

Springer Mine Tailings Impoundments – Mill City, Nevada

The Springer Mine project entailed the design of a new tungsten tailings impoundment with a two year capacity as well as a rehabilitation of an existing tailings impoundment with a ten year capacity. A mill design production rate of 1000 tons per day was used for calculations. In addition to an earthwork and grading analysis, the Telesto team had to plan for and mitigate a possible spill occurring at the mill and the potential offsite storm event. This was accomplished by the introduction of a small capacity detention pond upstream of the tailings impoundments for spills at the mill site and a large flat bottom channel diverting storm water flow around the tailings impoundments. The SCS TR-55 Manual was used in conjunction with the HEC-HMS software to tabulate the offsite flows impacting the proposed development. The storm events analyzed were the (24 hour) 5 year, 100 year, 1000 year, and the probable maximum precipitation (PMP). The PMP event is defined by the NOAA National Weather Service as *“Theoretically, the greatest depth of precipitation for a given duration that is physically possible over a given size storm at a particular geographical location at a certain time of the year.”* Typically, a diversion channel would be designed for the 100 year storm event. Due to the potential discharge of Cyanide solution from the dump, the PMP event was used to design the diversion channel maintaining an adequate factor of safety. The design of both impoundments needed to meet current environmental regulations, therefore, each impoundment was designed with a 60 mil high density polyethylene (HDPE) liner. The Telesto team also designed the slurry distribution system as well as the under drain and seepage collection systems.

