MR-058-07

MR FAIRBANKS 58-7

TERRITORY OF ALASKA

DEPARTMENT OF MINES

COLLEGE, ALASKA

15 November 1950

MEMORANDUM REPORT

TO: Leo H. Saarela, Commissioner of Mines, Juneau, Alaska

FROM: James A. Williams, Associate Mining Engineer, College, Alaska

SUBJECT: Investigation of navigational difficulties arising from the discharge of muck into the Chena Slough by the U. S. Smelting, Refining and Mining Company.

KK 58-99

Upon receipt of a circular letter from the Corps of Engineers, Anchorage, forwarded with instructions from the Commissioner of Mines to investigate the matter referred to therein, an inquiry into the facts was made by the undersigned.

The circular letter was apparently sent to the various water navigation concerns and states in effect that the U. S. Smelting, Refining, and Mining Company wishes an extension of three years on its permit to discharge muck from the Cripple Drain into the Chena Slough from its Cripple and Ester mining operations. It requests information as to whether there are any objections from a navigational standpoint.

The Cripple Drain enters the slough at a point six miles downstream from Fairbanks and approximately three miles upstream from where the slough enters the Tanana River.

Interviews were held with the five commercial boat operators that use the Chena Slough, and signed statements were obtained from four of them. One operator declined to give a statement, but gave instead a copy of the letter which his lawyer wrote to the Corps of Engineers in answer to their circular letter. These statements and the letter are included with this report.

An interview was also held with Mr. J. D. Crawford, Manager of the Fairbanks Branch of the U. S. Smelting, Refining and Mining Company. From the interviews and statements, the facts reported in this memorandum were learned. A visit to the site of the discharge would have been of no value, since the slough is frozen over and the ice is covered with more than a foot of snow. Neither the contours of the bar nor the width of the channel could have been accurately ascertained.

Originally, the Chena Slough flowed out of the Tanana River about eighteen miles southeast of Fairbanks and picked up more water from the Chena River before it rejoined the Tanana. About 1940, a dike was built across the entrance to the slough to exclude the water from the Tanana as a flood control measure. Since then, the only water in the Chena Slough is from the Chena River and other small tributeries. This has cut down the flow of water through Fairbanks and past the mouth of the Cripple Drain to as little as one-third of what the normal flow once was during dry months. The discharge permit was issued before the construction of the dike. The Corps of Engineers recognize that the flow is only a fraction of what it once was and probably recognize that fact as the contributing factor to the impeding of river navigation.

The problem is simply one of an insufficient flow of water to properly carry the muck and debris away from the mouth of the Cripple Drain. As a result, a muck bar forms in the slough, starting at the mouth of the drain and building out into the slough toward the opposite bank.

However, the season of 1950 was the first season in which the problem was actually serious enough to hinder the boat traffic. Before this year there was no trouble, with the probable exception of Nick Demientieff (see his statement). This year was an extremely dry year and the rivers in general were the lowest in the history of the Interior. In the normal course of events, another year as dry as this one should not occur for a long period of time. The stripping at Cripple and Ester will probably be finished in three more years, so the probability of another season of navigational difficulties due to the Cripple Drain is very small.

When the boat operators could not navigate past the bar toward Fairbanks this season, they stopped at the Chena Landing, which is below the Cripple Drain. On these occasions, the U. S. Smelting, Refining and Mining Company helped them by transporting their freight and passengers between the Landing and Fairbanks and compensating them otherwise. This is born out in two of the operators' statements. The Company apparently has agreements with the operators to continue the same help if similar difficulties should again arise. The Company also will tow the boats across the bar on the last up-river trip in the Fall, if the operators wish. Further, the Company has an agreement with Captain Black of the Black Navigation Company in which he is paid to travel across the bar with his stern-wheel boat and thereby cut the channel with the paddle-wheel. Considerable time and effort were spent by the Company in dredging the channel with a dragline last summer.

With regard to the actual navigation past the bar, it is interesting to note the difference between the operators. Captain Black and A. L. Peterson had no particular difficulties with the bar, yet the other three operators, Don Peterson, Demientieff, and Binkley, all had trouble. Differences in boats did not have any significance, because Don Peterson has a stern-wheel boat similar to Black's. Black's boat, incidentally, draws more water than the others. It is the Kusko and draws four feet. Captain Black brought the Kusko over the bar in the Fall of 1949 when Damientieff broke a rudder on his boat of three-foot draught. So it is apparent that Black and Art Peterson can navigate past the bar when others cannot because of their superior skill. However, this fact should not act as a penalty against the less skillful boat men. They are all entitled to an equal opportunity to make a living.

