripping could commence on July 21st. At this time the water supply was only sufficient to operate one stream about 40% of the time and progress was slow. It gradually picked up and more progress was made but as this plant was the least important of any, it was being continually robbed of men as they were more urgently needed at other places. It was finally decided to cease operations on September 11th. The plant was drained and the remaining men were transferred to other plants. This was an unsatisfactory operation from the start. Drainage was bad.

The surface was covered with tailings and the overburden had considerable slide rock in it. No attempt will be made to do any stripping here in 1938 or in fact until after the dredge starts, as we think better progress can be made by thoroughly thawing the ground instead.

28,196 cubic yards were removed with 9,819 M.I. days of water at a duty of 2.87 cubic yards per M.I.D. The cost was \$11,017.65 or 39.075¢ per cubic yard. The cost was excessive due to the small amount of work accomplished after the preliminary work was done. Later the plant was used for making the Dredge No. 9 construction pit but no part of the set-up cost was charged to this work.

Quartz Creek.

Stripping was continued during 1937 preparing ground for Dredge No. 7. Work was started during the week ending May 1st to get the plant assembled. Before this time the crew was used on steam thawing ahead of the dredge.

Actual stripping was started on May 9th and continued throughout the season without particular incident. At the start of the season water was pumped from Quartz Creek but after the Indian River pump station was put into service water was derived from that source. The new pump station was first put into service on June 8th. There were many interruptions at the start due to machinery adjustments and ditch trouble. During this period the ditch pipe line was not connected to the booster pump but all water delivered was dumped into the creek above the pump station so operations could continue at least on part capacity while the ditch system was out for repairs. After a few days these troubles were over and the ditch operated throughout the season except at such times as dirty water in Indian Creek made it necessary to shut down and clean the pumps.

Stripping at Quartz Creek has been completed for a considerable distance ahead of the dredge and yet this summer's dredging has demonstrated that we are not yet far enough ahead to allow sufficient time for the ground to thaw naturally and some artificial thawing will have to be done to correct this condition. Without the Indian River water to supplement the quartz Creek water we would not be getting any place with the stripping.

The overburden in the area on the right limit above the mouth of Calder Creek has gravel and slide rock on top with muck underneath which means much of this has to be handled twice in order to get rid of the underlying muck.

Stripping was closed down for the season on October 2nd and the plant drained. Very little work was required after the water was off as the equipment will start from the same location next spring.

266,268 cubic yards were removed with 25,232 M.I. days of water at a duty of 10.55 cubic yards per M.I.D. The cost was \$26,967.76 or 10.128¢ per cubic yard.

THAWING OPERATIONS

Arlington Area

A thawing plant was operated here to prepare ground for Dredge No. 4. The Pump stations were set up and tested out in 1936 but due to delays caused by the White Pass and Yukon Company wrecks, the equipment was received too late to accomplish any thawing in that year.

Two men were started on April 10th to take the ice out of the sumps before the water started to run and the force was gradually increased as the work made necessary.

Point driving was started on May 7th but a serious flood at this time washed out a brush and dirt dam, which had been built to divert the creek water away from the pump station, and allowed so much debris and sand to reach the pumps that it was impossible to keep the points running before the dam was rebuilt. Point driving was resumed on May 24th. It soon developed that we were not going to be successful in driving points to bedrock in the first units and the ground did not have sufficient value to warrant drilling for the pipes. Careful testing revealed that there was an alternative channel to get the dredge through to better pay so point driving was abandoned in the lower units and that equipment dismantled and moved ahead.

Point driving in the Arlington area was the most difficult we had, due principally to the great depth of the ground but the indications are that we have covered most of this deep ground in the 1937 operations and point driving next year should be easier.

Point driving was concluded on August 30th. The points continued taking water until September 21st when cold weather forced us to close down the pump station and drain the plant. After that date, testing of the ground was completed, the equipment was dismantled and all points pulled.

1,253,951 cubic yards of ground were thawed with 113,088 M.I. days of water at a duty of 11.09 cubic yards per M.I.D. The cost was \$69,414.90 or 5.535¢ per cubic yard.

Upper Dominion Area

A combination thawing and stripping plant continued operating here in 1937 preparing ground for Dredge No. 1. The season was fairly cold with consequent lower water temperatures which had a distinctly adverse effect upon thawing progress. Also, there was less natural thaw proved up so that at the end of the season nearly all prepared ground had been dredged.

The first work was started in the week ending April 17th and consisted of preparing the pump station foundation.

Stripping directly ahead of the dredge was commenced during the week ending May 8th and point driving on May 14th.

