

## LANDFILL GAS MONITORING



*The Kurz Insertion  
Mass Flow Meter products  
provide extremely  
reliable and accurate  
measurements with a  
number of features  
specifically tailored  
for landfill gas  
monitoring applications*



complex technology  
**MADE SIMPLE**

# Landfill Gas Monitoring



## Benefits of the Kurz Solution

- *Extremely Accurate and Reliable Measurements even in Short Runs*
- *PTFE protection for high H<sub>2</sub>S Applications*
- *Outstanding Low Flow Capability*
- *Low Maintenance Even in Harsh Environments*
- *Bias and Variable Correction Processes to Allow for Profile Variation*

## Landfill Gas Introduction

It wasn't that long ago that people would back up to a ravine outside of town and toss out whatever trash they had. By the very nature of waste decomposition, the landfill will generate an off gas by-product, comprised primarily of methane and CO<sub>2</sub>. Over the years as landfills grew in size they became more sophisticated and correspondingly more regulated. In 1990, the Clean Air Act and subsequent Federal, State, and local regulations required that landfills provide controls to assure that the naturally occurring off gas is environmentally safe.

Today, the monitoring and secondary use of landfill emissions has become standard practice. These off gases can be a valuable resource if they are captured and utilized. After filtration, landfill gases can be measured and then burned in an engine to turn a generator or in a boiler to create steam that then turns the generator.

Landfill gas monitoring falls into five basic categories: Soil gas monitoring, near surface gas monitoring, emission monitoring, ambient air monitoring and facility air monitoring. These five categories require rate monitoring as well as composition monitoring.

## The Kurz Solution

While near surface and ambient air monitoring is typically accomplished by simple grab samples or portable organic vapor analyzer-flame ionization detectors, the soil gas, emissions, and facility monitoring are uniquely suited to Kurz thermal mass flow instrumentation.

Soil gas monitoring and collection systems are typically designed using a ring of monitoring wells around the perimeter of the landfill. These wells and collection headers (perforated pipes set into the landfill typically in the top 50% of the biomass) are normally connected to vacuum and pump systems which draw the "overpressure" of decomposition gasses into a unified collection system by providing a low pressure "preferred migration" route for the gasses. This gas is typified by low flow rates and high moisture content, and in some cases levels of H<sub>2</sub>S that are of concern for instrumentation.

Emission monitoring of collected gasses for use in flares, incinerators, boilers, gas turbines, and internal combustion engines are required in order to control those processes to assure proper destruction of the landfill gas, and also to comply with reporting requirements. Control may require monitoring of landfill gas flow rate, "make-up" natural gas flows, and equipment energizing (adding or subtracting engines, turbines, and flares, in order to handle the flow rate that is generated). This control requires rapid response to varying flows, as well as outstanding discrimination especially at low flow rates. Further, as vacuum levels can be adversely impacted by many instrumentation schemes, Kurz instrumentation seldom impacts pressure loss at more than a few inches of water pressure even at elevated flow rates.



### *The Kurz Solution - Continued from Previous Page*

Facility air monitoring additionally requires outstanding accuracy and dependability to protect the landfills greatest resources, the women and men who operate the facility.

### **Performance Results with the Kurz Solution**

Given the wide ranging capability of Kurz Instruments Thermal Mass Flow Instrumentation, with turndown rates of up to 250:1 and response velocity time constant of 1 second, the new "B" series of instruments meet all of the challenges of Landfill gas monitoring. Packaged to effectively monitor flow rates from lines as small as ½" up to ducts of 100 square feet and larger, Kurz technology provides the ultimate in dependability and flexibility to meet landfill gas monitoring needs.

- Single point insertion devices with PTFE protection for high H<sub>2</sub>S applications
- Inline meters with superior accuracy with little to no straight run
- Outstanding low flow capability with live signal down to zero flow
- "HHT" devices for measurement of post-combustion emissions at temperatures up to 932 F.
- Bias and Variable correction processes to allow for profile variation
- Modbus communications standard
- CSA - Ex d IIB+H2
- Sensors are unaffected by the "dirty" and harsh environment, with no small ports and no moving parts
- Three year warranty is standard

### **About Kurz Instruments**

Kurz Instruments has maintained a reputation for designing and manufacturing Thermal Mass Flow Transmitters for industrial air and gas flow applications. For more than 30 years, our entire team has provided solutions to our customers most demanding and difficult applications. Kurz products are used in a wide variety of industrial applications including combustion air, aeration air flow and digester gas, nuclear power plants, pump protection, flare stack monitoring and compressed air, to name only a few.

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