



# ESC|University

## Instructor-Led Online Training Topics

Revised November 2, 2016

### CEMS New User with ESC|StackVision

The ESC|StackVision New User topics are specifically for the new user. These topics cover the basic features of the StackVision software and the ESC data controller. Participants will receive hands-on experience with the StackVision software and have ample time to cover the entire DAS and associated tasks.

Topics recommended for beginners (all times are approximate):

Topic	Approximate Time	Topic Focus
<b>CEMS Overview</b>	1.5 Hours	Users will identify and describe a typical CEM System and CEMS components.
<b>CEMScope</b>	1 Hour	Users will identify and customize CEMScope components to create StackVision views, as well as use CEMScope functions to explore system parameters.
<b>Data Controller Essentials</b>	1.5 Hours	Users will identify features and functions of the data controller, and become familiar with common menu options in order to perform frequently performed tasks.
<b>DataLab and DataLab Viewer</b>	1 Hour	Users will explore DataLab and DataLab Viewer components and functionality in order to retrieve and review parameter data
<b>CalLab and Cal Gas Management</b>	1.5 – 2 Hours	Users will learn the role of CalLab in managing calibration data, as well as discover features of the StackVision Cal Gas Management tool
<b>ProcessNow</b>	0.5 Hours	Users will identify the role of ProcessNow in data processing
<b>System Applications</b>	1.5 – 2 Hours	Users will become familiar with the Linearity, RATA, Stack Flow, and Fuel System tools available within StackVision to enter certification data
<b>System Monitoring and Reporting</b>	1.5 Hours	Users will learn to acknowledge alarms successfully and ensure that StackVision is communicating with the data controller, as well as explore common reporting tools.
<b>Permit</b>	0.5 Hours	Users will identify and review tools and reports associated with plant operating permits and 40CFR60
<b>Consoles</b>	1.5 Hours	Users identify console components and understand how to build, save and recall a custom console

## Data Review with ESC|StackVision

In these topics, participants will learn how to use ESC|StackVision to identify, troubleshoot and resolve data anomalies in order to maintain the integrity and validity of CEMS data, Using DataLab, Callab and reporting tools available in StackVision, participants will streamline their compliance activities.

Topics recommended for intermediate users (all times are approximate):

Topic	Approximate Time	Topic Focus
<b>Daily Report Review</b>	1.5 Hours	Part 75 Review – Monitor calibrations, exception events, average data, MDSUB, operating data, and ProcessNow Part 60 Review – Monitor downtime/excess emissions events, rolling/block averages, and geometric averages
<b>Using DataLab to Troubleshoot<sup>1</sup></b>	1.5 – 2 Hours	Explore DataLab and DataLab Viewer components and functionality in order to retrieve and review parameter data.
<b>Navigating and Understanding Callab<sup>1</sup></b>	2 Hours	Learn the role of Callab in managing calibration data, as well as discover features of the StackVision Cal Gas Management tool. <ul style="list-style-type: none"> <li>▪ Understand the requirements of the Calibration Error Test</li> <li>▪ Discuss data validity and failed test</li> <li>▪ Add a 7-day Calibration Drift Test and a Cycle Time Test</li> </ul>
<b>Understanding ProcessNow<sup>1</sup></b>	1 Hour	Explain ProcessNow Logic <ul style="list-style-type: none"> <li>▪ Define procedures for reviewing plant operational data</li> <li>▪ Discuss ProcessNow Sequences and Tasks</li> <li>▪ Troubleshoot ProcessNow errors</li> </ul>
<b>System Applications</b>	1.5 Hours	<ul style="list-style-type: none"> <li>▪ Review Linearity, CGA record entry procedures</li> <li>▪ Examine RATA record entry procedures</li> <li>▪ Review Stack Flow Monitoring entry procedures</li> <li>▪ Discuss usage of the Appendix D – Fuel Analysis Tool</li> <li>▪ Review test extensions and exemption procedures</li> </ul>
<b>Certification Events</b>	1.5 Hours	<ul style="list-style-type: none"> <li>▪ Comprehend the importance of filing a certification event</li> <li>▪ Ascertain when a certification event is required and review specific events</li> <li>▪ Employ StackVision to file an event record</li> </ul>
<b>Periodic Reports</b>	1 Hour	<ul style="list-style-type: none"> <li>▪ Alarm History &amp; Comprehensive Alarm History</li> <li>▪ Cumulative Emissions</li> <li>▪ Emissions &amp; Performance Summary</li> <li>▪ Opacity Performance Summary</li> <li>▪ Performance Summary</li> <li>▪ Peaking Unit Qualification</li> <li>▪ Operating Load Analysis</li> <li>▪ Analyzer Range Evaluation</li> <li>▪ Creating Linked Reports</li> </ul>