All water was re-circulated. The pump station was set up in a pond below the dredge and all water from the thawing and stripping operations returned to the dredge pond and thence to the pump pond. This allowed reasonably clean water to reach the pumps. During the summer much trouble was encountered holding the pump pond due to the tendency of the water to cut away under a high icy muck bank along the right limit and eventually a different and more direct channel had to be constructed to the pumps which gave us less settling area and consequently dirtier water to handle. We also had to operate a small pump at the mouth of Lombard Creek to pump water back up into the main pump pond when the water supply from above was insufficient.

At this plant most of the formation to be thawed is muck and the points have to be driven at much closer spacing than at other places. Here they are driven at the corners of 8 foot squares and then in the center of the squares.

Some stripping is done ahead of thawing and some after thawing but a complete job is not attempted. We are generally successful in cutting down the highest parts of the muck to the general level of the creek channel and the dredge handles the balance. When this muck is accomplished, the ground is usually well thawed and the dredge has a sufficient depth of ground left to float in.

The last points were driven during the week ending August 28th. The points continued to take water until September 25th when cold weather made it necessary to shut them off. Stripping continued until September 30th. We continued to operate a part of the pump station to return water to the dredge pond as there was not sufficient water coming in from above to build up the pond level as fast as the dredge advanced.

The pipe lines were dismantled and ground prepared for the 1938 set-up.

No record of the amount of ground thawed or volume of water used at this plant was kept. The cost of the work amounted to \$37,616.88 all of which was charged into 1937 dredge operating cost and amounted to 8.822¢ per cubic yard dredged.

Granville Area.

A thawing plant was operated at this area to prepare ground for Dredges Nos. 5 and 6. The area for No. 5 was well stripped but that for No. 6 had to be thawed through the muck. No attempt was made to remove the frost from this overburden as it is intended to strip off the muck before the dredge reaches it.

Point driving did not commence until May 27th due to the trouble at the pump station as detailed under stripping. A certain amount of trouble was caused by dirty water due to the fact that the temporary dam did not have a waste gate and the pump pond could not be sluiced out. Reconstruction of the dam and gate was completed during the week ending June 26th and the pond flushed out, which immediately gave an improvement in point-driving rate.

Trouble from dirty water was again encountered on July 16th when thawing in the Dredge No. 6 area drained Marshall Lake. The pumps were shut down and the pond sluiced out but the run-off from the unstripped area continued very dirty and it was necessary to shut down at frequent intervals for pond cleaning. This condition was aggravated by the Middle Dominion stripping, after about 1st of August. The very fact that we were having a good water season aggravated the situation because the high water would not allow the mud to settle out of suspension.

Point driving was completed for the season in the week ending August 28th but the plant continued taking water until September 21st when cold weather forced us to shut off the points. Testing of units 25 and 34 showed some bottom frost so these will be re-driven and given more water in 1938.

1,546,613 cubic yards of ground were thawed with 132,272 M.I. days of water at a duty of 11.68 cubic yards per M.I.D. 139,920 cubic yards of natural thaw were also made available. The cost was \$62,387.64 or 4.034g per cubic yard.

Middle Sulphur Area

The first thawing for Dredge No. 8 was done here in 1937. A small crew was started during the week ending June 5th to receive equipment, and start assembly of plant.

Point-driving commenced on July 20th. The driving was easy and good footage was made but the operation was hampered by labor shortage and men had to be borrowed from other plants at different times to help shift equipment. Dirty water was also a handicap and points had to be pulled frequently to clear them.

Point-driving was completed during the week ending August 28th. The points continued to take water until September 19th when cold weather made it advisable to shut down. The points were pulled and the plant dismantled.

Probing of the areas thawed showed from 3 feet to 5 feet of surface frost along the left limit but no bottom frost. The surface frost is in glacial silt which is very hard to thaw and we expect to remove most of this next spring by additional stripping.

617,663 cubic yards of ground were thawed with 55,997 M.I. days of water at a duty of 11.03 cubic yards per M.I.D. 72,000 cubic yards of natural thaw were made available. The cost was \$18,645.85 or 3.018g per cubic yard.

DREDGING OPERATIONS

Dredge No. 1

This dredge, a 7-1/2 cu. ft. Marion, operated on Upper Dominion. She is old and her hull is in bad condition so that she can only dig about 60% of her capacity. The formation has very little gravel in it so the dredge

handles mostly muck and bedrock. The formation is hard to thaw and there are frequent small bits of frost left between the point-holes which slow up dredge progress.

