

Proposed Procedure for Development of the Hydrogen Absorber and Focusing Coil Module

Aim: to arrive at an agreed design choice for the absorber and focus pair module that meets the experimental aims of MICE and the safety requirements of RAL, and which can be carried through to production and operation.

Proposed Procedure:

1. Working Group

To institute a working group with convener (or chair) to bring together, through phone/video sessions and face-to-face meetings, an appropriate set of people to arrive at a final design choice, and to make a hazard and operability assessment.

The working group would logically comprise those leading the associated tasks: i.e., Iouri Ivaniouchenkov and Ed Black (Integration); Mary Anne Cummings and Shigeru Ishimoto (Absorbers), along with technical experts such as Mike Green (LBNL), Wing Lau and Giles Barr (Oxford), and Elwyn Baynham and Tom Bradshaw (RAL). It is proposed that Mike Zisman be asked to convene and help this group arrive at a final design concept.

In deciding on a design that meets the experimental aims of MICE, the working group should consider how the desire for other materials or configurations for the absorber impacts their design choice (and vice-versa). The working group should seek advice from whom, and as, they see fit.

2. Internal Review

Prior to initiating a full engineering study, the chosen design and its hazard and operability assessment, should be prepared for a review by an internally selected MICE panel, i.e., this review belongs to MICE.

After successfully completing the internal review, a full detailed engineering study of the final approved design can be initiated. This stage should address

- failure modes
- stress calculations
- interlocks
- operational procedures
- contingency plans
- pressure vessel regulations
- ATEX regulations
- identification of any other necessary controls (e.g., documentation and certification requirements)

3. RAL Review

This body of work will then be submitted to a RAL defined review for approval before manufacture commences.

4. Permission to Operate

Following manufacture and installation, permission to operate will be given by the RAL Safety Officer, subject to all the agreed procedures and all the required documentation being seen to be in-place. This process is illustrated in the chart shown below.

Timetable

To best use existing opportunities, the RAL meeting in March should not be the first contact: It is proposed to meet every second week to discuss particular ideas after having first issued drawing/documents in advance. The meeting at RAL is a significant opportunity, as is the collaboration meeting the previous week.

Lifetime of the Working Group

It is expected that the working group activity will be intense until the development of a successfully reviewed design choice. Responsibility for the detailed design and manufacture then naturally falls to the individual technical groups. It would seem reasonable that the working group chair should be able to periodically review progress and reconstitute the working group on an ad-hoc basis should issues arise during the “Detailed Design” phase.

Summary of review procedure:

