

*If you are using a printed copy of this procedure, and not the on-screen version, then you **MUST** make sure the dates at the bottom of the printed copy and the on-screen version match. The on-screen version of the Collider-Accelerator Department Procedure is the Official Version. Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A.*

C-A OPERATIONS PROCEDURES MANUAL

7.1.20 Adsorber Bed B Online and Adsorber Bed A Offline Procedure

Text Pages 2 through 4

Hand Processed Changes

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Approved: _____ *Signature on File* _____
Collider-Accelerator Department Chairman Date

D. Lederle

7.1.20 Adsorber Bed B Online and Adsorber Bed A Offline Procedure

1. Purpose

This procedure provides instructions for placing adsorber bed B online and taking adsorber bed A offline. This procedure will be performed when adsorber bed A is contaminated and being taken offline for regeneration. The steps necessary to regenerate adsorber bed A are not covered under this procedure, please reference [C-A OPM 7.1.21](#).

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 regenerating the adsorber bed, the Shift Supervisor shall report to the Technical Supervisor for instructions before continuing.

3. Prerequisites

- 3.1 Operator shall be familiar with the refrigerator P&ID drawing 3A995009, the physical location of components on the refrigerator, and the refrigerator control pages found on the CRISP control system.
- 3.2 Adsorber Bed "B" has been regenerated per [C-A-OPM 7.1.22 "Regeneration of Adsorber Bed "B"'](#). Adsorber Bed "B" is clean and ready for service if inlet valve H762A is open and outlet valve H771A is closed.
- 3.3 The oxygen monitor and hygrometer in the compressor room shall be set to read the compressor discharge.

4. Precautions

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

5. **Procedure**

- _____ 5.1 Date _____
- _____ 5.2 Ensure closed valves H9093M_____ V263M_____ and H897M_____.
- _____ 5.3 Open valves H899M_____ and H9092M_____.
- _____ 5.4 Crack open valve H898M.
- _____ 5.5 Monitor TI769H, adjust valve H898M, as needed, to achieve a temperature drop of approximately 15°K/10 minutes.
- _____ 5.6 Open valve H771A when TI769H is within 10°K of TI369H and below 100°K.
- _____ 5.7 Should any sustained increase in the O2 or H2O monitors at the compressor discharge appear, stop this procedure and regenerate adsorber "B" as per [C-A-OPM 7.1.22](#).
- _____ 5.8 Close valves H898M_____ and H899M_____.
- _____ 5.9 Close valve H371A when TI769H and TI369H are equal and stable.
- _____ 5.10 Close valve H362A.
- _____ 5.11 Enable logic alarm on adsorber bed "B".
- _____ 5.12 Open valve H9089M.
- _____ 5.13 Crack open valve H9090M to vent "A" adsorber.
- _____ 5.14 When adsorber "A" is at approximately 10 atm, close valve H9090M.
- _____ 5.15 When thawed, close valves H9092M_____ and H9089M_____.
- _____ 5.16 If adsorber bed "A" was taken off line due to contamination, start regeneration process as specified in [C-A-OPM 7.1.21](#).

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 3A995009, 25kW Helium Refrigerator P&ID.
- 7.2 [C-A-OPM 7.1.21](#), "Regeneration of Adsorber Bed "A".
- 7.3 [C-A-OPM 7.1.22](#), "Regeneration of Adsorber Bed "B".

8. Attachments

None