

HYSPEC NEWS 06.1

Folks,

It has now been over a year since our IDT meeting and now is the time to bring you up to date on the impressive progress that has been made as we move towards the path of construction and operation of HYSPEC.

During the last year work has been focused on quantifying the design, cost and schedule for HYSPEC in preparation for the reviews [the Preliminary Design Review (PDR) in May and the Lehman/External Independent Review (EIR) Reviews in September] leading up to Critical Decision-2 (CD-2) which took place in October of this year. Some of the things that have happened are, in chronological order, as follows.

EXECUTIVE COMMITTEE MEETING (April 2005)

In preparation for the PDR a Design Criteria Document (DCD) for HYSPEC was prepared by Mark Hagen (Instrument Scientist) and Bill Leonhardt (Lead Engineer). This has evolved from the original HYSPEC proposal to DOE taking account of the decisions we made at the full IDT meeting in September 2004, and the results of various calculations and simulations. A PDF copy of the document is attached.

In order to review this document we held an Executive Committee Meeting of the IDT at Brookhaven in April 2005. The executive Committee members are Rob McQueeney (Iowa State University) and Jim Rhyne (Los Alamos). They received the DCD in advance and then at the meeting there were presentations from Mark and Bill on the DCD and engineering aspects of HYSPEC, along with presentations from Vinita Ghosh on the MCNPX simulations of the beamline shielding, and Larry Passell on ideas for possible ^3He polarization analyzers some time in the future.

A PDF copy of the report from Jim and Rob, submitted to John Haines at the SNS, is also attached. A point raised by Jim and Rob in their review was whether there might be a problem from scattering due to the Argon atmosphere proposed for the HYSPEC detector vessel. As noted by Jim in the report the DCS instrument at NIST uses Argon in its detector bank without noticing a problem. It should be noted that Argon scatters relatively little, less than He, but absorbs more. Vinita Ghosh carried out some simulations to see if we could determine if such an effect would be a problem and the results suggested that it would not. It is something we will keep an eye on: the CNCS beamline at SNS will also have an Argon atmosphere detector, and if any problems arise on CNCS we can be alert to them.

PRELIMINARY DESIGN REVIEW (May 2005)

In May of this year the PDR for HYSPEC was held at SNS. The review panel consisted of SNS staff not associated with HYSPEC, Ken Herwig, Rick Allen, John Jankovich, Don Gregory and Dave Lousteau, and from the ILL, Jiri Kulda, who is head of the triple axis group. Mark gave a detailed presentation about the various components of HYSPEC and Bill presented the preliminary engineering design of the instrument. The presentations were well received by the committee and they concluded that the design

was well conceived. Some of the issues that arose, about handling radioactive material, were SNS issues and are being dealt with by the facility. Also, issues about integration with beam line 14A and magnetic fields were also addressed.

PERSONNEL MOVEMENT (June 2005)

In preparation for the reviews later in the year Mark Hagen, the instrument scientist, re-located from Long Island to Oak Ridge in June of this year. Mark had been on assignment from ORNL to BNL for the previous year working with those of us at BNL to develop the design of HYSPEC. As we transition from the preliminary design stage into detailed design and then on to procurement and construction for HYSPEC the focus of activity will obviously move to the SNS. HYSPEC benefited greatly by having Mark at Brookhaven for a year. His presence now at Oak Ridge ensures that HYSPEC is fully integrated into SNS project and we can be assured that he is looking after the interests of the HYSPEC instrument. The IDT design team at Brookhaven is in constant touch with him and we are very pleased with the progress that HYSPEC is making.

DOE LEHMAN AND EIR REVIEWS OF SING AND HYSPEC (September 2005)

On September 28th and 29th two reviews of the SING project were carried out (simultaneously) at the SNS, a review for the Office of Basic Energy Sciences organized by Dan Lehman, and an EIR (External Independent Review) for the Office of Engineering Construction Management performed by consultants from Jupiter Inc. For HYSPEC, and also the NOMAD powder diffractometer, these two reviews were for the granting of CD-2. While the PDR had concentrated on the instrument design, these reviews concentrated on the budget and schedule issues.

