CAL EYE 2.0
BY CALVARY INDUSTRIES, INC

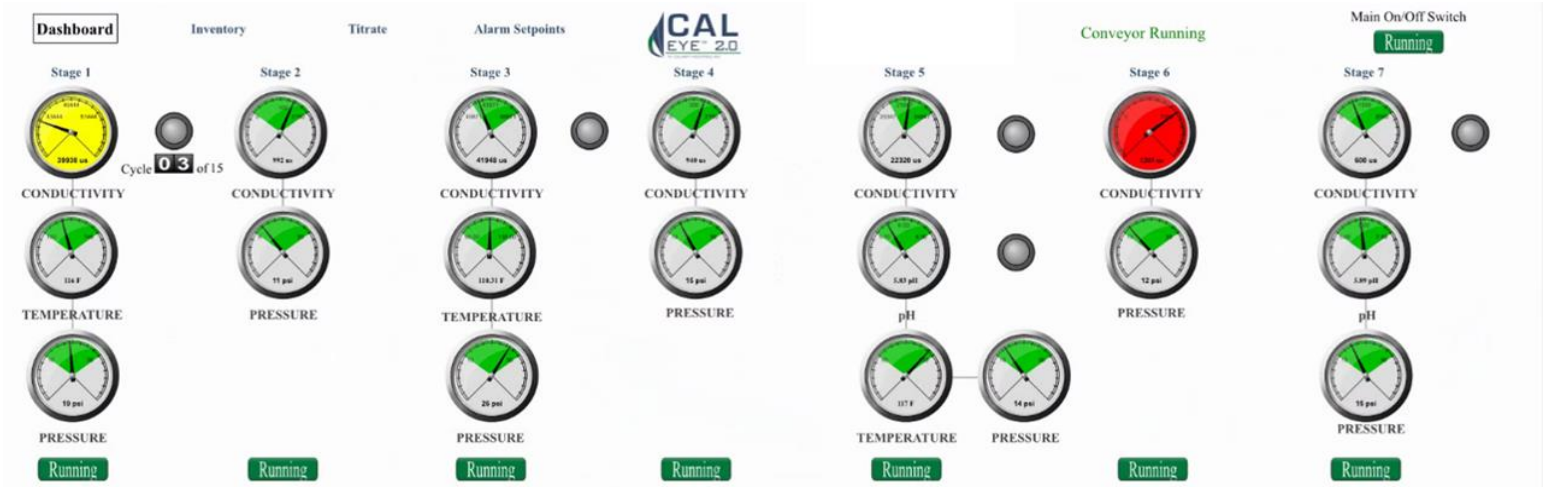
FEATURES

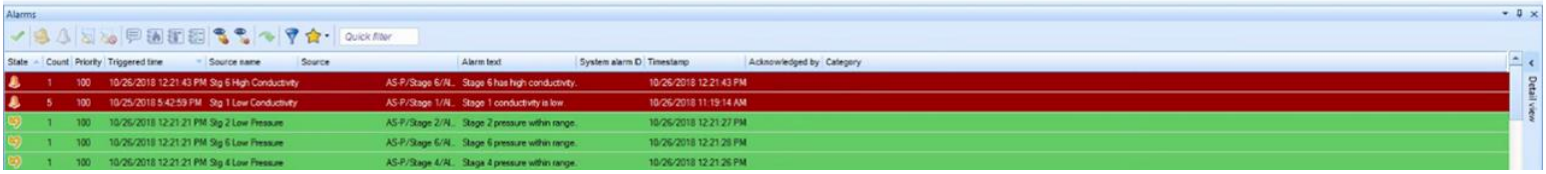
- Monitoring and controlling process parameters: temperature, conductivity, pH, spray pressure, conveyor status, tank levels
- Track chemical usage
- Automatic or timed feed of chemical pumps
- Automatic or timed opening of water valves
- Supervisory Control & Data Acquisition (SCADA)
    - Centralized workstation PC for monitoring
    - Monitored values are stored in trend logs that are easily exportable. Data is archived in SQL Server database for long-term history
    - System Alarms/Reports
- Real-time remote access
- Maintenance reminders (e.g. clean probes)

