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TERRITORY OF ALASKA

DEPARTMENT OF MINES

JUNEAU, ALASKA

May 27, 1952

MEMORANDUM

TO: Phil R. Holdsworth, Commissioner of Mines

FROM: James A. Williams, Associate Mining Engineer

SUBJECT: Possible Future Mining Operations as Potential Consumers of Power from the Proposed Susitna Basin Power Project.

Since the mining of construction materials will help create new local power-consuming industries in addition to the mining operations themselves, it seems logical to consider the deposits of industrial minerals first.

A deposit of gypsum that may come into production is at Sheep Mountain, 112 miles from Anchorage on the Glenn Highway. There are approximately 311,000 indicated tons of gypsiferous rock containing 25% to 50% gypsum and 348,000 additional tons inferred in this deposit. Also in the near vicinity is a deposit of clay that would be quite suitable for brick making or ceramic work. More clay of a lower grade is at Chickaloon which would probably be satisfactory for brick making.

At mile 67 on the Glenn Highway is a formation of shale that could be used for the production of lightweight aggregate for concrete. Preliminary tests of the material have proved very satisfactory. Another deposit of the same shale exists at mile 16 of the Matanuska Branch of the Alaska Railroad.

A deposit of marl exists near Wasilla which may be mined soon, and it is reported that perlite also exists there.

There are large deposits of pumice and pumicite in the Katmai National Monument that may be within reach of power lines from the Susitna Basin. This pumice has been used for lightweight concrete aggregate for a few years now, and as a result of recent legislation by Congress, the production will probably increase. The mineral is also suitable for the making of pozzolan for pozzolan-portland cement.

Other cement materials and clay can be mined in the near vicinity of Anchorage. Limestone and argillite are mined at the Potter quarry, the latter mineral being also suitable for the manufacture of rock wool. Numerous shales and argillites exist that can be used for the making of Haydite, a particular type of lightweight aggregate. Sand and gravel can be obtained almost everywhere in this part of the country. Clay which is suitable for brick making can be obtained from two pits near Anchorage.

Toward the upper end of the railroad belt, the Cantwell-Windy area is the most promising for the future mining of construction materials. There are deposits at Windy Creek and Foggy Pass of limestone which is suitable for cement making, the limestone at Foggy Pass being particularly good. The criterion for cement making is the magnesia content--the limestone may contain no more than 3.3%. Shale which will supply the agrillaceous component for cement is also plentiful in this area.

Near Healy is a good grade of clay which will probably be quarried in the future, and also a deposit of perlite which would

be valuable for the making of a lightweight aggregate.

On the West Fork of the Chulitna River are more deposits of suitable limestone and shale.

Coal mining production in both the Matanuska and Healy River fields will increase with the steadily increasing demand in Anchorage, and Fairbanks and nearby military installations. The coal mines will be in the market for cheaper power, of course, but on the other hand if a large amount of cheap power should become available to the above cities and installations, the demand for coal would decrease, and as a result coal mining would decrease rather than expand. So it seems reasonable to assume that potential coal mine power consumption should not be estimated on the basis of expected coal production increase.

In the Fairbanks area, the U. S. Smelting, Refining, and Mining Company's large-scale gold placer operations are entirely electric, the energy being furnished by their steam generating plant. They have a total of eight electric dredges (five in operation at present), one large electric dragline, and a large number of electrically-driven pumps, the total operating load of which is huge. If power were to be made available to this company at a cheaper rate than they can generate it in their plant, they would undoubtedly be happy to purchase it.

There are many small placer operations in the Fairbanks area as well as in the Nenana, Talkeetna, and other districts that could be reached by power lines. They would probably all use power to illuminate their camps, but whether they would immediately go to the expense of turning over their Deisel pumping units for electrically-driven units is questionable. New placer operations

starting up would probably purchase the electrical equipment, however.

Should lode gold mining again become profitable in Alaska, the Willow Creek district will most assuredly be back in production, and no doubt a good share of the mines would install electrical equipment rather than Deisel if cheap power were available. The Willow Creek gold deposits are mesothermal veins on the border of a quartz diorite intrusion, and so far have been mined at relatively shallow depths--mostly stoping from above the main adits. It is believed that ore of the above character will be found at greater depths, which would indicate that the ore reserves are good. This district was producing at the rate of about $1,800,000 per year in 1941. Other lode gold properties that may start producing again when the economic picture changes are located in the Nenana, Talkeetna, and Fairbanks districts.

An interesting silver prospect is located on Portage Creek, nine miles east of the Chulitna Station of the Alaska Railroad. It is in a brecciated slate formation, and arsenopyrite, chalcopyrite, galena, and pyrite are associated with the pyrargyrite.

The Anchorage and lower railbelt areas do not have many possibilities for future base metal mining, but most of the remainder of the area within a reasonable distance of the Susitna Basin shows good promise. The lower railbelt possibilities include small copper deposits on Iron Creek, tributary to the Talkeetna River, another on Moose Creek, tributary to the Matanuska River, and others on tributaries to the Susitna River. There is an antimony showing on Antimony Creek, tributary to the East Fork of the Chulitna River. In the Lake Illiamna country there are some very promising copper deposits.

Base metal prospects are very favorable in the district around Mt. McKinley. An antimony mine is operating on Stampede Creek at present and another good antimony deposit is located on nearby Slate Creek.

A large lead-zinc deposit is located near Mt. Eielson, 30 miles east of Mt. McKinley, where an intrusion has sent a multitude of dikes and sills into associated sediments and deposited sphalerite, galena, chalcopyrite and pyrite.

Many antimony deposits of promise and few good scheelite deposits exist in the Fairbanks area. The best known scheelite deposit in the area is on Gilmore Dome and is scheduled to go into production shortly with the help of DMA financing.

Last, but certainly not the least, to be considered is the possibility of the production of oil. A large anticline extending from the Alaska Peninsula through Cook Inlet and into the Nelchina District is regarded by petroleum geologists as having definite oil-bearing possibilities. The present oil well drilling program at Katalla will probably attract more oil venture capital to the Territory, and the Cook Inlet structure would be the next logical location for oil exploration. Should oil be discovered there, there would be an immediate need for power for more drilling, for pumping and relaying plants, and refineries. Further, a pipeline is contemplated from the Point Barrow oil field to Fairbanks, which, if realized, would call for power for the relaying or booster stations, refineries, etc. The changes which would accompany the discovery and actual production of oil in the Territory are many.

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