<sup>1</sup>This is the same material covered in the QuickStart to StackVision and CEMS New User with ESC|StackVision

## Using ESC|StackStudio

These topics are designed for users who are experienced in configuring ESC|StackVision. Participants will be introduced to the configuration tools available in ESC|StackStudio and will explore the SQL Server -based architecture of StackStudio while learning how to make significant edits to a StackVision configuration. In addition to identifying the steps necessary for completing configuration changes and updates, completion of all topics will demonstrate how StackStudio can be used for validation and error-checking tasks.

Topics recommended for intermediate users (all times are approximate):

Topic	Approximate Time	Topic Focus
<b>StackVision Configuration Overview</b>	1 Hour	<ul style="list-style-type: none"> <li>▪ Overview of the configuration architecture</li> <li>▪ Establish the many ways to access configuration files, to save configuration files and to navigate the StackStudio environment</li> </ul>
<b>Data Definition and Control</b>	3 Hours	<ul style="list-style-type: none"> <li>▪ Understand how data flows through your StackVision system from data controller to StackVision server</li> <li>▪ Gain familiarity with the location and features of StackStudio configuration editors</li> <li>▪ Recognize configuration information specific to parameters, data controller channels, calibrations, averaging, digital expressions and alarms</li> </ul>
<b>System Settings</b>	1.5 Hours	<ul style="list-style-type: none"> <li>▪ Identify configuration information in StackStudio which customizes the way certain StackVision utilities are used</li> <li>▪ Review steps necessary for performing system management tasks in the StackVision application</li> </ul>
<b>Data Processing</b>	1.5 Hours	<ul style="list-style-type: none"> <li>▪ Recognize the ProcessNow components organized and configured in StackStudio</li> <li>▪ Review the steps for using the StackVision Task Scheduler Wizard to automate processing tasks configured in StackStudio</li> </ul>
<b>Data Reporting</b>	1.5 Hours	<ul style="list-style-type: none"> <li>▪ Assess the information configured using the Regulatory Programs configuration editors which prepares data for accurate reporting</li> <li>▪ Examine XML EDR and report settings information kept in StackStudio</li> <li>▪ Review the procedure for creating a linked report using Microsoft SQL Server Reporting Services</li> <li>▪ Customizing Linked Reports</li> </ul>

## Data QA/Certification with ESC|StackVision

These topics are designed to show participants how to utilize ESC|StackVision in order to complete required DataQA and CEMS Certification procedures. Topics cover the theory of Certification/On-going Test Events and Quality Assurance procedures required for 40 CFR 75 quarterly reporting, discussions on linearity, RATA, Flow-to- Load, 7-Day Calibration Error/Drift Test, cycle time response tests, daily calibrations, formula verification and missing data algorithms.

Topics recommended for intermediate users (all times are approximate):

Topic	Approximate Time	Topic Focus
<b>Part 75 Initial Certification Procedures</b>	1.5 Hours	Users will identify and understand the steps and tests required for Initial Certification under 40CFR75, as well as use StackVision to enter records of these tests
<b>Daily Quality Control</b>	1 Hour	Users will understand regulatory requirements associated with Calibration Error tests and Flow Interference checks. In this module, users will also use StackVision to view reports associated with daily quality control and view Calibration test records.
<b>Quarterly Quality Assurance</b>	1 Hour	Users will identify regulatory requirements for quarterly quality assurance tests, including Linearity Checks, Flow-to-Load Tests, and Leak Checks. In addition, users will use StackVision record the results of these tests.
<b>Semi-Annual or Annual Quality Assurance</b>	1.5 Hours	Users will understand the regulatory requirements and calculations necessary for RATA testing, and using StackVision to validate RATA tests
<b>Optional Methods for Gas- and Oil-Fired Units</b>	1 Hour	Users will understand and identify certification testing required for Appendix D and Appendix E units.
<b>Diagnostic and Recertification Testing</b>	1 Hour	Users will understand the steps and testing policies for 40CFR75 diagnostic and recertification testing, as well as procedures for entering these tests into StackVision.
<b>Record Keeping</b>	0.5 Hours	Users will identify 40CFR75 record keeping and QA/QC plant requirements, and how to use StackVision to comply with these requirements

## Using ECMPS

These topics will aid the participants in understanding the proper steps for preparing, evaluating and submitting an XML EDR with the EPA's ECMPS Client Tool. Participants will review the XML schema and the ECMPS Client to acquire the tools necessary to successfully submit an XML report to EPA. The Reporting Instructions provided by EPA have been incorporated to eliminate the need to search in multiple places for an error resolution.

