

# Analyzer, Heated Sample Line and PLC Replacements

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# Analyzer & Sample System Replacements

- Need to define what is staying and what is being replaced – are the items staying compatible and adequate to handle the new system. Be as concise as possible (HSL boots, PSB, new electrical required, . . .)
- Is a plant visit by CiSCO required, expected or beneficial?
- What drawings are available – whose system was it, have there been any modifications that need to be addressed?
- Will the software be modified? How? Small changes or whole new version? Define expectations

# Analyzer & Sample System Replacements

- Define installation – who will install what? (HSL, analyzers, support rails, moving electrical, terminating lines)
- How much downtime is expected?
- What is the plant availability?
- Safety requirements – are there special requirements for your site?
- Tools and other items that need to be supplied?

# Analyzer & Sample System Replacements

- Are Monitoring Plan updates included?
- Hard Copy Monitoring Plan?
- QA/QC Document – will this be updated? Does one already exist? Can it be provided?
- Prepare and plan for Certification requirements due to new equipment
- Will there be a new I/O list provided? New DAHS Specification?
- Are new drawings being supplied?

# Analyzer & Sample System Replacements

- How will the O&M Manual be updated?
- Will the analyzer ranges stay the same?
- Will the Calibration gasses need to be changed?
- Are all calibration gasses onsite for the new system?
- Is the OIT still supported?

# Analyzer & Sample System Replacements

- Define number of personnel to be onsite and for how many days.
- What assistance will plant provide?
- Is there a plant person assigned to lead the project?
- When can equipment be shipped prior to installation phase?
- Maintenance of other equipment is essential (equipment that has not maintained and fails during installation is out of scope and will result in extra charges – make sure there are adequate spare parts or repair parts onsite).

# Heated Sample Line Replacement

- Heated sample lines have a life span, but that life span varies dramatically
- Many lines have been in service 15-20 years – others fail after only 5 or so
- When planning – a life span of approximately 10 years is a good rule of thumb

# Replace Sample Line with Like kind or Change?

- Many CiSCO systems were equipped with Technical Heaters, Single Series Heater lines up until just recently. We now recommend using other suppliers.
- Thermon and Ametek (Obrien) lines are designed into our latest systems.
  - These lines are field trimmable, so excess lengths are eliminated.
  - Use a more protective/robust outer jacket.



# Changing to Thermon / Ametek /Other

- CiSCO will usually recommend switching to these alternate suppliers when asked about changing/updating sample lines.
- Consider the differences between staying with Technical Heaters or switching:
  - Replacing a Tech Heaters line with another Tech heaters line is a simple procedure, as it fits right in without any system modifications.
  - Changing to a Thermon or Ametek (Obrien) line requires some modifications.
    - Larger diameter lines require drilling out larger penetrations in probe enclosures and shelter bulkheads.
    - Lines must be sealed and terminated at site. Seal and Electrical kits provided with lines.
    - Possibly changing out the sample line power breaker, new power wires.

# Add Sample Line Control

- It is advised to provide Heated Sample Line controllers to keep the line at its minimum required temperature.
- CiSCO no long is recommending alternate online/offline temperature setpoints.
  - Too much potential for lines to be exposed to process moisture when Sample Line temperature is below the Acid Dew Point temperature.

# PLC and OIT Replacement

- GE PLCs – the Fanuc to the RX3i
- Allen Bradley – SLC PLCs – Nearly Completely Obsolete. Some components are.
- Allen Bradley – CompactLogix and ControlLogix. CiSCO recently moved to the latest version of Compact Logix, the 5000 series (5069).
- OIT Panels – Allen Bradley, Automation Direct, GE, Maple(obsolete)
- RealView Desktop PC as an option, or Panel PCs may Replace an OIT and include RealView Software.
- Replace Other Vendor's Equipment (Datalogger)

# PLC and OIT Replacement

- DCS Communication
  - Is it Serial? Will it need to stay that way?
  - CiSCO will propose an Ethernet solution if possible.
  - Need to make sure this communication is defined either in the proposal stage or VERY early in the project.
  - DCS hardware and software changes are not in CiSCO's scope.
  - Site DCS person is needed to be active in all phases of the project.

# Testing the System Changes

- CiSCO personnel, along with plant personnel, need to make sure that the new system is fully functional (calibrations run correctly, CGAs/Linearity checks if applicable, are functional and accurate, taking system out of service functions properly, communication with DCS is functioning and accurate)
- For the remaining functions that can't be immediately tested – create a list and update CiSCO weekly for the first few months (startup, shutdown, limit alarms, etc.).
- Signoff of daily field service reports from CiSCO technicians to acknowledge the status of the installation and identify any issues and delays that are happening.

# RATA

- Upgrades must have Certification requirements planned in.
- Part 75 Details the requirements. Part 60 does not.

<b>Event: Replace Analyzer:</b>	
• Old Analyzer required to run linearity if operated more than 168 hours in a quarter for Part 75	
• New analyzers must pass Daily Cal check	Immediately, starts Clock for all tests
• New Analyzers must pass 7-day Drift Test	21 Days
• New analyzers must pass Linearity Check Hours	168 Op Hours
• New Analyzers must Pass Rata within 720 operating Hours (30 days)	720 Op Hours
• Submit Event Report via ECMPS	
<b>Event: Replace Sample Line:</b>	
• Perform Calibration Check	Immediately
• Perform Abbreviated Cycle Response Time test	720 Op Hours
• RATA	720 Op Hours
<b>Event: Replace PLC:</b>	
• Update ECMPS	720 Op Hours

# What's Next

- Questions and General Discussion