Addendum

to the

Project Management Plan

for the

Run IIb D-Zero Detector Project

at

Fermi National Accelerator Laboratory

Draft V2.0
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1 INTRODUCTION

This document is an addendum to the Project Management Plan (PMP) for the Run IIb D-Zero Detector Project at Fermi National Accelerator Laboratory, dated October 27, 2002. Any and all changes or additions to that document are contained in this addendum, and as such supersede any corresponding elements of the PMP. This addendum contains no information other than changes and/or additions to the PMP. The two documents taken together now constitute the full and current Project Management Plan for the Run IIb D-Zero Detector Project at Fermi National Accelerator Laboratory.

Section numbers below refer to the document dated October 27, 2002.

2 JUSTIFICATION OF MISSION

Section 2.2, fourth paragraph, first bullet should be replaced with the following:

- The current silicon tracker must be augmented in order to be capable of handling the radiation associated with the integrated luminosity that is expected in Run II.

3 PROJECT DESCRIPTION

Section 3.1 “Silicon Detector.” Since the silicon detector design has been descoped, this section should be replaced with the following text:

The current DØ silicon detector was built to withstand the 2-4 fb^{-1} of integrated luminosity originally projected for Run II. The higher integrated luminosity expected in Run IIb will render the inner layers of the present detector inoperable due to radiation damage. In order to maintain good track-finding performance, we are constructing a new inner silicon layer (“layer Ø”) that will fit inside the existing detector and will provide an additional, radiation-hard, tracking layer. The new detector will be assembled at Fermilab from commercially produced silicon microstrip sensors, hybrids, and readout electronics. The current plans call for a tracker having six azimuthal segments, with a simple modular design and a minimum number of different part types. The proposed baseline detector has 48 silicon sensors, 96 SVX4 readout chips, and a total of 12288 channels. Its length has been chosen to permit its insertion into the bore of the fiber tracker without the need to move the DØ detector from the Collision Hall, a feature that is desired because of the relatively short shutdown that is currently planned between Runs IIa and IIb.

Section 3.2 “Trigger system” add the following paragraph:

The existing electronics for the Central Fiber Tracker, based on the SVX2 chip, will be replaced. The replacement makses use of a new readout chip, called a TRIP chip, developed specially for this purpose. The readout upgrade is required given the increased reliance on the fiber tracker, caused by the descoping of the silicon detector upgrade.

4 MANAGEMENT, ORGANIZATION AND RESPONSIBILITIES

Figure 1 should be replaced with the following modified organizational chart.

ORG CHART IN PREPARATION

5 WORK BREAKDOWN STRUCTURE

To accommodate the descoped silicon detector, WBS item 1.1 is deleted. A new WBS item is added:

WBS 1.6 Layer Ø Silicon
This element covers the inner silicon layer designed to fit inside the existing D-Zero silicon detector, together with the new detector's readout and mechanical structure.

A new WBS item 1.2.8 is added for upgrades to the fiber tracker electronics.

WBS 1.2.8 Fiber Tracker electronics upgrade
This element covers a replacement and upgrade for the existing readout of the central fiber tracker. The upgrade is based on the "TRIP" chip and a simplified replacement for the analog front-end boards ("AFE II").

6 TECHNICAL, SCHEDULE AND COST BASELINES

Table 1, Level 2 milestones, is to be replaced with the following table:

No.	Milestone	Date
	Silicon	
2.1	Freeze Mechanical Parameters	1/6/04
2.2	Release Sensors for Production	5/26/04
2.3	Release Analog Cables for Production	6/4/04
2.4	Release Hybrids for Production	6/4/04
2.5	All Analog Cables Delivered and Tested	3/11/05
2.6	All Sensors Delivered And Tested	5/23/05
2.7	All L0 Hybrids Delivered, Stuffed, and Tested	8/25/05
2.8	All Adapter Cards Delivered and Tested	10/17/05
2.9	Silicon L0 Module Production Complete	11/29/05
2.10	Silicon Ready To Move To DAB	5/25/06
	Trigger	
2.11	L1 Trigger Cal-Trk Match Production and Testing Completed	9/23/04
2.12	L2 Silicon Track Trigger Production and Testing Complete	10/17/05
2.13	L1 Calorimeter Trigger Production And Testing Complete	1/5/06
2.14	L2 Beta Trigger Production And Testing Complete	1/5/06
2.15	L2 Trigger Upgrade Production and Testing Complete	1/5/06
2.16	L1 Central Track Trigger Production And Testing Complete	1/10/06
2.17	L1 Trigger Upgrade Production and Testing Complete	4/10/06
	Online	
2.18	Online System Production and Testing Complete	10/7/05

Section 7.3.4, Cost Summary, is to be replaced with the following text:

The Total Project Cost (TPC) for the Run IIb D-Zero Detector Project in AY dollars is $12,055k, including $3,247k in contingency. An obligation profile showing the anticipated obligations by fiscal year is extracted from the schedule. The table below shows the obligation profile for the project at WBS level 2 with R&D and contingency broken out from the subsystem costs.

Obligation Profile (AY dollars in thousands)							
Source	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**	**Total**
Silicon Layer 0	0	0	0	1,350	267	0	1,617
Trigger	0	468	948	1,427	2,296	40	5,180
Online Systems	0	0	64	311	377	311	1,062
Administration	0	0	274	217	225	207	924
Sub Total	0	468	1,286	3,305	3,165	558	8,783
R&D	0	0	26	0	0	0	26
Contingency	0	0	0	1,682	1,374	191	3,247
Total Project Cost	**0**	**468**	**1,312**	**4,987**	**4,539**	**749**	**12,055**