Perform Functional Test of the 242-A Evaporator
Redundant Process Control Module

Tank Farm Plant Operating Procedure  242-A System

USQ # EV-14-1631-S, Rev. 2

**CHANGE HISTORY (≤ LAST 5 REV-MODS)**

<table>
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<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
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<td>C-0</td>
<td>11/16/2016</td>
<td>Periodic Review</td>
<td>5.2.3.1 struck out CM0A replaced with PCM0B. 5.2.18, 5.3.20 &amp; 5.4.20 stuck out “and System is in desired configuration as directed by Shift Manager” from steps.</td>
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<td>B-1</td>
<td>07/14/2016</td>
<td>Inconsequential change</td>
<td>Update record section</td>
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<tr>
<td>B-0</td>
<td>11/04/2014</td>
<td>Periodic review comments incorporation</td>
<td>Deleted reference to TF-PLN-86 and added GHA statement.</td>
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<td>A-2</td>
<td>08/28/20147</td>
<td>Operations Request</td>
<td>Corrected “press system status” to “PRESS SYSTEM STATUS” throughout the procedure, add step 5.1.8.3, made multiple steps under 5.2.6, 5.3.6 &amp; 5.4.6 substeps and corrected cross references in tables.</td>
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<tr>
<td>A-1</td>
<td>08/19/2014</td>
<td>Update to current conditions</td>
<td>Added step to open network status screen, corrected RUN to RUN-SEL throughout the procedure, corrected titles throughout the procedure, deleted/reorganized steps to match process, updated tables.</td>
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**Type** CONTINUOUS  **Document No.** TO-600-515  **Rev/Mod** C-0  **Release Date** 11/16/2016  **Page** 1 of 22
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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for performing a functional test of the 242 A Evaporator Monitoring and Control System (MCS) automatic failure from its Primary Process Control Module (PCM) to its Standby PCM in the event of Primary PCM failure.

1.2 Scope

This procedure involves performing a functional test of the 242-A Evaporator MCS PCM0A/PCM0B and PCM1A/PCM1B Failover function.

2.0 INFORMATION

2.1 General Information

Steps that involve opening windows, starting tasks or inputting passwords that are already active do not have to be performed.

2.2 Terms and Definitions

- CDCM - Configurator Display Control Module
- D/3 - The third (3) generation of Distributed control computer systems manufactured by GSE Process Solutions, Inc. This software runs the 242-A Evaporator Monitor and Control System
- Failover - When the “RUN-SEL” PCM detects an error and switches over to backup “RUNNING” PCM
- MCS - Monitoring and Control System
- PCM - Process Control Module.
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

3.1.1 Hazards identified in this procedure are covered under the General Hazards Analysis.

3.2 Environmental Compliance

Notify Environmental On-Call in accordance with TFC-ESHQ-ENV_FS-C-01 for all planned and unplanned outages of exhauster(s), record sampler(s), or abatement equipment. Engineering has stated that the performance of this procedure may impact the operation of the facility exhaust systems and can lead to an outage.

4.0 PREREQUISITES

4.1 Performance Documents

The following documents may be needed to perform this procedure:

- TO-600-520, Startup, Reset, Operate, and Shutdown MCS and UPS Systems.

4.2 Field Preparation

4.2.1 IF the operator performing this procedure desires Engineering assistance to perform this procedure REQUEST Process and Control System Engineer (P&CS) provide assistance to Failover the Process Control Module (PCM).

4.2.2 ENSURE Configuration Display Control Module (CDCM) is running per TO-600-520.

4.2.3 ENSURE all PCMs are either in “RUN-SEL” or “RUNNING” per TO-600-520.
5.0 PROCEDURE

NOTE - Section 5.1 may be performed independently of Sections 5.2, 5.3, and 5.4 or not at all as directed by Shift Manager/OE.

5.1 Perform Failover of PCM0A

5.1.1 PERFORM all computer operations on CDCM.

5.1.2 IF network status screen is not open, PRESS the SYSTEM STATUS key twice on the CDCM console.

NOTE “RUN-SEL” and “RUNNING” PCM must be IN SYNC prior to performing this procedure. Steps 5.1.3 and 5.1.3.1 validate IN SYNC condition.