Topics recommended for advanced users (all times are approximate):

Topic	Approximate Time	Topic Focus
<b>What is XML &amp; ECMPS</b>	1 Hour	Users will define and become introduced to the ECMPS Client Tool and XML
<b>Overview of ECMPS</b>	1 Hour	Users will identify and begin familiarization with the ECMPS Client Tool, as well as understand error codes within ECMPS
<b>Working with the Monitoring Plan</b>	0.5 Hours	Users will evaluate, correct errors, and generate a printed monitoring plan using the ECMPS Client Tool
<b>Using StackVision for XML Reporting</b>	1.5 Hours	Users will identify the role of StackVision in XML reporting and use StackVision to work with the corrected monitoring plan
<b>Resolving QA/Emissions Errors</b>	1 Hour	Users will evaluate, view, and correct QA and Emissions Errors using the ECMPS Client Tool
<b>Monitoring Plan Data</b>	1.5 Hours	Users will utilize information gathered from the ECMPS Reporting Instructions to resolve Monitoring Plan data errors
<b>Quality Assurance and Certification Data</b>	1 Hour	Users will utilize information gathered from the ECMPS Reporting Instructions to resolve Quality Assurance and Certification data errors
<b>Emissions Data</b>	1 Hour	Users will utilize information gathered from the ECMPS Reporting Instructions to resolve Emissions data errors

## Basic Part 60/75 Regulations

These topics provides a better understanding of the 40CFR75 (Part 75) and 40CFR60 (Part 60) regulations behind specific responsibilities. Participants will become familiar with terms and acronyms and understand the reasoning behind testing requirements and associated performance specifications.

Topics recommended for intermediate users (all times are approximate):

Topic	Approximate Time	Topic Focus
<b>Introduction to Regulations</b>	1.5 Hours	<ul style="list-style-type: none"> <li>▪ Air regulations timeline</li> <li>▪ Laws verses regulations</li> <li>▪ Programs overview (NSPS, ARP, NBP, CAIR)</li> </ul>
<b>Monitoring Requirements and Certification</b>	2 Hours	<ul style="list-style-type: none"> <li>▪ Monitoring requirements</li> <li>▪ Certification fundamentals</li> <li>▪ Backup monitors</li> </ul>
<b>Monitoring Fundamentals</b>	2 Hours	<ul style="list-style-type: none"> <li>▪ Span and range</li> <li>▪ Data validity</li> <li>▪ Missing data substitution</li> <li>▪ Diluent capping</li> <li>▪ Full-scale exceedances</li> <li>▪ Special rules for coal-fired units with SO2 monitors</li> </ul>
<b>QA/QC Recordkeeping and Reporting</b>	1.5 Hours	<ul style="list-style-type: none"> <li>▪ QA/QC Test</li> <li>▪ Recordkeeping requirements</li> <li>▪ Reporting</li> </ul>
<b>Excepted Methods</b>	1 Hours	<ul style="list-style-type: none"> <li>▪ App. D, E &amp; G methodology</li> <li>▪ Low mass emissions (LME) units</li> </ul>
<b>Part 60 Regulations</b>	2 Hours	<ul style="list-style-type: none"> <li>▪ Subpart A – General Provisions</li> <li>▪ Subpart D, Da, Db, GG and KKKK specific limits</li> <li>▪ Navigate the subparts</li> </ul>

## Data Controller Training

These topics provide an introductory basic overview of the ESC 8832 Data Controller highlighting features, security and navigation. Additionally, participants will go “under the hood” and review the I/O cards, firmware and internal functions. Participants will learn how monitor calibrations, alarms and real time displays, as well as system settings and status, and the use of the MODBUS interface.

Topics recommended for intermediate users (all times are approximate):

Topic	Approximate Time	Topic Focus
<b>Data Controller Familiarization</b>	1 Hour	A basic overview of the ESC 8832 Data Controller highlighting features, security and navigation
<b>Under the hood</b>	0.5 Hours	Covers the “guts” and “brains” of the data controller, with concentration on I/O cards, firmware and internal functions
<b>Data Controller Operation</b>	1.5 Hours	An exploration of different connection and log in methods of using and navigating the data controller
<b>Data Controller Configuration</b>	3 Hours	Address how and what to enter in the various configuration menus and fields. In addition the correct settings in the configuration, what will the end result be
<b>Working with Calibrations, Alarms and Real Time Displays</b>	1.5 Hours	How to set up initiate and monitor calibrations. Looks at the different controller alarm types, and covers the many Real Time displays available and the benefits of each
<b>System Settings and Status</b>	1 Hour	Looks at the current status of the system with regards to settings previously configured and using the various status menus to get a broader system status.
<b>Using the MODBUS interface</b>	1 Hour	Will address the modus settings and registries on both the Modbus Server and Client

