Neutrinos at the Main Injector (NuMI) Project

Project No. 98-G-304
Progress Report No. 66
May 1-31, 2004
(G. Bock, A.L. Read - Editors)
(NuMI-1036)

I. PROJECT DESCRIPTION

The NuMI Project provides for the construction of an intense, variable energy, beam of neutrinos using the Fermilab Main Injector, as well as large underground neutrino detectors located at Fermilab and Soudan, Minnesota. The purpose of the project is to enable a new generation of long baseline neutrino experiments that can decisively detect and accurately measure neutrino oscillations. Detection of such oscillations would firmly establish a non-zero value of neutrino mass. The neutrino beam will be of sufficient energy that experiments capable of identifying muon neutrino to tau neutrino oscillations are feasible. The scope of the NuMI Project includes the excavation of large underground laboratories to house the neutrino beam system and the MINOS detectors.

II. OVERVIEW OF PROJECT STATUS – G. Bock

The NuMI project continues to make good progress towards completion. Overall the project is now 98% complete.

A semi-annual review of the project by the DOE Office of Science was conducted on May 25. There were no recommendations for the project and a single action item for DOE and Fermilab to jointly determine the timing and scope of the next review.

Installation of technical components in the target hall continues on or ahead of schedule. Installation of the absorber has begun using the winch and cart backup plan. DOE milestone L-2-17 "Complete Installation of Horn Power Supply" was completed on May 21, well ahead of the September 1, 2004 DOE Milestone date. Several other Level 3 milestones were completed.

In May routine installation and commissioning of the spectrometer section of the near detector began and was essentially completed. Cosmic ray muon tracks were observed in the detector. The MINOS Far Detector took atmospheric neutrino data.

There were no injuries on the NuMI project this month.

More detailed information on the project's progress and status this month follows in the rest of this report.

III. MASTER SCHEDULE AND FUNDING SUMMARY

The NuMI DOE Project Master Schedule is shown in Figure 1.

The DOE baseline milestones are shown in the figure as solid squares. These fixed milestones are defined in the DOE Project Execution Plan and the Baseline Change Proposal approved in December 2001. Shown as diamonds on the same line are the project's baseline projected dates for achieving the milestones. Actual dates of achieving milestones are shown as inverted black triangles.

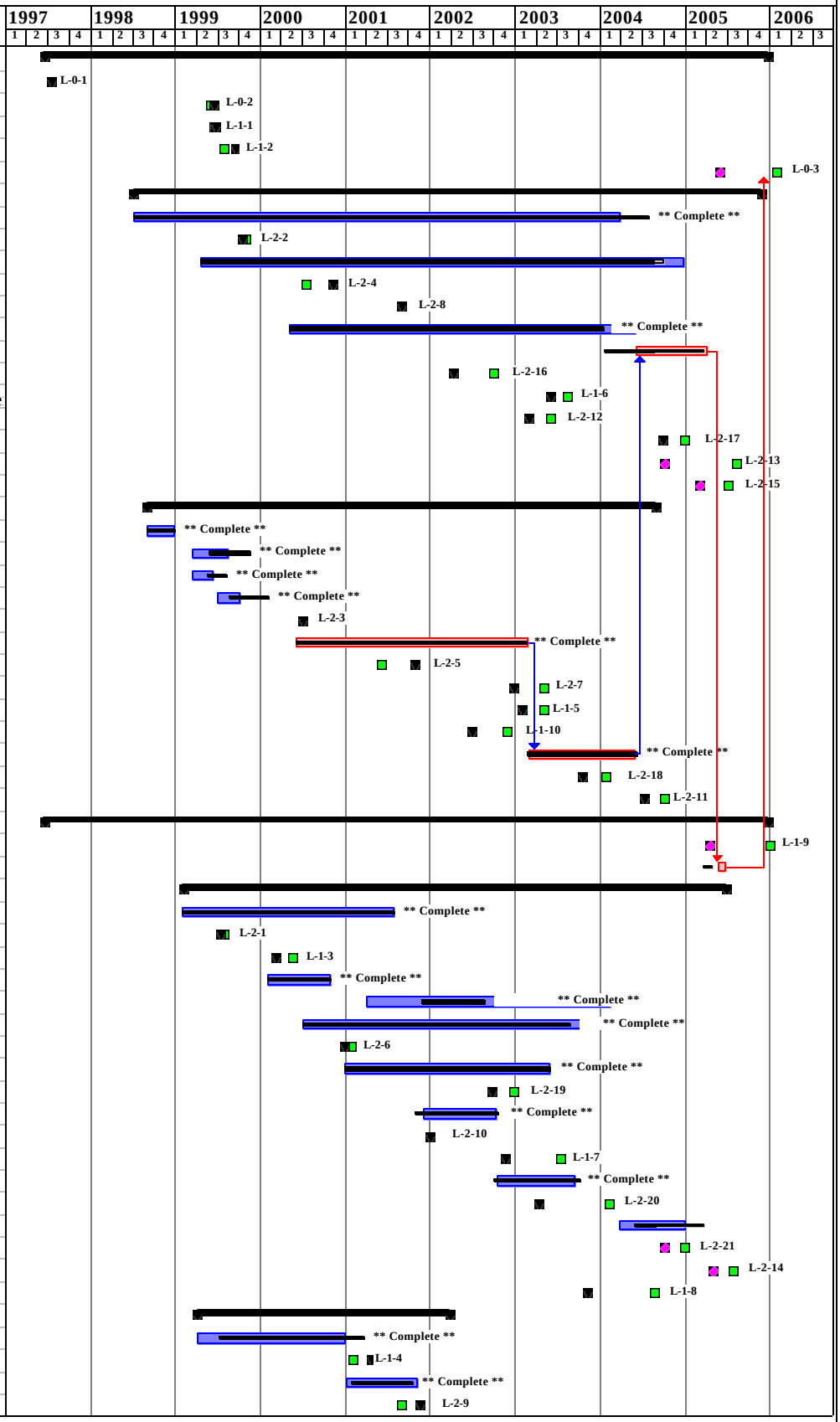
Our actual progress is indicated by black 'thermometer' lines within the horizontal (baseline schedule) bars.

A Table titled "DOE Milestones vs. Current Forecast" follows immediately after the Project Master Schedule. That table lists all the approved Level 0-1-2 DOE milestone dates along with the project's current (and previous month's) forecast for achieving them. The list is sorted by DOE Milestone date. Milestones with forecast dates that have changed significantly in the last month are discussed in Section VIII of this report.

As always the TEC and OPC profiles are presented in the Funding Summary.

6/22/04

NuMI Project
(Fiscal Years)



Project: NuMI_Master_Sched
Date: 6/22/04

Baseline Task
Critical Task
Summary Task
DOE Baseline Milestone
FNAL Current Projection
Milestone Complete
FNAL Forecast
Task Status

DOE Milestone vs Current Forecast
(Sorted by DOE Milestone Date)

6/25/2004

Milestone Description	PEP Milestone #	DOE Milestones (As of 12/2001)	Last Month's Forecast Milestone (4/2004)	Current Month's Forecast Milestone (5/2004)	DOE Milestone Variance (Cal Days)	Monthly Variance (Cal Days)	Notes
CD-1 Approve Mission Need	L-0-1	3/17/1997	3/17/1997	3/17/1997	0	0	Complete
CD-3a Start Limited Construction	L-1-1	2/15/1999	2/23/1999	2/23/1999	(8)	0	Complete
CD-2 Approve Baselines	L-0-2	2/17/1999	2/17/1999	2/17/1999	0	0	Complete
CD-3b Continue Construction	L-1-2	3/31/1999	5/21/1999	5/21/1999	(51)	0	Complete
MINOS Steel Purchase Subcontract Awarded	L-2-1	4/1/1999	3/15/1999	3/15/1999	17	0	Complete
Top of Soudan #8 Mineshaft Located with GPS	L-2-2	6/28/1999	6/16/1999	6/16/1999	12	0	Complete
Far Detector Prototype Erected	L-1-3	1/17/2000	11/10/1999	11/10/1999	68	0	Complete
NTP Issued for Fermilab Underground Subcontract	L-2-3	3/6/2000	3/6/2000	3/6/2000	0	0	Complete
High Current Pulse into Prototype Horn	L-2-4	3/14/2000	7/14/2000	7/14/2000	(122)	0	Complete
CalTech Factory Commissioned	L-2-6	9/29/2000	9/1/2000	9/1/2000	28	0	Complete
Far Detector Excavation Complete	L-1-4	10/2/2000	12/22/2000	12/22/2000	(81)	0	Complete
Fermilab Underground Construction 50% Complete	L-2-5	2/6/2001	6/29/2001	6/29/2001	(143)	0	Complete
Magnets for MI Stub Refurbished	L-2-8	4/30/2001	4/30/2001	4/30/2001	0	0	Complete
Outfitting of Far Detector Enclosure Complete	L-2-9	4/30/2001	7/19/2001	7/19/2001	(80)	0	Complete
Cosmic Rays Observed in Far Detector	L-2-10	3/22/2002	8/31/2001	8/31/2001	203	0	Complete
Technology Choice Made for Muon Monitors	L-2-16	5/30/2002	12/10/2001	12/10/2001	171	0	Complete
Service Building & Outfitting Bid Package Out	L-1-10	7/30/2002	2/25/2002	2/25/2002	155	0	Complete
75% Scintillator Produced	L-2-19	8/30/2002	5/24/2002	5/24/2002	98	0	Complete
Near Detector Hall Excavation Complete	L-2-7	12/30/2002	8/30/2002	8/30/2002	122	0	Complete
Target Hall Excavation Complete	L-1-5	12/30/2002	10/4/2002	10/4/2002	87	0	Complete
Lambertson & C-Magnets Assembled & Tested	L-2-12	2/1/2003	10/31/2002	10/31/2002	93	0	Complete
First Far Detector Super Mod Complete & Tested	L-1-7	3/15/2003	7/24/2002	7/24/2002	234	0	Complete
Inner & Outer Conductors for First Production Horn Assembled	L-1-6	4/14/2003	2/5/2003	2/5/2003	68	0	Complete
Target Service Building Shell Complete	L-2-18	9/30/2003	6/17/2003	6/17/2003	105	0	Complete
Near Plane Pre-assembly Complete	L-2-20	10/10/2003	12/17/2002	12/17/2002	297	0	Complete
Far Detector Complete & Tested	L-1-8	4/25/2004	7/9/2003	7/9/2003	291	0	Complete
Beneficial Occupancy of Service Buildings at Fermilab	L-2-11	5/31/2004	3/10/2004	3/10/2004	82	0	Complete
Start Commissioning with Both Near and Far DAQ	L-2-21	8/30/2004	6/9/2004	6/1/2004	90	8	
Complete Installation of Horn Power Supply	L-2-17	9/1/2004	6/11/2004	5/28/2004	96	14	Complete
MI Stub Installation Complete	L-2-15	3/11/2005	11/1/2004	11/1/2004	130	0	
Near Detector Complete & Tested	L-2-14	3/31/2005	12/27/2004	12/27/2004	94	0	
First Horn Installed	L-2-13	4/7/2005	6/25/2004	6/1/2004	310	24	
Start Commissioning	L-1-9	9/1/2005	12/22/2004	12/22/2004	253	0	
CD-4 Start Operations	L-0-3	9/30/2005	2/1/2005	2/1/2005	241	0	End of Commissioning

IV. FUNDING SUMMARY (K$)

Funding Summary (as of 5/31/2004), amounts in thousands

YEAR	TEC (NuMI Facility) Appropriations	OPC (MINOS, Soudan) Obligations
		Actual costs through FY03. Plan from Baseline Change Proposal
Prior FY's	0	1,417 actual
FY98	5,500	2,348 actual
FY99	14,300	4,114 actual
FY00	22,000	11,324 actual
FY01	22,949[1]	13,598 actual
FY02	11,400	17,227 actual
FY03	19,842[1,2,3]	7,067 actual
FY04	12,426[2,4]	4,605 balance
		Future Funding Plan
FY05	825[2,3,4]	500
TOTALS	**109,242**	**62,200**

Note [1]: FY01 Rescission removed $51K from plant line and $26K from OPC. We planned the restoration of these funds in FY03.

Note [2]: FY03, FY04, and FYY05 plant line funds as recommended for inclusion in the Baseline Change Proposal by the September DOE Review and approved in December 2001. This is the $33.042M in additional funding in the rebaseline proposal from Project Management.

Note [3]: FY03 Rescission removed $251K from plant line. We show the restoration of these funds in FY05.

Note [4]: FY04 Rescission removed $73.750K from plant line. We show the restoration of these funds in FY05.

TEC Funding Appropriated,
Not yet authorized
6,426

Total TEC funding authorized
101,991

TEC Obligations to date, (Not including requisitions in progress)
100,203 58,651 **OPC Obligations to date**

TEC Funding authorized but not obligated
1,788

V. NARRATIVE HIGHLIGHTS

MANAGEMENT HIGHLIGHTS – G. Bock

One change request (CR #281) was processed this month to add ramping capability to primary beam quadrupole magnets.

A semi-annual review of the project by the DOE Office of Science was conducted on May 25. There were no recommendations for the project; this is a 'first' for the project and the NuMI management is proud of and delighted by this outcome. A single action item was assigned for DOE and Fermilab to jointly determine the timing and scope of the next review.

The Project continues to report its progress against its own plan, which has a more aggressive schedule than that required by DOE milestones. The Project Support staff has developed a chart that provides the DOE NuMI Project Manager with a progress report against the DOE milestones.