According to Mr. Crawford, the Cripple and Ester stripping projects will be finished in three more seasons. After that, there will only be thawing and dredging operations carried on which will discharge no significant volume of muck into the Chena. There are approximately fourteen years of gold dredging left in the area, practically all of which would be lost if the stripping were to be stopped at this time.

The possibility of extending the present drain to where it would discharge into the Tanana River rather than the Chena Slough has been studied. If this drain extension were to be constructed, it would be over 2.5 miles long and would have to pass through flat, swampy terrain. A pumping installation would be necessary, according to Mr. Crawford, because of insufficient grade for a drain over that route. Mr. Crawford states that the expense of the construction, installation of pumps, and operation of this extended drain would be prohibitive in view of the decreasing gold-mining profits and the short time for which it would be needed. From personal knowledge of mining conditions and expenses, the writer agrees with the above statement.

To summarize: There are three boat operators who had navigational difficulties last season and two who did not. Two of the three operators feel that the present plans for keeping the channel open are not sufficient, but will not object to the extension of the permit because of the help being received from the Company. The third man who had trouble recognizes the fact that this was an abnormally dry year and probably will not happen again during the life of the Cripple Drain. The last two operators feel that the muck discharge helps as much, or more, as it hinders and also realize the fact that it was a bad year for navigation everywhere in the Interior. It is recognized that the Tanana River Dike has cut off the necessary

flow of water to keep the stream easily navigable in times of low water, but that the dike is necessary for flood control. The project of a drain extension to the Tanana would be too costly for the Company. Only three years of stripping remain which will finish uncovering gravel for about fourteen years of dredging.

In view of these circumstances, the writer can only come to the conclusion that the U. S. Smelting, Refining and Mining Company should be granted the extension on their permit to discharge muck into the Chena Slough, and it is so recommended.

The loss of fourteen years dredging would cripple the Company's Fairbanks operations and would be a serious loss to the Territory. Should the same navigational difficulties arise again, which is unlikely, the boat operators' loss will not be great under the Company's assistance program.

After the stripping is finished, the spring floods will scour out the channel to its normal depth. However, the Chena Slough has been gradually silting up throughout its entire length since construction of the dike. A larger flow of water is needed if the stream is to remain navigable, even after the finish of the stripping. A recommendation has been made that Moose Creek (which enters the Tanana just above the dike) be turned into the Chena, but this would increase the flood danger. The recommendation is made by all boat operators that floodgates be installed in the dike that can be opened to increase the flow of water in the Chena Slough during dry months. This recommendation is indorsed by the writer. Floodgates would clear up any trouble arising from the Cripple Drain discharge, would insure future navigation in the Chena Slough, and would help relieve the growing sanitation problem in Fairbanks.

James A. Williams

JAMES A. WILLIAMS
Associate Mining Engineer

STATEMENT BY CAPTAIN GEORGE BLACK

Part owner of Black Navigation Company,
Fairbanks, Alaska.

I have no objections to the extending of the permit allowing the U. S. Smelting, Refining, and Mining Company to discharge muck into the Chena Slough, and I would be definitely against its cancellation.

The Cripple Drain has caused no hindrance to navigation before 1950 to my knowledge. This season, the other boat operators had difficulty at times in passing the bar at the mouth of the drain, but I had none. I was able to move my boats up or down the Chena at any time I wished.

Actually, the discharge of muck is helping navigation in the following way: The muck bar forces the flow of water to the far bank from the drain and confines the channel to that point, thereby maintaining a narrower channel that is deeper than the river would be without the bar. Because of this fact, a better channel is also maintained up and down stream a considerable distance from the discharge point. The channel at all points is still wide enough for any barges on the river. There were occasions this past season when I could not have come as far upstream as I did, were it not for the Cripple Drain discharge.

This was an abnormally dry year, and the rivers in general were the lowest in the history of this part of the Territory. Any difficulties experienced by the other operators this year would not have happened in a year of normal rainfall, and a year like 1950 is not likely to be repeated for a long period of time. Also, when the water is low, the muck is cut down deeper through the bar and the channel confined better, so that low water is no great disadvantage at that particular point.

As an added point of information, I had more trouble this year in navigating the Tanana River than the Chena Slough.

The Chena Slough needs more water for sanitation as well as navigation purposes. My suggestion to accomplish this is to install floodgates at the Tanana River Dike which can be opened at times of low water to admit more water from the Tanana into the Chena.

George Black

George Black, Captain
13 November 1950

STATEMENT BY ARTHUR L. PETERSON

Part owner of Black Navigation Co.,
Fairbanks, Alaska.

