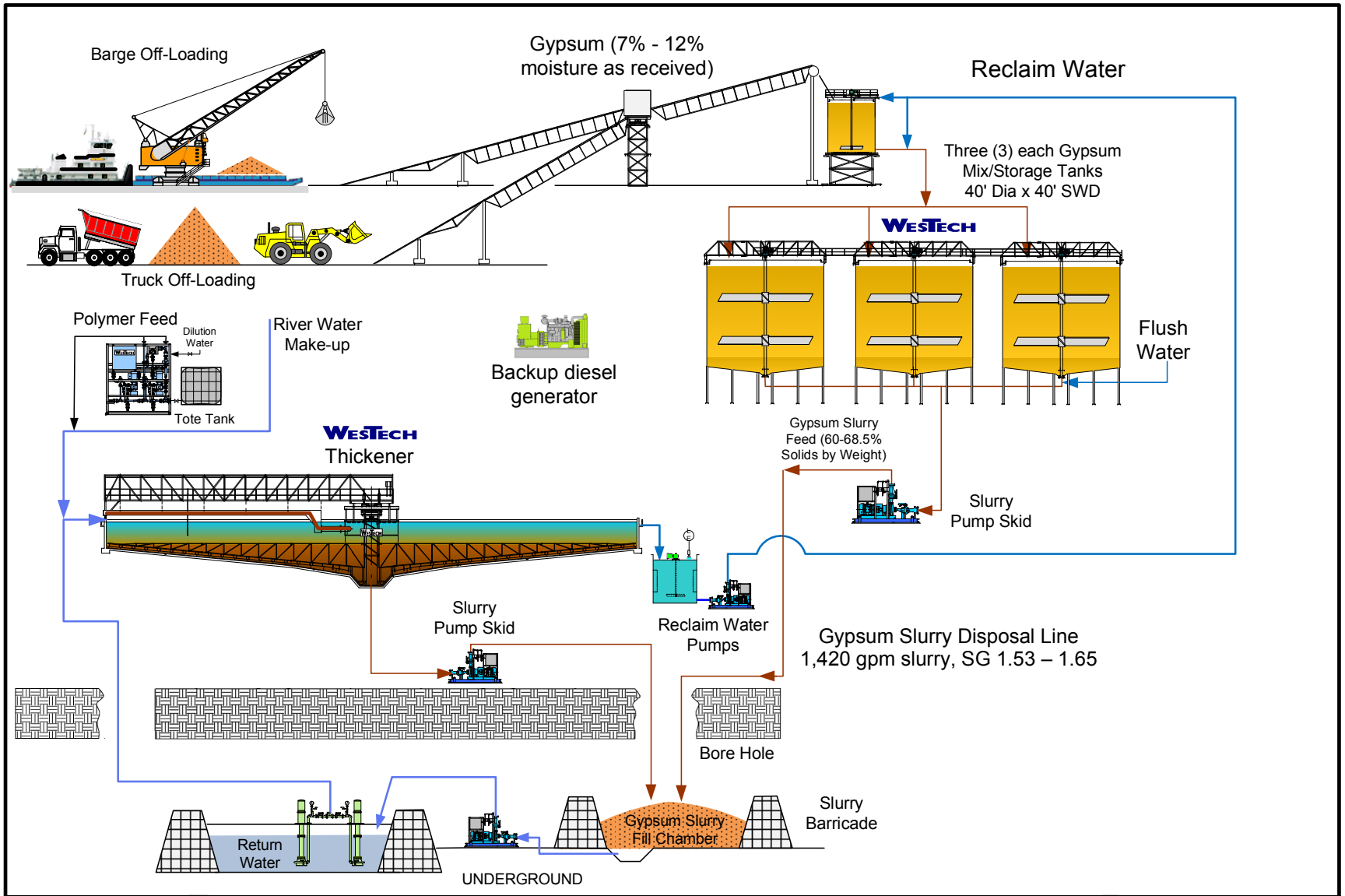

Gypsum Disposal Facility

WesTech

DWN: **RCS** DATE:

WesTech's ***Drive Units*** are proven workhorses in the mineral and industrial processing industries. Under the harshest operating conditions, WesTech's drives perform with minimal operator attention and provide long-lasting service. WesTech has upgraded many existing thickeners with our precision bearing drive units. With every drive retrofit, WesTech visits the site to inspect the existing equipment, record detailed measurements, and plan for any special installation requirements. Our drives are engineered to meet the demands of extreme environments, last for decades, and replace drives from any previous manufacturer.

Gypsum Disposal Circuit

Gypsum produced from flue-gas desulfurization (FGD) has been used as a valuable byproduct which was sold as a feedstock for wallboard manufacturing. Economic trends in housing starts affect the demand and price of gypsum. There is also a trend among utilities to close waste ponds at their power plants. These combined trends have fueled the need to find alternate gypsum disposal methods.

Mine Disposal

One method makes use of abandoned mine sites. This disposal method has the added advantage of neutralizing acid mine drainage (AMD). Gypsum has a high pH and can therefore neutralize AMD streams.

Flue-gas desulfurization effluent is dewatered to facilitate gypsum transportation. Mine disposal decreases the required level of dewatering. Wallboard grade gypsum requires a solids level greater than 90%. Disposal grade gypsum has a solids level of 85%. Mine disposal grade gypsum must only fail to have any free liquid. This substantially reduces dewatering costs, but results in more system water loss and increased shipping weight and bulk.

Transporting Gypsum

The gypsum is shipped to the disposal facility by barge, truck, or train and offloaded for feeding to a conveyor system. The conveyor transports the "dry" gypsum to the reclaim tank where it is mixed with water reclaimed from the process. Water may also be added to the effluent of this tank to ensure the proper solids content in the gypsum mix and storage tanks.

Solids settling is prevented in the gypsum mix and storage tanks by using mixers while the other tanks are sequentially pumped to the mine. The slurry solids level is monitored to avoid slurry line plugging as well as excess water usage. Slurry barricades allow the deposited slurry to dewater via gravity.

Water from this phase is collected in a mine pool then pumped to an aboveground thickener. The thickener settles excess solids while the water may be reclaimed as slurry makeup. If river water is used as makeup water, it may also be treated by the thickener.