# ESC|University Class Descriptions v3

Revised November 2, 2016

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## CEMS New User with ESC|StackVision

The ESC|StackVision New User class is a two-day course paced specifically for the new user. This class covers the basic features of the StackVision software and the ESC data controller. Participants will receive hands-on experience with the StackVision software and have ample time to cover the entire DAS and associated tasks. Training manuals for each of the classes can be provided by ESC or purchased by customers.

Recommended for beginners.

Course Outline:

### Module 1 — CEMS Overview

- Users will identify and describe a typical CEM System and CEMS components.

### Module 2 — CEMScape

- Users will identify and customize CEMScape components to create StackVision views, as well as use CEMScape functions to explore system parameters.

### Module 3 — Data Controller Essentials

- Users will identify features and functions of the data controller, and become familiar with common menu options in order to perform frequently performed tasks.

### Module 4 — DataLab and DataLab Viewer

- Users will explore DataLab and DataLab Viewer components and functionality in order to retrieve and review parameter data.

### Module 5 — CalLab and Cal Gas Management

- Users will learn the role of CalLab in managing calibration data, as well as discover features of the StackVision Cal Gas Management tool.

### Module 6 — ProcessNow

- Users will identify the role of ProcessNow in data processing.

### Module 7 — System Applications

- Users will become familiar with the Linearity, RATA, Stack Flow, and Fuel System tools available within StackVision to enter certification data.

### Module 8 — System Monitoring and Reporting

- Users will learn to acknowledge alarms successfully and ensure that StackVision is communicating with the data controller, as well as explore common reporting tools.

### Module 9 — Permit

- Users will identify and review tools and reports associated with plant operating permits and 40CFR60.

### Module 10 — Consoles

- Users will build, save and recall a custom console.

## QuickStart to ESC|StackVision

The QuickStart to ESC|StackVision training is a one-day course paced for experienced DAS users. The course will introduce the user to key StackVision features, including certification wizards, the new DataLab and CalLab, and the easy-to-navigate CEMScape.

Recommended for beginners.



Course Outline:

**Module 1 — CEMScope**

- Users will identify and customize CEMScope components to create StackVision views, as well as use CEMScope functions to explore system parameters.

**Module 2 — DataLab and DataLab Viewer**

- Users will explore DataLab and DataLab Viewer components and functionality in order to retrieve and review parameter data.

**Module 3 — CalLab and Cal Gas Management**

- Users will learn the role of CalLab in managing calibration data, as well as discover features of the StackVision Cal Gas Management tool.

**Module 4 — ProcessNow**

- Users will identify the role of ProcessNow in data processing.

**Module 5 — System Applications**

- Users will become familiar with the Linearity, RATA, Stack Flow, and Fuel System tools available within StackVision to enter certification data.

**Module 6 — System Monitoring and Reporting**

- Users will learn to acknowledge alarms successfully and ensure that StackVision is communicating with the data controller, as well as explore common reporting tools.

**Module 7 — Permit**

- Users will identify and review tools and reports associated with plant operating permits and 40CFR60.

**Module 8 — Consoles**

- Users will build, save and recall a custom console.

## Data Review with ESC|StackVision

During this one-day workshop, participants will learn how to use ESC|StackVision to identify, troubleshoot and resolve data anomalies to maintain the integrity and validity of CEMS data, Using DataLab, CalLab and reporting tools available in StackVision, participants will streamline their compliance activities.

Recommended for intermediate users.

Course Outline:

**Module 1 — Daily Report Review**

- Part 75 Review – Monitor calibrations, exception events, average data, MDSUB, operating data, and ProcessNow
- Part 60 Review – Monitor downtime/excess emissions events, rolling/block averages, and geometric averages

**Module 2 — Using DataLab to Troubleshoot<sup>1</sup>**

- Explore DataLab and DataLab Viewer components and functionality in order to retrieve **and review parameter data**.
- Troubleshoot Exercises – Editing parameters, applying BAF, failed QA test procedures, editing reason/action codes

**Module 3 — Navigating and Understanding CalLab<sup>1</sup>**

- Learn the role of CalLab in managing calibration data, as well as discover features of the StackVision Cal Gas Management tool.
- Understand the requirements of the Calibration Error Test
- Discuss data validity and failed test
- Add a 7-day Calibration Drift Test and a Cycle Time Test