Procurement Highlights – R. Huite

NuMI Tunnels and Halls (T&H)(NuMI Closeout Team)

The NuMI T&H Closeout Team consists of W. D. Wightman & Company (T. Wightman – Lead Negotiator), R. Helmuth (Claims professional); and Montgomery Watson Harza (J. Kovacich – Technical Support). Fermilab support continues to be provided by C. Laughton – BD/NuMI, R. Huite – BSS/Procurement and G. Leonard, BSS/Legal. The NuMI T&H Closeout Team continues to evaluate Disputes Review Board (DRB), S. A. Healy potential change orders/claims, Fermilab's Counter Claim, and other issues. Additional outside consultants/professionals are retained as the NuMI Closeout Team may require. The closeout team continues to be responsible for the timely and effective closeout of the S. A. S. A. Healy contract.

On September 29, 2003, the Fermilab Director authorized Mr. W. D. Wightman to negotiate on behalf of Universities Research Association, Inc. with S. A. Healy representative for the settlement of their claims engendered by their work under the NuMI T&H Contract. Mr. Wightman is authorized to represent URA in all matters relating to the settlement of these claims involving the Disputes Review Board, outside consultants and other interested parties. The NuMI Procurement Administrator continues to provide subcontract oversight in accordance with laboratory policy to the NuMI Project/Business Services Section/DOE.

Six disputes have been presented to the Disputes Review Board and recommendations have been received on all six of the issues.

On December 1, 2003, Fermilab requested that the DRB panel members resign from their positions immediately. On December 18, 2003, S. A. Healy was encouraged to join with Fermilab to reconstitute a new DRB panel and move forward in a joint effort to reconcile the outstanding matters between the parties. On January 7, 2004, Fermilab sent a letter to S. A.

Healy with Fermilab's nomination of a replacement DRB Member. S. A. Healy has not advised of their acceptance or rejection of Fermilab's nominee.

On March 31, 2004, SAH filed a Demand for Arbitration on two issues which SAH has identified as "counts" in its Demand. The first count of the Demand requests the American Arbitration Associations (AAA) issue an order directing URA to rescind its termination of its DRB panel member. The second count seeks an order barring URA from interfering with continued deliberation and issuance of a recommendation concerning SAH's "Decay Tunnel Bad Ground Claim" by the DRB members. On April 28, 2004, a letter sent to AAA constituted the comments of URA. In that letter, URA agreed to the submission of the first count to arbitration but objects to the exercise of jurisdiction of the AAA to hear the second count. On May 18, 2004, AAA submitted a list of names for the parties to review and agree upon an arbitrator and advise AAA of their agreement by June 2, 2004.

The S. A. Healy's subcontract No. 527522 totals $34,629,667 through Supplemental Agreement No. 16. Payment has been made in the amount of $31,621,265.36 and $2,858,850.64 retained.

There are a total of 60 pending open claims/change orders. Of this number, 4 have been denied and 19 are pending execution of Supplemental Agreement No. 17. The parties have exchanged all outstanding claims except for about eight that S. A. Healy has "reserved their rights" for later presentation.

NuMI Surface Buildings and Outfitting

The subcontract was awarded to Ragnar Benson, Inc. (RBI), of Park Ridge, Illinois in the amount of $17,880,000 million. The NuMI SB&O Construction Manager for this subcontract is Elaine McCluskey. The Business Services Section/Senior Procurement Administrator is R. Cibic.

The RBI's subcontract No. 546631 totals $20,570,556.92 through Supplemental Agreement No. 14 (an increase of $149,947.78). Supplemental Agreement Number 15 is scheduled to be issued in June 2004. Payment has been made in the amount of $20,364,476.33 and $206,080.59 retained. Only one claim remains outstanding.

Beneficial Occupancy for the Target site occurred on October 20, 2003, there are no remaining punch list items. Beneficial occupancy for the MINOS site occurred on March 10, 2004, two punch list items remain outstanding, both items are expected to be resolved in 2 – 3 weeks.

NuMI Technical Components

The Procurement Coordinator continues to be available to assist the NuMI Project.

NuMI FACILITY AT FERMILAB
TECHNICAL COMPONENTS (WBS 1.1) – B. Baller, N. Grossman

Overview

Installation of technical components in the target hall continues on or ahead of schedule. Installation of the absorber has begun using the winch and cart backup plan. This scheme is more labor intensive and slower than the original plan that utilized the electric forklift but there is adequate schedule float to accommodate this change.

DOE milestone L-2-17 "Complete Installation of Horn Power Supply" was completed on May 21, well ahead of the September 1, 2004 DOE Milestone date. The power supply was moved to the below ground power supply room in late March. The completion of AC power and controls connections to the power supply satisfied this milestone.

Several other Level 3 milestones were completed. The vacuum decay pipe was pumped down to 1.4 Torr, meeting Milestone L-3-239. Power supply refurbishing was completed, meeting Milestone L-3-250. All water skids were moved underground, meeting Milestone L-3-321.

Integration and Installation – R. Andrews

General Remarks

In general, the installation phase of the project has been running smoothly through the month of May. We are getting good support from the operations part of the Accelerator Division, and when infrastructure problems have arisen, other parts of the Laboratory have been responsive.

Main Injector

For the Main Injector, there was one six hour access. During this access, the following activities were conducted: 1) The magnet string (quadrupoles and bending magnets) was valved into the LCW System and checked for leaks. There were a few leaks, and all except two were easily repaired. The two small leaks will be repaired during the next available access. 2) The following magnets were rough aligned: Q111 and V108-6; Q112 alignment was also attempted, but a modification to the stand is required to complete this task. 3) Measurements for the Recycler Shielding were made as well.

In addition, discussions were begun in preparation for the upcoming summer shutdown.

We also started power supply testing in MI-60 (these are the supplies that will be driving the quadrupole string.)

MI-65

Installation activities during the month of May were centered on preparations for installation of Horns 1 & 2 in the target pile chase. The Target and Horn Carriage beams were placed, surveyed, and permanently fixed to their mounting pads on the utility ledge of the target pit. The

horn utility modules along with their respective "T" block shields were placed, to assure that they fit in the Target Pile Chase.

Except for the large removable door, the Work Cell was completed to a point where horns and their respective utility modules could be mated. Horn 1 was mated to its utility module and subsequently positioned in the target pile beam-line chase. Horn 2 and its utility module will be placed in the beam-line chase in the first week of June.

Horn power transmission stripline buss sections were staged in the Target Hall for assembly. Assembly activities proceeded with butt welding buss sections together, then buffing the conductors to assure smooth surfaces and to allay the chance of arcing during operation.

A positioning error along the beam-line was identified in alignment of the pre-target magnets and corrected. Corrector magnets, which were placed in the Carrier and Pre-Target tunnels in April, were surveyed and adjusted into place in the beam-line. Work continued on interlock and control cables throughout the underground enclosures. An interlock gate was installed in the emergency passageway at the base of the stairway leading up to ground level.

DC Power cables were installed and terminated for the power supplies feeding the 118 vertical magnet string. AC power feeds were installed and terminated to DC power supplies in both the surface and underground electrical support rooms. AC power was also fed to the RAW skids in the underground mechanical support room.

Installation of the connecting piping from the bulkhead to the RAW skids in the underground mechanical room was completed. Work proceeded on RAW system piping in the target pit from the bulkhead to horns 1 & 2.

MINOS

General work activity in the MINOS service building includes warranty work done by RBI subcontractors on chiller water circulating pumps, fan bearing, controls work on the ventilation system and the fire protection system.

The installation of all piping and electrical work associated with RAW skids and the vacuum skid at the absorber were completed in April. Additionally near the Absorber, the installation, cable tray and electrical work on the six relay racks for controls and Muon Detector electronics was completed in April.

Assembly of the Absorber has not yet started because the large electric fork truck has not returned from repair. A winch scheme is being implemented as an alternative to using the fork truck to move absorber parts between the shaft and the absorber. Work on Absorber assembly will begin the first of May.

Activities using the OH crane for moving equipment through the shaft is being done using subcontractor Taft (with one ironworker at the top and one ironworker at the bottom). Since the move to using Taft for shaft activity, the operation has worked very smoothly.

Sump pump #2 has been re-installed and re-removed during April. It is believe the first pump had a bad motor. Pinched wires near the pump caused the second occurrence.

Water mitigation is an ongoing activity in the tunnel. Many improvements have been made. The main area yet to address is at the base of the shaft, parts are in process to improve drainage in the shaft area.

Pipe fitters have completed piping and connection of LCW skid in the MINOS Hall, and have moved on to the target area. The T&M electricians have completed the installation of all branch circuits that feed AC power to electronics and DAQ relay racks.

All electronics rack have been delivered to the MINOS Hall. Check out of the racks in ongoing.

The installation of detector planes in is full force. Planes 281 to 221 have been installed. Readout cabling and DAQ checkout continues.

Primary Beam (WBS 1.1.1) – S. Childress

Overview

Priority efforts for the primary beam system continue with EPB dipole fringe field shields to control fringe fields from NuMI magnets near the Recycler Ring, beam instrumentation, and beam control applications. Also the kicker magnet load assemblies are near completion, and preparations are in progress for full system operation at MI-60, prior to tunnel installation of the magnets.

Magnets and Stands

Magnet end shields have been constructed for dipole HV101-6, and tested at the Magnet Test Facility with good results for fringe field reduction. Initial power-on testing in the Main Injector tunnel previously demonstrated the effectiveness of EPB dipole body fringe field shields. The end shields will be tested in the MI tunnel at the first opportunity. A significant goal prior to the 2004 accelerator systems shutdown is to have the capability for sustained operation of the two dipole magnets HV101-1 and HV101-6 in close proximity to the Recycler Ring.

Technical Division fabrication of shields for the remaining four dipoles in the HV101 string is proceeding well. These will be installed during the 2004 shutdown.

Component fabrication continues for external cooling shields for the six quadrupole magnets that run at the highest currents.

Kicker Magnet System – C. Jensen

5 of 6 kicker magnet load assemblies have been potted, which is the final assembly step for these. The 6^{th} load will be completed during the first week of June. Work is also ongoing to incorporate a larger size pump motor to the cooling skid, for enhanced cooling efficiency. This is part of the cooling system enhancement determined after initial prototype testing.

MI-60 South service building cooling line installation is completed, and electrical hook-up work ongoing in the same area. Installation at MI-60 of the complete kicker system assembly is in progress, to enable full system (power supply, magnets, resistor loads, cooling) operational testing, starting in June. The magnets with resistor load assemblies will then be installed in the Main Injector tunnel during the '04 shutdown scheduled to start in late August.

Beam Instrumentation – D. Harris

Profile Monitors:

This month tests on the first UT foil profile monitor began at Fermilab. Unfortunately the motion tests of the motor actuator were unsuccessful. Detailed inspection determined that the manufacturer provided drives with non-lubricated stainless steel lead screws, which were softer than specification, and were destroyed as a result of a 400-cycle testing procedure. New lead screws of harder steel have been ordered and should be installed with minimal schedule disruption.

Assembly of 5 profile monitors is continuing on schedule at UT-Austin. Two of these 5 are 1/2mm pitch foils for the targeting line-up monitors.

All parts of the six FNAL-backup profile monitors have arrived at Fermilab, and vacuum cans were cleaned and baked out. Winding of the wire planes is in progress.

Alignment fiducialization of initial units of both styles of profile monitors has begun.

Beam Position Monitors:

BPM detector alignment reference plates are being fabricated. When this assembly is complete the detector bodies will be fiducialized with respect to their electrical centers.

A set of NuMI BPM electronics has been installed in MI60S and the instrumentation group led by Peter Prieto has begun to look at Main Injector beam signals, although without the calibration module. The RF filters for the BPM electronics arrived this month and they are being paired to minimize reflections.

Beam Loss Monitors:

A sample of new BLM's from Troyonics has been tested at the Cs137 source, and only the newest modified version of the device had an acceptable plateau curve. Troyonics is going to fill the original order with these devices, rather than refurbishing those with an earlier design.

A new proposal for a heartbeat for the total loss monitor is being considered -- the concern is that the originally planned radioactive source on the endcap will not provide enough signal above the noise on the cable. The new heartbeat would be a high voltage pulse into an additional electrode, which can be used to measure the capacitance of the line and test the electronics.

Beam Permit System – R. Ducar

New Beam Permit System hardware continues to successfully support MiniBooNE operations.

Following final termination of all fiber optic cables in early May and subsequent installation and checkout of fiber optic repeaters, the primary link of Beam Permit Status for NuMI has now been established. The permit signal that originates at the MINOS Service Building has been successfully monitored at the MINOS Detector Hall, Absorber Access Tunnel, MI-65 Electronics Room, Target Hall Power Supply Support Room, MI-62, MI-60 North and MI-60 South. Permit status is also wired to the Main Control Room and awaits Operations permission for final connection to the Beam Switch Sum Box. All associated CAMAC 200 Modules are connected and responding. All 200 module inputs are entered. All seven CAMAC 204 and PCIs are installed and communicating with ACNET. This progress is evident on ACNET index pages E39 and E40. Checkout of the installation is underway together with connection of the permit signal from the C204/PCI to the C200 input panels. Associated TCLK events have been enabled and tested.

Neutrino Beam Devices (WBS 1.1.2) – J. Hylen, D. Ayres, K. Anderson, A. Stefanik

I. Magnetic Focusing Horns

Horn 1 and Horn 2. Work on re-installation of instrumentation lines was finished. Horn 1 was moved down into the target hall on May 26, and assembled onto the horn 1 module in the work cell on May 28. Horn 1 will be placed in its final position in the target chase early in June. Horn 2 will also be installed in June.

Horn integration. We plan to do the test of sucking water from the horn drain tank as soon as the RAW skid is connected to the horn.

