ACCEPTANCE SUMMARY FOR LHC MAGNETS BUILT AT BNL
Magnet D2L108

Date of this summary: 2 August 2004

This document contains a short summary of the acceptance status (in italics, just below), the minutes of the acceptance meeting, and actions taken after the acceptance meeting [in square brackets within the text of the minutes, or as footnotes].

Acceptance status:
After the BNL acceptance committee accepted the magnet CERN requested that the position of the QQS hood be brought within the current tolerance, ± 7 mm. CERN is still reviewing the waiver for the damage done by the valve seat.

The field quality data have been loaded in the CERN database.

MINUTES OF ACCEPTANCE MEETING
Date of acceptance meeting: 17 June 2004
Present at acceptance meeting: Escallier, Hocker, Jain, Muratore, Pilat, Plate, Porretto, Schmalzle, Wanderer, Willen

Quench Data: Muratore showed the quench performance of the magnet. In forced flow, the magnet exceeded the specified quench current on the second quench. It quenched even higher in liquid. The quench plots and tabulations are available on the Web at http://www.bnl.gov/magnets/LHC_Acceptance/D2_Test_Results.asp

Field Quality: Jain showed the warm data and cold data from the magnet. (His talk is at the Web address given above.) Pilat approved the magnet's field quality.

Engineering: Escallier reported that the magnet meets specifications. However, when the end volume was opened (as part of the process to bring the bore tube positions within tolerance) damage to the support cable for the two non-lead end level probes was found. (When the end volume was opened, a valve seat was found inside. The damage to the support cable most probably occurred when the helium stream forced the valve seat into the end volume.) The level probe wires were not damaged. The valve seat was removed from the end volume. The temperature sensors and support wires were left as they were found. A helium diverter for the upper port on the lead end was made and installed. The diverter will prevent a rush of incoming gas from disturbing the level probe wires. [This instrumentation is not needed for control in the LHC - see footnote 2]. See discrepancy report R-1181 for additional information.

Schmalzle said that the mechanical construction of the magnets met specifications.

QA: Hocker reported that the only major outstanding issue was the position of the QQS pipes. [Data sent to CERN in Waiver M0322 on June 25.] He said that several minor

documentation matters would probably be cleared up before the QQS work was completed.

Safety: Durnan reviewed the documentation prior to the meeting and approved it by email [1].

Survey: Plate said that he had reviewed the available survey data and found them acceptable. Interconnect survey data were sent to D. Missiaen on 11 June for review. The QQS survey data was not all available at the time of the meeting. The full set of survey data (interconnect plus QQS) will be included in an update of deviation waiver M0322, which will be sent to CERN as soon as it is available.
Note: When the beam tubes were surveyed after the construction of the magnet, they were found to be several mm out of position. Their position was corrected by grinding out the beam tube stiffeners and replacing them with stiffeners having centers offset so that the beam tube positions were within specification. See discrepancy report R-1180 for additional information. Following this, the position of the beam tube was measured along its length using an LHC "mirror mole."

These notes written by P. Wanderer

FOOTNOTES

[1] From J. Durnan to P. Wanderer, 15 June 2004:

I have reviewed the documents associated with this magnet and find them acceptable.

Jim Durnan
ESH Coordinator
Superconducting Magnet Division

[2] Email from E. Willen to P. Wanderer, 14 July 2004:

In addition to the points you have made, it should be noted that the level probes in this magnet will not be used in the machine. This magnet is at the downhill end of a Q4-D2 pair and in that case, the level probe at the uphill end, in Q4, will be used to regulate the level of liquid in the magnets.