



# TRIBO.dsp U3600<sup>TM</sup>

## Soil Remediation Facility: Dust Emissions Monitoring

### Summary

**Customer:** Environmental Soil Management, Inc. of New Hampshire

**Problem:** A more sensitive bag leak detection system was needed for the timely detection and warning of impending baghouse filter failures. Existing, low sensitivity, continuous opacity monitors were not providing early warning of impending dust collector failures, often requiring plant shutdown and interruption of plant operations when massive failures were finally detected. A solution was needed so that issues could be resolved during normal scheduled maintenance activities.

**Solution:** Auburn Systems Triboelectric Bag Leak Detector with the TRIBO.dsp<sup>TM</sup> U3600 Bag Leak Monitor.

**Result:** ESMI is assured early indication of fabric filter leakage and is able to pinpoint fault locations within the dust collector.



### Case Study

Environmental Soil Management, Inc. of New Hampshire (ESMI of NH) is one of the largest treatment and recycling facilities for non-hazardous contaminated soils in the northeast. Located in Loudon, New Hampshire, ESMI of NH has been in operation since 1992. ESMI of NH treats and recycles soil contaminated with petroleum compounds including fuel oils, gasoline, coal tars, waste oils, solvents, and other non-hazardous compounds. This soil treatment facility typically treats up to 180,000 tons per year with better than 99% contaminant removal and destruction efficiency. Along with its sister company in upstate New York, and a high capacity portable plant, the ESMI Companies have successfully completed more than 15,000 soil remediation projects and treated and recycled more than 4 million tons of contaminated soil.



ESMI uses the proven technology of thermal desorption to permanently destroy hydrocarbons. The treatment process achieves greater than 99% removal and destruction efficiency, ensuring successful soil remediation, typically below detection limits.

All the soils brought to ESMI are placed into an enclosed building for storage. Prior to thermal treatment the soils are pre-processed where oversized stone and other materials like plastic, wood and metal are removed.

After preprocessing, the contaminated soils are heated in a rotary dryer to temperatures between 350-1,000 degrees Fahrenheit, depending on the contaminant. The desorbed contaminants then enter the secondary treatment phase where they are heated to above 1500° F and oxidized.

The exiting gas stream is then cooled in an evaporative cooling chamber prior to entering a baghouse where any remaining airborne particulates are removed before exiting the treatment process. ESMI's baghouse was manufactured by General Electric (Formally BHA) and is rated for 40,000 acfm.

The baghouse has 714 filter bags in 51 rows. Each filter bag is 6.25" wide and 132" in length and made of BHA-TEX on 22oz fiberglass bags. The bag house is maintained with 4.5" of differential pressure across the bags.

Operating permits require ESMI to comply with strict particulate emissions limits. For many similar operations performing periodic visual opacity monitoring (USEPA method 9) is often the only way to verify baghouse performance. Unfortunately, filter failures are progressive; one tear will result in the erosion of neighboring bags until several failures result in a visible dust plume, when it is usually too late to avoid emergency plant shutdown to locate and repair the damage.

Furthermore, since ESMI's plant operates 24 hours a day, seven days per week, visual opacity monitoring is irrelevant, since visual dust plume monitoring is ineffective after dark. Even continuous opacity meters (COMS), while operational after dark, are similarly insensitive to low concentration, early bag failures.





**Installed Sensor**



**TRIBO.dsp U3600 Installed**

In 1999, ESMI installed an Auburn Triboelectric Bag Leak Detector to assure early indication of fabric filter leakage and to pinpoint fault locations within the dust collector. The original system was recently upgraded to Auburn's newest generation, **TRIBO.dsp U3600 Bag Leak Monitor**. This newest Auburn innovation combines DC and AC triboelectric signals (utilizing 100% of the total triboelectric/electrostatic signal) for more robust, stable performance. Most competitors utilize AC-only circuits (essentially, simple voltmeters), measuring less than 20% of the available triboelectric/electrostatic signal. They are less sensitive and more subject to noise interference than the unified DC/AC, TRIBO.dsp bag leak detection systems.





## TRIBO.*dsp* U3600™

The **TRIBO.*dsp* U3600** is an advanced, all digital, self checking, particulate monitor for dust collector compliance, maintenance, and other process applications. It is an advanced design for monitoring fabric filter baghouses, dust collectors, cyclones and process particulate flow monitoring. Easy-to-read screen for real-time emission levels and alarm status continuously on display.

- Unified AC/DC signal processing is more accurate
- Superior signal filtering eliminates electrical noise interference for stable measurement
- Unlimited scaling options for optimal output and display resolutions
- Widest dynamic range and highest resolution for more process applications

**Auburn's proprietary core technology** unifies DC impaction (triboelectric) *and* AC induction electrostatic signals for superior accuracy, reliability, and repeatability. Unlike electrodynamic and AC induction-only monitors which only use a portion of the triboelectric signal, TRIBO.*dsp* electrostatic particulate monitors provide high sensitivity and wide flexibility for harsh industrial environments.

For more information about  
**Environmental Soil Management**  
please visit [www.esmicompanies.com](http://www.esmicompanies.com)

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