

15 T Dipole Coil Internal Review

11 January 2018

On 11 January 2018 the Fermilab Magnet Systems Department conducted an internal review of the 15 T Dipole coil impregnation process in response to the damage incurred to the first 15 T Dipole L3-L4 coil, HFD-CL-002. The 15 T team has analyzed the failure, planned changes, and proposed a plan to replace the damaged coil.

Review questions:

1. Is the L3-L4 reaction/impregnation tooling and procedure well understood and adequate to produce high quality coils?
The tooling and procedure are well understood. The committee believes, however, that expanding the procedure to include more dry runs and fit-ups might have caught the design flaw earlier.
2. Are the possible causes of the coil HFD-CL-002 damage during impregnation well understood?
Yes.
3. Are the proposed improvements of the coil impregnation tooling, process, and quality control sufficient to achieve the required coil quality after impregnation?
Yes, but It is critical to adhere to the discipline of the travelers and discrepancy reports.
4. Does the plan for coil replacement exist and is it optimal (new coil fabrication vs. fixing HFD-CL-003)?
The proposed plan of repairing coil HFD-CL2-003 appears viable, and would be the most efficient course. The back-up plan of winding a new coil using cable recovered from HFD-CL-001 also appears viable, but would be slower and use more resources.