Decommissioning of a Processing Plant and CHP Systems

Presented by CHA Consulting, Inc.

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Agenda

➢ Introduction
➢ Decommissioning Process
➢ Project Description
➢ Corrosion Inhibitors
➢ Electrical Decommissioning
➢ Mechanical Decommissioning
➢ Questions
Introduction

What?
Officially take a factory or other industrial building out of use and make the area safe.

Important considerations:
- Communicate
- Availability of information for existing equipment
- Existing procedures?
- Assist & recommend **DON’T** control & override
Decommissioning Process

Communication
- “End Goal”
- Deliverable

Gap Analysis
- Existing information?
- LOTO?
- Safety?

Site Survey
- What?
- Where?
- How?

Documentation Development
- Checklist
- Markups
- Specification

Progress Visit
- What’s been done?
Communication

End Goal
- Full or partial decommissioning?
- End result of equipment:
  - Demolition
  - Abandon in place
  - Preserve for future use
  - Preserve for sale (i.e. relocation)

Deliverable
- How will the end goal be communicated?
- Possible deliverables:
  - Decommissioning procedures
  - Preservation instructions
  - Checklists
  - Report
  - Photographs
Project Description

**Facility:** Processing plant equipped with Solar Taurus 70 GTG package w/ HRSG, and Solar Centaur 40 GTG package w/ HRSG

**End Goal**
- Part of the plant was to remain with limited function
- Remainder of plant to be decommissioned
  - Equipment with motors >100HP to be preserved
  - GTG’s to be relocated
  - Remaining equipment will be abandoned in place or returned to vendors

**Deliverable**
- No established deliverable (worked with the client to determine appropriate deliverable)
Corrosion Inhibitors

Different Application Types

- Oil additive
- Aerosol
- Pouch
- Coating
- Emitter
- Device
- Grease
Electrical Decommissioning
Electrical Decommissioning

Availability of Information

• Existing single line was out of date
• No documentation of existing MCC configurations and loads

Steps Taken

• Survey entire facility
• Updated existing SLD for reference
• Record every MCC and MCC load within each E-Room within the facility
• Generate a table for each E-Room listing all MCCs/loads
• Create a preliminary decommissioning checklist
  – Determined which loads were to be shut down/remain active
• Submitted for client to review and adjust
• Create a set of decommissioning instructions for contractor
• Finalize checklist with following details:
  – End State
  – Layup/preservation requirements
  – Decommission Date
  – Electrical Contractor sign off
• Create a list of instructions/procedures and final report
Decommissioning Instructions

- **MCC Load Decommissioning Procedure**
  - Lockout/Tagout at each MCC bucket/local disconnects (if applicable)
  - Inject preservatives into decommissioning MCC buckets
  - For fully decommissioned MCCs, lockout/tagout at upstream substation

- **HV Switchyard Decommissioning Procedure**
  - Remain as is per utility agreement (will vary, based on project)

- **HV Switchgear/CHP Decommissioning Procedure**
  - Same as MCC Load Decommission with the addition of:
    - E.O.D.O breakers – racked out with control fuses removed, lockout/tagout
    - Relay Software – download and give copies to client
    - Annual switchgear cleaning
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Mechanical Decommissioning
Mechanical Decommissioning

• What?
  – GTG
  – HRSG/WHB
  – Deaerator
  – Gas Compressor(s)
  – Chemical systems
  – Pumps & Blowers
  – Piping
  – Process equipment

• Where is it located?

• How will it be decommissioned?

• Same 3 steps for ALL equipment:
  – Disconnected (LOTO) > Clean > Seal
GTG

- T70 & C40
- Preserved by equipment vendor (Solar)
- Borescope inspection and equipment assessment (Solar)
- GT skid & generator (preserved)
- Lube oil system (leave in service)
- Controls (preserved)
• Gas side & water side
• Purge gas path
• General inspection of drums
• Drain > clean > seal
• Vapor corrosion inhibitor for internals
• Contact corrosion inhibitor for externals
• Wrap exposed areas where water ingress could occur (i.e. PSV trough region)
• Chemical feed:
  – tubing drained & purged (nitrogen then compressed air) then returned to vendor
  – Chemical vendor instructions to be followed

• Deaerator
  – Drained and inspected
  – Vapor corrosion inhibitor for internals
  – Open ends sealed
  – NPFA 57 for safe venting

• Gas Compressor
  – NPFA 57 for safe venting
  – Fuel gas piping to be purged with nitrogen; 5 – 10 psig nitrogen fill for layup
  – Gas compressor skids to be purged and prepared for return to vendor
• Pumps & Blowers:
  – Identify access point (fittings/flanges/valves)
  – Clean
  – Internal (vapor) & external (contact) corrosion inhibitors
  – Bearings (grease inhibitor/oil inhibitor)
  – Wrap exposed shafts

• Piping
  – Ammonia – nitrogen then air purge; clean & dry; internal & external inhibitors; seal
  – Fuel gas – nitrogen purge; 5-10 psig nitrogen layup
  – Instrument air - nitrogen purge; 5-10 psig nitrogen layup
  – Feedwater – drain; clean & dry; internal & external inhibitors; seal
  – “As-is” – Drain; dry; seal
Mechanical Decommissioning

The following is a general overview of the pump decommissioning process. Refer to complete pump decommissioning/preservation procedure instructions in MESI book.

Typ. (2):
1. Close pump suction and discharge valves.
2. Remove expansion joint.
3. Insert vapor corrosion inhibitor.
4. Install blank on pump openings.

Isolate 60 psig natural gas supply header isolation valve (HV-10300).

Install blank at HV-10300 outlet flange.
Process equipment (to be preserved)

- Empty & clean
- Apply internal & external corrosion inhibitors
- Seal openings
Major deliverables:

- Contractor scope of work
- Preservation instructions
- Preservation check-lists
- Photographs
- Index of mechanical equipment
Mechanical Decommissioning
Conclusion
Thank You

For more information, please contact:

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