Repair work was started on March 27th with 9 men. The stern gantry cap had to be renewed and the main drive machinery re-assembled. The support timbers under the lower end of the screen were renewed and the screen drive machinery overhauled. The ladder hinge shaft was broken and had to be replaced. Other repair jobs were re-rivetting the lower tumbler, repair of tail sluices and installation of a new truss tie-rod.

Just at the time we were ready to start digging, the weather turned cold and shut off the water and power, so dredging did not commence until 9:15 P.M. on May 6th. The seasonal frost ahead of the dredge was taken down by the operation of a hydraulic giant.

The dredge started in ground leased from Moore and Anderson. This lease was completed at 4:00 P.M. on June 1st.

Digging conditions were considered generally good. Some hard reefs and blocky bedrock were encountered which had to be handled carefully so as not to open too many leaks in the stern of the boat. After September 1st there was more frost encountered.

Cold weather finally closed the dredge down at 8:30 A.M. on November 9th. Part of the bucket line was taken off and the spud removed from its casing. The crew was laid off at noon on November 13th.

During the season the dredge handled 426,411 cubic yards at a cost of \$121,780.65 or 28.559¢ per cubic yard. Costs were high due to the poor condition of the dredge and the small yardage handled. The ground produced a gross of \$ 261,386.68 or 61.299¢ per cubic yard. The operating profit was \$139,606.03 or 32.704¢ per cubic yard.

Dredge No. 2.

This dredge, a 16 cu. ft. Marion, operated on the right limit of the Klondike River below Bear Creek. She also, is an old boat with a poor hull, being now about 27 years old, but with careful handling still digs a fair yardage.

Repair work was started on March 18th with a crew of 13 men. The main drive machinery was dismantled, the upper tumbler changed, a new gear put in the main drive and the machinery re-assembled. The main dump hopper was rebuilt, new screen plates and screen ribs were put in, a new gang-plank was built, new distributor wearing plates put in and the gold-saving tables screened in.

The bucket line was pulled on and the dredge started digging on May 1st. The dredge worked downstream following the frost line on the star-board side and forcing the river against the frozen ground. Digging conditions generally, were good but for a time during the summer, high and very hard bedrock was encountered which reduced the yardage and production considerably

during that period.

The bucket line was re-lipped during the operating season, commencing on August 6th and finishing August 11th. 119 hours were lost part of which was caused by the poor fit of some of the Sorel lips on AMSCO buckets. The main drive motor pinion was changed during this period.

On August 15th the main intermediate shaft on the swing winch broke causing a lost time of 61:55 hours as there were no drawings of this shaft and the old one had to be removed and sent to the shop as a sample.

During the latter part of the season when the dredge was digging in the river and the water was high she could only dig while swinging one way as with her lack of freeboard the bow would go under water if she tried to dig while swinging against the current. This naturally reduced her yardage.

As the season was getting late and the weather was cold, the dredge was turned back upstream inside her old tailings to avoid any possibility of a run of slush ice coming into her pond. For a time she encountered some deep ground in which she could not clean all the bedrock but this condition did not last long.

The dredge was down from 4:50 P.M. on November 9th until 10:45 A.M. on November 13th on account of shortage of power. During this time all worn bushings were changed and some repairs made.

The dredge closed down for the season at 9:00 A.M. on December 3rd. During the season she handled 1,811,924 cubic yards at a cost of \$164,538.34 or 9.081¢ per cubic yard. The ground yielded a gross value of \$214,899.41 or 11.860¢ per cubic yard at an operating profit of \$50,361.07 or 2.779¢ per cubic yard.

Dredge No. 3

This dredge, a 16 cu. ft. Marion, operated on Lower Bonanza Creek in ground which had previously been dredged by The Yukon Gold Company. The old dredge tailings had, to a large extent, been covered by hydraulic tailings and these kept the ground thawed. Testing with bars showed that where the dredge tailings had not been covered, the dredge sand had frozen back and could not be dug. This condition kept the dredge away from some of the ground we wanted to get at but the values were too low grade to consider any artificial thawing.

Repair work was started on April 1st with a crew of 16 men. The old spud was taken off and another, from Dredge No. 4, put back in its place. The point of the old spud was completely gone and about 6 feet of plate on one side missing. The screen drive machinery was repaired, loose rivets in the bucket ladder replaced, new wearing plates put in the distributor and at the heads of the tables, tail sluices repaired and some new upper tumbler wearing plates put on.

The bucket line was put on and the dredge started digging at 4:30 P.M. on May 6th. It took nearly two days to get the bucket line on as it had glaciated in during the winter and had to be blasted loose.

Digging conditions throughout the season were generally very good. There were a few spots of frozen tailings encountered which had to be dug through but these were kept to a minimum by prospecting ahead of the dredge with bars.