**Module 4 — Understanding ProcessNow<sup>1</sup>**

- Explain ProcessNow Logic

- Define procedures for reviewing plant operational data
- Discuss ProcessNow Sequences and Tasks
- Troubleshoot ProcessNow errors

#### **Module 5 — System Applications<sup>1</sup>**

- Review Linearity, CGA record entry procedures
- Examine RATA record entry procedures
- Review Stack Flow Monitoring entry procedures
- Discuss usage of the Appendix D – Fuel Analysis Tool
- Review test extensions and exemption procedures

#### **Module 6 — Certification Events**

- Comprehend the importance of filing a certification event
- Ascertain when a certification event is required and review specific events
- Employ StackVision to file an event record

#### **Module 7 — Periodic Reports**

- Alarm History & Comprehensive Alarm History
- Cumulative Emissions
- Emissions & Performance Summary
- Opacity Performance Summary
- Performance Summary
- Peaking Unit Qualification
- Operating Load Analysis
- Analyzer Range Evaluation

*x<sup>1</sup> This is the same material covered in the QuickStart to StackVision and CEMS New User with ESC|StackVision*

## **Using ESC|StackStudio**

This one-day workshop is designed for users who are experienced in configuring ESC|StackVision. Attendees will be introduced to the configuration tools available in ESC|StackStudio and will explore the SQL Server-based architecture of StackStudio while learning how to make significant edits to a StackVision configuration. In addition to identifying the steps necessary for completing configuration changes and updates, this course will demonstrate how StackStudio can be used for validation and error-checking tasks.

Recommended for advanced users.

Course Outline:

#### **Module 1 — StackVision Configuration Overview**

- Overview of the configuration architecture
- Establish the many ways to access configuration files, to save configuration files and to navigate the StackStudio environment

#### **Module 2 — Data Definition and Control**

- Understand how data flows through your StackVision system from data controller to StackVision server
- Gain familiarity with the location and features of StackStudio configuration editors
- Recognize configuration information specific to parameters, data controller channels, calibrations, averaging, digital expressions and alarms

#### **Module 3 — System Settings**

- Identify configuration information in StackStudio which customizes the way certain StackVision utilities are used

- Review steps necessary for performing system management tasks in the StackVision application

#### **Module 4 — Data Processing**

- Recognize the ProcessNow components organized and configured in StackStudio
- Review the steps for using the StackVision Task Scheduler Wizard to automate processing tasks configured in StackStudio

#### **Module 5 — Data Reporting**

- Assess the information configured using the Regulatory Programs configuration editors which prepares data for accurate reporting
- Examine XML EDR and report settings information kept in StackStudio
- Review the procedure for creating a linked report using Microsoft SQL Server Reporting Services
- Customizing Linked Reports

### **StackStudio Practical Application**

Participants will use this hands-on application to create

- Source
- Data controller
- Data controller channels
- Parameters
- Procesnow sequences
- Calibration sequences

## **Data QA/Certification with ESC|StackVision**

In this two-day workshop, attendees will learn how to utilize ESC|StackVision in order to complete required Data QA and CEMS Certification procedures. This workshop covers the theory of Certification/On-going Test Events and Quality Assurance procedures required for 40 CFR 75 quarterly reporting, discussions on linearity, RATA, Flow-to-Load, 7-Day Calibration Error/Drift Test, cycle time response tests, daily calibrations, formula verification and missing data algorithms.

Recommended for intermediate users.

Course Outline:

#### **Module 1 — Part 75 Initial Certification Procedures**

- Users will identify and understand the steps and tests required for Initial Certification under 40CFR75, as well as use StackVision to enter records of these tests.

#### **Module 2 — Daily Quality Control**

- Users will understand regulatory requirements associated with Calibration Error tests and Flow Interference checks. In this module, users will also use StackVision to view reports associated with daily quality control and view Calibration test records.

#### **Module 3 — Quarterly Quality Assurance**

- Users will identify regulatory requirements for quarterly quality assurance tests, including Linearity Checks, Flow-to-Load Tests, and Leak Checks. In addition, users will use StackVision record the results of these tests.

#### **Module 4 — Semi-Annual or Annual Quality Assurance**

- Users will understand the regulatory requirements and calculations necessary for RATA testing, and using StackVision to validate RATA tests.

#### **Module 5 — Optional Methods for Gas and Oil Fired Units**

- Users will understand and identify certification testing required for Appendix D and Appendix E units.