II. Target

The straightness of the target was re-measured, and is excellent (3 mil deviation over 37 inches, plus 5 mil sag due to gravity). The target-mount on the carrier did not align properly at first and had to be modified.

Target integration. We plan to re-use the vacuum pump and related equipment from the prototype target test for the final target vacuum/helium system; a few parts such as a relief valve and remote valve remain to be procured.

III. Modules

Horn 1 Module. Horn 1 module was transported to the target hall and test-fitted into the target pile shielding. This is the heaviest load (55,000 lbs) that has to be transported down the access shaft.

Horn 2 Module. Horn 2 module was transported to the target hall and test-fitted into the target pile shielding.

Target/Baffle Module. The modification for a better (remote handling) lead-in for the target motion drive shaft was completed. While the motor drive positioning system has been run, precise calibration of module motion remains to be done. Installation is planned for July.

Remote Clamp/Stripline block. The remote clamp / stripline blocks for both horn 1 and horn 2 are now in the modules in the target hall, and horn 1 stripline connection is now clamped.

IV. Target Carrier and Baffle

Work is being done to assure repeatability of carrier alignment when dismounted and remounted on the module. This is not necessary for the first carrier, but will be critical for the target replacement at the bottom of a module. A remote lifting fixture was added to the carrier. Progress was made on installation of water lines, but a significant amount of work remains. Assembly and testing of the carrier will continue through June and may extend into early July.

The milestone date for L-3-309 "Assembly of Target Baffle on Module Complete" is 7/5/04, which is just about when the work should be finished.

V. Target Hall Shielding/Cooling

Recirculating Air Cooling System. The filter bank is now under construction. The bids are back from RFQs for chiller, coil and blower, and orders will go out in June. Installation is planned for August.

Concrete Covers. Another 17% of the concrete "R"-blocks were delivered in May, leaving 5% to go. The rest are not needed until September.

VI. Radioactive component handling

Work cell. Work cell installation in the target hall is under way (see below).

Cameras for remote handling. Most of the equipment has now been ordered, and enough has been received that we are beginning tests in the target hall. Outlets were installed on the crane beams to power the camera system.

Lifting/Transportation fixtures. Four of the five special lifting fixtures for the target hall have now been built and tested. A lifting fixture for remote handling of blue shielding blocks needs to be built before remote-handling practice in the target hall in November.

VII. Instrumentation/Electronics

Specifications for the instrumentation cabling are complete. The first of two ionization chamber mount/feed-throughs for the horn cross-hair system has been constructed in Brazil. The front-end cards for target hall instrumentation should be finished by ANL in June.

VIII. Installation

The carriages for the horn and target/baffle modules were installed and aligned to 20 mils. The horn 1 and horn 2 modules were placed in the carriages. Twenty of the 28 remotely removable shielding steel T-blocks were test-fitted in the chase with the modules.

The work cell back wall was finished, the module-support rails at the top of the work cell were aligned to 20 mils, the remote lift table was installed in the work cell, and the East-side viewing platform next to the windows was installed. The work cell was then used to mount horn 1 on its module. Installation of the powered front door for the work cell is not on the critical path, and will be done after horn installation, as will installation of the lead-glass viewing windows.

Remaining installation items are: the rest of the removable shielding steel T-blocks and concrete R-block covers, pre-target shielding block wall, target module and carrier, re-circulating air system, camera system, target vacuum/helium system, cross-hair ionization chambers, and instrumentation cabling.

The date for milestone L-3-254 "Complete Placement of Horn 1 into Target Station" is 7/19/04. The date for milestone L-3-314 "Complete Placement of Horn 2 Assembly into Target Station" is 8/9/04. Both the progress with target hall shielding installation and the component/module integration are on track to achieve these ahead of schedule. The other remaining milestones are L-3-270 "Target & Horn Installation Complete" (10/8/04), L-3-290 "Shielding Installation Complete" (11/18/04) and L-3-295 "Pulse & Checkout Horn System Complete" (12/7/04), all of which it appears reasonable to achieve on time.

IX. Administrative/Project Management

Milestones for the next six months are called out in the above text. The item currently on the critical path is horn installation, which is on schedule. The other major component (target/baffle) is on track to be ready by the scheduled installation date. Progress on the air system procurement was slowed by distractions of the installation effort, but is proceeding at an acceptable pace.

Physicist, engineering, drafting, technician, installation team, and survey resources are at reasonable levels. Two borrowed technicians are being added to Hiep Le's group to help pick up the stripline effort, so we will be able to continue with the target and horn efforts uninterrupted.

Power Supply Systems (WBS 1.1.3) – G. Krafczyk

Horn Power Supply - K. Bourkland

The Horn Power Supply installation is now finished. No further information will be available until later in the summer when initial testing with the stripline and horn loads is scheduled to begin.

Transmission Lines - D. Tinsley

We received penetration strongback seal bracket angles and aluminum end baffles at MI-8. The welder finished welding walkway return conductors in the target hall. The surveyors marked where the 6 walkway stands gets installed in the target hall. The welder completed welding together the 8 penetration conductors at MI-8. Jim Kilmer signed off the blower drawings.

Extraction Kicker Power Supply - C. Jensen

The kicker charging supply has been running at full voltage on a test stand for 3 weeks. The test load is not as much capacitance but we have been able to do some troubleshooting of the thyratron switch and the charging power supply. The PFN tank has been moved to the MI-60 service building. Control cables for operation are being built. Prototype control modules exist for initial running of the power supply.

Conventional Power Supplies - S. Hays

Late in the month installation had progressed to the point that testing was in progress. Power supplies will be tested first into a dummy load and finally into the magnet load in the tunnel.

Decay Region & Hadron Absorber (WBS 1.1.4) – D. Bogert, C. James

In early May the gantry tracks and hydraulic gantry were assembled in the Absorber Hall. The winch was mounted and the cart was pulled uphill empty to test the system. During the week of May 10th, concrete blocks were transported up the absorber access hill using the cart and winch system, and assembly of the absorber pile began. By the end of May, the concrete block frame at the upstream end of the absorber was complete, including the "slot" for the hadron monitor insertion. The MINOS shaft crane was out of service on two occasions during May for a total of about two and one half days lost time. At the end of May, transportation of the ten ton "blue blocks" up the hill for the base of the main section of the absorber was scheduled, and would have commenced except for the second of the two shaft crane problems. A meeting of appropriate engineering and repair staff for the shaft crane was scheduled for early June to address the MINOS shaft crane issues so that future down time will be minimal.

The larger capacity motor for the Hoist forklift was delivered to the vendor the last week of May, where an additional modification to the drive system to accommodate the larger motor was found to be necessary. Factory testing of the forklift with the larger motor (only – the lower drive gear ratio is still weeks away) was scheduled for early June. If successful, the forklift may be delivered to Fermilab for testing with blue blocks.

Plans to increase the number of blocks delivered up the absorber access hill in the absence of the Hoist forklift were developed during May. A slight revision to the winch cart to permit the transport of two blocks at once is being reviewed, and also the load capacity of the winch and the winch cable are being reviewed. At this time, no problems with the proposed increased capacity of the winch delivery system have been identified. If successful, the modified winch delivery system would match the block delivery speed using the forklift.

Fabrication of all other parts for the absorber pile continued on schedule.

The test of the decay pipe for vacuum tight performance was performed the first weekend of May. The decay pipe was pumped to approximately the design vacuum in the time available over the weekend, and the decay pipe is vacuum tight.

Neutrino Beam Monitoring (WBS 1.1.5) – D. Harris, S. Kopp

This month the hadron monitor was completely assembled, and passed gas tests in Austin. A relative gain calibration between all the PICs will next be done at Austin, and then the hadron monitor will be sent to Fermilab.

The schedule for the absorber (and therefore the hadron monitor) installation has been firmed up this month now that the cart and winch solution is being used for the absorber assembly. We expect that the hadron monitor support structure will be installed on June 17 or thereabouts, at which point we will practice installing the rollers that hold the monitor itself, and slide back and forth on the rails. If the monitor is ready by July 6 (i.e., before the absorber core installation, which blocks the beam's eye view of the hadron monitor), we will install the detector then; this would allow extra survey to be performed. If the detector is not ready for installation by that time, then it will be installed in September. Either plan should be consistent with the 3 cm alignment accuracy required, but installation prior to the absorber core allows for some redundant survey cross checks to be performed.

The muon monitor support structures have been sandblasted and painted to prevent further rusting. They continue to reside in Alcove 2.

Software has been developed at UW-Madison to do different runs on the muon and hadron monitors -- both pedestal runs and plateau curves (for the muon monitors). By looking at SWIC output from ACNET that is currently connected to a SWIC scanner in M-Center, UW-Madison can tune up the code that we will use to read out the muon monitor SWIC scanners to make the pedestal and gain files.

It was discovered that the timing latencies of ACNET readout are as large as 4 seconds, due to ethernet traffic delays. In this case, a concern exists that the beam monitor data may not be available to the experimenters on a spill-by-spill basis. Investigations are underway as to how to eliminate such latencies. A fix was achieved for MiniBooNE, which has a 0.3 sec cycle time; this is to be compared to the NuMI cycle time -- 1.8 sec.

Survey, Alignment & Geodesy (WBS 1.1.6) – W. Smart

Survey for the NuMI target pile installation continued with measurements of the installed positions of some steel shielding blocks, and installation alignment of T-block rails, carriages and the work cell. Survey was also provided for horn and carriage assembly and referencing in MI-8.

"Rough" alignment of proton beam magnets, including trim magnets, was completed in the carrier and pre-target tunnels. Checks began for possible displacement of beam instrumentation when pumped down to vacuum. Three more magnets located in the main injector NuMI stub region were rough aligned during a short accelerator shutdown.

Survey of the downstream decay pipe window and an initial group of upstream concrete blocks of the absorber was done in the absorber hall.

In addition the once a week QA check of the newly installed near detector planes continued.

The survey engineer effort for NuMI in May was 3.2 mw, with 1.0 mw for target pile installation support; 0.8 for horn and target module referencing and assembly support; 0.8 mw used for the alignment of beam components in the MI, carrier, and pre-target areas; 0.4 mw for vacuum/no vacuum comparison of multiwire chambers; and 0.2 mw for absorber alignment. In addition, the survey engineer spent 0.8 mw on the MINOS task of near detector plane 146-230 installation QA.

Beamline Utilities (WBS 1.1.7) –D. Pushka

General

Activities presently underway for WBS 1.1.7 include: Running the MI-62 system with water, installing piping for the horn 1, horn 2, target and upstream decay pipe cooling systems, and finishing the initial pump down of the decay pipe vacuum.

Instrumentation has been installed in MI-62 and is reading into the ACNET front end and is now on an ACNET parameter page.

Additionally, code has been written for the PLC's in the Target Hall Mechanical Support Room (THSR) and in the absorber access tunnel (AAT). Meanwhile, writing code for the MINOS PLC has also been started.

Upstream LCW System

The system is being operated. All but two of the magnets are valved in. Conductivity is good enough to allow powered testing of the magnets. The remaining two magnets are not valved in because there are leaks in the magnet connections (one has a bad ceramic insulator, the other a bad brazed fitting.) Repair of these leaks requires a Main Injector access.

As reported a couple of months ago, an addition to the scope of this system is the pond water pumps for PV-9 that will provide pond water to the heat exchanger in MI-62. The existing pond water pumps are not suitable (designed with too much head and too little flow) for the NuMI loads and require replacement with pumps that offer a larger flow but smaller head.

The RFQ for new PV-9 pond water pumps was issued in February and then re-issued in March. In April, quotes were received, evaluated, and none were found to be completely satisfactory. Discussions with the vendors were conducted during May and an award was made. Replacement pumps should be delivered and installed by early August.

A CR to add the scope of PV-9 replacement pond water pumps to 1.1.7 has not yet been initiated.

Final Horn Raw System

Drawings for the piping in the target hall have been completed, a piping contractor priced the work, and work is underway. Piping in the RAW room to connect these skids is over 90% complete.

Upstream RAW System

The target skid was placed in the MI-65 below ground mechanical support room on April 1st. Piping installation for the target skid in the raw room is 100% complete.

Drawings for the piping in the target hall have been completed, the work priced by a piping contractor, and nearly completed. The remaining work requires the installation of the target module before running the piping.

Downstream (Absorber) RAW System

Piping for the absorber RAW and absorber intermediate systems was installed under a fixed price contract. This work is complete. Field wiring for the absorber RAW and absorber intermediate systems has been installed. Motors have not been bumped to check phase rotation. As time allows in the next couple of months, the absorber intermediate system will be filled and commissioned.

Vacuum Decay Pipe Cooling

The work to tie between the existing copper lines and to both the upstream and downstream skids has been completed.

Field wiring for the decay pipe cooling systems has been installed. Motors have not been bumped to check phase rotation since one would prefer not to bump the pumps until the seals are wetted. This system will likely be the next to be commissioned.

Extraction and Primary Beam Vacuum System

Layout drawings of the vacuum system for the pre-target area (complete with the material take-off lists) has been completed by Vic Madjanski and Gary Trotter (both of PPD/MD) with guidance from Mayling Wong (PPD/MD) and Jim Klen. A revision to these completed drawings was completed to note the instrumentation names on the drawing.

Technicians from PAB, led by Ron Davis, are taking the responsibility of installing this NuMI primary beam vacuum system. Work to prefabricate beam pipe spools is underway so that installation in the Main Injector can proceed during the summer shutdown.

Decay Pipe Vacuum System

The decay pipe vacuum system has been tested and the initial pump down completed successfully. As reported last month (the end of April), the decay pipe had not reached full vacuum. On Sunday, May 2nd, after more than forty hours of pumping, the system reached 1.4

torr. While not exactly 1.0 torr (the design requirement) it is clear that with a little more pumping, the system will reach 1.0 torr.

