

To ..... A.K. Campbell  
From ..... H.E. Pawson  
Subject ..... Observations by B.A. Ferguson

Date..... July 18, 1973  
Ref. ....

Brian Ferguson brings up some interesting points in his Observations of Tailings Disposal System. My comments are mixed in reaction.

Although I agree in principle to his first observation, I can't help but remember how I questioned this very thing several times over the years. After taking part in two seminars on Mine Waste Embankments I think I would be careful about stressing too large a pond now. ~~WITHOUT BEACH IN FRONT OF DAM.~~

The assumption he makes in his second observation about length of winter affecting the pond is too conservative. My own observations lead me to believe that there is at least 7 months of influence, if not 8, on the tailings area.

I would have to question the recommendations made in 3 for the following:

- A. An extension to the pipe line would put an added burden on pumps which are just capable of handling present setup unless  
i. a booster station is set up, ii. a fall box is used which is impossible for proposed route, iii. bigger pumps.
- B. Syphon effect possible using pumping in the mill with overflow to Baker Creek and mill lower floor (preg. pumps flooding).
- C. Discharge during winter at proposed point may produce over topping and would necessitate increasing height of dam to prevent.
- D. Added burden to pumps when discharging below surface, if this is the correct interpretation. If a fall box is to be used to deliver below surface, it will plug off in this type of operation.

As a counter proposal to 3, suggest extension of line to #3 dyke utilizing fall box at present discharge and, with line built close to tail slope near "shore".

Observation 4 brings up the necessity of operating two shifts. Disposal of fill during dayshift, to waste, near impossible at present since call for fill can happen anytime during shift. The bulk discard would take place on 4-12 shift, therefore an operator would have to be in attendance. This of course means another person is necessary for relief. Some fear here from added incidence of freeze ups, distance to open and close bypass valve when B line needed for fill, heating cable problems.

Disagree with 5. Water secape from dam takes place in summer not winter since dam becomes impermeable due to freezing of surface layers on downstream side of dam. Therefore same quantity of water will escape regardless of pond or no pond at dyke. The advantage of a pond at the dyke, if it can be called so, will be to give a constant pore pressure value within the dyke if the level remains constant. Permeability

MEMORANDUM

To A.K. Campbell  
From H.E. Pawson  
Subject Observations by B.A. Ferguson cont'd

Date July 18, 1973  
Ref

- 2 -

regained during summer and resultant lowering of level will not alter pressures for some time since reaction to level is slow. This will, it is assumed, prevent shearing stresses due to increased drawdown and resultant upstream slope failure.

"Freezing of the downstream face, which is aided by high pond water levels, can cause instability by blocking natural drainage, thereby raising of the water table in the embankment". So it's 6 of one and half a dozen of another.

Item 6 brings up the subject of a lot of money and availability of waste with little to show for it in a short time.

Since these various recommendations call for added pipe lines, new and bigger pumps, building large dykes I strongly suggest we use the area near dyke 3 as is our present practise and prepare a new site for disposal. This will give us an area hopefully free of the shortcomings of the present site with storage not restricted to a year.

I feel the 2600' of 30' high dyke, in 6, with new pumps and line can be used to advantage on a new pond and will give our present area a long needed rest.