

Appendix G: Belt Press Filter Operating Philosophy

The following is an overview of the operating philosophy for the tailings dewatering facility for Caval Ridge.

Tailings Thickening

The flotation tailings will flow to the tailings thickener. Thickener underflow will be controlled through the use of a variable speed underflow pump. A flow meter installed on the tailings underflow will determine the speed of the thickener underflow pump.

Overflow from the tailings thickener will report back to the clarified water sump and will be recirculated through the coal processing plant (CPP) as required.

Flocculant

Flocculant is added to the tailings thickener feed launder to assist settling of the tailings prior to discharging into the feed well of the hi-rate thickener. The flocculant will be provided from a packaged powder based flocculant preparation plant which prepares and doses anionic flocculant to the tailings thickener.

Anionic and cationic flocculant will also be added to the feed to the belt press filters (BPF) to assist with the dewatering process.

Fine Reject

Thickened tailings is pumped to the Tailings Filter Feed Tank. Dedicated pumps then feed the individual Agitated Filter Feed Tanks where it is mixed with anionic and cationic flocculant. From here it is distributed to the Tailings Belt Press Filters.

Compressed and dewatered filtered tailings discharges onto the Reject Filter Conveyor, which transfers to the Reject Bin Feed Conveyor and ultimately into the Reject Bin. The effluent stream is recycled back into the Deslime Circuit as dilution water.

Belt Press Filter

Feed to the belt press filter supply tank is regulated by the density of the tailings thickener underflow. When the density is within the setpoint range, the feed valve is opened. When the density is outside the setpoint range or the level in is greater than the HH Alarm setpoint, the tailings thickener re-circulation valve is opened, placing the thickener underflow into re-circulation mode. If it is closed for a period greater than 900 seconds all belt press filter will be shut down to conserve water. Further information is provided in Appendix N (Tailings and Rejects Management Plan).

The tailings thickener underflow flow meter is used to determine how many filters are required to run.

The Caval Ridge design includes 24 belt press filters which allows for 2 redundant machines in the worst case and 8 in the nominal case. Should there be mechanical issues with the BPF's there is capacity in the tailings thickener to recirculate the tailings and not deliver to the BPF's. This can continue until such time there is no further capacity in the thickener at which time feed will have to be taken off the CPP.