



IN-SITU CHEMICAL OXIDATION (ISCO) WITH TOTAL CHEMICAL MANAGEMENT

Project Scope

A Northeast engineering firm was selected to clean up a former roofing tar manufacturing site in Queens, NY. Following extensive bench testing and a comprehensive pilot study, they selected a treatment program using a remediation contractor's surfactant enhanced In-Situ Chemical Oxidation (ISCO) technology. Due to the extent of contamination and the significant quantities of surfactant, sodium persulfate, and sodium hydroxide required, equipment and field services were required to remediate the site.

The remedial design required high flows (5-20 gallons per minute) of chemicals to be injected site-wide on a daily basis. This required storage and management of bulk chemicals on-site, creating operational and financial challenges for the contractor. USP Technologies developed a Total Chemical Management program to safely and cost-effectively execute the project. Safety and environmental compliance were critical considerations due to the project location in a highly-populated area and proximity to waterways.

Solution

Based on project requirements, USP developed a Total Chemical Management program to meet project schedules and budget objectives:

Site Analysis and Hazards Review

USP engineering personnel worked closely with the remediation contractor to evaluate and plan for the specific hazards of the project site. Project duration occurred over the winter and required equipment and operational adaptation to extreme cold, rain, and snow. Operations within close proximity to the public and public water required strict site safety and environmental procedures.



Sodium Hydroxide storage system



Sodium Persulfate batch tank

Turn-Key Scope of Supply

Chemical Supply

Surfactant was delivered in bulk and stored in a 3,000-gallon tank. The surfactant was diluted by pump using a properly designed diaphragm pump to a tote where it was mixed with water.

Sodium Persulfate (Klozur) was injected as a liquid but delivered as dry product in 2200-lb super sacks. Time is of the essence when batching chemicals, especially when temperatures drop below freezing during day-to-day operations. USP developed a system to put a full super sack into solution in less than one hour. USP's equipment allowed for effective management of the sodium persulfate solution.

Sodium Hydroxide was the technology activator of choice and delivered in bulk at 25% concentrations. Special measures for containment and freeze protection were provided as well as transfer and blending systems.

Equipment Supply

USP provided modular chemical transferring systems with specific construction materials for each chemical type to feed all the chemicals to the customer's dosing trailer. USP also provided all interconnecting piping from the storage tanks to the well feed control devices.

Field Support Services

USP personnel set up the chemical staging area, including the spill containment berm, tanks, pump conveyance systems, and safety equipment at the beginning of the program and demobilized it after treatment. USP technicians also assisted with dry chemical mixing to the specifications of the contractor.

Delivery & Safety Review

Full process safety review and on-site training for associates was conducted. USP provided an emergency eyewash and safety shower station complete with a water filter and emergency response water supply. USP pump skids provided potable water to the safety stations. Spill containment berms were also supplied by USP to add an additional protective barrier between chemical storage tanks and the environment.

About USP Technologies

USP Technologies' ongoing mission is to help customers meet their water quality objectives by providing eco-efficient solutions that reduce and recover cost, energy, resources and space. Through a collaborative method of working closely with customers to solve problems, we are dedicated to developing innovative, sustainable and cost-effective solutions that successfully meet the highest standards of environmental stewardship. Our consultative approach includes application assessment, technology selection and field implementation of a custom engineered treatment solution. Our turn-key programs seamlessly integrate storage and dosing equipment systems, chemical supply, inventory and logistics management, and ongoing field and technical support. USP Technologies has been serving the water, wastewater and remediation markets for more than 20 years and has offices and field service locations throughout North America. We are the largest direct supplier of peroxygen-based technologies for environmental service applications and we manage hundreds of successful full-service chemical programs that treat over 1.0 billion gallons of water per day.

Getting Started

We look forward to supporting your treatment needs, whatever the scale of your requirements. To obtain a streamlined treatment solution tailored to your specific project, give us a call at (877) 346-4262.

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