



FLARE STACK MONITORING MINIMIZES ENVIRONMENTAL IMPACT EPA FLARE REGULATIONS ENSURE SAFE FLARE STACK OPERATIONS



CAS DataLoggers recently provided the flare stack monitoring solution to a processor of industrial railcars which disposes of the reclaimed chemicals and hydrocarbon liquids using a <u>flare stack</u>. A flare stack is the last line of defense for ensuring that toxic hydrocarbons are neutralized before they are released into the air. Flare stacks use a high-temperature flame to destroy the unusable waste from an industrial process, or gases released due to over-pressurization or process start-up. By burning at the proper temperature, the final released gases are safer for the environment with reduced volatile organic compounds and toxic pollutants.

The EPA is devoting significant enforcement resources to correcting regulatory noncompliance at flare stacks. The key to minimizing environmental impact and maximizing public safety is ensuring that flare stacks are operating within the prescribed operational and regulatory parameters. The regulatory requirements include monitoring of the combustion temperature which serves as proof that the pollutants are properly neutralized prior to venting into the atmosphere. The regulatory details are described in the <u>National Emission Standards for Hazardous Air Pollutants (NESHAP)</u> and the <u>New Source Performance Standards</u>.

INSTALLATION

The customer had installed a <u>CalorVal BTU Analyzer</u>, by Control Instrument Corporation.





This device continuously measures the energy in the flare and maintains the proper minimum combustion energy in BTUs. While the CalorVal is designed to maintain the flare temperature, it does not record that BTU level to serve as a record for the customer during an EPA audit. Without proper documentation of the flare's proper operation, the customer was subject to EPA fines that were expensive.

CAS Dataloggers provided a <u>dataTaker DT821</u> to record the 4-20 mA output signal from the CalorVal to provide permanent documentation for the EPA audit. The 4-20mA signal was scaled to BTUs and stored continuously with a time and data



stamp every 5 minutes. Data can be retrieved by simply plugging a USB memory stick into the front panel USB port of the DT82I. This gave the customer a simple method to bring the data from the logger onto a PC where it could be saved to the corporate network storage disks for reporting and as a historical archive. Each data file is named by the data logger's serial number combined with the time and date the files were created, allowing the customer to easily find data for a specific date. By using the "START=NEW" feature in the unload command, only data collected since the last successful transfer was saved to the USB stick to maximize storage usage and eliminate redundant data sets.

USAGE

Other flare stack monitoring installations may use temperature sensors, such as thermocouples connected directly to the <u>dataTaker</u>, to record actual combustion temperatures in the flare.





Also, Modbus connections (either Modbus/RTU or Modbus/TCP) from PLC-driven combustion control systems to the logger could easily provide additional process information. If a WiFi or wired LAN connection, the flare stack monitoring data could be automatically archived using one of the DT82I's internal schedules. This would allow the data collection and archiving process to be fully hands-off.

The dataTaker DT82I has an internal logic, alarm, and calculations capabilities which allow it to trigger data logging only when the combustion is active and can also engage timers to record actual combustion time together with the temperature as well as other parameters such as wind speed/direction, outside air temperature and humidity with the appropriate sensors. In short, the dataTaker family offers instruments that are rugged and capable of fulfilling almost any flare stack installation.

For more information on the flare stack monitoring, how CAS can help you capture flare stack monitoring data to satisfy EPA requirements and avoid costly fines, or to find the ideal solution for your application-specific needs, contact a CAS DataLogger Application Specialist at **(800) 956-4437** or <u>request more information</u>.