I am in favor of the extension of the permit allowing the U. S. Smelting, Refining, and Mining Company to discharge muck into the Chena Slough from the Cripple and Ester stripping projects.

There have been no navigation difficulties because of this muck discharge that I know of before the season of 1950. This season's troubles in the Chena Slough cannot be blamed on the U.S.S.R.&M. Company because it was a very dry season and navigation was difficult in nearly all the streams in the Interior, and in fact impossible in some rivers ordinarily navigable.

The bar caused by the Cripple Drain actually helped navigation in the Chena Slough as it partially dammed the stream, causing a deeper channel above it toward Fairbanks. This enabled us to move our boats several miles farther upstream than we would otherwise have been able to go.

The only time that we could not get past the bar this year was the last trip in just before the freeze-up, when we were caught by extremely low water.

In the fall of 1949, I brought the Pelican, which draws ~~four~~ three feet of water, past the bar with no difficulty.

Arthur L. Peterson

Arthur L. Peterson
13 November 1950

STATEMENT BY NICK DEMIENTIEFF

River Freight Boat Operator,
Fairbanks, Alaska.

With regard to the emptying of muck into the Chena Slough by the U. S. Smelting, Refining, and Mining Company, the main difficulty encountered before this past season was that of breaking the rudder of my boat in crossing the bar in the fall of 1949.

This year (1950) I was often unable to pass the bar and was forced to leave my boat at the Chena Landing, below the mouth of the Cripple Drain. On these occasions, the U. S. Smelting, Refining and Mining Company transported my freight between Fairbanks and the Chena Landing and helped pay the extra expense caused by having to leave a watchman at the boat.

I am satisfied that the Company has helped me all they can, but that still does not make up for all of the lost time and business. However, I will not object to the extension of their permit to dump into the Chena Slough.

I believe that the present plans for keeping the channel open are not sufficient. The operation of having the sternwheel boat going over and digging a channel to a depth of three feet is sufficient for the muck and silt, but the driftwood piles up like a beaver dam on occasions and will not move as the muck does. This driftwood is a serious menace to the safety of small boats as well as large ones. A good four-foot channel is definitely needed. When a boat is dragged across a bar, at least some damage to the boat always results.

In my opinion, the only solution to the problem is to install a flood gate in the Tanana River Dike in order to let water into the Chena from the Tanana during times of low water. This is needed not only for removal of the muck from the Cripple Drain, but also for the cinders, debris, and sewage that is dumped into the Chena Slough at Fairbanks.

Nick Demientieff
14 November 1950

STATEMENT BY CHARLES M. BINKLEY

Part owner of Alaska Riverways--a
passenger service, College, Alaska.

The U. S. Smelting, Refining, and Mining Company has agreed to pay for the transportation of my passengers between Fairbanks and the Chena Landing at any time that I cannot navigate past the muck bar caused by the Cripple Drain. As long as the Company adheres to this agreement and fulfills the terms of the discharge permit, I have no objection to the extension of their permit to discharge muck into the Chena Slough.

In normal years, I should have no difficulty because of the muck discharge. Should another unusually dry year occur, such as this one was, I can move my base of operation to the Chena Landing, if I have the cooperation of the U. S. Smelting, Refining, and Mining Company as mentioned above.

I recommend the installation of a flood gate in the Tanana River Dike for the purpose of putting more water into the Chena Slough when needed. This will help relieve the sanitation problem in Fairbanks as well as the navigation problem.

Charles M. Binkley

Charles M. Binkley
13 November 1950

Post Office Box 1175

Phone East 604

Law Offices
George B. McNabb, Jr.
Suite 203 — Club Building
Fairbanks, Alaska

November 13, 1950

District Engineer
Alaska District
Corps of Engineers
Anchorage, Alaska

Re: File #800.6 (Chena Slough, Alaska) 7/82

Att: Mr. M. R. Gilpin, Jr.

Dear Mr. Gilpin:

This will advise that the Peterson Navigation Co. has no objection to the U.S. Smelting, Refining, and Mining Company's application for a three-year extension of the time limit on Department of the Army permit to discharge muck and water into Chena Slough. We believe, however, that in periods of low water it will be exceedingly difficult to maintain the channel.

It is recommended, therefore, that water from Moose Creek or some other source be diverted to the Chena. We believe that the additional volume of water will materially assist in the maintenance and be of inestimable value and benefit to the people of the community and to river traffic.

Sincerely yours,

George B. McNabb, Jr.

Attorney for Peterson Navigation Co.

GBMc:jh

cc - James A Williams
U.S.S.R. & M. Co.