

THAWING OPERATIONS

Thawing plants were operated at seven (7) locations for the benefit of Dredges Nos. 5,6,7,8,9,10 and 11. For the first time Plant No. 5 had the benefit of a proper settling basin and good water. These factors are reflected in the satisfactory results accomplished during the season. Plant No. 6 had reasonably good water but a sand formation near bedrock continued to make it difficult to secure a satisfactory bottom thaw. There were indications this condition will improve in 1941. At Plant No. 7 hard driving in bedrock continued to be encountered. This is a condition which will always exist at this plant. At Plant No. 8 driving was easy but thawing progress slow due to the sandy formation. At Plant No. 9 there was very little gravel near bedrock and the formation to be thawed was mostly a sandy muck. Points had to be placed on very close spacing and water duty was low. In thawing, the ground shrank about a third and there was much caving which caused loss of point equipment. The answer to our problems here is a more complete job of stripping which calls for more water. At Plant No. 10 the ground thawed readily and all work, which it was possible to do, was completed before the end of the season. At Plant No. 11 most of the work was in an area on which no stripping had been done and the sandy muck was slow in thawing. Many surface intermediate points had to be driven and even then there were many patches of surface frost left which the dredge will have to dig.

DREDGING OPERATIONS

Dredges Nos. 2, 3, 5, 6, 7, 8, 9, 10 and 11 operated throughout the season and Dredge No. 4 for about half a season.

Dredge No. 2 operated on the right limit of the Klondike Valley, a short distance below Bear Creek. Digging conditions were fair but values poor. It was thought that 1940 would be her last year of operation due to the condition of the hull and superstructure but it is now felt we are justified in taking a chance on another season. She will continue upstream on the right limit.

Dredge No. 3 completed mining of the lower end of Bonanza Creek and all the virgin ground which was left under the Yukon Gold Company's plant at Guggieville. The latter yielded much better values than had been anticipated. Digging conditions were excellent except for heavy surface frost in Bonanza Creek in the Spring and while the dredge was digging through the scrap iron pile at Guggieville. During the summer, plans for the future course of this boat were changed it being decided to send her back upstream onto the Boyle Concession instead of downstream along the left limit of the Klondike Valley. We think the new course offers better chances of profitable operation.

It means thawing some frozen ground and the drilling for and setting of the points required is being done this winter. //

Dredge No. 4 completed mining of her area at the mouth of Hunker Creek on July 6th. She was turned around and a shelf dug for her to rest upon. Just before this was finished, her screen failed completely so the dredge was closed down at once and dismantling started. This work was completed by October 5th. During her short period of operation she encountered good digging but was handicapped by shortage of water until a pipe line was laid from the Rock Creek ditch to supply make-up water.

Dredge No. 5 encountered good digging throughout the season. Her bucket line became completely worn out and she was given a new one on October 23rd.

Dredge No. 6 encountered very good digging throughout the season and this factor is reflected in the much greater yardage of material handled. There was also an improvement in percentage of recovery. Her average for the season was 67.7% but for the period September 1st to December 31st the average was 106.9%.

Dredge No. 7 had good digging throughout the season. Her bucket line is getting in very bad condition and she will be given a new one early in 1941. The timbers in her bow gantry are all old. By the end of the season the bow gantry cap had failed to a point where it was in a dangerous condition. She will be given a new gantry before the start of 1941 operations and a rebuilt digging ladder at the same time.

At Dredge No. 8 average digging conditions were good. She encountered some high bedrock which retarded her progress and some muck frost in "old works". She was also bothered by excessive sand at times. We will probably have to instal sand elevators in her next Spring as sand conditions will be bad during 1941 and 1942. Recoveries picked up but are still considerably below the theoretical value.

