BEAMS DIVISION DEPARTMENTAL PROCEDURE

BDDP-AP-0038

TARGET STUDIES PROCEDURE

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1.0 PURPOSE AND SCOPE

Antiproton Source target studies have the potential to produce increased airborne radiation levels in the AP0 service building. This procedure is intended to minimize that hazard. This procedure defines the steps to be taken before, during, and after the studies.

Moving the target assembly forward and backward (in the beam direction), laterally (horizontally), or vertically to a new layer of standard target material (copper or nickel) are considered standard tuning operations and are not covered by this procedure. All other target manipulations are to be covered by this procedure. This specifically includes moving the target assembly vertically in order to target a material different than the standard target.

2.0 INSTRUCTIONS

2.1 PREPARATIONS PRIOR TO THE STUDY

Prior to the conduct of the studies, the following activities must take place:

a. Antiproton Source personnel wishing to perform the studies must receive permission from the department head, RSO or SSO, and run coordinator.

b. Recent AP1 stack sampling/measurements should be reviewed by the RSO or SSO. If no recent measurements are available, then new measurements shall be conducted.

c. A meeting must take place between the person requesting the study and the RSO or SSO in which the following topics are discussed and agreed upon.

i. The actual conduct of the studies

ii. The status of the airborne radiation monitoring equipment in the AP0 service building (D:ARM1), the target vault/AP0 differential pressure (D:ARP1), and the blower and HEPA filter differential pressures in the AP1 enclosure (D:APBLDP, D:ARFLDP);

iii. The readings from the above devices which will be cause for terminating the studies;

iv. This procedure.

v. The material to be targeted, its chemical and physical form, and isotopes which may be produced as a result of targeting. Pbar notes 532, 533, 534 shall be used as technical references.

vi. Recent AP1 sampling/measurements.

2.2 CONDUCT OF STUDIES

a. The RSO shall set the air monitor alarm trip point locally at the monitor prior to commencement of studies.

b. The studiers shall inform the MCR crew chief that target studies are about to commence, and inform him of the limit to D:ARM1 specified at the pre-study meeting. The MCR crew chief shall be requested to reread this procedure.

c. The MCR crew chief shall verify that no AP0 controlled keys are out. No AP0 controlled keys shall be issued during the course of the studies except possibly to Radiation Safety personnel with explicit permission from the RSO or SSO. When these conditions are met, the MCR crew chief shall inform the studiers, and only then can the studies commence.

d. The studiers shall continually monitor the status of D:ARM1 during the studies.

e. If D:ARM1 goes above the value specified in the pre-study meeting then the study shall cease, the studiers shall immediately inform the MCR crew chief, and the crew chief shall immediately disable beam to the target. The MCR crew chief may not enable beam to target again until D:ARM1 has dropped below the specified limit AND he has permission from the SRO or SSO. Note that the alarming air monitor will also give an alarm through FIRUS in the MCR.

f. The RSO or SSO may halt the studies at any time.

g. When the studies are complete, the target must be returned to its standard (pre-study) configuration and the MCR crew chief informed.

2.2 ACTVITIES AFTER THE STUDIES

a. The studiers shall continue to monitor D:ARM1 for one hour after the studies to verify that it does not increase by more than 10%

above normal during this period. IF D:ARM1 increases by more than 10%, the MCR crew chief shall be informed. The MCR crew chief shall immediately disable beam to the target and inform the RSO or SSO.

b. The RSO may make radiation monitor checks in AP0 at his discretion.

c. The crew chief may again issue controlled keys to AP0 when he receives permission from the RSO or SSO.

d. The RSO will reset the air monitor alarm trip point to its nominal value if necessary.

3.0 EXTRA-DEPARTMENTAL DISTRIBUTION

The following Beams Division departments shall receive controlled copies of this procedure.

a. Operations
b. ES&H