BENEFITS

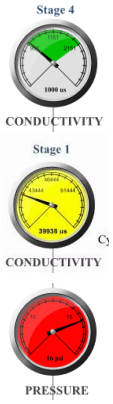
- Reduction in water usage
    - Valve control on rinse stages
    - Rinse/halo control
    - Promotes contamination control in rinse stages
- Reduction in downtime
    - Automated control of washer conditions decreases line stoppages
    - Real-time data with alarms promote identification and analysis of potential problems
    - Monitoring of conveyor status provides reporting and analysis capability for line uptime
- Reduction in reject rates
    - Maintains optimal washer conditions, resulting in fewer rejected parts and less rework.
- Real-time information and alerts promote washer corrections to prevent defective parts
- Availability of historical information supports investigation into problem parts
- Reduced warranty costs
- Reduced gas usage via energy-saving mode when parts are not being processed

SYSTEM DASHBOARD





- The operator monitors the dashboard for potential problems – gauge turns red for values that have gone out of range per the line control plan.

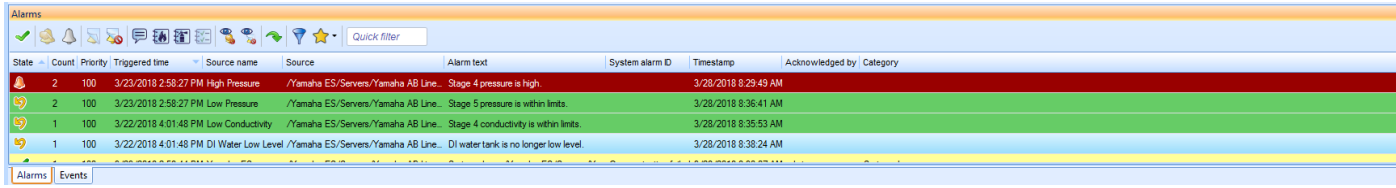


- Status indicators at top of Dashboard for:

