**Water Treatment Facility:** Energy Risk Engineering Developed Risk Management Programs For Locations Throughout Texas, USA.

**Client Situation**
- The water treatment facility is a political subdivision charged by legislative mandate with three functions. These include maintenance of a Master Plan for basin-wide development, serving as local sponsor for federal water projects and providing services authorized by the Texas Legislature within the facilities defined territory. Public services currently provided by the facility include wastewater treatment, water treatment, recreation and reservoir facilities. The water treatment facility also serves as a conduit for tax-exempt financing for municipal water and wastewater facilities and industrial air and water pollution control facilities.
- Because the facility uses chlorine, anhydrous ammonia, and sulfur dioxide at some of its facilities, these facilities are required to comply with the requirements of the Environmental Protection Agency’s Risk Management Program, 40 CFR Part 68.
- Challenges for this project included developing standard programs for both water and wastewater treatment facilities at a variety of urban and rural locations.

**Aon Approach**
- Aon’s Energy Risk Engineering team identified an approach to the project focusing on achieving compliance and creating efficiency by identifying commonalities between the sites. The scope-of-work included:
  - Conducting offsite consequence analysis for worst-case and alternative case scenarios for chlorine, anhydrous ammonia and sulfur dioxide and identifying the offsite impact.
  - Conducting process hazard analyses of the process systems to identify their potential to deviate from normal conditions, the consequences of this process deviations, and the layers of protection in place. Using a risk ranking strategy, recommendations were made as appropriate to reduce identified risk.
  - Developing procedures for compliance with the prevention program portion of the requirements.
  - Creating the RMP Submit information to be submitted to the EPA.
- Aon’s Energy Risk Engineering team also supported the facility in the RMP audits by the EPA at their sites, which resulted in no findings by the EPA.

**Aon Delivers Distinctive Client Value & Impact**
- Aon’s Energy Risk Engineering teams approach resulted in both regulatory compliance and a cost-effective strategy for implementation.
  - The facility’s sites handle a variety of quantities of toxics, under various storage and process conditions. For example, most water treatment sites utilize 1-ton cylinders of chlorine, while wastewater treatment ranges from 1-ton cylinders, bulk storage tanks, to railcar offloading of chlorine for water treatment.
  - Our approach identified common process and storage conditions, allowing us to reduce the number of worst-case and alternative case scenarios modeled. Common results were then “overlaid” over different areas to identify their unique offsite consequences.
  - Comparing methods of operation allowed us to standardize safeguards and reduce risk, for example, 1-ton cylinder operation varied throughout the sites (liquid vs. gas, pressure vs. vacuum). The end result was standardizing to a chlorine gas flow under vacuum conditions (the lowest risk).

**Contact:** Aon Energy Risk Engineering +1.832.476.5800