#### **Module 6 — Diagnostic and Recertification Testing**

- Users will understand the steps and testing policies for 40CFR75 diagnostic and recertification testing, as well as procedures for entering these tests into StackVision.

#### **Module 7 — Record Keeping**

- Users will identify 40CFR75 record keeping and QA/QC plant requirements, and how to use StackVision to comply with these requirements.

## **Using ECMPS**

Learn the proper steps for preparing, evaluating and submitting an XML EDR with the EPA's ECMPS Client Tool in this one-day workshop. Attendees will review the XML schema and the ECMPS Client to acquire the tools necessary to successfully submit an XML report to EPA. This course includes a hands-on exercise designed to educate you on troubleshooting ECMPS errors. With this hands-on exercise, participants will gain the ability to identify and resolve errors that may occur when making submissions via the Emissions Collection and Monitoring Plan System. The Reporting Instructions provided by EPA have been incorporated into the manual to eliminate the need to search in multiple places for an error resolution. In 2009 ESC University is dedicated to providing you the tools you will need to become fluent with the ECMPS Client Tool.

Recommended for advanced users.

Course Outline:

#### **Module 1 — What is XML & ECMPS**

- Users will define and become introduced to the ECMPS Client Tool and XML.

#### **Module 2 — Overview of ECMPS**

- Users will identify and begin familiarization with the ECMPS Client Tool, as well as understand error codes within ECMPS.

#### **Module 3 — Working with the Monitoring Plan**

- Users will evaluate, correct errors, and generate a printed monitoring plan using the ECMPS Client Tool.

#### **Module 4 — Using StackVision for XML Reporting**

- Users will identify the role of StackVision in XML reporting and use StackVision to work with the corrected monitoring plan.

#### **Module 5 — Resolving QA/Emissions Errors**

- Users will evaluate, view, and correct QA and Emissions Errors using the ECMPS Client Tool.

#### **Module 6 — Monitoring Plan Data**

- Users will utilize information gathered from the ECMPS Reporting Instructions to resolve Monitoring Plan data errors.

#### **Module 7 — Quality Assurance and Certification Data**

- Users will utilize information gathered from the ECMPS Reporting Instructions to resolve Quality Assurance and Certification data errors.

#### **Module 8 — Emissions Data**

- Users will utilize information gathered from the ECMPS Reporting Instructions to resolve Emissions data errors.

## Regulations Training

### Basic Part 75/60 Regulations

These courses provide a better understanding of the Part 75 and Part 60 regulations behind specific responsibilities. The Basic Part 75/60 Regulations training is targets towards Environmental Managers or anyone wanting overall Part75/60 training (2 days), a class for CEMS Technicians (1 Day) and a class for Operators (1/2 day). Through this class participants will become familiar with terms and acronyms, become comfortable with finding various sections in the rule and understand the reasoning behind testing requirements and associated performance specifications. The one day Basic Part 60 Regulations class is targeted toward those who are only affected by New Source Performance Standards (NSPS) Part 60.

Course Outlines:

Basic Part75/60 - Two days

#### **Module 1 — Introduction to Regulations**

- Air regulations timeline
- Laws verses regulations
- Programs overview (NSPS, ARP, NBP, CAIR)

#### **Module 2 — Monitoring Requirements and Certification**

- Monitoring requirements
- Certification fundamentals
- Backup monitors

#### **Module 3 — Monitoring Fundamentals**

- Span and range
- Data validity
- Missing data substitution
- Diluent capping
- Full-scale exceedances
- Special rules for coal-fired units with SO<sub>2</sub> monitors

#### **Module 4 — QA/QC Recordkeeping and Reporting**

- QA/QC Test
- Recordkeeping requirements
- Reporting

#### **Module 5 — Excepted Methods**

- App. D, E & G methodology
- Low mass emissions (LME) units

#### **Module 6 — Part 60 Regulations**

- Subpart A – General Provisions
- Subpart D, Da, Db, GG and KKKK specific limits
- Navigate the subparts

Basic Regulations for **Technicians** - One day

#### **Module 1 — Introduction to Regulations**

- Air regulations timeline
- Laws verses regulations
- Programs overview (NSPS, ARP, NBP, CAIR)

#### **Module 2 — Certification Fundamentals**

- Steps required for initial and recertification to include
  - 7 Day Calibration Drift Test
  - Cycle Time Response Test
  - Linearity
  - Relative Accuracy Test Audit (RATA)
  - DAS Verification (formula and missing data)

**Module 3 — Monitoring Fundamentals**

- Define Span and Range
- Data Validity
- Missing Data Substitution
- Dilluent Caps
- Exceedances

