

Remediation of Coal Refuse Ponds

HiDensity™ Paste Thickeners



CASE STUDY

Location: Centralia, Washington
Owner: Transalta

Improving the Process

Following the closure of the Transalta Centralia coal mine, the company decided to move the refuse tailings to an old mined-out pit as part of the site remediation. The old refuse ponds are dredged, reprocessed to recover the fine coal, and then dewatered and deposited sub-aqueously into the mined-out pit. The pit receives the area drainage and essentially functions as a lake with the discharge water monitored. Reprocessing the refuse helps fund the venture.

PasteThick™/WesTech participated in the process dewatering design. The contractor drill cored the ponds and provided samples for thickening tests by WesTech. The characterization of the drill core showed wide PSD variation (typical of slurry ponds). This wide PSD variation could add complexity to the operation of the reprocessing plant and the thickeners. It was decided that the dredging of the ponds should be accomplished with a two-dredge system to allow blending of the coarse and fine areas. This gave more stable operation in the retreatment plant and the dewatering circuit.

WesTech was commissioned to refurbish the existing high-rate thickener and upgrade the feedwell to the patented WesTech EvenFlo® feedwell. WesTech also provided a 35m-diameter HiDensity™ paste thickener to produce the non-Newtonian underflow for sub-aqueous deposition in the water-filled mined-out pit. The pit is located approximately three miles across the valley from the reprocessing plant where the HiDensity™ thickener is located. The paste is transported by a centrifugal pump with two booster pumps. The number of pumps required to transport is a function of the underflow yield stress (slump).



Old high-rate thickener before upgrade and repair



Water-filled, mined-out pit where the reprocessed refuse is sub-aqueously deposited.

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