Hall C Expert Howto

Experiment: HKS

HKS Target Ladder Exchange

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March 25, 2005

Abstract

This Howto outlines the purpose of the HKS target ladder and the strict procedure of exchanging the ladder.

1 Purpose

The HKS target ladder is used to hold solid targets for the HKS experiment. Each ladder can offer 6 target positions. During the experiment, if more than 6 targets are needed, exchange target ladders during the experiment is required.

Due to radiation after long target exposure to the beam and possible contamination on the Aluminum target ladder surface, this exchange is a **special operation** which requires authorized persons only, temporary work permit, and RADCON personal assistance.

2 Procedure to exchange target ladder

The entire procedure contains two parts: pre-preparation ahead of time and operation.

Pre-preparation:

1. Before experiment, RADCON group must be informed and discussion must be made to establish understanding on the operation requirements, possible radiation and contamination conditions, develop various procedures under different conditions.

2. All required tools and new ladder must be prepared.

3. For authorized persons, practice must be done before experiment to be clear on operation and time required to complete the operation.

4. Temporary Operation Work Permit must be prepared, describe the required operation and work procedures, required time length, identify possible radiation/contamination conditions and corresponding protection/treatment procedures.

5. RADCON group must be involved in the operation and authorization process.

Operation:

1. RADCON personal must first survey the target and exchange operation area to establish radiation level map.

2. The TOWP must be re-examined to confirm the procedure and tools in control the radiation and possible contamination is in good stand, required time is still allowed, and operation is well prepared, then authorized by RADCON to proceed.

3. If TOWP must be modified before proceed, modification must be done first.

4. Before operation the ladder must be retrieved to all the way out position.

5. The target ladder vacuum isolation valve must then be close manually.

6. Unscrew the screws on the target ladder flange at the end of the driver.

7. Pull the target ladder out.

8. RADCON personal swaps the ladder to examine the possible contamination on the ladder surface and decide how to treat the ladder which was previously in the beam.

9. Put new ladder into the driver and put screws back on.
10. Slowly or in steps open the isolation valve until all the way open.
11. During operation, avoid unnecessary standing and waiting around the target area.