Incidentally, only about one (1) gallon of condensed vapor was collected from the pump exhaust stream. This is less than planned for and the pumps easily handled this water vapor throughput.

Following the initial pump down, the system was vented to increase the pressure to about 330 torr (just slightly lower than ½ of an atmosphere). Air was drawn through a desiccant filter to remove moisture.

The vessel has remained at this pressure for over two weeks. Pressure has not increased which strongly suggests the vacuum vessel and related piping is leak tight.

As time allows, the pump inlet piping will be changed slightly to improve the evacuation rate and the ultimate pressure attained.

Gas Systems

T&M work to run gas lines in the Main Injector tunnel and in MI-62 has been completed. Running the same lines into the target hall mechanical support areas remains to be completed.

Controls, Interlocks and Cable Installation (WBS 1.1.8) – R. Ducar

May activities were concentrated at MI-65 above and underground and at MINOS underground. There was again no work in the Main Injector enclosure with meaningful access precluded by operations.

The most significant accomplishment of May was the establishment of Controls fiber links throughout the geographical domain of the Project. In addition to the fundamental CAMAC links and networking services, the TCLK time and MIBS beam synchronous clocks were established to all areas. With only a few technical problems, these various links were readily established with error free communication to all newly installed CAMAC crates and their resident modules. Notable also was start-up of the NuMI Beam Permit link that now originates at the MINOS Service Building.

RAW skids underground at MI-65 are now connected to the AC Power Distribution System. Conduit connections have also been made between skid controller boxes and area PLC cabinets. Work is continuing at both MI-65 and MINOS for the Radiation Safety System. Some cables have been pulled for the Hadron and Muon Monitor systems in the Absorber area.

Power supplies at MI-65 are now well on their way to being fully connected. (WBS 1.1.8 supervises this WBS 1.1.3 activity.) Cables in the MI-65 Electrical Room were routed to the final power supply positions. The 3 large power supplies that are series connected for the V118 string are now interconnected with multiple strands of 500 MCM conductor. Connection to the V118 choke remains. AC power wiring to these supplies is well underway. The Horn Power Supply underground is now fully connected to AC power, thereby meeting a Project milestone.

In the Controls area, known analog monitor points were assigned to specific physical analog-digital converters and channels. Chris Jensen of the EE Support Department mentioned reliability problems with a certain style of twinax bulkhead connector widely used by Controls at

analog entry boxes. Accordingly, these connectors are being replaced with a more reliable component. This change is viewed as especially pro-active for the long term reliability of the NuMI Beam Permit System that makes extensive use of this style of connector.

A good amount of time has been extended to detailing final cable requirements. Cables that will be installed for profile monitors will accommodate either UT or Fermilab styles. Cabling is also being added for trim element temperature sensors (klixons) given that the trims are now water-cooled.

MINOS Sump Pump #2 was reinstalled at MINOS after correction of the power lead problem. After approximately 10 days of successful operation, this pump tripped again on May 29. Initial understanding of this most recent trip points to discontinuity of the Phase A connection at either a splice or at the motor itself.

Milestones for 1.1.8 continue to be reviewed with a resulting assessment that completion dates are reasonable.

MINOS DETECTORS (WBS 2.0) – R. Rameika

Overview

In May we enjoyed routine installation and commissioning of the spectrometer section of the near detector. All planes were installed, commissioned and read out by June 2 (June 1 and 2 have been declared part of May for this report). Cosmic ray muon tracks were observed in both the U and V planes of the detector. (The two views were not readout simultaneously due to some unresolved DAQ issues.)

Some examples of statistics for the production status at the end of the month are given below. (Production items that have been listed as 100% complete in prior months are not shown here.)

WBS	Near Detector Production Items	%Complete
2.5	Electronics Rack assembly	100%
2.5	Planes installed	57%
2.5	Planes commissioned (readout with DAQ)	22%

Electronics and Data Acquisition (WBS 2.3) – G. Pearce, P. Shanahan

With production activities in WBS 2.3 complete, activity continued in installation and commissioning tasks. In WBS 2.3.4, work continued on achieving simultaneous readout of multiple crates on a readout branch. Several suggestions from the readout processor manufacturer will be tried in June. The front end and readout electronics have been commissioned for the entire downstream spectrometer section of the near detector. Work on the upstream calorimeter section electronics will continue in June, during the break in plane installation coinciding with the collaboration meeting.

Near Detector Installation (WBS 2.5) – C. James, J. Thron

Good progress was made installing the Near Detector planes; all but two planes of the spectrometer section were mounted and checked out. (These two would have been mounted and checked out also, but for a crane problem.) The technical crew has easily been getting 5 planes per day in place. The shift physicists then check for and fix light leaks and connect the optical fiber readout cables. They have also connected the intra-rack cabling for the electronics, the HV and the light injection. The HV has been turned on. A PMT test procedure has been implemented.

The electronics for the spectrometer section were installed and checked out, and the calorimeter section work has begun. The DAQ system is now able to read out the electronics and the first tracks in the detector were recorded.

A lot of work went into getting the rack protection system working, stable, noise-free, and connected to the LAN. With the preparation of the appropriate documentation, the RPS was then given Operational Readiness Clearance. There has been a preliminary walk-through for the rest of the system and a favorable reaction was received from the review team.

The hoses to bring the cooling water to the front-end racks have been installed, connected to the LCW pumps and tested. Grounding cables for the racks (for safety ground) and for the electronics (for quiet reference ground) are being installed.

The detector assembly crew continues plane-by-plane surveys with the Vulcan and laser surveys of the plane collars. The transmitters were moved back and the system re-calibrated this month. The Fermilab surveyors are making weekly QA checks of collar positions and as-found measurements of the facing plane.

VI. ES&H HIGHLIGHTS – M. Andrews

Management Overview – M. Andrews

Mike Andrews, the NuMI Project ES&H Coordinator and John Cassidy, NuMI Project Field Safety Coodinator continued to provide ES&H support for the Installation Phase of the NuMI Project. Theie primary efforts are to provide ES&H support to the floor managers and task managers for all installation activities. They also provide oversight of the implementation of the Time and Materials and Fixed Price subcontractor's safety programs, which includes concurring with the subcontractor on where improvements are needed and the priority for those improvements. Additional efforts include attending pre-shift safety meetings at MI-65 and MINOS to verify continuing improvement, hazard analysis review, and participating in daily and weekly ES&H Inspections with the site Floor Manager and representatives from the DOE Fermi Area Office.

The NuMI Project ES&H Coordinator chairs a weekly meeting with members of the NuMI project management team to discuss work planning issues, ES&H/QA review updates and issues, hazard analysis issues, training issues, facility safety issues, and general ES&H program issues.

ES&H support personnel and NuMI/MINOS floor managers for the installation phase of the project meet on a daily basis to discuss the daily schedule, upcoming tasks, related ES&H requirements, hazard analysis, ES&H training and other ES&H issues. They also review and plan for upcoming tasks in the schedule.

The Project ES&H program was reviewed during two DOE reviews during the month of May. The first review was a project review and the second was part of a laboratory construction safety review. There were no findings identified during either review.

NuMI Beam Safety Issues – M. Andrews

The NuMI Project ES&H Coordinator (Mike Andrews) and the NuMI ES&H/QA Committee Chair (Keith Schuh) meet on a weekly basis to discuss and coordinate the process for completing upcoming equipment reviews by the committee. They also discuss the status of reviews which are in progress.

The committee completed reviews on Engineering Notes for the Absorber Core Lifting Fixture and the NuMI/MINOS Absorber Shielding Block Transport Cart. The committee also completed a review of electrical documentation for the MINOS Near Detector Rack Protection System and Data Acquisition Computers to allow for unattended operation.

Weekly Installation Meetings continue to occur between NuMI Project ES&H personnel, Floor Managers and L2/L3 Managers. The topics discussed include installation procedures, hazard analyses, equipment ES&H/QA reviews and upcoming schedule issues.

The NuMI Project ES&H Coordinator and the Deputy for Installation have scheduled and completed multiple site tours of the MI-65 and MINOS sites, which were attended by numerous Accelerator and Particle Physics Division Department Heads. These tours were initiated to orient these individuals with both above and below ground facilities.

Installation Safety – M. Andrews

A daily meeting is held between the MI-65 and MINOS Floor Managers, the NuMI Project ES&H Coordinator, and the Field Safety Coordinator to discuss installation activities for the day, upcoming activities, hazards analyses, installation procedures and ES&H/QA review status.

NuMI Project Management, FNAL ES&H Section, and DOE Area Office performed multiple ES&H reviews and audits during the month of May 2004. NuMI Project Management conducted ES&H Inspections on May 6th, 13th, 20th, and 27th, 2004. Results of an inspection were communicated to the MI-65 and MINOS Floor Managers at the closeout meeting held immediately following the inspection.

MI-65 and MINOS Floor Managers are holding daily work planning meetings with all site workers, which includes a review of task hazards. T&M subcontractor personnel are holding weekly toolbox meetings. NuMI Project Management is monitoring these meetings on a regular basis.

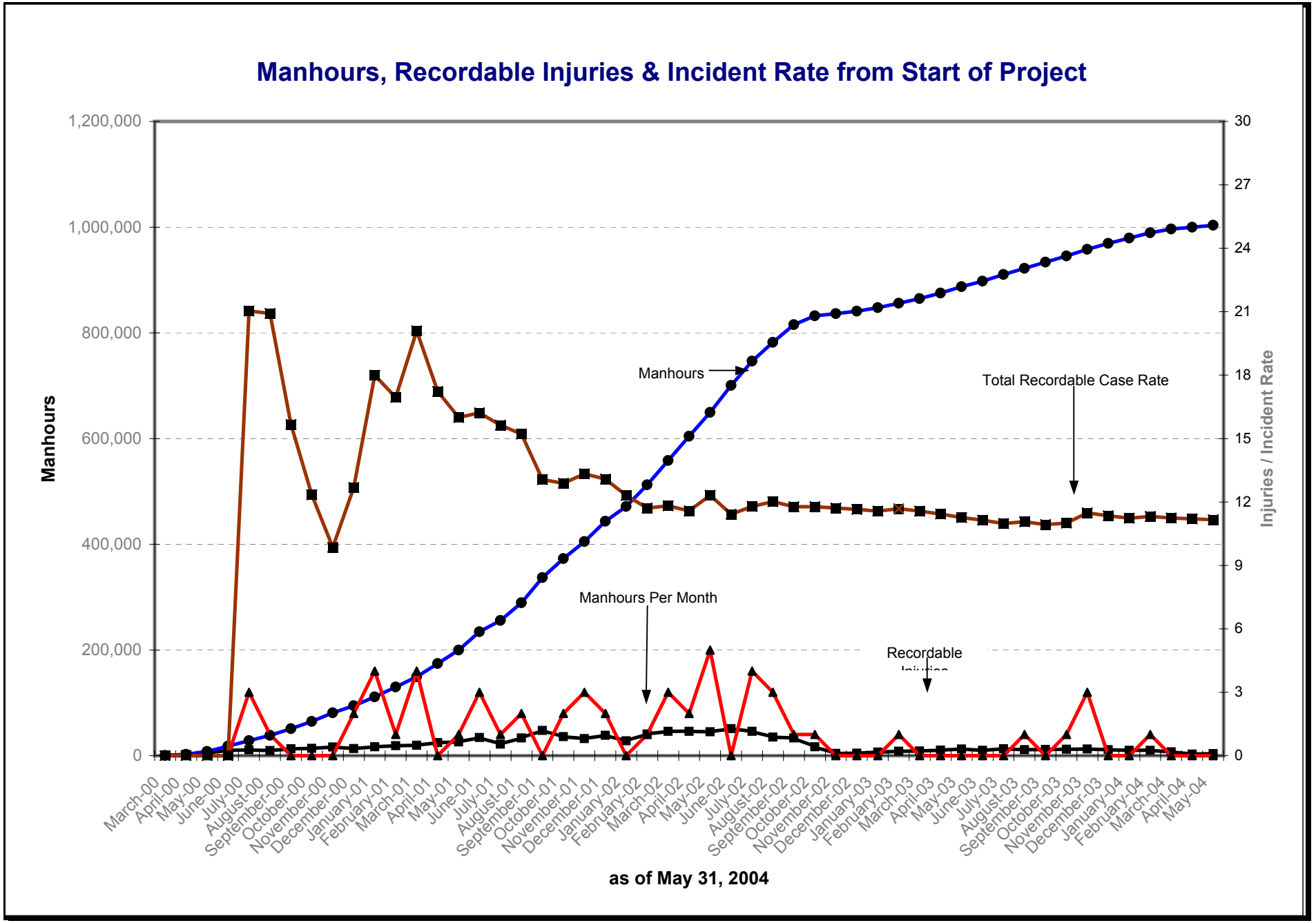
Task Managers are developing task related HAs and submitting Hazard Analysis documentation for review and acceptance to the NuMI Field Safety Coordinator for all new tasks. ES&H personnel and Floor Managers also met with members of the Fermi support groups to review tasks and explain the requirements to complete those tasks, as they relate to schedule and ES&H.

There were no OSHA-recordable injuries during the month of May 2004. The NuMI Project has completed 101 days without an OSHA-recordable injury or illness.

Project Safety Performance

Safety Performance for the NuMI Construction/Installation Project for 2004 Calendar Year to Date includes a Recordable Incident Rate of 5.9**,** a Lost Time Incident Rate of 0.0, and a Lost Workday Incident Rate of 0.0. The Project to Date Safety Performance includes a Recordable Incident Rate of 11.2, a Lost Time Incident Rate of 2.6, and a Lost Workday Incident Rate of 7.2. Figure 2 shows man-hours worked, and recordable injury and incident rates from the start of the NuMI construction subcontracts through May 2004.