The high water during the season had to be handled very carefully because if it had broken directly into the pond it would have ground-sluiced tailings in faster than the dredge could dig them out and she would soon have been high and dry.

The company did not own all the ground handled by this dredge and leases were secured on these adverse claims. The agreements called for a flat 8% royalty to be paid the owners on the gross production of their ground.

The recoveries of the dredge varied quite a bit from time to time during the season, as was to be expected, but they were greater than we had anticipated and the surprising thing is that they were as consistent as they were.

On account of power shortage the dredge was shut down from 8:11 A.M. on November 12th to 11:00 P.M. on November 13th.

During the latter part of the season the depth of the hydraulic tailings increased fairly rapidly and, due to low water, the pond level would not hold above the top of the sand. This left a high bank of hydraulic tailings ahead of the boat into which the seasonal frost penetrated rapidly. On November 21st with the bank thirteen feet high and with two and one half feet of surface frost, a slab broke off, hit the water in a flat position and slid over against the dredge, hitting her a hard blow below the water line and causing several leaks. For this reason, as well as cold weather and low power, the dredge was closed down for the season at 7:35 A.M. on November 24th.

During the season, the dredge handled 2,721,044 cubic yards at a cost of \$ 127,653.70 or 4.691¢ per cubic yard. The ground produced \$287,947.56 averaging 10.582¢ per cubic yard, at a working profit of \$160,293.86 or 5.891¢ per cubic yard.

Dredge No. 4.

This dredge, a 16 cubic ft. Marion, operated on the left limit side of the Klondike River valley just below the mouth of Hunker Creek. Due to our inability to thaw the deeper Klondike River gravels with hand driven water points, it was necessary to alter our plans and send this dredge up through a narrow stretch of naturally-thawed ground. The streak was very narrow in places but by good handling on the part of the crew, the dredge was taken through safely and was in artificially thawed ground well before the end of the season.

A crew of 7 men started on house framing repairs on March 28th. Although this dredge was to get a late start it was much easier and cheaper to work off the ice. One of the main transverse timbers on the upper spud keeper was also replaced. This work was completed on April 25th.

During the week ending June 5th, one man was added to the crew days and one, nights, so that small repairs could be completed. Regular repairs were commenced with the dredge crew on July 1st. These were confined to the minimum considered necessary to get the dredge through the short season and consisted of putting in a screen thrust roller, patching of screen plates, repair to upper spud keeper, new bolts in upper tumbler and patching of gold-saving tables.

The dredge started digging at 8:15 A.M. on July 11th. Until she was clear of the natural thaw, her course was necessarily crooked and she had to dig surface frost in the corners of the cut in the narrow places so that her yardage was not good. During this time two main truss-rods broke and had to be replaced.

The bucket line was relipped in October, commencing on October 12th. The buckets were hauled to Bear Creek and relipped in the shops. 17 new buckets were put in the line at this time and 9 cracked buckets, reported to have been in service since 1920, were discarded.

Cold weather and shortage of power made it advisable to close this dredge down for the season at 1:00 P.M. on December 2nd. The last of the crew was laid off on December 8th.

During the season the dredge handled 1,089,377 cubic yards at a cost of \$159,570.52 or 14,648¢ per cubic yard. The ground produced \$112,304.23 averaging 10,309¢ per cubic yard at a working loss of \$47,266.29 or 4,339¢ per cubic yard.

Dredge No. 5.

This dredge, a 7-1/2 cubic ft. Marion, operated on the Granville Flats of Dominion Creek just above the mouth of Sulphur Creek.

At the end of the 1936 season she was completely dismantled and reconstruction was started. Reconstruction was completed during 1937 and the dredge started digging at 9:30 P.M. on August 3rd. Her construction pit was excavated alongside her old cut so when she was nearly completed it was only necessary to thaw and scrape out the dike between and pull her out into the old cut. This enabled her to start digging on bedrock.

Digging conditions were good until the latter part of the season when the dredge entered an area which had been stripped after thawing and only a partial job had been done. Considerable frozen peat was left on the surface and this prevented any thawing action by the sun.

Low power and cold weather closed this dredge down at 1:00 P.M. on November 12th and the crew was laid off at noon on November 14th.

During her short season the dredge handled 310,971 cubic yards at a cost of \$ 67,251.53 or 21.626¢ per cubic yard. The ground produced \$104,336.00 at an average value of 33.551¢ per cubic yard making a working profit of \$37,084.47 or 11.925¢ per cubic yard.

Dredge No. 6.

