



To/MS: Doug Fulton, P-23 / H803
Thru/MS: Al Hurd, LANSCE-12 / H805
From/MS: R. O. Nelson, LANSCE-12 / H805
Phone/FAX: 667-0394/665-2676
E-mail: ron@lanl.gov
Symbol: LANSCE-12-04-19
Date: July 15, 2004

**Path for approval for operations
of the liquid hydrogen target on FP12**

This memorandum documents the approval path for operation of the liquid hydrogen target in building MPF-35 initially and later in FP12. Since the target utilizes 20 liters of liquid hydrogen, it poses significant cryogenic and safety challenges that have been the subject of two reviews in the past.

Of particular interest is the hydrogen relief line that releases the cold hydrogen gas to the atmosphere in case the cryogenic cooling system fails. The committees have not reviewed this line in the past. In addition installation of this line must occur when the beam is off to the Target 1, so it is imperative that we define a clear path forward that satisfies all stakeholders. This document identifies the work and reviews that the Lujan Center requires before installation of the relief line in ER2 and finally the reviews required before operation of the liquid hydrogen moderator in either MPF-35 and ER2. Figure 1 illustrates the process.

The process features two largely parallel processes: one for operations in MPF-35 and the other in FP12. Each path includes an internal design review at the 10% completion point, a hydrogen safety review with both internal and external experts, and a readiness reviews covering the target and facility systems and their interactions. Installation of the hydrogen relief line does not require completion of all reviews but operation in FP12 does. The risk for engineering changes to the relief line will be minimized with the careful review of the line from local experts. Optimization and sequencing of these steps will be the responsibility of P-23 as will all costs for the reviews.

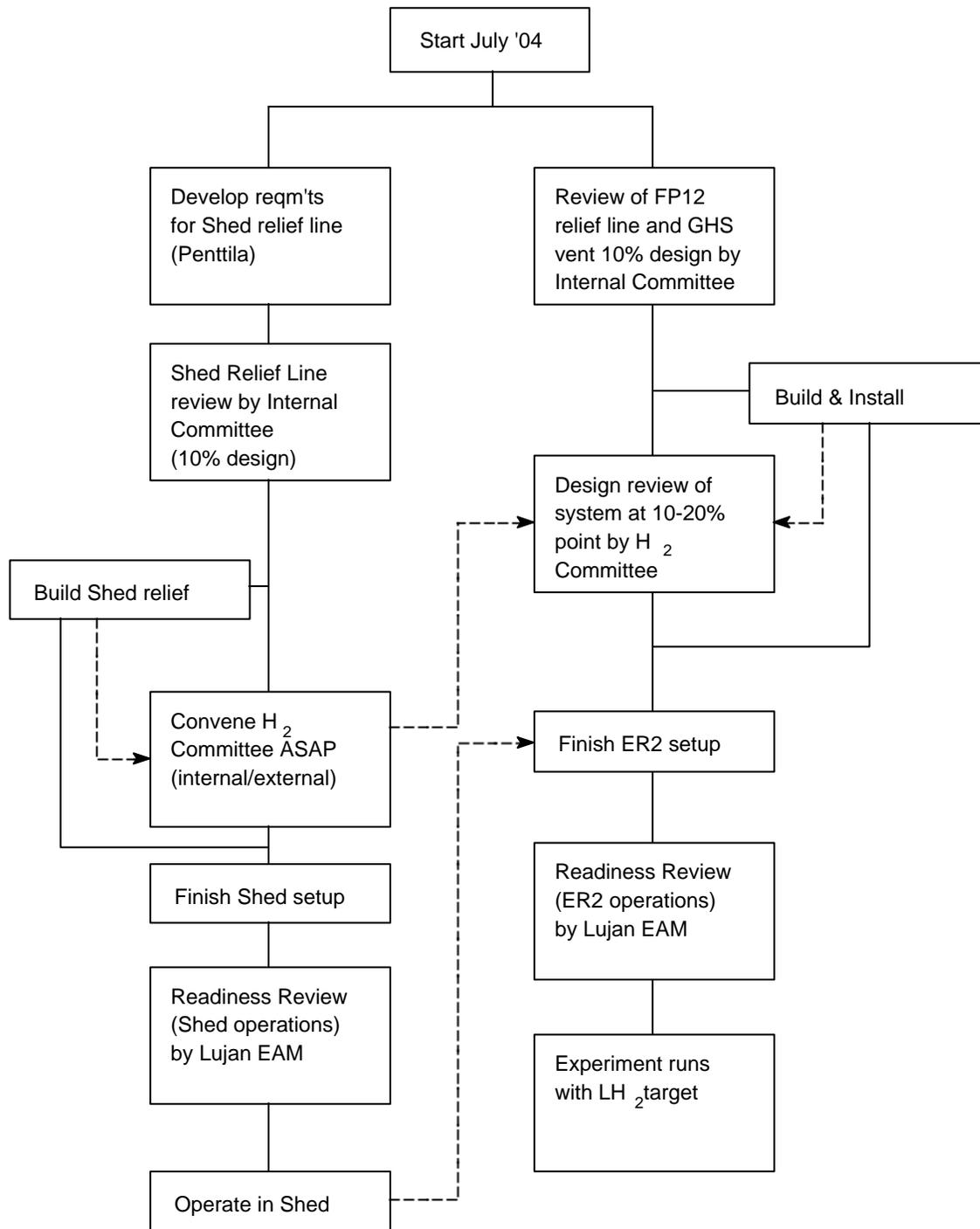


Figure 1. Process for approval of operation of the liquid hydrogen target in MPF-35 and in FP12.

Seppo Penttila, P-23, H803
 Pat Kelly, LANSCE-7, H840
 Jim Knudson, LANSCE-7, H840
 Josh Long, LANSCE-3, H855
 Dan Seely, FWO-LANSCE, H814
 Roger Cardon, FWO-LANSCE, H814
 LANSCE-12 File