NuMI TUNNEL and HALLS PROJECT
CONTRACTOR'S INJURY DATA



MINOS Safety – D. Boehnlein

The MINOS near detector received a partial ORC for unattended running of the Rack Protection Systems, the DAQ computers, and high voltage to the photomultiplier tubes. Stan Orr, of the PPD electrical engineering dept, conducted an informal advisory walk-through prior to the safety committee's inspection for the PORC. Stan has agreed to conduct another informal walk-through in early June to help us obtain a PORC for the Master and Minder electronics and the network rack.

There was a malfunction of the ventilation fan in the MINOS area. Under this condition, all workers underground were required to carry self-rescuers with them as a compensatory safety measure.

Radiation Safety – N. Grossman

The NuMI Shielding Assessment is being reviewed by the AD Shielding Review Committee. A second draft NuMI SAD, incorporating the updated work people had done on various sections, is complete. This draft is being improved and reviewed by NuMI project personnel. The DOE and FNAL NuMI ESH/QA Documentation pages were extensively updated. Monthly NuMI SA/SAD meetings continue with FNAL and DOE personnel.

VII. LEVEL 3 MILESTONES

The current NuMI/MINOS Level 3 Milestones are shown in Figure 3. Milestones for the period 3/04 to 9/05 are shown. The triangles are the fixed Fermilab milestones. Note that we show L3 milestones along with the new "L-3-n" identifiers. Actual dates of achieving milestones are shown as black diamonds. Currently projected dates for achieving milestones are shown as hollow diamonds. Projected milestone dates which differ from the fixed Fermilab milestone dates by more than two weeks are flagged as **<Late>** or **<Early>**.

VIII. VARIANCE ANALYSIS – G. Bock

Variances are reported in the cost and schedule reports against the NuMI Project's plan, which is considerably more aggressive than that required by the DOE milestones. In all cases the project remains comfortably ahead of schedule with respect to the DOE milestones and within baseline cost.

We include the Variance Summary Table. Cost and schedule variances against the project's plan are extracted from the Cost Tables in Section IX and shown here at Level 2.

DOE Milestones

Planning for installation and commissioning continues to be a focus for the final stages of the NuMI project. DOE Milestone L-2-17 (Complete Installation of Horn Power Supply) was met on May 28 comfortably ahead of the due date. The forecast date for DOE Milestone L-2-13

(First Horn Installed) has been advanced a few weeks and is expected to be completed in early June. We anticipate that the forecast date for Milestone L-2-21 (Start Commissioning with Both Far and Near DAQ) will be delayed until sometime in late July when the DAQ will be finally configured for both U and V plane readout. There were no significant changes in the forecast dates for any of the remaining DOE milestones. The forecast dates for all remaining DOE milestones continue to include comfortable amounts of float.

NuMI (WBS 1.1)

The schedule variance is large and positive reflecting the continuing good progress on this effort. In April as we reported a new effort-reporting system in the Accelerator Division inadvertently resulted in a large false negative cost variance. That error has been partially corrected in this month's report yielding a negative cost variance reported of ($771K). After correcting for the remaining accounting error (about $200K) and the spares costs to be transferred later the true variance is negative and is about ($250K). Some positive variances developing elsewhere within WBS 1.1 may offset the remaining negative variances in the Technical Components although we are anticipating some contingency use due to the absorber installation plan change, and other typical end effects as we complete the work. We expect the total contingency use to be within the forecast presented to the DOE Office Science review committee in May. Project management is paying careful attention to this, but remains pleased at the overall cost performance here.

NuMI (WBS 1.2)

Schedule variance: The work is complete. There is no schedule variance.

Cost variance: A negative variance arises principally from an accrual against potential future claim settlements from work on the tunneling project.

NuMI (WBS 1.3)

Cost variance: There is a favorable cost variance reported at $409K.

MINOS (WBS 2)

Cost and Schedule variances: Closeouts of WBS 2 elements continue. As expected, no major negative or positive variances resulted from the Near Detector Installation re-planning activity completed this month.

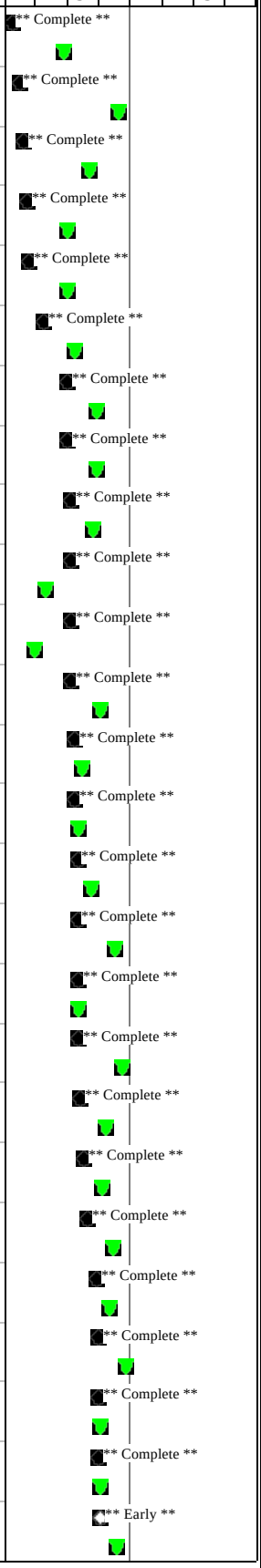
MINOS Cavern and Project Support (WBS 3)

The MINOS Cavern outfitting is complete. There are no significant variances in WBS 3.

NuMI WBS Level 3 Milestones
(2/2004 - 9/2005)

6/22/04

Mlstn#	WBS Lev	Name	FNAL Cur Forecast	FNAL Base Date	Float	Late Indicator
L-3-335	111	Complete Beam Permit System Input Parameters	9/22/03	2/20/04	0 d	** Complete **
L-3-215	111	Lambertson Magnet Installation Complete	10/10/03	7/23/04	0 d	** Complete **
L-3-219	111	Extraction Devices Ready for Installation	10/23/03	4/30/04	0 d	** Complete **
L-3-216	112	Assembly of Horn 2 Module Complete	11/4/03	2/26/04	0 d	** Complete **
L-3-210	114	Start of U.S. VacuumEndcap Installation	11/10/03	2/27/04	0 d	** Complete **
L-3-213	115	Muon Monitors Ready for Installation	12/23/03	3/19/04	0 d	** Complete **
L-3-308	112	Assy of Horn 2 & Module Complete	2/27/04	5/20/04	0 d	** Complete **
L-3-195	113	Kicker Power Supply Construction Complete	2/27/04	5/20/04	0 d	** Complete **
L-3-234	118	Fiber Optic Cable Installation Complete	3/10/04	5/12/04	0 d	** Complete **
L-3-218	120	B.O. of MINOS Shaft, Absorber, MINOS Tunnel & MINOS Hall	3/10/04	12/26/03	0 d	** Complete **
L-3-211	120	MINOS Service Bldg Complete	3/10/04	11/26/03	0 d	** Complete **
L-3-238	114	All Hadron Absorber Core Material Delivered	3/11/04	5/31/04	0 d	** Complete **
L-3-235	112	Assy of Target/Baffle Module Complete	3/19/04	4/8/04	0 d	** Complete **
L-3-212	112	Assy of Horn 1 & Module Complete	3/22/04	3/29/04	0 d	** Complete **
L-3-315	112	Targ Pile Carriage Pads on Concrete Install Compl	3/26/04	5/3/04	0 d	** Complete **
L-3-214	118	FIRUS Cable System Installation Complete	3/29/04	7/14/04	0 d	** Complete **
L-3-310	112	Install Bottom Shielding Complete	3/31/04	4/2/04	0 d	** Complete **
L-3-236	116	Network in Target Hall	3/31/04	8/6/04	0 d	** Complete **
L-3-231	117	All Water System Skids Installed in Enclosures	4/5/04	6/14/04	0 d	** Complete **
L-3-330	111	Low Power Test of MI Magnets Started	4/15/04	6/7/04	0 d	** Complete **
L-3-250	113	Power Supply Refurbishing Complete	4/26/04	7/9/04	0 d	** Complete **
L-3-230	111	Kicker Ready to Install	5/21/04	6/29/04	0 d	** Complete **
L-3-239	114	Test of VacuumIntegrity Complete	5/27/04	8/13/04	0 d	** Complete **
L-3-199	113	Compl Install of Horn Power Supply in PS Room	5/28/04	6/1/04	0 d	** Complete **
L-3-320	113	Receipt of Major Transmission Line Materials & Parts	5/28/04	6/1/04	0 d	** Complete **
L-3-254	112	Compl Placement of Horn 1 into Target Station	6/1/04	7/19/04	118 d	** Early **

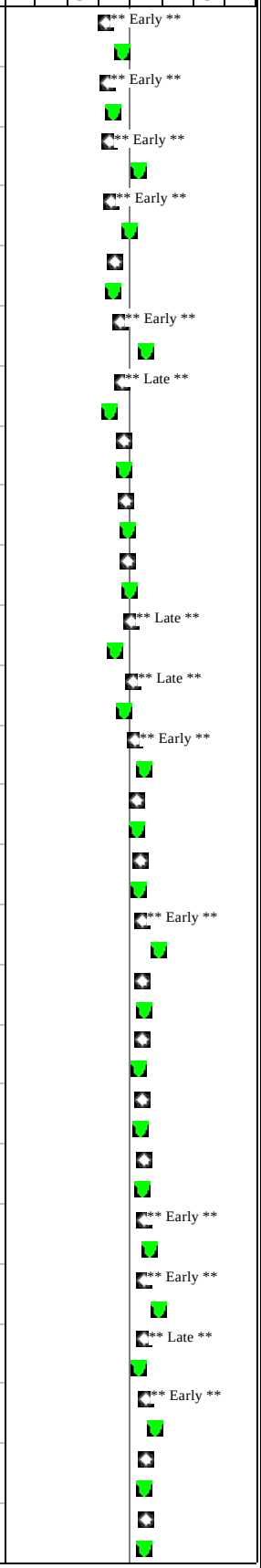


FNAL Current Forecast Milestone Complete FNAL Baseline Date

NuMI WBS Level 3 Milestones
(2/2004 - 9/2005)

6/22/04

Mlstn#	WBS Lev	Name	FNAL Cur Forecast	FNAL Base Date	Float	Late Indicator
L-3-321	117	All Water System Skid Instrumentation Connected	6/15/04	8/6/04	170 d	** Early **
L-3-252	111	Instrumentation Ready for Installation (except Multiwires)	6/21/04	7/5/04	78 d	** Early **
L-3-232	114	Start Absorber Outer Shielding Installation	7/1/04	9/23/04	114 d	** Early **
L-3-251	111	Primary Beam Instrumentation Construction Compl	7/1/04	8/27/04	101 d	** Early **
L-3-309	112	Assy of Target Baffle on Module Complete	7/15/04	7/5/04	94 d	
L-3-256	114	Assy of Core on Carrier Complete	7/29/04	10/11/04	92 d	** Early **
L-3-326	118	Personnel Safety Interlock Syst Enginering & Des Compl	8/2/04	6/29/04	114 d	** Late **
L-3-314	112	Compl Placement of Horn 2 Assy into Target Station	8/10/04	8/9/04	83 d	
L-3-276	113	Complete Assy/Installation of Stripline	8/12/04	8/19/04	84 d	
L-3-259	118	Personnel Safety Interlock System Installation Complete	8/18/04	8/27/04	102 d	
L-3-271	111	Target Interface Baffle/Window Ready for Install	8/30/04	7/12/04	26 d	** Late **
L-3-217	115	Downstream Hadron Monitors Ready for Installation	9/3/04	8/9/04	95 d	** Late **
L-3-270	112	Target & Horn Installation Complete	9/10/04	10/8/04	97 d	** Early **
L-3-324	118	NuMI Stub Cables Installed	9/14/04	9/13/04	19 d	
L-3-311	111	Install Pre-target Instrumentation Complete	9/27/04	9/23/04	91 d	
L-3-290	112	Shielding Installation Complete (Pre-Radioactive Component Handling)	9/29/04	11/18/04	63 d	** Early **
L-3-255	115	Muon Monitors Installed	10/1/04	10/6/04	76 d	
L-3-257	118	MI60 Cable Syst Install Compl (Excl Trim Elements)	10/1/04	9/20/04	20 d	
L-3-293	118	MI-62 Cable System Installation Complete	10/1/04	9/24/04	20 d	
L-3-258	115	Downstream Hadron Monitor Installed	10/5/04	10/1/04	95 d	
L-3-297	115	Downstream Hadron Monitor Operational	10/5/04	10/20/04	95 d	** Early **
L-3-319	113	Start to Pulse & Checkout Horn System	10/6/04	11/19/04	59 d	** Early **
L-3-274	113	Power Test of TH Conventional Power Supplies Compl	10/8/04	9/22/04	0 d	** Late **
L-3-278	111	Pre-Target Checkout Complete	10/13/04	11/8/04	89 d	** Early **
L-3-277	113	Compl Install & Testing of Kicker PS	10/14/04	10/8/04	11 d	
L-3-318	113	Power Test of MI60 & MI-62 Power Supplies Complete	10/14/04	10/8/04	11 d	



FNAL Current Forecast ◘ Milestone Complete ■ FNAL Baseline Date ▼

NuMI WBS Level 3 Milestones
(2/2004 - 9/2005)