  - Conveyor Status

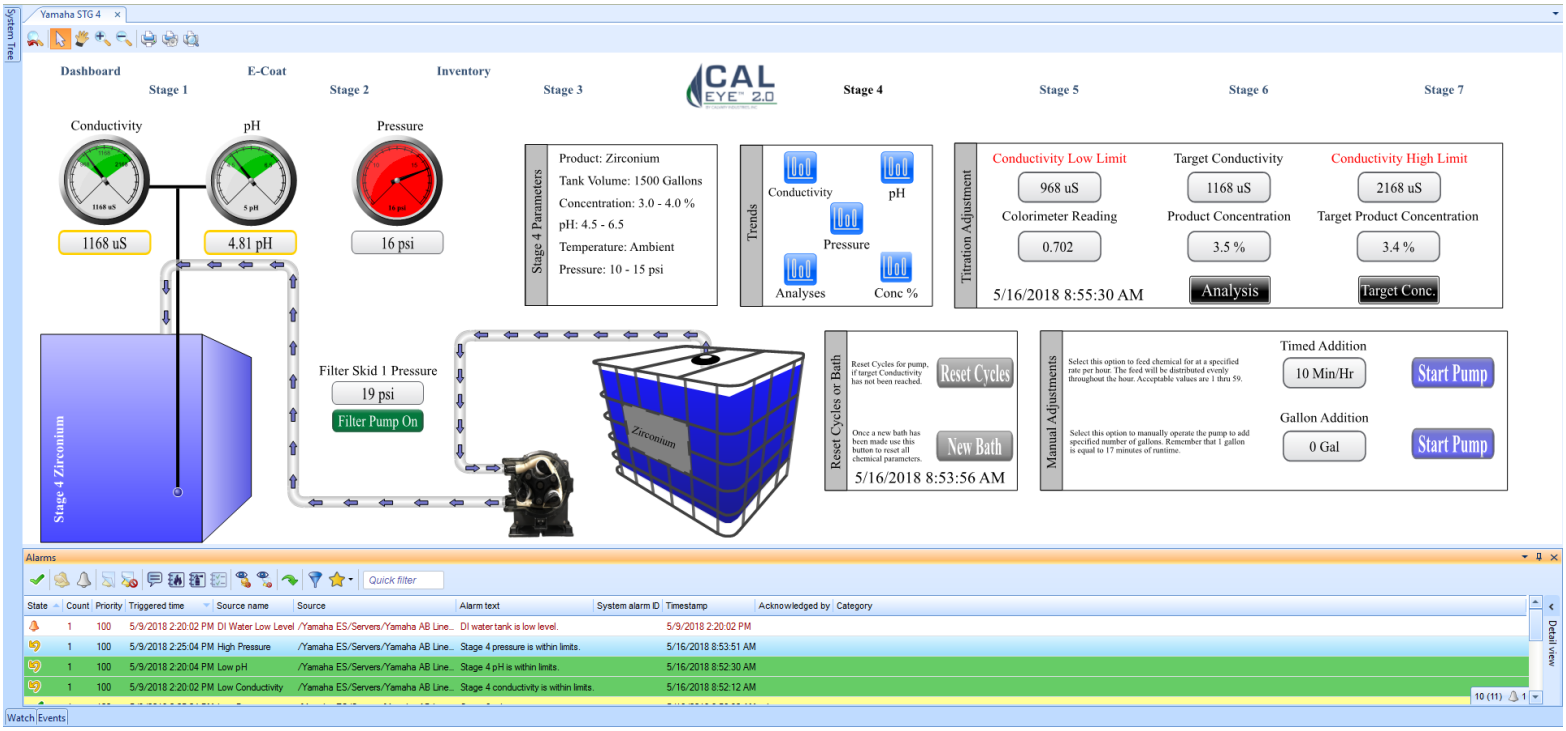
  - DI Tank Low Level Sensor

  - Master Control On/Off switch

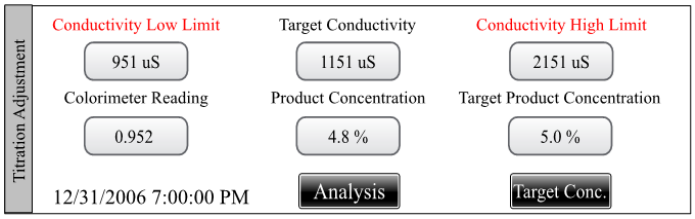


- Alarms panel at bottom of screen alerts of conditions that require attention. System reminders also appear in bottom panel (e.g. clean probes)

DETAIL SCREEN

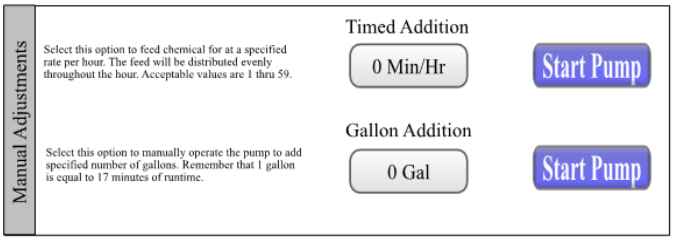


- Operator enters the titration/analysis on this screen. The data is used to calculate product concentration in the stages. The information is stored in a trend log.

