



Case Study: Lipari Landfill, New Jersey

Lipari Landfill (New Jersey) was plagued by oxidizer maintenance and performance problems. The efficiency of their five year old SVE/oxidation system had dropped by 50%. Lipari Landfill wanted to repair their current system, train operations staff and maintain their equipment on an ongoing basis.



In March of 2005, Intellishare Environmental was tasked with repairing the system, improving performance efficiency and devising a plan for ongoing maintenance. The Intellishare project team worked closely with the Army Corp of Engineers, EPA and Severson Environmental Services to outline the goals of the project, establish priorities and milestones and complete the tasks required to return the system to on-line performance.

Intellishare was able to identify each individual problem, ascertain root causes and develop a solution based on sound engineering principles and experience. Our initial site visit revealed an extensive list of items requiring attention. Here are some of the problems we found:

- The oxidizer's high efficiency heat exchanger had been damaged beyond repair during a high temperature event in 2004 and the replacement heat exchanger needed to be protected.
- The vacuum extraction system was transferring excessive amounts of water to the oxidizer.
- The burner needed adjustments and the instrumentation needed to be inspected. Some instrumentation needed replacing.

Our first priority was to prevent repeat damage to the heat exchanger, which had been replaced by the original equipment provider. Because the Lipari oxidizer is treating chlorinated contaminants, the operating temperature is between 1600 - 1750 degrees F as opposed to a traditional thermal oxidizer which runs at 1400 degrees F. Intellishare designed a tertiary air cooling system and reworked existing ductwork to minimize thermal effects of the high temperature application on the heat exchanger.

Our next task was to reduce the amount water the vacuum extraction system was sending to the oxidizer. This was important for two reasons. First, water injected into the oxidizer carries through to the burner where superheated steam is created. Steam puts additional stress on the heat exchanger and increases the likelihood of repeat damage. The second reason is oxidizer operating costs are reduced (less energy is required for the oxidizer to reach operating

temperatures) when water transfer is eliminated. Intellishare replaced the existing water removal system by using a primary 'surge tank' in combination with a secondary vessel for mist elimination. The surge tank was designed to fit in an existing below grade vault and the vapor liquid separator was placed above grade.

To maximize safety and operating performance, the instrumentation for each part of the remediation system was tested to ensure it was both functional and accurate. The Lipari Landfill instrumentation and control system was complex and contained a large amount of HMI/SCADA, allowing for on-site data collection with off-site monitoring of operations.

Here's a summary of the solution Intellishare Environmental Inc. provided for the Lipari Landfill site:

- Redesign and repair of existing thermal oxidizer, VLS & scrubber
- Design and construction of new water separation system
- Re-engineered cooling air injection system
- Redesign instrumentation and control system
- Staff operator training
- Long-term maintenance agreement

Customer Comments

"Intellishare provided Severson Environmental Services with complete turnkey solutions for the redesign, rebuilding, operation, maintenance, and staff training of the Thermal Oxidation Unit at the Lipari Landfill Superfund Site. Intellishare's efforts increased unit on-stream time from 50 to 95% while improving contaminant removal efficiency. Intellishare turned a problem operation into a consistently reliable and effective remedial system."

James Russell, Site Manager
Severson Environmental Services

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