6/22/04

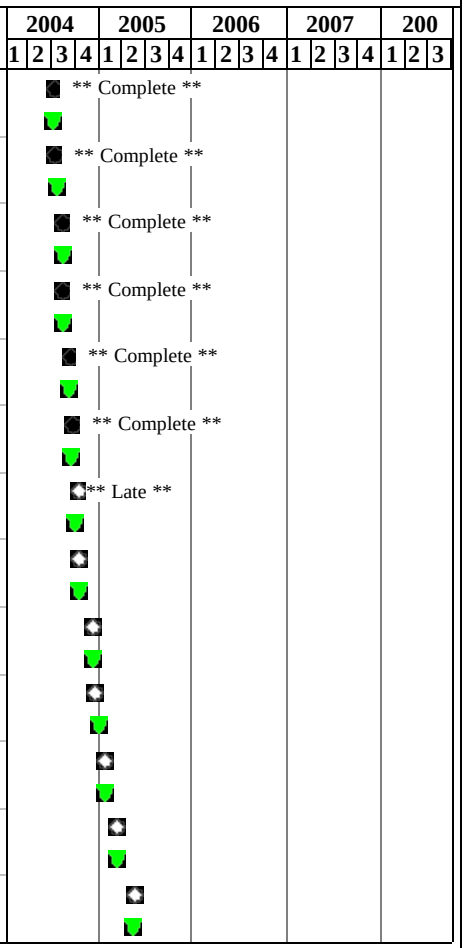
Mlstn#	WBS Lev	Name	FNAL Cur Forecast	FNAL Base Date	Float	Late Indicator	2004 1	2004 2	2004 3	2004 4	2005 1	2005 2	2005 3	2005 4
L-3-295	112	Pulse & Checkout Horn System Complete	10/20/04	12/7/04	59 d	** Early **					** Early **			
L-3-294	114	Checkout Absorber Complete	10/29/04	12/20/04	77 d	** Early **					** Early **			
L-3-253	118	Pre-Targ Hall & Targ Hall Cable Syst Installation Compl	10/29/04	12/6/04	77 d	** Early **					** Early **			
L-3-291	111	MI Stub Installation Complete	11/1/04	11/15/04	63 d	** Early **					** Early **			
L-3-296	115	Muon Monitors Operational	11/1/04	1/6/05	76 d	** Early **					** Early **			
L-3-272	117	All Water Systems Checked Out	11/1/04	11/19/04	73 d	** Early **					** Early **			
L-3-299	111	Extraction & Primary Beam Checked Out	11/15/04	12/1/04	66 d	** Early **					** Early **			
L-3-298	117	VacuumSystems Checked Out	11/15/04	11/29/04	63 d	** Early **					** Early **			
L-3-279	118	Controls Installation Complete	11/23/04	12/7/04	60 d	** Early **					** Early **			
L-3-325	118	Controls Checkout Complete	11/23/04	12/14/04	60 d	** Early **					** Early **			

FNAL Current Forecast Milestone Complete FNAL Baseline Date

MINOS WBS Level 3 Milestones
(2/2004 - 9/2005)

6/22/04

Mlstn #	WBS Lev 3	Name	FNAL Cur Forecast	FNAL Base Date	Float
L-3-336	251	Checkout of Readout Equipment	2/20/04	2/15/04	0d
L-3-302	250	Near Detector Infrastructure Installation Started	2/27/04	3/8/04	0d
L-3-304	253	Begin Spectrometer Plane Installation	3/31/04	3/31/04	0d
L-3-341	253	Plane 281 Installed	3/31/04	3/31/04	0d
L-3-301	231	Begin Near FE Electronics Installation	4/26/04	4/19/04	0d
L-3-305	253	25% Detector Installed	5/5/04	4/29/04	0d
L-3-340	251	PORC for Electronics Operation Obtained	6/1/04	5/12/04	2d
L-3-337	253	Spectrometer Installation Complete	6/1/04	5/27/04	108d
L-3-338	253	50% of Calorimeter Planes Installed	7/21/04	7/19/04	108d
L-3-342	253	Calortimeter Readout Installed	8/4/04	8/16/04	165d
L-3-339	253	100% Detector Planes Installed	9/9/04	9/7/04	140d
L-3-343	253	Obtain PORC for Magnet Operation	10/20/04	10/18/04	108d
L-3-306	250	Near Detector Installation Complete	12/27/04	12/24/04	66d



FNAL Current Forecast FNAL Baseline Date Milestone Complete

Variance Summary Table

(Cumulative to Date as of 5/31/04)

WBS / Description	Budgeted Cost		Actual Cost	Variance	
	Work Scheduled	Work Performed	Work Performed	Schedule	Cost
1.1 Technical Components	25,076	25,756	26,527	680	(771)
1.2 Facility Construction	68,893	68,893	69,710	0	(816)
1.3 Project Management	3,413	3,414	3,005	1	409
1.0 TEC Total	**97,383**	**98,063**	**99,241**	**680**	**(1,178)**
2.1 Magnets: Steel & Coils	7,621	7,621	7,621	0	0
2.2 Scintillator Detector Fabrication	19,525	19,525	19,517	0	8
2.3 Electronics, DAQ & Database	9,034	9,002	9,007	(32)	(6)
2.4 Far Detector Installation	4,581	4,581	4,576	0	4
2.5 Near Detector Installation	4,633	4,637	4,675	3	(38)
2.6 MINOS Project Management	1,628	1,628	1,639	(0)	(11)
UK In-Kind Contribution	(4,825)	(4,806)	(4,806)	18	0
2.0 MINOS Detector	**42,198**	**42,187**	**42,230**	**(11)**	**(42)**
3.1. NuMI Conceptual Design	1,934	1,934	1,928	0	6
3.2 MINOS Detector R&D	1,768	1,768	1,768	(0)	0
3.3 MINOS Cavern	14,527	14,527	14,527	0	0
3.4 Soudan/MINOS Operating	1,677	1,677	1,678	0	(1)
Minnesota Preconstruction Funds	(758)	(758)	(758)	0	0
Minnesota Contruction Funds FY99	(3,000)	(3,000)	(3,000)	0	0
3.0 NuMI Project Support	**16,148**	**16,148**	**16,142**	**0**	**5**
OPC Total	**58,345**	**58,335**	**58,372**	**(11)**	**(37)**
TPC Total	**155,728**	**156,398**	**157,613**	**670**	**(1,215)**

IX. COST REPORTS

Cost and earned value reports for the NuMI Project are presented in two sets, one for WBS 1.0 Total Estimated Cost (TEC), and a second for Other Project Costs (OPC) that includes both the MINOS Detector (WBS 2.0) and Project Support (WBS 3.0). Information for all segments of the project is summarized at WBS Level 3 except in the case of the OPC CURVE Reports that are at WBS Level 2 instead. The actual cost of work performed (ACWP) is comprised of the following: 1) costs collected and reported by the Fermilab financial system, 2) costs collected and reported to NuMI Project Management by the University of Minnesota in their monthly progress report for WBS 3.3 MINOS Cavern, and 3) an estimate of the value of work performed by the United Kingdom (UK) collaborating institutions towards their in-kind contribution. Since the UK collaborating institutions are not required to report their actual costs to NuMI Project Management, we are assuming that actual current period costs and cumulative costs are equal to current period earned value and cumulative earned value, respectively. Each set of cost and earned value reports includes the following:

CPR Format 1A
This is a modified version of the traditional CPR Format 1 report that shows indirect cost for each WBS Level 3 rather than as a single line item for the entire project. As a result it is possible to review the status of both burdened and unburdened costs for each major system or cost component. In addition, the report for the OPC includes a summary section at the end, with WBS Level 2 totals for the MINOS Detector and Project Support segments of the project.

CPR Format 3
This is the traditional format for reporting changes to the project baseline that were approved and implemented in the current reporting period, as well as their impact on the time phased project baseline.

CURVE Reports
These graphically depict cumulative Budgeted Cost of Work Scheduled (BCWS), Budgeted Cost of Work Performed (BCWP), and Actual Cost of Work Performed (ACWP), at WBS Level 3 and WBS Level 2 for the TEC and OPC, respectively. The OPC reports reflect all project costs, including the UK In-Kind Contribution, and also funding contributed ($3.758M) by the University of Minnesota. All amounts shown are fully burdened.

Plan v Act Reports
These reports compare burdened planned costs (BCWS) with burdened actual costs (ACWP) on a cumulative basis through the end of the prior fiscal year, and by month for the current fiscal year. There are two versions of this report, one for total cost, and a second for labor costs only. Both OPC versions exclude the value of UK In-Kind Contributions and thus represent US Funds only.

NuMI Project Obligations
This report reflects burdened obligations to date, including requisitions in progress, for the entire project, as recorded in the Fermilab financial system. Consequently, it does not include any assumed obligations with respect to work performed by the UK collaborating institutions. Nor does it reflect actual amounts obligated by the University of Minnesota under the grant for WBS

3.3 MINOS Cavern; instead, obligations shown for WBS 3.3 represent the cumulative amount of the Financial Plan transfers to the University of Minnesota from the Fermilab budget.

NuMI Project TEC

($000's Omitted)

Cost Performance Report - Work Breakdown Structure														
Contractor:	Fermi National Accelerator Laboratory				Contract Type/No:			Project Name/No:		Report Period:				
Location:	Batavia							NuMI TEC		4/30/04	5/31/04			
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work		Tgt. Profit/ Fee %		Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling			
1	109,242		0		0	0	109,242	0		0	0			
WBS[2]	Current Period					Cumulative to Date					At Completion			
WBS[3] Results...	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance			Latest Revised		
Item	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Budgeted	Estimate	Variance	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1.1 Technical Components														
1.1.1 Extraction & Primary Beam														
Direct Cost + Escalation	156	75	87	(80)	(12)	4,163	4,091	4,485	(73)	(395)	4,345	4,345	0	
Indirect Cost	27	13	18	(13)	(5)	909	903	1,055	(6)	(152)	942	942	0	
WBS[3]Totals:	182	89	106	(94)	(17)	5,073	4,994	5,540	(79)	(547)	5,287	5,287	0	
1.1.2 Neutrino Beam Devices														
Direct Cost + Escalation	144	105	82	(39)	23	7,910	8,036	8,580	126	(545)	8,639	8,639	0	
Indirect Cost	35	27	8	(8)	19	1,841	1,871	1,929	30	(58)	1,998	1,998	0	
WBS[3]Totals:	180	132	91	(48)	41	9,751	9,907	10,510	156	(603)	10,638	10,638	0	
1.1.3 Power Supply System														
Direct Cost + Escalation	75	91	85	16	7	3,819	3,849	4,101	30	(252)	4,110	4,110	0	
Indirect Cost	16	17	18	1	(2)	910	917	970	6	(53)	984	984	0	
WBS[3]Totals:	91	108	103	17	5	4,730	4,766	5,071	36	(305)	5,095	5,095	0	
1.1.4 Hadron Decay and Absorber														
Direct Cost + Escalation	100	103	82	3	21	769	857	797	88	60	1,166	1,166	0	
Indirect Cost	20	19	16	(0)	3	191	206	195	16	12	268	268	0	
WBS[3]Totals:	120	122	98	2	24	960	1,063	992	103	71	1,434	1,434	0	
1.1.5 Neutrino Beam Monitoring														
Direct Cost + Escalation	1	0	7	(1)	(6)	394	396	402	2	(6)	455	455	0	
Indirect Cost	0	0	0	(0)	(0)	25	25	37	0	(12)	26	26	0	
WBS[3]Totals:	1	0	7	(1)	(7)	419	421	438	2	(18)	481	481	0	
1.1.6 Alignment Systems														
Direct Cost + Escalation	2	2	2	(0)	(0)	213	218	161	5	57	237	237	0	
Indirect Cost	1	1	1	(0)	(0)	61	63	41	1	21	67	67	0	
WBS[3]Totals:	3	3	3	(0)	(0)	275	281	202	6	79	305	305	0	
1.1.7 Water, Vacuum & Gas Systems														
Direct Cost + Escalation	177	70	3	(107)	67	1,609	1,686	1,553	77	133	2,059	2,059	0	
Indirect Cost	43	16	1	(26)	16	359	388	343	30	45	475	475	0	
WBS[3]Totals:	220	86	4	(133)	83	1,968	2,075	1,896	107	178	2,535	2,535	0	
1.1.8 Installation and Integration														
Direct Cost + Escalation	151	79	48	(72)	31	1,502	1,784	1,524	282	260	2,348	2,348	0	
Indirect Cost	30	18	9	(12)	9	339	405	290	66	114	516	516	0	
WBS[3]Totals:	180	97	56	(84)	40	1,840	2,189	1,814	348	374	2,865	2,865	0	
1.1.9 Hadronic Hose (Close-out)														
Direct Cost + Escalation	0	0	0	0	0	53	53	54	0	(0)	53	53	0	
Indirect Cost	0	0	0	0	0	9	9	9	0	(0)	9	9	0	
WBS[3]Totals:	0	0	0	0	0	62	62	63	0	(1)	62	62	0	
WBS[2]Totals:	977	637	468	(340)	169	25,076	25,756	26,527	680	(771)	28,701	28,701	0	

NuMI Project TEC

($000's Omitted)

