Hall D Hydrogen Target Requirements 17May11 T. Whitlatch

Refrigeration system Support liquid hydrogen

Refrigerator Cold head to endure ???gauss field

Max target cooling time = 8 hours

Average diameter of target is 2cm?

Length of target = 40cm?

Taper of target = 1.75° (for free flow of hydrogen boil off – natural convection))

Max wall thickness of cell = .005in (125microns) Kapton or equiv rad length

Max entrance and exit window thickness - .005in kapton or equivalent rad length

Max OD of scattering (vacuum) chamber = 9.45cm

Target materials must be cryogenic compatible and withstand radiation (???)

Target support to support start counter also

Target must be able to be aligned within ??mm

Mechanical vibrations from equipment must be isolated from target

Target cooling must be be able to be started and ended remotely

Temperature and pressure of hydrogen must be accessed remotely

Controls must be compatible with Hall D systems

A ballast system that can handle all the expanded gas is required

Hydrogen system must be closed loop (no release)

System must be at 16psia max

Target system must accommodate deuterium also.

System must be designed and tested according to JLAB pressure system requirements