FORTUNA
SILVER MINES INC.

CASE STUDY

The Ocotlan Grey Water Treatment Plant is a win-win solution for the community and the San Jose Mine

COLLABORATING TO IMPROVE OUR ENVIRONMENT AND COMMUNITY

Modern mining is about collaboration, transparency, open communication and effective interaction with all stakeholders. The Ocotlan Grey Water Treatment Plant project serves as an excellent example of how corporate social responsibility, when integrated throughout an organization, can lead to long-term social, economic and environmental benefits for local communities.

The Challenge

When we were designing the San Jose Mine in Oaxaca, Mexico, we recognized that sourcing water presented a significant challenge in a region that faces water stress. Extracting water from conventional water wells or from the nearby Atoyac River was not a sustainable option, as the mine would compete for water with local users. In 2008 we identified a potential alternative water source, an idle grey water treatment plant in Ocotlan de Morelos, a community of approximately 23,000 people situated 15 kilometers from the mine.

The plant had fallen into disrepair due to lack of investment and maintenance, causing serious environmental and public health problems in the community and surrounding areas. Raw sewage was being discharged into the Atoyac River and polluting the local aquifer. Farmers were using the plant overflow to irrigate crops, contaminating local produce, and causing stomach infections among residents. In the rainy season local roads were flooded with sewage, interrupting transit, and causing widespread pollution. The floods affected school attendance and local sports teams were unable to use the nearby athletics field. The plant also emitted unpleasant odors and excessive noise and was a breeding ground for flies, rodents, and bacterial disease.

The Solution

In January 2010, Fortuna signed a 15-year renewable agreement with the Municipality of Ocotlan to refurbish and operate the sewage plant in exchange for use of residual grey water at the San Jose Mine. We made the necessary investments to transform the plant into a modern facility, including replacing pumps and motors with quieter and more energy efficient equipment. In October 2010, the plant became fully operational. Now it is one of only two wastewater treatment plants in the State of Oaxaca that produce water of sufficient quality for reuse.

We installed a buried pipe to bring the water from the plant to the mine, where it is discharged to a treatment tank to remove further solids before use or stored in the tailings pond if the tank is full. To avoid spillage risk, water can be piped directly from the tailings pond to the mine.

The plant has provided approximately 8% of the water supply for the San Jose Mine since 2010. The balance comes from rainwater collected in the tailings dam during the rainy season and from water recycled within the zero-discharge closed water circuit.

The Benefits

The volume of wastewater received from the plant (70% of the total “product”) replaces an equivalent volume of water that we would otherwise need to extract from a freshwater source in an arid region. The remaining 30% of the treated water is reused for public services, including irrigation of community green spaces, and supplying the toilet tanks in the local municipal market.

Community support for the San Jose Mine increased because of the significant environmental, health and social benefits of the grey water treatment plant refurbishment. Today, the facility is a source of employment and hosts community site visits. Sewage is fully contained and treated according to international standards, and there is no more flooding. The plant no longer pollutes the environment and the health hazards from sewage contamination were eliminated. Ocotlan residents can now use the athletics field, attend school, and enjoy the public gardens surrounding the plant.

This initiative creates benefits for the mine, the environment and community stakeholders. It allows us to mitigate water availability risk for our operations, avoids depletion of the aquifer, and at the same time contributes in a concrete way to achieving a target under Sustainable Development Goal 6 – Clean Water and Sanitation – namely, to halve the proportion of untreated wastewater by 2030.