Cost Performance Report - Work Breakdown Structure														
Contractor: Fermi National Accelerator Laboratory					Contract Type/No:			Project Name/No:		Report Period:				
Location: Batavia								NuMI TEC		4/30/04	5/31/04			
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work		Tgt. Profit/ Fee %		Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling			
1	109,242		0		0	0	109,242	0		0	0			
WBS[2] WBS[3] Results...	Current Period					Cumulative to Date					At Completion			
	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance			Latest		
Item	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Budgeted	Revised Estimate	Variance	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1.2 Facility Construction														
1.2.1 Facility Physics Design Phase														
Direct Cost + Escalation	0	0	0	0	0	49	49	52	0	(3)	49	49	0	
Indirect Cost	0	0	0	0	0	21	21	19	0	2	21	21	0	
WBS[3]Totals:	0	0	0	0	0	70	70	70	0	(0)	70	70	0	
1.2.2 Facility Construction Title I Design Phase														
Direct Cost + Escalation	0	0	0	0	0	1,254	1,254	1,288	0	(34)	1,254	1,254	0	
Indirect Cost	0	0	0	0	0	184	184	149	0	35	184	184	0	
WBS[3]Totals:	0	0	0	0	0	1,438	1,438	1,437	0	1	1,438	1,438	0	
1.2.3 Facility Construction Title II Design Phase														
Direct Cost + Escalation	0	0	0	0	0	2,620	2,620	2,807	0	(187)	2,620	2,620	0	
Indirect Cost	0	0	0	0	0	355	355	167	0	188	355	355	0	
WBS[3]Totals:	0	0	0	0	0	2,975	2,975	2,974	0	1	2,975	2,975	0	
1.2.4 Facility Construction Phase														
Direct Cost + Escalation	0	0	28	0	(28)	62,813	62,813	63,715	0	(902)	62,813	62,813	0	
Indirect Cost	0	0	8	0	(8)	1,596	1,596	1,513	0	84	1,596	1,596	0	
WBS[3]Totals:	0	0	36	0	(36)	64,410	64,410	65,228	0	(819)	64,410	64,410	0	
WBS[2]Totals:	0	0	36	0	(36)	68,893	68,893	69,710	0	(816)	68,893	68,893	0	
1.3 Project Management														
1.3.1 FY 98 Project Management														
Direct Cost + Escalation	0	0	0	0	0	208	208	104	0	104	208	208	0	
Indirect Cost	0	0	0	0	0	66	66	37	0	29	66	66	0	
WBS[3]Totals:	0	0	0	0	0	275	275	141	0	133	275	275	0	
1.3.2 FY 99 Project Management														
Direct Cost + Escalation	0	0	0	0	0	425	425	512	0	(88)	425	425	0	
Indirect Cost	0	0	0	0	0	135	135	149	0	(14)	135	135	0	
WBS[3]Totals:	0	0	0	0	0	560	560	661	0	(102)	560	560	0	
1.3.3 FY 00 Project Management														
Direct Cost + Escalation	0	0	0	0	0	436	436	521	0	(85)	436	436	0	
Indirect Cost	0	0	0	0	0	139	139	142	0	(3)	139	139	0	
WBS[3]Totals:	0	0	0	0	0	575	575	663	0	(88)	575	575	0	
1.3.4 FY 01 Project Management														
Direct Cost + Escalation	0	0	0	0	0	522	522	331	0	191	522	522	0	
Indirect Cost	0	0	0	0	0	166	166	92	0	74	166	166	0	
WBS[3]Totals:	0	0	0	0	0	688	688	423	0	265	688	688	0	

NuMI Project TEC

($000's Omitted)

Cost Performance Report - Work Breakdown Structure													
Contractor: Fermi National Accelerator Laboratory				Contract Type/No:			Project Name/No: NuMI TEC		Report Period: 4/30/04	5/31/04			
Location: Batavia													
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work	Tgt. Profit/ Fee %		Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling			
1	109,242		0	0	0	109,242	0		0	0			
WBS[2] WBS[3] Results...	Current Period					Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance			Latest	
Item	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Budgeted	Revised Estimate	Variance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1.3.5 FY 02 Project Management													
Direct Cost + Escalation	0	0	0	0	0	533	533	253	0	281	533	533	0
Indirect Cost	0	0	0	0	0	170	170	72	0	98	170	170	0
WBS[3]Totals:	0	0	0	0	0	703	703	324	0	378	703	703	0
1.3.6 FY 03 Project Management													
Direct Cost + Escalation	0	0	0	0	0	411	411	324	0	87	411	411	0
Indirect Cost	0	0	0	0	0	131	131	98	0	33	131	131	0
WBS[3]Totals:	0	0	0	0	0	541	541	421	0	120	541	541	0
1.3.7 FY 04 Project Management													
Direct Cost + Escalation	7	7	26	1	(19)	55	55	285	0	(230)	82	82	0
Indirect Cost	2	2	8	0	(6)	17	18	86	0	(69)	26	26	0
WBS[3]Totals:	9	10	35	1	(25)	72	73	371	1	(298)	108	108	0
1.3.8 FY 05 Project Management													
Direct Cost + Escalation	0	0	0	0	0	0	0	0	0	0	99	99	0
Indirect Cost	0	0	0	0	0	0	0	0	0	0	31	31	0
WBS[3]Totals:	0	0	0	0	0	0	0	0	0	0	130	130	0
WBS[2]Totals:	9	10	35	1	(25)	3,413	3,414	3,005	1	409	3,580	3,580	0
General and Administrative	0	0	0	0	0	0	0	0	0	0	0	0	0
Undistributed Budget											0	0	0
Sub Total	986	647	539	(339)	108	97,383	98,063	99,241	680	(1,178)	101,174	101,174	0
Contingency											8,068	8,068	0
Total	986	647	539	(339)	108	97,383	98,063	99,241	680	(1,178)	109,242	109,242	0

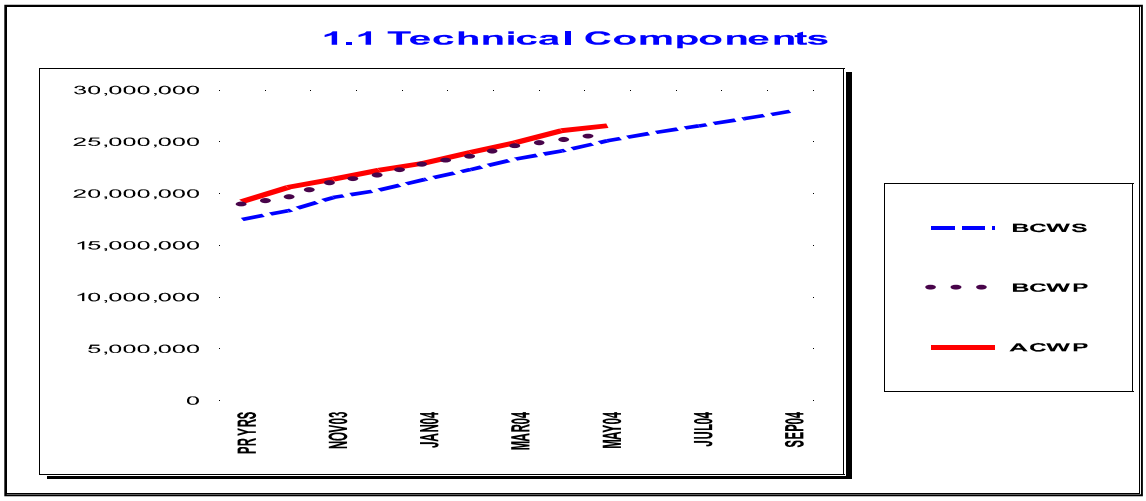
NuMI Project TEC

($000's Omitted)

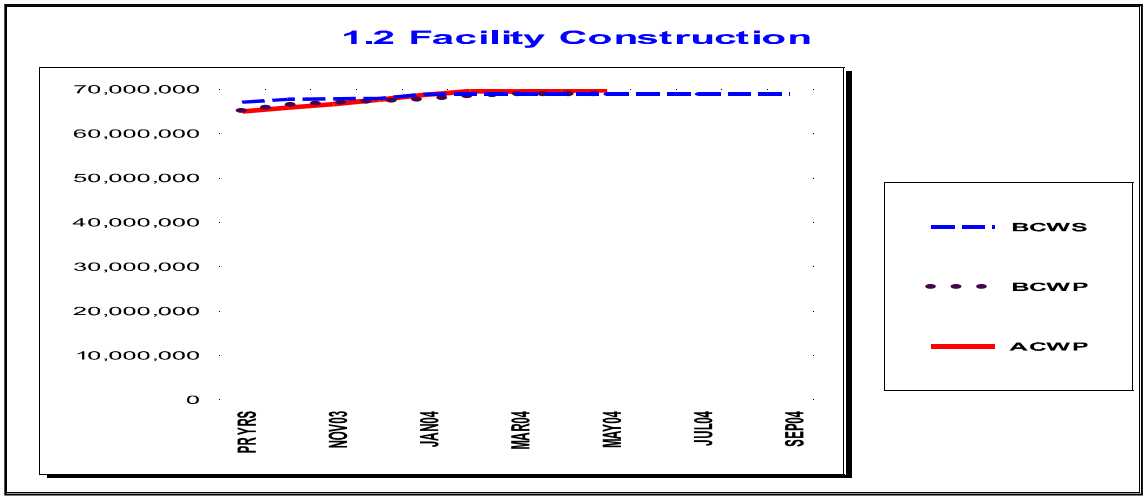
Cost Performance Report - Baseline																
Contractor:	Fermi National Accelerator Laboratory			Contract Type/No:		Project Name/No:				Report Period:						
Location:	Batavia					NuMI TEC				4/30/04				5/31/04		
(1) Original Contract Target Cost		(2) Negotiated Contract Changes		(3) Current Target Cost		(4) Est. Cost Authorized Authorized Unpriced Work			(5) Contract Budget Base (3) + (4)			(6) Total Allocated Budget		(7) Difference (5) - (6)		
76,200		33,042		109,242		0			109,242			109,242		0		
(8) Contract Start Date 10/1/97		(9) Contract Definitization Date 10/1/97				(10) Last Item Delivery Date 9/30/03			(11) Contract Completion Date 9/30/03			(12)Estimated Completion Date 9/30/03				
Item	BCWS Cum to Date	BCWS for Report Period	Budgeted Cost for Work Scheduled (Non-Cumulative) Six Month Forecast +1 JUN04	+2 JUL04	+3 AUG04	+4 SEP04	+5 OCT04	+6 NOV04	(Enter Specific Periods) BAL FY05					Undist Budget	Total Budget
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
PM Baseline (Beginning of Period)	96,397	985	768	666	682	701	316	309	271	0	0	0	0	0	101,094
281 Add Quad Power Supply Ramping															79
PM Baseline (End of Period)	97,383		779	682	705	713	324	317	271	0	0	0	0	0	101,174
Contingency															8,068
Total															109,242

NuMI Project TEC

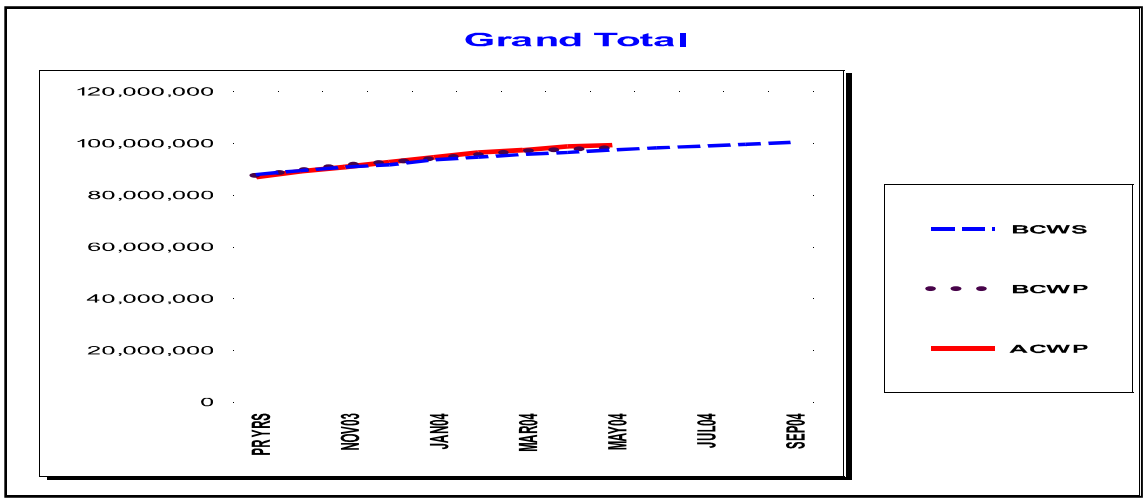
($000's Omitted)



	PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04
BCWS	17,490	18,312	19,607	20,314	21,346	22,292	23,331	24,099	25,076	25,847	26,519	27,215	27,918
BCWP	18,928	19,557	21,104	21,742	22,829	23,544	24,566	25,119	25,756				
ACWP	19,209	20,585	21,375	22,239	22,939	23,961	24,910	26,058	26,527				



	PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04
BCWS	67,035	67,697	67,793	67,911	68,834	68,891	68,893	68,893	68,893	68,893	68,893	68,893	68,893
BCWP	65,113	66,425	66,938	67,289	67,720	68,445	68,893	68,893	68,893				
ACWP	64,975	65,826	66,635	67,653	68,726	69,537	69,460	69,673	69,710				



	PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04
BCWS	87,866	89,360	90,760	91,593	93,558	94,569	95,620	96,397	97,383	98,162	98,844	99,549	100,261
BCWP	87,383	89,375	91,420	92,487	93,929	95,396	96,854	97,416	98,063				
ACWP	86,818	89,096	90,763	92,679	94,493	96,371	97,286	98,702	99,241				

NuMI Project TEC

($000's Omitted)

Program:	Description:	Approval:
NUMITEC	NuMI TEC	Program Manager
Run Date: 06/11/04	Status Date: 5/31/2004	Functional Manager
		Cost Account Manager