Dredge No. 9 had hard digging throughout the year. There was very little gravel in the formation and she had to dig a great deal of frozen muck. Even where the thawing was fairly well done, there were small chunks of frost which made it difficult for the dredge to swing and these had to be dug by chopping down on them. Conditions were better when digging was in the 1940 thaw area. // The dredge bucket line became completely worn out and she was given a new one on July 15th. This is a rivetless lip type of bucket having a capacity of 5-3/4 cubic feet. A new upper tumbler was installed at the same time. During the latter part of the season the condition of the pond water was not good

as all the water returning from the thawing field had to flow through the dredge pond and as there was a good deal of ground sluicing action in the thawing field this brought down a lot of mud, a great percentage of which settled out in the pond. Conditions are expected to be better in 1941. As already mentioned in the remarks on thawing for No. 9, these problems will be greatly simplified when enough water has been provided to do a more complete job of stripping.

Dredge No. 10 had good digging on the average. The artificial thawing was well done but there were spots of frost in the old dredge tailings which were not located by barring and the dredge had to dig through them. The bedrock level was uneven and there were high spots which had to be dug through in order to get all the profitable ground. Shortly before closing down for the season, the dredge had serious trouble with mud in the pond and her course had to be changed from the left to the right limit of the valley to get away from that condition. We may have to instal sand elevators next season.

Dredge No. 11 had good digging throughout the year and made a very good yardage. Her cut was partly in old dredge tailings and she encountered some frost in these during the latter part of the season. When this condition became too bad, that part of the tailings was dropped off. They can be thawed and dredged at a later time.

POWER PLANT OPERATIONS

The power plant and power ditches again operated throughout the year without serious interruption, supplying power to the Company operations and to the City of Dawson. The power generated was distributed as follows:-

Company operations	27,690,800 K.W.Hrs.	74.8%
Dawson Utilities	4,091,994 " "	11.1%
Power Plant Services	1,167,200 " "	3.2%
Line Losses	<u>4,041,706 " "</u>	<u>10.9%</u>
Total	<u>36,991,700 K.W.Hrs.</u>	<u>100.0%</u>

The entire cost of operation, amounting to \$111,655.33, was charged off against the mining operations. The amount of \$25,860.01, received from the sale of power to the Dawson Utilities, was treated as an earning.

The work of improving the lower banks of the power ditches was continued. A portion of the lower end of the South Fork ditch was cleaned out, the bottom re-graded and the section widened. This work was done with a Marion Electric dragline operating from the road on the lower bank of the ditch. It was quite successful after the operators became familiar with the work.

Improvement work started on the lower bank of the North Fork ditch on June 14th, using the dump trucks for hauling and the 3/8 yard gas shovel for loading. The outfit was shifted to the South Fork ditch on June 27th and continued working there until July 31st when it was shifted to the Guggieville area for road work.

The work of cleaning out and widening of the South Fork ditch with the electric dragline was started on August 2nd. The machine operated on the roadway on the lower bank and used mats for most of the time as the ditch bank was too soft to carry the heavy equipment without them. Operations were stopped on September 29th, after which date the machine was moved back to a wide section of the ditch bank and laid up for the winter.

There was a difficult time with both ditches during the freeze-up period as the cold came suddenly before there was any protecting snow cover. This allowed slush ice to form suddenly and in great quantities, making slush ice jams in the river and holding back the water to such an extent that for a time it was necessary to use most of the water for by-passing the ice over the dam. There was a period when all load had to be cut off the plant. At this time there was barely enough water available to keep one turbine turning over. The regular crew, assisted by the necessary extra men, did excellent work in bringing service back to normal.

A break occurred in the South Fork ditch on the morning of November 9th at a point about 1.3 miles below the Intake but it was discovered before a channel had been cut below the bottom of the ditch. A sand-bag dam was constructed across the break so that the water level could be brought up in the ditch and repairs started at once. These were completed on November 20th.

SULPHUR - AUSTRALIA DITCH

The ditch was patrolled early in April to judge the extent of glaciers which had formed during the winter. A small crew was started at the middle of the month to cut trenches through these and by April 27th the ditch was ready for water as far as No. 5 pressure box. By May 1st the balance of the ditch was ready and hill-side run-off water was used at No. 8 stripping on that day. One pump at the main pump station was started on May 3rd and the second

one on May 7th. The ditch gave good service throughout the season. After the ground thawed out, the rocky sections developed heavy seepage losses. These were partially sealed up by hydraulicking silt into the ditch, using a small gasoline-driven pump taking water from the ditch. The foundations under the flume at Mile 8.4 gave a good deal of trouble. Temporary repairs were made to get through the season and the foundations were entirely rebuilt after the ditch was shut down. The ditch was closed down for the season on October 11th. After this date the discharge box for the Wounded Moose Creek diversion pipe line was built. Repairs were made to the intake box of the pipe line crossing Dominion Creek. Piling were driven for foundations under this pipe line on the intake side and the intake box for the No. 6 pipe line was taken out and moved to a new location further up the valley.

