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C-A OPERATIONS PROCEDURES MANUAL

7.1.48 Shutdown of the Warm Turbine Oil Skids

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Hand Processed Changes

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Approved: \_\_\_\_\_ Signature on File \_\_\_\_\_  
Collider-Accelerator Department Chairman Date

L. Tenreiro

## 7.1.48 Shutdown of the Warm Turbine Oil Skids

### 1. Purpose

To provide instruction on the shutdown of the warm turbine oil skids. This will need to be completed when shutting down one or both turbine trains.

### 2. Responsibilities

- 2.1 The Shift Supervisor or an operator designated by the Shift Supervisor is responsible for conducting the procedure and providing documentation in the cryogenic control room log.
- 2.2 Should a problem arise in the process of this procedure, the Shift Supervisor shall report to the technical supervisor for instructions before continuing.

### 3. Prerequisites

- 3.1 Associated turbine train not running.

While work is underway and an abnormal condition arises, re-review the job against criteria in applicable SBMS Subject Areas, and/or work planning requirements. If unsure of further actions, discuss situation with supervisor.

### 4. Precautions

- 4.1 If there is liquid helium in the refrigerator pots, all personnel entering the refrigeration wing of Bldg. 1005R must be ODH 1 qualified, have a Personal Oxygen Monitor (POM) and carry an escape pack.

### 5. Procedure

- 5.1 Shutdown of turbines 1A/2A and 3A/4A.
  - \_\_\_\_\_ 5.1.1 Date\_\_\_\_\_.
  - \_\_\_\_\_ 5.1.2 Stop oil to expanders 1A and 2A by placing the “Lube Oil Selector” switch to “Off.”
  - \_\_\_\_\_ 5.1.3 Stop oil to expanders 3A and 4A by placing the “Lube Oil Selector” switch to “Off.”
  - \_\_\_\_\_ 5.1.4 Allow oil to drain back to sump.
  - \_\_\_\_\_ 5.1.5 Isolate seal gas supply by closing valve H10518M\_\_\_\_\_ for turbine 1A/2A and valve H10648M\_\_\_\_\_ for turbine 3A/4A.

\_\_\_\_\_ 5.1.6 Close the following valves located near turbine 1A/2A pod:

E706M\_\_\_\_\_

E711M\_\_\_\_\_

E710M\_\_\_\_\_

H1210M\_\_\_\_\_

\_\_\_\_\_ 5.1.7 Close the following valves located near turbine 3A/4A pod:

E804M\_\_\_\_\_

E806M\_\_\_\_\_

E805M\_\_\_\_\_

H1230M\_\_\_\_\_

\_\_\_\_\_ 5.1.8 Ensure the following high pressure and main drain valves are left open to let oil drain from pods 1/A, 2/A, 3/A and 4/A.

E893M\_\_\_\_\_

E859M\_\_\_\_\_

E704M\_\_\_\_\_

E799M\_\_\_\_\_

E699M\_\_\_\_\_

E891M\_\_\_\_\_

E705M\_\_\_\_\_

E801M\_\_\_\_\_

\_\_\_\_\_ 5.1.9 Install mechanical brake assemblies on turbines 1A, 2A, 3A and 4A as per OPM 7.1.26, "Expander Brake System Installation and Removal."

\_\_\_\_\_ 5.1.10 If the skids are to be fully shut down ("A" and "B" trains), complete section 5.3.

5.2 Shutdown of turbines 1B/2B and 3B/4B.

\_\_\_\_\_ 5.2.1 Date\_\_\_\_\_.

\_\_\_\_\_ 5.2.2 Stop oil to expanders 1B and 2B by placing "Lube Oil selector" switch to "Off."

\_\_\_\_\_ 5.2.3 Stop oil to expanders 3B and 4B by placing "Lube Oil Selector" switch to "Off."

\_\_\_\_\_ 5.2.4 Allow oil to drain back to sump.

\_\_\_\_\_ 5.2.5 Isolate seal gas supply by closing valve H10519M\_\_\_\_\_ for turbine 1B/2B and valve H10649M\_\_\_\_\_ for turbine 3B/4B.

\_\_\_\_\_ 5.2.6 Close the following valves located near turbine 1B/2B pod:

E779M\_\_\_\_\_

E787M\_\_\_\_\_

E788M\_\_\_\_\_

H1211M\_\_\_\_\_

\_\_\_\_\_ 5.2.7 Close the following valves located near turbine 3B/4B pod:

E884M_____	E887M_____
E872M_____	H1231M_____

\_\_\_\_\_ 5.2.8 Ensure the following high pressure and main drain valves are left open to let oil drain from pods 1/B, 2/B, 3/B and 4/B.

E793M_____	E984M_____
E794M_____	E879M_____
E786M_____	E987M_____
E785M_____	E883M_____

\_\_\_\_\_ 5.2.9 Install mechanical brake assemblies on turbines 1B, 2B, 3B and 4B per OPM 7.1.26, Expander Brake system Installation and Removal.”

\_\_\_\_\_ 5.2.10 If the skids are to be fully shut down (“A” and “B” trains), complete section 5.3.

5.3 Shutdown of skids.

<p><b><u>Caution:</u></b></p> <p><b>Do not isolate the oil sump from the seal gas compressor or stop oil pumps unless both turbine trains (“A” and “B”) are shut down.</b></p>
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\_\_\_\_\_ 5.3.1 Stop turbine 1/2 oil pump by placing “Pump Select” switch to “Off.”

\_\_\_\_\_ 5.3.2 Stop turbine 3/4 oil pump by placing “Pump Select” switch to “Off.”

\_\_\_\_\_ 5.3.3 For turbine 1/2 skid, close the following valves:

H1202M_____	H1205M_____
H1203M_____	H1201M_____
H1204M_____	

\_\_\_\_\_ 5.3.4 For turbine 3/4 skid, close the following valves:

H1222M_____	H1225M_____
H1223M_____	H1221M_____
H1224M_____	

**6. Documentation**

- 6.1 The check-off lines on the procedure are for place keeping only. The procedure is not to be initialed or signed, it is not a record.
- 6.2 The Shift Supervisor, or designee, shall document the completion of the procedure in the Cryogenics Control Room Log.

**7. References**

- 7.1 Drawing 3A995074, Warm Expanders 1 through 4 Schematic
- 7.2 [C-A-OPM 7.1.26, "Expander Brake System Installation and Removal"](#)

**8. Attachments**

None