Co-deposition of Oil Sands Tailings

Background

Consolidation and reclamation of treated FFT in a deep deposit is challenging. Improving the performance of treated FFT (treated via in-line flocculation) and co-deposited by other type of tailings such as (Coarse Sand tailings [CST], Tailings Solvent Recovery Unit [TSRU], Thickened Tailings [TT], etc.) is of interest. The objective will be improving the dewatering behaviour of fine tailings and increase in the fines capture in tailings beach in a co-deposition scenario. An example of such co-deposition at Albian MRM North Pool Deposit is discussed in Ref. [1]. A 2013 study conducted by AMEC through COSIA address the improvement of fines capture of FFT co-deposited with other types of tailings in disposal areas [2].

Statement of Research Opportunity

Improvement in fines capture and consolidation behavior of treated FFT/MFT co-deposited with TT, CST or TSRU.

Desired Results

Either modeling or experimental study of co-deposition of treated FFT/MFT with TT, CST or TSRU. Some of the gaps are listed below:

- Could target and start with one tailings stream (can start with TT and then other streams)
- Ratio of treated FFT/MFT with TT without jeopardizing the expected behavior of TT deposit
- Fines capture of FFT/MFT co-deposited with TT compared to the TT deposit
- Understand the advantage of interlayering of FFT/MFT with TT or co-deposition of FFT/MFT and TT
- Understand the distances between discharge points for treated FFT/MFT and TT streams for maximum fines capture and overall consolidation behavior

Works Cited

[1] Esposito G. and Nik R., " Fines capture in a long tailings beach at the Shell Muskeg River Mine external tailings facility: Hydraulic and depositional aspects"; Proceedings of 3rd International Oil Sands Tailings Conference , 2012

[2] AMEC and COSIA, "Beach Fines Capture Study"; June 2013. Available on https://www.cosia.ca/uploads/documents/id8/Fines%20Capture%20Report_Jun2013.pdf