During the season the ditch delivered 170,040 M.I.D. of water at a cost of \$34,473.37 or 20¢ per M.I.D. This compares with 175,176 M.I.D. delivered during 1939 at a cost of \$22,291.82 or 12.7¢ per M.I.D. The increase in cost is accounted for by an increased amount of repair work required, a change in the method of writing off power charges, which accounted for nearly \$5,000.00, and the cost of building a road from the Granville Camp to the pump station.

QUARTZ CREEK DITCH

Very little work was required to bring this ditch into operation. The first water was delivered on May 1st and the ditch operated continuously throughout the season except when repairs were required at the pump station. The water of Indian River was too heavily laden with silt to be used so only the water from the Quartz Creek watershed was available.

During the season 31,679 M.I.D. of water were delivered at a cost of \$5,064.06 or 16¢ per M.I.D. This compares with 27,763 M.I.D. delivered during 1939 at a cost of \$4,450.85 or 17¢ per M.I.D. The greater delivery of water during a dry season was made possible by the ability to recirculate the available water.

MACHINE SHOP

The shop was crowded with work throughout the year but operated with good efficiency. A heavy-duty wheel press was purchased and set up and is now filling a long-felt need.

ELECTRICAL SHOP

The shop handled all electrical repairs in an efficient manner and constructed and maintained all primary and secondary power lines and telephone lines.

TRANSPORTATION DEPARTMENT

The Company's automotive equipment was maintained in good repair. The freight trucks were used primarily for transporting men and the bulk of our freight continued to be hauled under the contract rate of 25¢ per ton-mile. Caterpillars were used largely as bulldozers and there was more than the usual amount of this work done during 1940.

PROSPECT DRILLING

A drilling campaign was resumed this year. The first work was done on Indian River at the mouth of Quartz Creek. The crew started on April 7th. A bridge was built across Indian River and a tent camp set up. Actual drilling commenced on the 15th. The results of this examination were very disappointing. There was only a small addition made to our dredging reserves. Drilling was also done on Calder Creek and on Upper Quartz Creek but we were not able to extend the dredging reserves in those directions. One drill was moved to Montana Creek on May 12th and the second a few days later.

The drilling done on Montana Creek proved that that valley did not contain any pay gravels. The work was concluded on June 1st and the equipment shifted to Eureka Creek.

Values on Eureka Creek proved to be rather spotty but at the price of \$35. per ounce of gold 8,339,000 cubic yards containing \$1,817,000. or 21.8¢ per cubic yard were added to the dredging reserves. This area is only considered suitable as a field for the future operation of Dredge No. 7. There is a considerable depth of muck to be removed and a limited supply of water available so that stripping will have to be started well in advance of any mining operations. The drilling definitely determined the end of pay on Indian River, both above and below the mouth of Eureka Creek and on the upper end of Eureka Creek itself. The work was completed on August 17th and the equipment shifted to the mouth of Gold Run Creek. The results of the drilling on the lower end of Gold Run Creek and on Dominion Creek adjacent to Gold Run were very disappointing. The ground appears to be more thoroughly mined than was anticipated with results very spotty. The work was closed down on October 15th and the drills sent to Bear Creek for a thorough overhaul before starting on the winter thaw drilling campaign ahead of Dredge No. 3. No addition has yet been made to the dredging reserves as the result of this drilling.

MAIN ROADS EXPENSE

During the season it was necessary to do work on the main roads at several locations. When the equipment was sent to the North Fork to work on the ditches, considerable improvement work was done on the road to that place by dumping gravel onto the worst



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