

CALCULATIONS FOR HOIST FOR THE MAMMOTH MINE

WESTERN EXPLORATION CO. LTD., SILVERTON, B. C.

ASSUMED:

Ore only to be hoisted, and counterweight to be used.
 Inclined shaft 45 degrees; 450 feet collar to collar
 - say 500 feet total.
 Weight of ore 4000 lbs.
 Skip 2000 "
 Counterweight 4000 "
 Hoisting speed 300 ft per minute or 5 ft. per second.
 Acceleration 1.7 ft per second per second for 3 seconds.

Calculated:

Hoisting time for round trip	3.43	minutes
Loading time assumed	1.00	"
Dumping time "	.50	"
Total time 1 cycle	<u>4.93</u>	"

Time required to hoist 80 tons 3.28 hours.
 Safety factor, 5/8" best plow steel rope 6/19 4.3

Assume:

Induction Motor
 Double drum, each 3 ft by 3 ft.
 Sheaves 3 ft diameter.
 Gearing 3rd motion.

Calculated:

Average H. P. for one cycle	18.5) Required for
" " " 97 seconds hoisting	18.2) both hoisting
Peak H. P. for 3 secs. acceleration	41.6) & lowering skip.

(Inaccuracies in power consumption, especially during acceleration, occur through lack of data of weights, etc., of all revolving parts of the machinery, which have been assumed from roughly approximate data of averages given in handbooks.)

Instead of a standard double drum hoist, one drum with a spacer in the center would be O. K. A 2 foot face for each part of a 3 foot diameter drum will hold all required rope in slightly less than two full laps.

Western Exploration Co. Ltd.
 Per C. C. Starr.