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Notes of a Meeting  
in Toronto  
Re Arsenic Pilot Plant  
August 30, 1979, 2:00 to 4:15 pm

Present were: P. J. Raleigh, L. S. Price, F.G.T. Pickard, H. T. Evans, and DJE

Pickard reported that the Con material is causing a lot of problems, but that the Giant baghouse material can be handled immediately. Pickard also indicated that it was probable that we could handle both the baghouse and Cottrell plant material.

Howie Evans suggested that we get into the market quickly using the baghouse product. This would be good for building operator confidence and avoiding operational problems that might be caused by trying to treat a mixture of baghouse and Con material. Such problems would be psychologically bad for the project. There was concern about the handling of Cottrell dust. It may be possible to handle in the lab or pilot plant but what about on a commercial scale. Would there be pre-treatment required and a solution clean up. He asked whether it is worth holding up the whole project to find the solution for someone else's product and recommended that we get ahead with our own and continue to work on Con's material and put in a circuit later to handle it if warranted.

Raleigh wondered whether the Con material that we have had so far is typical. Do we have consistent samples. Pickard suggested that maybe it was erratic and that there would be a certain amount of bleed according to chemical content. Evans thought that we might have to pre-condition the Con material (eg. lime and oxygen) to produce a treatable residue. Raleigh suggested that we might want to try to sell baghouse dust direct to get into the market. One way would be to produce prills. This would help on the revenue side and also for storage considerations. Evans agreed and suggested that we could get into the market at 3000 tons per year. He questioned the need for a vacuum crystallizer indicating that we were going for a Cadillac, meaning that it may not be required. The name of John Kram came up of Doloro as a possible consultant who has treated arsenic using simple equipment. It was noted that without a vacuum crystallizer, the other equipment required would have to be larger. There is some concern about the long delivery on a vacuum crystallizer. Pickard had no prejudices against a vacuum crystallizer and Price indicated that it was miles ahead of cooling tubes.

Pickard noted that the pilot plant is testing baghouse, cottrell and Con material and there are just too many unknowns. He suggested we should be working on baghouse first then the others. If we can't treat the Con material it is going to affect the whole process.

It was agreed that we should go ahead with the baghouse material and work on the others. I noted that W. A. Moore is insisting on treatment of the Cottrell dust as part of their plan to solve the environmental problems. Pickard

/...continued page two

Meeting re Arsenic Pilot Plant,  
August 3, 1979  
Page Two

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suggested that in the final plant that the Giant/Con material would probably be treated in the first stage leach and the Cottrell in the second stage leach but that for the initial start up we would have to skip the Con in the first stage leach.

There was some discussion on when or what we tell Con with reference to their material. A long technical discussion followed on treatment of Cottrell dust. Evans suggested we may want to consider an ammonia or leach conditioning. Price suggested that the Cottrell may require a third stage leach. Pickard felt that we should be designing for the baghouse and then adding a circuit for handling of the Cottrell dust. L. S. Price discussed the arsenic balance to tailings pond. He noted that the Cottrell dust will be only 70 - 80% solids and that the residue may have to be filtered and placed underground. Necessary to show the environmentalists that the total arsenic to the tailings pond will be reduced.

There next followed a discussion on the advisability of any press releases. There was strong argument about getting committed to anything by press releases. The suggestion was made that we complete the pilot plant work, the feasibility, and get the Board of Directors' approval before making any press announcements.

With reference to Board approval, I indicated we should be shooting for the late November meeting. In order to have their approval I will need a completed feasibility study, an assurance that we have markets for the material and finally Government approval. There didn't seem to be any problem in meeting the timetable, provided we got ahead with handling the baghouse material rather than trying to solve the Con problem.

As far as the Government approval, the big issue will be transportation. Studies on the product from Strother-Wells show that it handles well, that it is a granular material and free running with low dust. I indicated the need for commitment re markets. The Fe content is generally below .02 and Pickard is fairly confident that it can be held below that figure. It was noted that it would be more difficult to sell baghouse product direct because of possible deleterious elements and that there could be more stringent market requirements. We would have to be 100% sure that we could always get 95%  $As_2O_3$  and this would require that the Cottrell operation was running at 100%. There would also be the gold loss to consider.

With reference to gold extraction, there was an indicated 75 - 85% recovery with no recycle back to the roaster required. The Con material knocks recovery down to 65%. It was reported that the liquid-solid separation will cause no problem and that the water evaporation and cooling conditions will cause no problems.

With reference to further market studies, we will get product from the new plant rather than using materials presently on hand.

The meeting concluded with a discussion of the Kopper's agreement. It is being reworked more or less along the lines they first proposed and it is now indicated by Falconbridge that there should be no problem in having us sign it.