This dredge, a 7-1/2 cubic ft. Bucyrus, worked on the Granville Flats of Dominion Creek just above the mouth of Sulphur Creek. She dug out the right limit part of the dredging area and No. 5 the left limit part.

For most of the season, her digging conditions were not good. The formation consisted of fine gravel on the bottom, then several feet of muck and then 6 to 10 feet of coarse sand on top. When stripping the area, the coarse sand would not carry away, so we were unable to reach the muck. When thawing this ground we had to leave some frost in the sand which was increased by winter frost. When the dredge came to dig the ground, the gravel and muck would dig easily but the sand on top, being largely frozen, would cave off in large blocks which were hard for the dredge to break up. As long as it held in the face the dredge could dig it fairly easily but when it rolled down to the bottom of the pond it gave a lot of trouble. Excessive amounts of sand also bothered.

Spring repairs were started on April 1st with a crew of 10 men. They consisted of the ordinary dredge repairs to pumps and machinery and included a new set of screen plates with smaller perforations at the upper end to give a better distribution of material over the gold-saving tables.

The dredge started digging at 7:00 P.M. on May 4th. All during the season her gold recoveries represented little more than a third of the values indicated by shaft prospecting. The prospecting was done years ago but it was thought to be dependable as it had been done by a man who was considered reliable. An expert panner was kept aboard the boat for a long time checking values on bedrock and sampling tail sluices and stacker tailings to be sure the gold was not getting away from us. We simply could not find the values any where near those indicated by the shafts.

During the latter part of August, the dredge struck a patch of ground which had bottom frost and we finally had to turn away and leave it. More water will be given to this area so Dredge No. 5 can dig it when she comes to it.

A new high pressure water pump was installed and some piping changes made in September commencing on September 12th. Sixty-seven hours were lost in making these changes.

Relipping of the bucket line was started on October 20th and completed on October 26th. Relipping was done on the bow deck while the dredge was operating. Changing buckets caused a lost time of 14:05 hours.

Lack of fresh water in the pond, ice and low power shut this dredge down at 9:00 A.M. on November 9th. The bucket line was taken off and the crew laid off on November 11th.

During the season the dredge handled 579,701 cubic yards at a cost of \$ 104,327.35 or 17.996¢ per cubic yard. The ground produced \$ 89,816.28 or an average of 15.493¢ per cubic yard making a working loss of \$ 14,511.07 or 2.503¢ per cubic yard.

Dredge No. 7.

This dredge, a 5 cubic ft. Bucyrus, operated on Quartz Creek between Calder Creek and Toronto Creek. She operated in well stripped ground. The formation is shallow, more than half the material dug being bedrock. This latter is necessary, not only to get flotation but to get the values. During the first part of the season the dredge was in ground that had been stripped for many years and it was well thawed but during the latter part of the season she was in ground that was stripped in the last two years and she encountered bottom frost. It was apparent that not enough time had elapsed for the ground to thaw naturally. We finally had to alter the course of the dredge and turned her back upstream. She had to redig about 400 feet of her tailings to reach a piece of ground that testing showed to be well thawed and finished up the season there. Her next year's cut was barred and the results show we will have to thaw approximately half of the area with water points.

Spring repairs were commenced on April 1st with a crew of 9 men. A new upper tumbler was installed, a new lower tumbler was put in, the screen rollers were changed, new screen plates, with smaller perforations in the upper sections, to give a better distribution of material, were installed and the usual repairs to machinery were made.

The dredge started digging at 1:00 P.M. on April 27th. As the ground was shallow, about 150 feet of her cut had been steam thawed so no trouble was experienced with frost.

During the latter part of May, Quartz Creek was in flood and caused a great deal of trouble and lost time. All diversion dams were washed out and the flood waters came directly into the rear of the pond ground-slucing great quantities of sand and tailings into the pond. The dredge finally had to close down and all hands including the stripping crew, labored to rebuild the dams. The dredge lost three days from May 13th to May 16th from this cause.

The first bottom frost was encountered on August 29th on the port side of the cut as the dredge advanced downstream. The lips on the buckets were worn out and we had not received our new lips from Sorel Steel Foundries on account of their strike troubles. We took the bucket line off old Yukon Gold No. 3 which is intended for use on our No. 9, and put it on No. 7. The change was made on September 4th. We continued bucking into the frost until September 25th when conditions became too bad and the dredge was turned back upstream through her own tailings. She was through these and back into virgin ground on October 17th. A small spot of frozen ground had to be steam-thawed but otherwise the dredge had good digging for the balance of the season in natural thaw.

Lack of water, cold weather and low power closed the dredge down at 7:00 A.M. on the morning of November 14th. The last of the crew was laid off on November 17th.



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