**Module 4 — QA/QC Recordkeeping and Reporting**

- QA/QC Test
- Recordkeeping requirements
- Reporting

**Module 5 — Part 60 Regulations**

- Subpart A – General Provisions
- Subpart D, Da, Db, GG and KKKK specific limits
- Navigate the subparts

**Module 6 — Excepted Methods**

- App. D, E & G methodology
- Low mass emissions (LME) units

Basic Regulations for **Operators** - Half day

**Module 1 — Introduction to Regulations**

- Air regulations timeline
- Laws verses regulations
- Programs overview (NSPS, ARP, NBP, CAIR)

**Module 2 — Certification Fundamentals**

- Steps required for initial and recertification to include
  - 7 Day Calibration Drift Test
  - Cycle Time Response Test
  - Linearity
  - Relative Accuracy Test Audit (RATA)
  - DAS Verification (formula and missing data)

**Module 3 — Monitoring Fundamentals**

- Define Span and Range
- Data Validity
- Missing Data Substitution
- Dilluent Caps
- Exceedances

**Basic Part 60 Regulations** - One Day

**Module 1 — Introduction to Regulations**

- Air regulations timeline
- Laws verses regulations
- Program overview of NSPS

**Module 2 — Monitoring Requirements and Certification**

- Monitoring requirements

- Certification fundamentals
- Backup monitors

#### **Module 3 — Monitoring Fundamentals**

- Span and range
- Data validity
- Diluent capping
- Full-scale exceedances
- Special rules for coal-fired units with SO<sub>2</sub> monitors

#### **Module 4 — QA/QC Recordkeeping and Reporting**

- QA/QC Test
- Recordkeeping requirements
- Reporting

#### **Module 5 — Part 60 Regulations**

- Subpart A – General Provisions
- Subpart D, Da, Db, GG and KKKK specific limits
- Navigate the subparts

Industry and state specific regulatory topics may be substituted in Module 5 upon request, but this is a basic course and advanced training in specific regulation compliance would be considered a separate custom class. Please inquire, we will be happy to work with your needs. PADEP and Subpart Ja are examples of state and industry-specific topics, respectively.

## **Data Controller Training**

In this one-day workshop, attendees will receive an introductory basic overview of the ESC 8832 or 8864 Data Controller highlighting features, security and navigation. Additionally, the course will go “under the hood” and review the I/O cards, firmware and internal functions. Participants will learn how monitor calibrations, alarms and real time displays, as well as system settings and status, and the use of the MODBUS interface. Please specify for which data controller model training is required.

Recommended for intermediate users.

Course Outline:

#### **Module 1 — Data Controller Familiarization**

- A basic overview of the ESC 8832 Data Controller highlighting features, security and navigation

#### **Module 2 — Under the hood**

- Covers the “guts” and “brains” of the data controller, with concentration on I/O cards, firmware and internal functions.

#### **Module 3 — Data Controller Operation**

- An exploration of different connection and log in methods of using and navigating the data controller.

#### **Module 4 — Data Controller Configuration**

- Address how and what to enter in the various configuration menus and fields. In addition the correct settings in the configuration, what will the end result be.

#### **Module 5 — Working with Calibrations, Alarms and Real Time Displays**

- How to set up initiate and monitor calibrations. Looks at the different controller alarm types, and covers the many Real Time displays available and the benefits of each.

#### **Module 6 — System Settings and Status**

- Looks at the current status of the system with regards to settings previously configured and using the various status menus to get a broader system status.

#### **Module 7 — Using the MODBUS interface**

- Will address the modus settings and registries on both the Modbus Server and Client

## ESC|StackStudio and Data Controller Workshop

There are many overlaps in the Data Controller Training and the StackStudio class. This one day workshop a hybrid both of these classes.

Recommended for intermediate users.

Workshop Outline:

### **Module 1 — Data Controller Essentials**

- Users will identify features and functions of the data controller, and become familiar with common menu options to perform frequently performed tasks.

### **Module 2 — Data Controller Operation**

- An exploration of different connection and log in methods of using and navigating the data controller.

