

December 2, 1949.

Mr. A. M. Ham, Manager,
Western Exploration Co. Ltd.
Silverton, B. C.

Re: Hydraulic Elevator
-Mammoth*

Dear Art:-

Thanks. The stone maps that I asked for recently have arrived; Herewith is a print of my drawing of the hydraulic elevator to be used as a sump pump at the Mammoth. I hope you will approve of it.

It was designed as intermediate to the AMSCO elevator and the one shown on page 10-572 Of Peele's Handbook by assuming the nozzle diameter at 3/8" on the cuts, and making other dimensions proportionate.

I found no figures to apply directly to the discharge of a nozzle as small as 3/8" and had to more or less guess at the value of the constant "C" in the formula $Q = CA \sqrt{H}$ (see Peele), but the error should not be very great. By my figures a 300 foot head on a 3/8" nozzle should pass about 5 cu. ft. of water per minute and should take with it from 3 to 5 cu. ft. per minute of sump water, which I presume would be sufficient to keep the sump free of what water will necessarily come down the shaft. If, during the spring, there is more water and there will be more feed water also, and I would suggest that you have two 3/8" nozzles made, one of which can be bored out to 1/2 inch if needed later.

Note that in the drawing I have omitted the material in "All other parts to be made of....." Cast iron should be strong enough, I think, and should be as hard as can conveniently be machined, as I suppose there will be a considerable amount of grit in the water. I don't know the proper grade of iron.

If you approve the design in general I would suggest that Ralph check the drawing over in detail, tho I am pretty sure it is OK. Ralph's figure of 0.164 cu. ft. per second in #7 tunnel is about 6 1/4 cu ft per minute.

Yours sincerely,

C. C. Starr
(for KPH 2006)