

US LHC Accelerator Project		Baseline Change Request
BCR Number	61	
WBS	1.2.1.3, D3 Production, 1.2.1.6, EDIA	
Title	D3 Heat Shield Extensions	
Change Control Level	2	
Originator	Erich Willen	
Date	14 January 2004	

Description of change

The bottom heat shields on the D3 magnets would be extended by some 570 mm at the lead end of the magnets. This would allow CERN to later more easily attach the QQS interface modules necessary for operation in the LHC machine.

Detailed Description

The D3 dipole magnets are being built by BNL for installation into the LHC, where they are part of the optics for separating the LHC beams in the RF insertion region. Two of these magnets are required in the machine, and a third is being built as a spare. When the D3 magnets were being designed and the parts fabricated, CERN had not yet developed the designs for the hardware interconnecting these magnets to its systems. Hence, the heat shields were made only as long as required for the D3 magnets. Now CERN has developed its designs and recognizes that the bottom heat shields for its QQS interfaces need to be extensions of the shields in the D3 magnets. Since the D3 magnets are being built at BNL as completed magnets with all insulation in place, it would be difficult for CERN to weld on an extension; the welding heat would damage the installed superinsulation. Hence, CERN has requested that the extensions be attached at BNL before the shields are installed into the magnets.

To accomplish this task, heat shield sections of the required length (~570 mm) must be cut and welded to the existing full length shields that have been made for the magnets. Some rerouting and modification of the local cryogenic piping is also required.

Reason for change

This change is proposed by CERN to facilitate the later installation of the D3 QQS interface modules at CERN.

Impact on other sub-systems

There is no impact on other items in the US LHC Accelerator program.

Impact on cost

The cost in FY03 dollars for the work described in this BCR, including overheads, detailed in the Appendix. Since the work will be done in FY2004, the as-spent cost will be as follows:

D3 Production	\$5,695
EDIA:	\$4,996
Total:	\$10,691

Impact on schedule

No impact on schedule.

US LHC Accelerator Project

Baseline Change Request

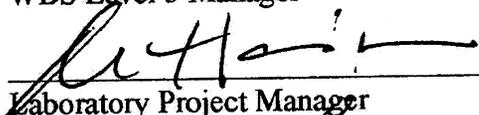
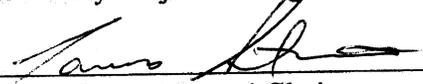
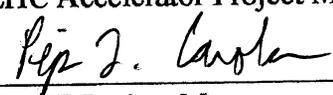
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Other impacts (ES&H, etc.)

None

Change Control Board recommendation (if required)

Approvals

	<u>3/17/04</u>
WBS Level 3 Manager	Date
	<u>3/17</u>
Laboratory Project Manager	Date
	<u>3/17/04</u>
Change Control Board Chair	Date
	<u>3/17/04</u>
US LHC Accelerator Project Manager	Date
	<u>3/17/04</u>
DOE LHC Project Manager	Date
_____	_____
Director, DOE Division of High Energy Physics	Date

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APPENDIX: Cost of D3 Heat Shield Extensions, FY03 Dollars

Program	Item	WBS	Labor			Material CS Matl	Total
			Type	Hours	Cost		
D3	Heat Shield Extensions						
	Technician labor	1.2.1.3	T	40	\$1,940		
	Welding labor	1.2.1.3	W	24	\$2,088		
	Parts	1.2.1.3				\$240	
	EDIA						
	Engineering	1.2.1.6	E	16	\$1,160		
	QA	1.2.1.6	P	8	\$503		
	Designers, inc checking	1.2.1.6	D	40	\$2,066		
	Total				\$7,756	\$240	\$7,996
Summary							
			Mat	Lab	Burden	Total	
	D3 Production	1.2.1.3	\$240	\$4,028	\$1,261	\$5,529	
	EDIA	1.2.1.6	\$0	\$3,728	\$1,122	\$4,850	
	TOTAL		\$240	\$7,756	\$2,383	\$10,379	
			Lab, hrs	Lab, \$			
	EDIA	1.2.1.6		\$3,728			
	E		16	\$1,160			
	D		40	\$2,066			
	TOTAL		56	\$3,226			