5.1.3 PRESS QUICK SELECT key for PCM0A AND

CONFIRM the following:

- PCM0A SYNC STATUS is shown as IN SYNC for:
  - SCAN
  - DSCAN
  - DEVSCAN
  - SEQEX
  - DVQUE.
- PCM0A ETHERNET links are online
- All I/O summaries are “OK”.

5.1.3.1 IF PCM0A is not IN SYNC, EXIT this procedure AND

NOTIFY Shift Manager and P&CS Engineer that Primary and Secondary PCM0A and PCM0B are not IN SYNC.

5.1.4 CHECK PCM0A is in RUN-SEL AND

IF it is not in RUN-SEL, PERFORM Section 5.2 prior to performing Section 5.1.

5.1.5 RECORD PCM0A is RUN-SEL on Data Sheet 1.
Perform Functional Test of the 242-A Evaporator Redundant Process Control Module

5.1 Perform Failover of PCM0A (Cont.)

Perform PCM0A Failover from RUN-SEL to Running

5.1.6 CLICK on “Start” button located on the task bar at the bottom left of the CDCM.

5.1.7 CLICK on “D/3 Manager”.

5.1.8 COMPLETE the entries on this dialog box as follows:

5.1.8.1 ENTER CDCM in the DCM field.

5.1.8.2 ENTER “d3manager” in the User Name field.

5.1.8.3 TYPE the D/3 manager password in the “Password” block (password is located in the 242-A password log kept in the 242-A Master Key Box under the D/3 manager section).

5.1.9 TYPE the D/3 manager password in the “Password” block (password is located in the 242-A password log kept in the 242-A Master Key Box under the D/3 manager section).

5.1.10 PRESS RETURN/ENTER or “OK” (The D/3 Manager Main Window should now display).

5.1.11 RIGHT-CLICK on PCM0A, Run-selected.

5.1.12 CLICK on “Failover to Backup PCM” from pop up box.

5.1.13 CONFIRM the box near the top of the PCM Failover for PCM0A Window has a black checkmark.

5.1.14 CLICK on “Execute” from pop up window.

5.1.15 CONFIRM the checkmark in the box near the top of the PCM Failover for PCM0A Window changed from black to green.

5.1.16 IF desired, SILIENCE any alarms generated as a result of performing Step 5.1.14.

5.1.17 RECORD PCM0A is in Running and PCM0B is RUN-SEL on Data Sheet 1.

5.1.18 CLOSE PCM Failover for PCM0A Window.
5.1 Perform Failover of PCM0A (Cont.)

5.1.19 PRESS QUICK SELECT key for each PCM0A and PCM0B AND RECORD PCM0A and PCM0B status on Data Sheet 1:

- PCM0A and PCM0B SYNC STATUS for:
  - SCAN
  - DSCAN
  - DEVSCAN
  - SEQEX
  - DVQUE.
- PCM0A and PCM0B ETHERNET links
- All I/O summaries.

5.1.20 IF directed by Shift Manager/OE to check failover of PCM0B or return PCM0A to RUN-SEL status, GO TO Section 5.2.

5.1.21 IF directed by Shift Manager/OE to check failover of PCM1A, GO TO Section 5.3.

5.1.22 IF directed by Shift Manager/OE to check failover of PCM1B, GO TO Section 5.4.

5.1.23 IF completed, CLOSE D/3Manager Main Window by clicking on “X” in upper right corner of window.
5.2 Perform Failover of PCM0B

5.2.1 IF network status screen is not open, PRESS SYSTEM STATUS twice on the CDCM console.

5.2.2 PERFORM all computer operations on CDCM.

NOTE “RUN-SEL” and “RUNNING” PCM must be IN SYNC prior to performing this procedure. Steps 5.2.3 and 5.2.3.1 validate IN SYNC condition.

5.2.3 PRESS QUICK SELECT key for PCM0A and PCM0B AND

CONFIRM the following:
• PCM0B and PCM0A SYNC STATUS is shown as IN SYNC for:
  • SCAN
  • DSCAN
  • DEVSCAN
  • SEQEX
  • DVQUE.
• PCM’s ETHERNET links are online
• All I/O summaries are “OK”.

