



*PREMIER provides automated usage and recovery data collection and reporting for EPA regulated chemical for automotive industry paint systems.*

**SPECIFICATIONS**

**Objectives**

- Accurate Recording of Used and Recovered Materials
- Robust Controls Programming for Identification and Alerting of Issues
- Event Logging and Reporting
- PLC Based Store & Forward
- Configurable Email Distribution of Alerts and Events
- Administrator Web Portal for Configuration
- Flexible & Configurable Reporting Interface

**Highlights**

- **Equipment**
  - Rockwell Automation CompactLogix
  - Rockwell Automation FlexEX Explosion Proof I/O
  - EtherNet / IP
  - Guided Wave Radar
  - Schneider Electric Magelis OIT
- **Software**
  - Microsoft C# .NET
  - Microsoft SQL Server
  - Microsoft ASP.NET

**Background**

An automotive paint facility used flow meters, level measuring sticks, and manual logging to track usage and recovery of an EPA regulated chemical cleaning agent. After use in a cleaning process, the chemical was recovered, along with cleaned solids. Reporting of the used and recovered chemical quantities was provided to the EPA on a monthly basis.

Difficulty in achieving and maintaining flow meter accuracy forced the need for a new system. The new system would track added and recovered material from the paint system in measured volumes. PREMIER was consulted during the conceptual planning of the system, tasked to develop and install the new system, and asked provide a new reporting system.

**Solution**

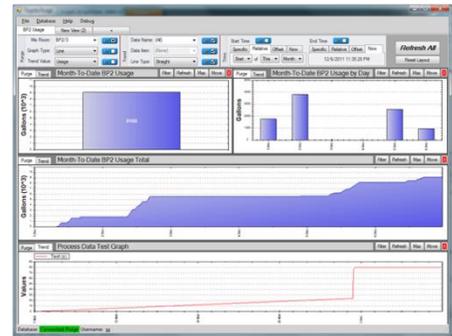
A controls enclosure was constructed to provide access and control for the new devices installed inside the paint mixing room, a Class I, Division 1 environment, using Rockwell Automation FlexEX I/O modules connected to CompactLogix processor. The system was architected to provide accelerated development and flexibility for future additions to the system.

To ensure availability of the system and associated reporting data, the system was designed to log system events to an internal PLC buffer. Events in the internal storage are then available for retrieval by the data logging service. This internal buffering allows the control system to continue functioning should connectivity to the data logging service be lost, while ensuring that critical time-stamped event data remains available when connectivity returns.

To provide additional insight into system performance and troubleshooting, the capability of the logging system was expanded to allow collection of additional events and process data

values outside of the required events for EPA reporting.

To facilitate visibility of the recorded data, an application was developed to display event records and event summary information in a configurable reporting interface. The interface allows the configuration of various views to suit each individual's visualization needs, including the ability to save the views for commonly used reports.



*Reporting Interface*

Due to the cleaning agent and the critical nature of its presence in the production environment, an email notification service was developed to provide notification of system events including, but not limited to, valve movement, transfer completions, system alerts, and faults. Administration of the email service distribution lists and audit scheduling is accomplished through a web based console.

Throughout the development of this project, PREMIER and the customer worked together in a cycle of continuous improvement to ensure that identified issues were resolved and new features and requirements could be evaluated and implemented as they were discovered.

As a result of this solution the customer has benefitted from improved accuracy of the system, reduced time required to generate mandatory reports, and the identification of additional manufacturing capacity under their existing EPA permit.