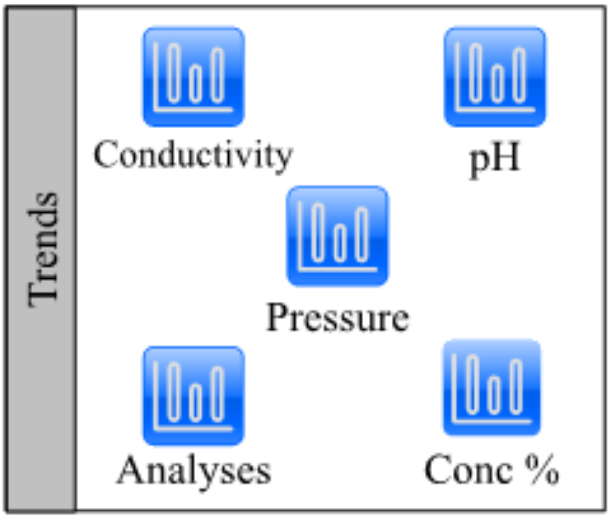


- The system adds chemical and opens water valves as necessary to keep stage concentration within control parameters

- Other stages operate on timed addition of chemical and water as needed

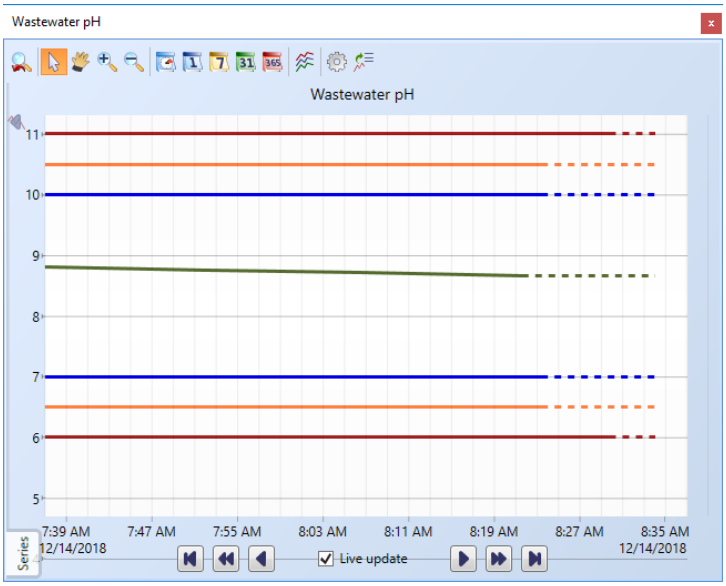


TRENDS

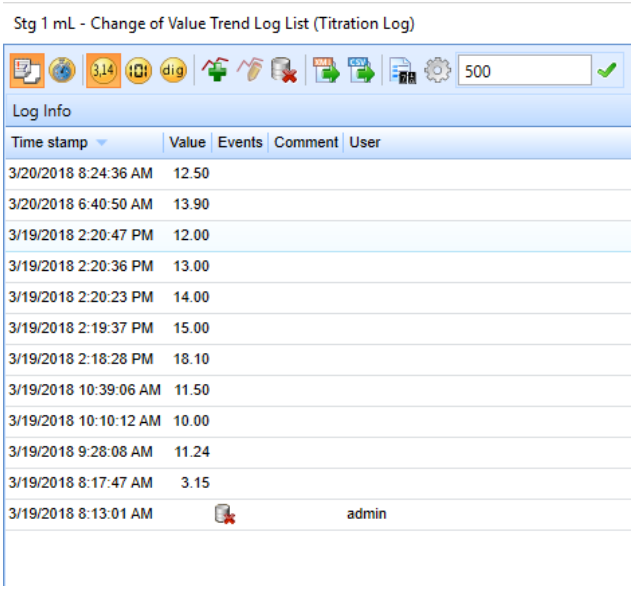


- Trends can be viewed by clicking the blue trend buttons on the Detail Screens
- More trends are available in the system tree when logged in with supervisor credentials