5.2.3.1 IF PCM0B is not IN SYNC, EXIT this procedure AND

NOTIFY Shift Manager and P&CS Engineer that Primary and Secondary PCMs are not IN SYNC.

5.2.4 CHECK PCM0B is in RUN-SEL AND

IF it is not in RUN-SEL, PERFORM Section 5.1 prior to performing Section 5.2.

5.2.5 RECORD PCM0B is RUN-SEL on Data Sheet 2.
5.2 Perform Failover of PCM0B (Cont.)

Perform PCM0B Failover from RUN-SEL to Running

5.2.6 IF D/3 Manager for CDCM is not open, **PERFORM** the following:

5.2.6.1 **CLICK** on “Start” button located on the task bar at the bottom left of the CDCM.

5.2.6.2 **CLICK** on “D/3 Manager”.

5.2.6.3 **COMPLETE** the entries on this dialog box as follows:

   a. **ENTER** CDCM in the DCM field.

   b. **ENTER** “d3manager” in the User Name field.

5.2.6.4 **TYPE** the D/3 manager password in the “Password” block (password is located in the 242-A password log kept in the 242-A Master Key Box under the D/3 manager section).

5.2.6.5 **PRESS** RETURN/ENTER or “OK” (The D/3Manager Main Window should now display).

5.2.7 **RIGHT-CLICK** PCM0B Run-Selected.

5.2.8 **CLICK** on “Failover to Backup PCM” from pop up box.

5.2.9 **CONFIRM** the box at the top of the PCM Failover for PCM0B Window has a black checkmark.

5.2.10 **CLICK** on “Execute” from pop up window.

5.2.11 **CONFIRM** the checkmark in the box at the top of the PCM Failover for PCM0B Window changed from black to green.

5.2.12 **IF** desired, **SILENCE** any alarms generated as a result of performing Step 5.2.10.

5.2.13 **RECORD** PCM0B is running and PCM0A is RUN-SEL on Data Sheet 2.

5.2.14 **CLOSE** PCM Failover for PCM0B Window.
5.2 Perform Failover of PCM0B (Cont.)

5.2.15 PRESS QUICK SELECT key for each PCM0A and PCM0B AND 

RECORD PCM0B and PCM0A status on Data Sheet 2:  
- PCM0B and PCM0A IN SYNC status for:  
  - SCAN  
  - DSCANN  
  - DEVSCAN  
  - SEQEX  
  - DVQUE.  
- PCM's ETHERNET links  
- All I/O summaries.

5.2.21 IF directed by Shift Manager/OE to check failover of PCM0A or return PCM0B to RUN status, GO TO Section 5.1.

5.2.16 IF directed by Shift Manager/OE to check failover of PCM1A, GO TO Section 5.3.

5.2.17 IF directed by Shift Manager/OE to check failover of PCM1B, GO TO Section 5.4.

5.2.18 IF no further checks are to be performed, GO TO Section 5.5.

5.2.19 IF complete, CLOSE D/3Manager Main Window by clicking on “X” in upper right corner of window.
Perform Functional Test of the 242-A Evaporator Redundant Process Control Module

NOTE - Section 5.3 may be performed independently of Sections 5.1, 5.2, and 5.4 or not at all as directed by Shift Manager/OE.

5.3 Perform Failover of PCM1A

5.3.1 IF network status screen is not open, PRESS SYSTEM STATUS twice on the CDCM console.

5.3.2 PERFORM all computer operations on CDCM.

NOTE “RUN-SEL” and “RUNNING” PCM must be IN SYNC prior to performing this procedure. Steps 5.3.3 and 5.3.3.1 validate IN SYNC condition.

5.3.3 PRESS QUICK SELECT key for each PCM1A and PCM1B AND

CONFIRM the following:
- PCM1A and PCM1B SYNC STATUS is shown as IN SYNC for:
  - SCAN
  - DSCAN
  - DEVSCAN
  - SEQEX
  - DVQUE.
- PCM1A and PCM1B ETHERNET links are online
- All I/O summaries are “OK”.

5.3.3.1 IF PCM1A is not IN SYNC, EXIT this procedure AND

NOTIFY Shift Manager and P&CS Engineer that Primary and Secondary PCMs are not IN SYNC.

