Changes “Other Than Inconsequential” Require These Additional Reviews:

Radiological Controls:
Lee Livesey’s Organization

USQ # EV-14-2055-S, Rev. 5

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1.0 AFFECTED PERSONNEL, FACILITIES, EQUIPMENT, OR AREAS

This procedure applies to WRPS personnel operating the 242-A Evaporator.

2.0 ENTRY CONDITIONS

NOTE - Steps in this AOP may be performed in parallel, in any logical order, or omitted at discretion of Shift Manager.

A process upset condition can be initiated by one or more process-related abnormal conditions or failures, such as a leak-detection alarm, loss of vacuum, loss of seal water supply, loss of feed, loss of slurry, etc. When one of these conditions occurs, it activates a single alarm initially, but the alarm input activates interlock functions that result in numerous alarms occurring within seconds.
3.0 ACTIONS

NOTE - This is a guide to assist the operator and Shift Manager in placing the facility in a safe configuration.

- Steps in this procedure may be performed simultaneously or in any logical order, depending on situational needs.

- The attached Duty Card is to be completed by the A-1 operator. The Shift Manager has the responsibility to follow and complete all procedural steps. Not all procedural step are included in the duty card.

- Operation of Circuit Breakers, Electrical disconnect Switches, and Similar Switching Equipment shall be performed by a qualified person.

- Component operation requires completion of an Electrical Risk Assessment (ERA).

- When the clean and inspects are current on the electrical equipment (breaker, switchgear, disconnects, motor starters, etc.), the ERA for normal operating condition is applicable, for those workers interacting with electrical equipment.

  - Use safety glasses and leather gloves when manipulating electrical components per the normal ERA.

- When the clean and inspects are delinquent, the ERA for non-normal operating condition is applicable, for those workers interacting with electrical equipment.
3.1 Automatic Actions

3.1.1 A process upset condition has been initiated by one or more process related abnormal conditions or failures, activating the interlocks associated with the abnormal condition, causing the equipment protected by interlocks to shut down. (Refer to operator aid 242-A-Evaporator Interlock Chart for various interlock actions.)

3.2 Initial Actions

Shift Manager Actions

3.2.1 ENSURE Control Room operator performs actions outlined in Attachment 1 - Process Upset Duty Card.

Control Room Operator Duties

3.2.2 WHEN performing Step 3.2.3, WRITE time of step completion on the laminated Duty Card AND RECORD time of step completion in the A-1 or Shift Manager logbook.

3.2.3 PERFORM actions outlined in Attachment 1 - Process Upset Duty Card.

3.2.3.1 IF manual operation of breaker 241-AW-P-102 is required, DON PPE per Section 3.0.
3.3 **Follow-on Actions**

3.3.1 Shift manager determine what caused the process upset condition.

3.4 **Administrative Actions**

**NOTE** - Actual steps taken for restoration are dependent on specific situation and facility configuration at the time of event. The following steps are general guidance and may be performed concurrently, in any order or omitted at discretion of Shift Manager to fit situation.

3.4.1 **ENSURE** that the CSM is notified of AOP entry **AND**

**REQUEST** CSM to make notifications per TFC-OPS-OPER-C-57.

3.4.2 **EVALUATE** conditions per TFC-OPS-OPER-C-24, Occurrence Reporting.

3.4.3 **REQUEST** Shift Manager to evaluate the need to notify Environmental per TF-REC-001 and TFC-ESHQ-ENV_FS-C-01.

3.4.4 **INITIATE** repairs or work requests to systems that may have caused unexpected condition.

4.0 **EXIT CRITERIA**

**NOTE** - Exit actions depend on cause of process upset. During this time one of the following decisions may be made:

- Shut down process and dump C-A-1 vessel
- Shut down process and allow C-A-1 vessel to gravity-flow to slurry receiver tank
- Place C-A-1 in recirculation with vacuum
- Place C-A-1 in recirculation without vacuum
- Return plant operations to service.

4.1 Exit Actions/Criteria

4.1.1 Cause(s) of upset determined and corrected.

5.0 **RECORDS**

**NOTE** - No records are generated during the performance of this procedure.
Numerous Process Alarms in 242-A “Operation Mode” with Vacuum on CA1 Vessel

SELECT graphic 23 AND SCAN for multiple Building Alarms (CAMs or ARMs)

IF there are multiple Radiation Alarms, EXIT this procedure AND PROCEED to TF-ERP-005, 242-A Radiological Release Duty Card.

Are Vacuum Breaker Valves HV-EC1-1 and/or HV-EC1-5 Open?

Are any of the Safety Significant Interlocks Activated?

ENSURE PB-1 is OFF AND PLACE PB-1 Bypass in BYPAS ON.

ENSURE valve FV-EA1-1 is OFF and its “STM OFF”.

ENSURE feed pump P-102-AW is OFF and feed line dump valve HV-CA1-1 is OPEN.

ENSURE HV-EC2/3-1 is closed.

SHUTDOWN Slurry pump PB-2 AND PLACE HV-CA1-2 in manual and Block.

SHUTDOWN all de-entrainer sprays.

ENSURE PB-1 pump is OFF and Place PB-1 Bypass in BYPAS ON.

ENSURE valve FV-EA1-1 is off and is “STM OFF”.

ENSURE the feed pump P-102-AW is off and feed line pump valve HV-CA1-1 is closed.

SHUTDOWN PB-2 AND PLACE HV-CA1-2 in manual and block.

SHUTDOWN all de-entrainer sprays.

WHEN normal WT factor levels and SPG readings return, CONSULT with 242-A SM and Engineering about corrective actions to prevent more de-entrainer HI Hi dP alarms or VV Exhauster shutdowns.

CONSULT with 242-A SM and Engineering about corrective action.

Is the VV Exhauster EX-E-1 Running?

ENSURE PB-1 is OFF AND PLACE PB-1 Bypass in BYPAS ON.

ENSURE valve FV-EA1-1 is closed.

SHUTDOWN all de-entrainer sprays.

Are the WT factor and SPG instrument readings normal?

CONSULT with 242-A SM and Engineering about corrective action.

Are any of the Safety Significant Interlocks Activated?

Are Vacuum Breaker Valves HV-EC1-1 and/or HV-EC1-5 Open?

Are the WT factor and SPG instrument readings normal?

CONSULT with 242-A SM and Engineering about corrective action.
**Attachment 1 - Process Upset Duty Card (Cont.)**

**Time Line**

A. **Is PB-1 pump running?**
   - Yes: **RESPOND** to process alarms per normal ARP's and **EXIT** this Duty Card.
   - No: **RESTART** PB-1 Pump.

B. **Did PB-1 pump restart?**
   - Yes: **RESPOND** to process alarms per normal ARP's and **EXIT** this Duty Card.
   - No: **PLACE** PB-1 Bypass in **BYP-ON**

C. **Ensure** valley FV-EA1-1 is **OFF** and is **STM OFF**.

**CHECK** all interlocks and timers associated with interlocks to determine why PB-1 is not starting.

**IF** PB-1 cannot be restarted, **SHUTDOWN** the process **AND DUMP** CA1 Vessel per TO-600-060.

**CLOSE** valve MS-V-44 to isolate 10 lb steam before clearing Safety Significant interlocks.

**NOTIFY** Tank Farm SM that we are flowing back into 102-AW through the feed line dump valve HV-CA1-7 and prepare for dump of CA1 vessel to 102-AW through HV-CA1-7 and HV-CA1-9 once time delay times out.

**CONSULT** with Evaporator SM and Engineering about doing a controlled dump.

**CONSULT** with Evaporator SM and Engineering about restarting process.