### **Module 3 — Data Definition and Control**

- Understand how data flows through your StackVision system from data controller to StackVision server
- Gain familiarity with the location and features of StackStudio configuration editors
- Recognize configuration information specific to parameters, data controller channels, calibrations, averaging, digital expressions and alarms

### **Module 4 — Data Processing**

- Recognize the ProcessNow components organized and configured in StackStudio
- Review the steps for using the StackVision Task Scheduler Wizard to automate processing tasks configured in StackStudio

### **Module 5 — System Settings**

- Identify configuration information in StackStudio which customizes the way certain StackVision utilities are used
- Review steps necessary for performing system management tasks in the StackVision application

### **Module 6 — Data Reporting**

- Assess the information configured using the Regulatory Programs configuration editors which prepares data for accurate reporting
- Examine XML EDR and report settings information kept in StackStudio
- Review the procedure for creating a linked report using Microsoft SQL Server Reporting Services
- Customizing Linked Reports

## Managing Your DAS

This is a three-day class which combines New User with ESC|StackVision, StackStudio and Data Controller training. This class should meet the needs of technicians and environmental/reporting personnel. Participants can attend all 3 days, the first 2 days only (New User with ESC|StackVision), or only the third day (StackStudio and Data Controller training).

Recommended for beginning users.

Course Outline:

### **Module 1 — CEMS Overview**

- Users will identify and describe a typical CEM System and CEMS components.

### **Module 2 — CEMScape**



- Users will identify and customize CEMScope components to create StackVision views, as well as use CEMScope functions to explore system parameters.

**Module 3 — DataLab and DataLab Viewer**

- Users will explore DataLab and DataLab Viewer components and functionality in order to retrieve and review parameter data.

**Module 4 — CalLab and Cal Gas Management**

- Users will learn the role of CalLab in managing calibration data, as well as discover features of the StackVision Cal Gas Management tool.

**Module 5 — ProcessNow**

- Users will identify the role of ProcessNow in data processing.

**Module 6 — System Applications**

- Users will become familiar with the Linearity, RATA, Stack Flow, and Fuel System tools available within StackVision to enter certification data.

**Module 7 — System Monitoring and Reporting**

- Users will learn to acknowledge alarms successfully and ensure that StackVision is communicating with the data controller, as well as explore common reporting tools.

**Module 8 — Permit**

- Users will identify and review tools and reports associated with plant operating permits and 40CFR60.

**Module 9 — Consoles**

- Users will build, save and recall a custom console.

**Module 10 — \*Data Controller Essentials**

- Users will identify features and functions of the data controller, and become familiar with common menu options in order to perform frequently performed tasks.

**Module 11 — \*Data Controller Operation**

- An exploration of different connection and log in methods of using and navigating the data controller.

**Module 12 — \*Data Definition and Control**

- Understand how data flows through your StackVision system from data controller to StackVision server
- Gain familiarity with the location and features of StackStudio configuration editors
- Recognize configuration information specific to parameters, data controller channels, calibrations, averaging, digital expressions and alarms

**Module 13 — \*Data Processing**

- Recognize the ProcessNow components organized and configured in StackStudio
- Review the steps for using the StackVision Task Scheduler Wizard to automate processing tasks configured in StackStudio

**Module 14 — \*System Settings**

- Identify configuration information in StackStudio which customizes the way certain StackVision utilities are used
- Review steps necessary for performing system management tasks in the StackVision application

**Module 15 — \*Data Reporting**

- Assess the information configured using the Regulatory Programs configuration editors which prepares data for accurate reporting
- Examine XML EDR and report settings information kept in StackStudio
- Review the procedure for creating a linked report using Microsoft SQL Server Reporting Services
- Customizing Linked Reports

*\*These modules are the same as the modules for the Data Controller and StackStudio workshop.*

## MODBUS 101

This is a basic MODBUS course, targeted towards the technicians who are responsible for understanding and configuring the ESC data controller to communicate with MODBUS enabled CEMS components. A course designed to introduce the MODBUS concept, functionality and configuration.

Course Outline:

### Module 1 — MODBUS Overview

- Definitions of terms used in MODBUS
- Hex vs Bin and vice a versa
- How the data is written in one, then converted in the other
- How to understand and read bytes, bits, words
- How the Most Significant Word /Least Significant Word applies

### Module 2 — MODBUS Configuration in Data Controller

- Using Status screens to see MODBUS tables/registry entries in the data controller
- Creating MODBUS Channels in StackStudio
- Purpose of MODBUS Scaling factor

### Module 3 — Using the MODBUS MAP downloaded at ESC website

- Overview of the Server.CFG file
- Registry addresses, reg count, slave address, function codes
- Using FTP to get/put server.cfg to data controller (8832)
- Seeing the value in the Data Controller using calculator function to see bin2hex and hex2bin

### Modbus Practical Application:

Use FTP to get server.cfg from logger.

Review Server.cfg to determine which registers are being used and for what purpose

Use data controller to see values in the modbus registries

Covert values and verify with Data Controller channel values

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