5.3.4 CHECK PCM1A is in RUN-SEL AND

IF it is not in RUN-SEL, PERFORM Section 5.4 prior to performing Section 5.3.

5.3.5 RECORD PCM1A is RUN-SEL on Data Sheet 3.
5.3 Perform Functional Test of the 242-A Evaporator Redundant Process Control Module

5.3 Perform Failover of PCM1A (Cont.)

5.3.6 Perform PCM1A Failover from RUN-SEL to Running

5.3.6.1 IF D/3 Manager for CDCM is not open, PERFORM the following:

5.3.6.1.1 CLICK on “Start” button located on the task bar at the bottom left of the CDCM.

5.3.6.2 CLICK on “D/3 Manager”.

5.3.6.3 COMPLETE the entries on this dialog box as follows:

a. ENTER CDCM in the DCM field.

b. ENTER “d3manager” in the User Name field.

5.3.6.4 TYPE the D/3 manager password in the “Password” block (password is located in the 242-A password log kept in the 242-A Master Key Box under the D/3 manager section).

5.3.6.5 PRESS RETURN/ENTER or “OK”. (The D/3Manager Main Window should now display)

5.3.7 RIGHT-CLICK on Selected PCM1A.

5.3.8 CLICK on “Failover to Backup PCM” from pop up box.

5.3.9 CONFIRM the box at the top of the PCM Failover for PCM1A Window has a black checkmark.

5.3.10 CLICK on “Execute” from pop up window.

5.3.11 CONFIRM the checkmark in the box at the top of the PCM Failover for PCM1A Window changed from black to green.

5.3.12 IF desired, SILENCE any alarms generated as a result of performing Step 5.3.10.

5.3.13 RECORD PCM1A is in Running and PCM1B is RUN-SEL on Data Sheet 3.

5.3.14 CLOSE PCM Failover for PCM1A Window.
Perform Functional Test of the 242-A Evaporator
Redundant Process Control Module

5.3 Perform Failover of PCM1A (Cont.)

5.3.15 PRESS QUICK SELECT key for each PCM1A and PCM1B AND

RECORD the results on appropriate lines of Data Sheet 3:

- PCM1A and PCM1B SYNC STATUS for:
  - SCAN
  - DSCAN
  - DEVSCAN
  - SEQEX
  - DVQUE.

- PCM's ETHERNET links
- All I/O summaries.

5.3.16 IF complete, CLOSE D/3Manager Main Window by clicking on “X” in upper right corner of window.

5.3.17 IF directed by Shift Manager/OE to check failover of PCM1B or return PCM1A to RUN status, GO TO Section 5.4.

5.3.18 IF directed by Shift Manager/OE to check failover of PCM0A, GO TO Section 5.1.

5.3.19 IF directed by Shift Manager/OE to check failover of PCM0B, GO TO Section 5.2.

5.3.20 IF no further checks to be performed, GO TO Section 5.5.
5.4 Perform Failover of PCM1B

5.4.1 IF network status screen is not open, PRESS SYSTEM STATUS twice on the CDCM console.

5.4.2 PERFORM all computer operations on CDCM.

NOTE “RUN-SEL” and “RUNNING” PCM must be IN SYNC prior to performing this procedure. Steps 5.4.3 and 5.4.3.1 validate IN SYNC condition.

5.4.3 PRESS QUICK SELECT key for PCM1B AND CONFIRM the following:

- PCM1B and PCM1A SYNC STATUS is shown as IN SYNC for:
  - SCAN
  - DSCAN
  - DEVSCAN
  - SEQEX
  - DVQUE.
- PCM1B and PCM1A ETHERNET links are online
- All I/O summaries are “OK”.

5.4.3.1 IF PCM1B is not IN SYNC, EXIT this procedure AND NOTIFY Shift Manager and P&CS Engineer that Primary and Secondary PCMs are not IN SYNC.

5.4.4 CHECK PCM1B is in RUN-SEL AND

IF it is not in RUN-SEL, PERFORM Section 5.3 prior to performing Section 5.4.