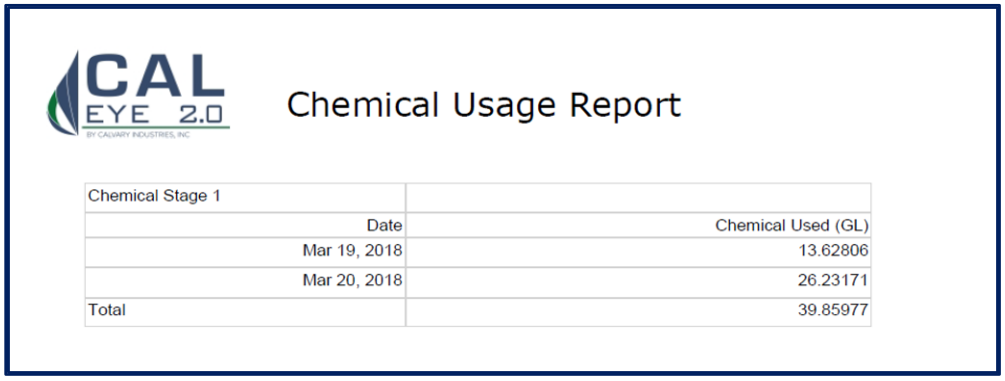
Wastewater pH Trend Log



Stage 1 Titration Log

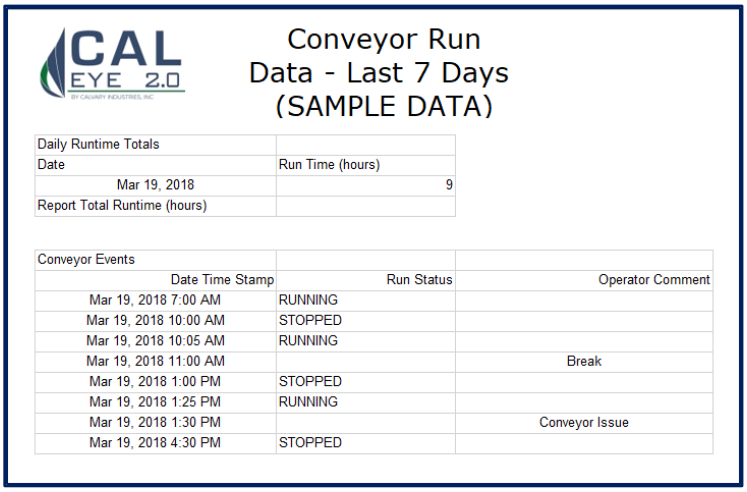


REPORTS



Chemical Usage Report

Chemical Stage 1	
Date	Chemical Used (GL)
Mar 19, 2018	13.62806
Mar 20, 2018	26.23171
Total	39.85977



Conveyor Run Data - Last 7 Days (SAMPLE DATA)

Daily Runtime Totals	
Date	Run Time (hours)
Mar 19, 2018	9
Report Total Runtime (hours)	

Conveyor Events		
Date Time Stamp	Run Status	Operator Comment
Mar 19, 2018 7:00 AM	RUNNING	
Mar 19, 2018 10:00 AM	STOPPED	
Mar 19, 2018 10:05 AM	RUNNING	
Mar 19, 2018 11:00 AM		Break
Mar 19, 2018 1:00 PM	STOPPED	
Mar 19, 2018 1:25 PM	RUNNING	
Mar 19, 2018 1:30 PM		Conveyor Issue
Mar 19, 2018 4:30 PM	STOPPED	

- Three reports are configured at start-up:
  - Top System Alarms Weekly Report
  - Monthly Chemical Usage Report
  - Weekly Runtime Report

NETWORK & REMOTE ACCESS

- Network and Internet connectivity provides:
  - Viewing dashboard from any PC on local network (with the required login credentials)
  - Emailed alarms
  - Emailed reports
  - Remote support

Add-On Features

- Parts tracking by hour, shift, month, and year
- Control oven temperatures
- Control line speed
- Customized reports
- Powder, Liquid, E-Coat monitoring/reporting