



Synopsis of Regulations for disposal of Minerals on Dominion Lands in Manitoba, the Northwest Territories and the Yukon Territory.

Coal.—Coal lands may be purchased at \$10 per acre for soft coal and \$20 for anthracite. Not more than 320 acres can be acquired by one individual or company. Royalty at the rate of ten cents per ton of 2000 pounds shall be collected on the gross output.

Quartz.—Persons of eighteen years and over and joint stock companies holding free miner's certificates may obtain entry for a mining location. A free miner's certificate is granted for one or more years, not exceeding five, upon payment in advance of \$7.50 per annum for an individual, and from \$50 to \$100 per annum for a company, according to capital.

A free miner, having discovered mineral in a place, may locate a claim 1500 x 1500 feet by marking out the same by two legal posts, bearing location notices, one at each end on the line of the lode or vein.

The claim shall be recorded within fifteen days if located within ten miles of a mining recorder's office, one additional day allowed for every additional ten miles or fraction. The fee for recording a claim is \$5.

At least \$100 must be expended on the claim each year or paid to the mining recorder in lieu thereof. When \$500 has been expended or paid, the locator may, upon having a survey made, and upon complying with other requirements, purchase the land at \$1 an acre.

Permission may be granted by the Minister of the Interior to locate claims containing iron and mica, also copper in the Yukon Territory, of an area not exceeding 160 acres.

The patent for a mining location shall provide for the payment of Royalty of 2-1/2 per cent of the sales of the products of the location Placer Mining.—Manitoba and the N. W. T., excepting the Yukon Territory.—Placer mining claims generally are 100 feet square; entry fee, \$5, renewable yearly. On the North Saskatchewan River claims are either bar or bench, the former being 100 feet long and extending between high and low water mark. The latter includes bar diggings, but extends back to the base of the hill or bank, but not exceeding 1000 feet. Where steam power is used, claims 200 feet wide may be obtained.

Dredging in the rivers of Manitoba and the N. W. T., excepting the Yukon Territory.—A free miner may obtain only two of five leases of five miles each for a term of twenty years, renewable in the discretion of the Minister of the Interior.

The lessee shall have a dredge in operation within one season from the date of the lease for each five miles, but where a person or company has obtained more than one lease one dredge for each fifteen miles or fraction is sufficient. Rental, \$10 per annum for each mile of river leased. Royalty at the rate of two and a half per cent collected on the output after it exceeds \$10,000.

Dredging in the Yukon Territory.—Six leases of five miles each may be granted to a free miner for a term of twenty years, also renewable.

The lessee's right is confined to the submerged bed or base in the river below low water mark, that boundary to be fixed by its position on the 1st day of August in the year of the date of the lease.

The lessee shall have one dredge in operation within two years from the date of the lease, and one dredge for each five miles within six years from date. Rental, \$100 per mile for first year and \$10 per mile for each subsequent year. Royalty same as placer mining.

Placer Mining in the Yukon.—Creek, gulch, river and hill claims should not exceed 250 feet in length, measured on the base line or general direction of the creek or gulch, the width being from 1000 to 3000 feet. All other placer claims shall be 250 square feet.

Claims are marked by two legal posts, one at each end, bearing notices. Entry must be obtained within ten days, if the claim is within ten miles of mining Recorder's office. One extra day allowed for each additional ten miles or fraction.

The person or company staking a claim must hold a free miner's certificate. The discoverer of a new mine is entitled to a claim of 1,000 feet in length, and the party consist of two, 1,600 feet altogether, on the output of which no royalty shall be charged, the rest of the party ordinary claims only.

Entry fee \$10. Royalty at the rate of two and one half per cent on the value of the gold shipped from the Yukon Territory to be paid to the Comptroller.

No free miner shall receive a grant of more than one mining claim on each separate river, creek or gulch, but the same miner may hold any number of claims by purchase, and free miners may work their claims in partnership by filing notice and paying fee of \$2. A claim may be abandoned, and another obtained on the same creek, gulch or river, by giving notice and paying a fee.

Work must be done on a claim each year to the value of at least \$200.

A certificate that work has been done must be obtained each year. If not the claim shall be deemed to be abandoned, and open to occupation and entry as a new mine.

The boundaries of a claim may be defined absolutely by having a survey made and publishing notices in the Yukon Office. Gazette.

Petroleum.—All unappropriated Lands in Manitoba, the Northwest Territories and within the Yukon Territory, are open to prospecting for petroleum, and the Minister may reserve for an individual or company having machinery on the land to be prospecting an area of 1000 acres for each period as he may decide, the length of which shall not exceed three times the breadth. Should the prospector find oil in paying quantities and subsequently establish such discovery, an area not exceeding 640 acres, including the oil well, will be sold to the prospector at the rate of \$1 an acre, and the remainder of the tract reserved, namely, 1,280 acres, will be sold at the rate of \$5 an acre, subject to royalty at such rate as may be specified by Order in Council.

W. W. CORY

Dept. Interior,

Deputy of Minister of the Interior

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Steam boilers are, of course, used for the conversion of water into steam by the application of heat usually obtained from coal. The operation of converting water into steam is known as evaporation, and some steam boilers can generate a larger volume of steam than others by the burning of a given weight of coal. This is what we mean by the evaporative power of a boiler, which may vary from six pounds of steam to twelve pounds of steam from the consumption of one pound of coal. It is not easy to determine the evaporative power accurately, because it is not easy to prevent water passing out of the boiler along with the steam, however, careful experiments specially conducted by engineers who understand the why and the wherefore have arrived at very correct results as regards different boilers and also as regards different fuels.

## CONDENSING IN PUMPING.

Provided that the pump is sufficiently large in proportion to the steam cylinder to provide ample water for condensation, say not less than 30 or 40 pounds of water for each pound of steam, we have found that the exhaust steam from the cylinder of a pumping engine can be turned into the suction pipes of the pump. The result is that the exhaust steam becomes part of the suction water, and the only effect upon the suction water is that it is somewhat higher in temperature than it would otherwise be. This does not matter, because a pump with proper metal valves will deal with water just as well at a temperature of 90 or 100 degrees as it will with water at a temperature of 60 or 70 degrees. The efficiency of the pump as to delivery is diminished by the amount of steam condensed.