

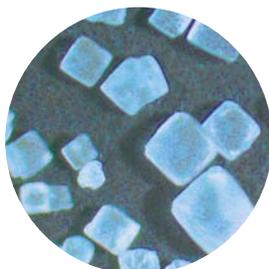
Sogarisa – Galicia, Spain

Landfill Leachate Volume Reduction Evaporation System

The Client

SOGARISA is a leading company in the management and treatment of hazardous, industrial wastewater and industrial waste disposal in Spain.

Sogarisa also operates a facility for the treatment and disposal of industrial waste from their industrial landfill located in Galicia in northeastern Spain.



The Client's Needs

The storage of solid waste in controlled facilities implies a step forward in the protection of the environment. However, it has given rise to a related problem due to the generation of a highly polluted landfills.

One such result is landfill leachate, which is a highly contaminated waste stream resulting from the ingress of water into solid waste storage. This waste stream is characterized by a high content of ammonia, COD (chemical oxygen demand), heavy metals and salinity (chlorides, sulfates, etc.). These elements make it difficult to treat using conventional methods and technologies due to the highly corrosive properties of the effluent stream, the variability of the feed stream and its tendency to foul equipment.



The Solution

The Sogarisa effluents plant, located in As Somozas, La Coruna (Spain), is a highly efficient system that concentrates wastewater and brine streams generated from their industrial landfill and effectively treats landfill leachate.

Started up and commissioned in 2000, this plant was designed for the concentration of landfill leachate by means of HPD® evaporation technology with thermal oxidation of the vapors generated in the process. The feed stream for the plant is a mixture of different types of wastewater from two main sources.

The first source originates from industrial leachates containing sulfides, ammonium, sulfates and chlorates. The second is generated from industrial streams comprised of highly concentrated saline waste containing calcium chlorides, calcium sulfates and calcium nitrates.

LANDFILL LEACHATE CASE STUDY

Process Challenges

Due to the scaling tendencies of the leachate, stable system operation and system availability were some of the biggest concerns when designing the wastewater concentration plant at Sogarisa.

The protection of the environment was another critical consideration when designing the plant. Water resources needed to be used efficiently as possible. The water balance of the landfill needed to be controlled while reducing the volume of solid waste at the facility.

Evaporation technology has proven to be an effective technique for meeting these objectives. Veolia Water Solutions & Technologies' experience with volume reduction applications provided the expertise required to design a process to effectively execute this project.

Process Description

Veolia Water Solutions & Technologies was selected to supply the engineering design and equipment on a turnkey basis, taking responsibility for engineering, procurement, and construction of the complete concentration plant. The experience of Veolia to design large, complex facilities on a global basis provided Sogarisa with the confidence that the project would be effectively executed and the system would perform as designed.

The HPD forced circulation evaporation system, will operate at atmospheric pressure conditions due to the thermal destruction of the vapors in the final stage of the process. A single-effect system was selected for simplicity of operation, ease of installation and the operating temperature in the crystallizer could run above 110°C.

The advantage of the HPD forced circulation design was the ability to process effluent streams without the fouling and scaling tendencies resulting from the chemistry of the feed water. This approach also provides operational stability and the high system availability needed for this application.

The resulting volatile components in vapor from the concentration process are fed to a thermal oxidizer for destruction. The resulting heat recovered from the combustible gas produces steam that is subsequently reused by the concentration system. The remaining clean condensate is purged from the plant by means of a forced draught fan, fulfilling all of the local environmental standards.



The Results

The concentration plant at Sogarisa has been operating as designed since its commissioning and startup by Veolia Water Solutions & Technologies in 2000.

The design objectives of producing quality condensate, permitting no aqueous waste, meeting local environmental requirements and high system availability were achieved in this system to treat challenging landfill effluents.