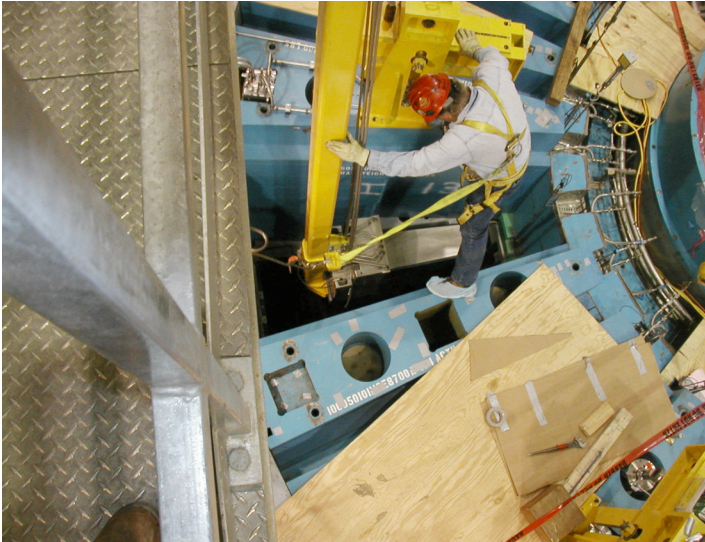
Both of the review teams recommended that HYSPEC be granted CD-2 without any “findings” (in the review language a “finding” is a problem that has to be put right). Consequently at its meeting on October 24th DOE’s Energy Systems Acquisition Advisory Board (ESAAB) granted CD-2 for HYSPEC, and also NOMAD.

The whole review process, the PDR and the September reviews, has required a great deal of work from Bill and Mark in preparing the documentation and presentations. They have received a lot of help from Greg Capps and Barbara Thibadeau of the SING Project Management in preparing the budget and schedule documentation. However the outcome just goes to show how smoothly things can go with good preparation.

The CD-2 review covers the baseline for the instrument design, budget and schedule, and grants permission to proceed into detailed design of the beamline/instrument. In October 2006 HYSPEC will be reviewed again, this time for the granting of CD-3, which is permission to start procurement and construction/installation.

DELIVERY AND INSTALLATION OF THE HYSPEC CVI

On November 2nd the Core Vessel Insert (CVI) for beamline 14 (HYSPEC) was delivered to the SNS, and on November 11th it was installed on beamline 14. The CVI for BL14 was designed jointly between Bill Leonhardt at BNL and colleagues at the SNS. The two photographs below show the CVI being lifted into place (left) and after it was installed (right).



It should be noted that the SNS has an “exclusion authority” for the procurement and installation of items that are part of the SNS Target Monolith before the granting of CD-3 for a beamline. Clearly there is a sound case for the installation of items into high radiation areas before the source is turned on, or as soon after it has been turned on as is possible. The other two target monolith items for HYSPEC, the bulk shield insert and the shutter insert, are both well into design and will be procured in 2006.

IDT MEETING AND WORKSHOP

We are planning to hold an IDT meeting at Brookhaven next year, on April 6-7, 2006 and we invite all of the IDT members to attend. This will be held in connection with a workshop we are organizing on production and analysis of polarized neutron beams for inelastic scattering, an idea that was discussed as at the Lehman review. The goal is to have the workshop for 1-1/2 days followed by an IDT meeting where the IDT members will learn about the latest details of HYSPEC and provide their input to some instrument specifications. Funding is available to defray your expenses. More details will be sent out as the planning proceeds.

In closing, HYSPEC is well conceived and promises to be one of the most unique instruments at the SNS. The attached DCD document describes the baseline design from the CD-2 review. Also, check the web site for other details about HYSPEC: <http://neutrons.phy.bnl.gov/CNS/hyspec/index.htm>.