5.4.5 RECORD PCM1B is RUN-SEL on Data Sheet 4.
5.4 Perform Failover of PCM1B (Cont.)

Perform PCM1B Failover from RUN-SEL to Running

5.4.6 IF D/3 Manager for CDCM is not open, PERFORM the following:

5.4.6.1 CLICK on “Start” button located on the task bar at the bottom left of the CDCM.

5.4.6.2 CLICK on “D/3 Manager”.

5.4.6.3 COMPLETE the entries on this dialog box as follows:

   a. ENTER CDCM in the DCM field.

   b. ENTER “d3manager” in the User Name field.

5.4.6.4 TYPE the D/3 manager password in the “Password” block (password is located in the 242-A password log kept in the 242-A Master Key Box under the D/3 manager section).

5.4.6.5 PRESS RETURN/ENTER or “OK”. (The D/3Manager Main Window should now display)

5.4.7 RIGHT-CLICK on PCM1B RUN-SEL.

5.4.8 CLICK on “Failover to Backup PCM” from pop up box.

5.4.9 CONFIRM the box at the top of the PCM Failover for PCM1B Window has a black checkmark.

5.4.10 CLICK on “Execute” from pop up window.

5.4.11 CONFIRM the checkmark in the box at the top of the PCM Failover for PCM1B Window changed from black to green.

5.4.12 IF desired, SILENCE any alarms generated as a result of performing Step 5.4.9.

5.4.13 RECORD PCM1B is in Running and PCM1A is RUN-SEL on Data Sheet 4.

5.4.14 CLOSE PCM Failover for PCM1B Window.
5.4 Perform Failover of PCM1B (Cont.)

5.4.15 PRESS QUICK SELECT key for each PCM1A and PCM1B AND RECORD the results on appropriate lines of Data Sheet 4:
- PCM1B and PCM1A SYNC STATUS for:
  - SCAN
  - DSCAN
  - DEVSCAN
  - SEQEX
  - DVQUE.
- PCM1B and PCM1A ETHERNET links
- All I/O summaries.

5.4.16 IF complete, CLOSE D/3Manager Main Window by clicking on “X” in upper right corner of window.

5.4.17 IF directed by Shift Manager/OE to check failover of PCM1A or return PCM1B to RUN status, GO TO Section 5.3.

5.4.18 IF directed by Shift Manager/OE to check failover of PCM0A, GO TO Section 5.1.

5.4.19 IF directed by Shift Manager/OE to check failover of PCM0B, GO TO Section 5.2.

5.4.20 IF no further checks are to be performed, GO TO Section 5.5.
5.5 Determine Acceptance Criteria

5.5.1 DOCUMENT AND SIGN final results on the following:

- Data Sheet 1
- Data Sheet 2
- Data Sheet 3
- Data Sheet 4.
5.6 Records

5.6.1 PERFORM the following for records identified within this procedure.

5.6.1.1 RECORD the number of times the record was generated in applicable column

OR

PLACE a check mark (✓) in the N/A column.

5.6.1.2 SUBMIT the package to FWS/OE/Shift Manager.

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Data Sheets

- Data Sheet 1 – Failover for PCM0A
- Data Sheet 2 – Failover for PCM0B
- Data Sheet 3 - Failover for PCM1A
- Data Sheet 4 - Failover for PCM1B

5.6.2 FWS/OE/Shift Manager SEND the completed records to the Central Shift Office for records retention.

[Signature] / [Print (First and Last)] / [Date]

FWS/OE/Shift Manager

The record custodian identified in the company-level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.
### Data Sheet 1 – Failover for PCM0A

#### PCM0A FUNCTIONAL

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**COMMENTS:**

____________________________________ / __________________________ / ________________
Signature          Print (First and Last)        Date
Engineer/Delegate
Data Sheet 2 – Failover for PCM0B

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<th>STEP #</th>
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COMMENTS:

________________________________________/________________________________________/
Signature: ________________________________ Print (First and Last): __________________ Date: __________________

Engineer/Delegate
### Data Sheet 3 - Failover for PCM1A

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**Comments:**

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Signature / Print (First and Last) / Date

Engineer/Delegate
## Data Sheet 4 - Failover for PCM1B

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**COMMENTS:**

_________________________________________ / _________________ / __________

Signature                  Print (First and Last)      Date

Engineer/Delegate