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COAL INVESTIGATIONS AT CHICAGO CREEK, SEWARD PENINSULA, ALASKA

By

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# COAL INVESTIGATIONS AT CHICAGO CREEK

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Rural Alaska is almost entirely dependent on imported fuel oil for heat and power. The average cost of heating village dwellings is three times that of urban dwellings. Not only is fuel very expensive, but transportation problems in the arctic can cause late deliveries that may lead to emergency situations.

As the price of petroleum products reached new highs during the past decade, various state agencies sponsored studies on the energy requirements, transportation systems, and feasibility of converting from fuel oil to coal in northwestern Alaska.

One site being evaluated for its coal potential under the Alaska Division of Geological and Geophysical Surveys (DGGS) Northwest Coal Program is the Chicago Creek mine located on the northeastern Seward Peninsula. Old reports indicate that coal was produced from an 80-foot-thick bed by underground mining methods, and that from 1908 to 1911, gold miners removed 100,000 tons of frozen coal through a 330-foot-long inclined shaft. The coal was hauled overland to Candle where it was used to generate steam to thaw the placer-gold deposits.

Since 1981, the investigations at Chicago Creek have produced significant information.

1. The coal-bearing unit at Chicago Creek is confined to a narrow, north-trending trough. Although cross faults appear to offset the unit, the coal has been drilled 8,000 Feet along strike to the north, and geophysical information indicates the coal-bearing unit extends another 8,000 feet.
2. The coal bed near the old mine tunnel is unusually thick; the true thickness is 78 feet with few partings, and an average overall thickness of 35 feet.
3. The coal is essentially a single bed, but it thins rapidly, splits, and contains clay stringers, as indicated in a longitudinal section produced from drill-hole data. The unusually thick section of coal at the south end of the trough is actually caused by a minor offset, and the coal bed extends further south.
4. The bed dips 50 to 70° W., but seems to flatten with depth. The Hawley Resource Group (under contract to DGGS) believes that the structural history of the coal section consists of deposition, compression and folding, reverse faulting, and finally erosion and deposition of Quaternary-age overburden.

5. Determined strippable reserves are 3.4 million short tons of coal over a strike distance of 6,000 feet. Recent drilling will increase the reserve estimate.
6. Analyses of lignite cores from Chicago Creek, on an as-received basis, average about 7000 Btu/pound, 35 percent moisture, 26 percent volatile material, 7 percent ash, and 1 percent sulfur.
7. The age of the coal bed---determined by palynological techniques---is Tertiary to Quaternary (1.8 to 65 million years old).
8. The Hawley Resource Group is studying mining conditions, transportation, and power-generation costs to determine the feasibility of mining the Chicago Creek coal. A final report on the project will be available by the end of December 1985.