DESCRIPTION		PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04	FY05	TOTAL
1.1 Technical Components																
1.1.1 Extraction & Primary Beam	BCWS	3,823	136	339	127	109	143	109	104	182	52	60	25	52	24	5,287
	ACWP	3,769	558	145	340	78	183	115	246	106	0	0	0	0	0	5,540
1.1.2 Neutrino Beam Devices	BCWS	7,041	242	493	216	361	347	592	278	180	85	103	312	182	205	10,638
	ACWP	7,790	292	300	371	391	495	392	389	91	0	0	0	0	0	10,510
1.1.3 Power Supply System	BCWS	3,915	85	69	78	276	68	77	71	91	114	79	86	63	24	5,095
	ACWP	3,991	189	67	63	66	141	214	237	103	0	0	0	0	0	5,071
1.1.4 Hadron Decay and Absorber	BCWS	561	93	17	12	95	27	12	21	120	82	13	58	97	225	1,434
	ACWP	689	31	17	14	16	35	37	55	98	0	0	0	0	0	992
1.1.5 Neutrino Beam Monitoring	BCWS	285	15	13	95	5	3	2	1	1	3	3	16	14	26	481
	ACWP	283	31	22	15	10	26	32	14	7	0	0	0	0	0	438
1.1.6 Alignment Systems	BCWS	255	1	1	3	3	3	3	3	3	3	3	6	5	13	305
	ACWP	190	0	0	0	0	6	4	0	3	0	0	0	0	0	202
1.1.7 Water, Vacuum & Gas Systems	BCWS	802	190	215	102	109	112	96	122	220	263	190	26	40	49	2,535
	ACWP	1,371	63	90	23	42	72	86	146	4	0	0	0	0	0	1,896
1.1.8 Installation and Integration	BCWS	745	60	149	73	75	243	148	167	180	168	222	167	250	217	2,865
	ACWP	1,063	212	149	38	97	66	70	62	56	0	0	0	0	0	1,814
1.1.9 Hadronic Hose (Close-out)	BCWS	62	0	0	0	0	0	0	0	0	0	0	0	0	0	62
	ACWP	63	0	0	0	0	0	0	0	0	0	0	0	0	0	63
WBS[2] Totals:	BCWS	17,490	822	1,295	706	1,033	946	1,039	768	977	770	673	696	703	782	28,701
	ACWP	19,209	1,375	790	864	700	1,023	949	1,148	468	0	0	0	0	0	26,527
1.2 Facility Construction																
1.2.1 Facility Physics Design Phase	BCWS	70	0	0	0	0	0	0	0	0	0	0	0	0	0	70
	ACWP	70	0	0	0	0	0	0	0	0	0	0	0	0	0	70
1.2.2 Facility Construction Title I Design Phase	BCWS	1,438	0	0	0	0	0	0	0	0	0	0	0	0	0	1,438
	ACWP	1,437	0	0	0	0	0	0	0	0	0	0	0	0	0	1,437
1.2.3 Facility Construction Title II Design Phase	BCWS	2,975	0	0	0	0	0	0	0	0	0	0	0	0	0	2,975
	ACWP	2,974	0	0	0	0	0	0	0	0	0	0	0	0	0	2,974
1.2.4 Facility Construction Phase	BCWS	62,551	663	96	117	923	57	2	0	0	0	0	0	0	0	64,410
	ACWP	60,493	851	809	1,018	1,073	811	-78	214	36	0	0	0	0	0	65,228
WBS[2] Totals:	BCWS	67,035	663	96	117	923	57	2	0	0	0	0	0	0	0	68,893
	ACWP	64,975	851	809	1,018	1,073	811	-78	214	36	0	0	0	0	0	69,710
1.3 Project Management																
1.3.1 FY 98 Project Management	BCWS	275	0	0	0	0	0	0	0	0	0	0	0	0	0	275
	ACWP	141	0	0	0	0	0	0	0	0	0	0	0	0	0	141
1.3.2 FY 99 Project Management	BCWS	560	0	0	0	0	0	0	0	0	0	0	0	0	0	560
	ACWP	661	0	0	0	0	0	0	0	0	0	0	0	0	0	661
1.3.3 FY 00 Project Management	BCWS	575	0	0	0	0	0	0	0	0	0	0	0	0	0	575
	ACWP	663	0	0	0	0	0	0	0	0	0	0	0	0	0	663
1.3.4 FY 01 Project Management	BCWS	688	0	0	0	0	0	0	0	0	0	0	0	0	0	688
	ACWP	423	0	0	0	0	0	0	0	0	0	0	0	0	0	423
1.3.5 FY 02 Project Management	BCWS	703	0	0	0	0	0	0	0	0	0	0	0	0	0	703
	ACWP	324	0	0	0	0	0	0	0	0	0	0	0	0	0	324
1.3.6 FY 03 Project Management	BCWS	541	0	0	0	0	0	0	0	0	0	0	0	0	0	541
	ACWP	421	0	0	0	0	0	0	0	0	0	0	0	0	0	421

NuMI Project TEC

($000's Omitted)

Program:	Description:	Approval:
NUMITEC	NuMI TEC	Program Manager
Run Date: 06/11/04	Status Date: 5/31/2004	Functional Manager
		Cost Account Manager

DESCRIPTION		PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04	FY05	TOTAL
1.3.7 FY 04 Project Management	BCWS	0	10	8	10	9	8	10	9	9	9	9	9	9	0	108
	ACWP	0	52	67	34	40	44	44	54	35	0	0	0	0	0	371
1.3.8 FY 05 Project Management	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	130	130
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[2] Totals:	BCWS	3,341	10	8	10	9	8	10	9	9	9	9	9	9	130	3,580
	ACWP	2,634	52	67	34	40	44	44	54	35	0	0	0	0	0	3,005
Grand Totals:	BCWS	87,866	1,495	1,399	833	1,965	1,011	1,051	777	986	779	682	705	713	913	101,174
	ACWP	86,818	2,278	1,667	1,916	1,814	1,878	915	1,416	539	0	0	0	0	0	99,241

NuMI Project TEC - Labor Only

($000's Omitted)

Program:	Description:	Approval:
NUMITEC	NuMI TEC	Program Manager
Run Date: 06/11/04	Status Date: 5/31/2004	Functional Manager
		Cost Account Manager

DESCRIPTION		PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04	FY05	TOTAL
1.1 Technical Components																
1.1.1 Extraction & Primary Beam	BCWS	1,846	38	95	32	30	27	26	26	34	25	37	5	18	24	2,263
	ACWP	2,388	135	106	80	61	74	81	122	39	0	0	0	0	0	3,086
1.1.2 Neutrino Beam Devices	BCWS	3,798	69	112	115	139	108	246	90	96	68	46	48	35	115	5,086
	ACWP	4,630	118	174	104	79	182	164	236	-44	0	0	0	0	0	5,643
1.1.3 Power Supply System	BCWS	2,071	20	12	10	209	8	10	13	31	48	40	70	41	24	2,608
	ACWP	2,622	21	19	32	26	88	137	178	44	0	0	0	0	0	3,167
1.1.4 Hadron Decay and Absorber	BCWS	448	9	17	12	7	8	10	10	24	8	3	14	16	62	647
	ACWP	555	11	7	10	13	27	17	16	23	0	0	0	0	0	680
1.1.5 Neutrino Beam Monitoring	BCWS	78	0	0	0	0	0	0	0	0	0	0	0	0	0	78
	ACWP	74	0	0	0	0	0	1	0	0	0	0	0	0	0	75
1.1.6 Alignment Systems	BCWS	207	1	1	3	3	2	3	3	3	3	3	3	3	5	241
	ACWP	140	0	0	0	0	1	4	0	3	0	0	0	0	0	148
1.1.7 Water, Vacuum & Gas Systems	BCWS	410	18	173	16	8	25	3	25	114	128	122	23	37	49	1,151
	ACWP	634	20	34	4	21	55	42	70	0	0	0	0	0	0	880
1.1.8 Installation and Integration	BCWS	497	29	31	34	32	29	37	42	39	44	44	46	54	131	1,088
	ACWP	383	12	17	5	13	1	4	7	10	0	0	0	0	0	454
1.1.9 Hadronic Hose (Close-out)	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[2] Totals:	BCWS	9,354	184	442	222	427	208	335	209	342	323	295	208	204	409	13,162
	ACWP	11,426	319	358	236	212	429	449	629	75	0	0	0	0	0	14,133
1.2 Facility Construction																
1.2.1 Facility Physics Design Phase	BCWS	70	0	0	0	0	0	0	0	0	0	0	0	0	0	70
	ACWP	70	0	0	0	0	0	0	0	0	0	0	0	0	0	70
1.2.2 Facility Construction Title I Design Phase	BCWS	300	0	0	0	0	0	0	0	0	0	0	0	0	0	300
	ACWP	299	0	0	0	0	0	0	0	0	0	0	0	0	0	299
1.2.3 Facility Construction Title II Design Phase	BCWS	556	0	0	0	0	0	0	0	0	0	0	0	0	0	556
	ACWP	556	0	0	0	0	0	0	0	0	0	0	0	0	0	556
1.2.4 Facility Construction Phase	BCWS	2,827	52	45	52	49	45	2	0	0	0	0	0	0	0	3,071
	ACWP	2,853	76	91	77	74	90	80	53	31	0	0	0	0	0	3,425
WBS[2] Totals:	BCWS	3,754	52	45	52	49	45	2	0	0	0	0	0	0	0	3,998
	ACWP	3,778	76	91	77	74	90	80	53	31	0	0	0	0	0	4,350
1.3 Project Management																
1.3.1 FY 98 Project Management	BCWS	275	0	0	0	0	0	0	0	0	0	0	0	0	0	275
	ACWP	125	0	0	0	0	0	0	0	0	0	0	0	0	0	125
1.3.2 FY 99 Project Management	BCWS	560	0	0	0	0	0	0	0	0	0	0	0	0	0	560
	ACWP	595	0	0	0	0	0	0	0	0	0	0	0	0	0	595
1.3.3 FY 00 Project Management	BCWS	575	0	0	0	0	0	0	0	0	0	0	0	0	0	575
	ACWP	616	0	0	0	0	0	0	0	0	0	0	0	0	0	616
1.3.4 FY 01 Project Management	BCWS	688	0	0	0	0	0	0	0	0	0	0	0	0	0	688
	ACWP	416	0	0	0	0	0	0	0	0	0	0	0	0	0	416
1.3.5 FY 02 Project Management	BCWS	703	0	0	0	0	0	0	0	0	0	0	0	0	0	703
	ACWP	324	0	0	0	0	0	0	0	0	0	0	0	0	0	324
1.3.6 FY 03 Project Management	BCWS	541	0	0	0	0	0	0	0	0	0	0	0	0	0	541
	ACWP	416	0	0	0	0	0	0	0	0	0	0	0	0	0	416

NuMI Project TEC - Labor Only

($000's Omitted)

Program:	Description:	Approval:
NUMITEC	NuMI TEC	Program Manager
Run Date: 06/11/04	Status Date: 5/31/2004	Functional Manager
		Cost Account Manager

DESCRIPTION		PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04	FY05	TOTAL
1.3.7 FY 04 Project Management	BCWS	0	10	8	10	9	8	10	9	9	9	9	9	9	0	108
	ACWP	0	52	67	34	39	44	44	54	35	0	0	0	0	0	369
1.3.8 FY 05 Project Management	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	130	130
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[2] Totals:	BCWS	3,341	10	8	10	9	8	10	9	9	9	9	9	9	130	3,580
	ACWP	2,493	52	67	34	39	44	44	54	35	0	0	0	0	0	2,862
Grand Totals:	BCWS	16,449	245	495	283	486	261	346	218	351	332	304	217	213	539	20,739
	ACWP	17,697	447	516	347	325	563	573	736	141	0	0	0	0	0	21,345

NuMI Other Project Costs

($000's Omitted)

Cost Performance Report - Work Breakdown Structure													
Contractor:	Fermi National Accelerator Laboratory				Contract Type/No:			Project Name/No:		Report Period:			
Location:	Batavia							NuMI Other Proj Costs		3/31/04	4/30/04		
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work		Tgt. Profit/ Fee %		Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling		
1	62,200		0		0	0	62,200	0		0	0		
WBS[2]	Current Period					Cumulative to Date					At Completion		
WBS[3]	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance				
Results...	Work	Work	Work			Work	Work	Work				Latest Revised	
Item	Scheduled	Performed	Performed	Schedule	Cost	Scheduled	Performed	Performed	Schedule	Cost	Budgeted	Estimate	Variance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
2.1 Magnets: Steel & Coils													
2.1.1 Steel Plane Fabrication													
Direct Cost + Escalation	0	0	0	0	0	4,372	4,372	4,375	0	(3)	4,372	4,372	0
Indirect Cost	0	0	0	0	0	229	229	226	0	3	229	229	0
WBS[3]Totals:	0	0	0	0	0	4,601	4,601	4,601	0	0	4,601	4,601	0
2.1.2 Steel handling fixtures													
Direct Cost + Escalation	0	0	0	0	0	637	637	637	(0)	0	637	637	0
Indirect Cost	0	0	0	0	0	156	156	157	0	(0)	156	156	0
WBS[3]Totals:	0	0	0	0	0	793	793	793	0	(0)	793	793	0
2.1.3 Near Detector Support Structures													
Direct Cost + Escalation	0	0	0	0	0	(2)	(2)	1	0	(4)	(2)	(2)	0
Indirect Cost	0	0	0	0	0	4	4	0	0	4	4	4	0
WBS[3]Totals:	0	0	0	0	0	1	1	1	0	0	1	1	0
2.1.4 Magnet Coil													
Direct Cost + Escalation	0	0	0	0	0	1,386	1,386	1,372	(0)	15	1,386	1,386	0
Indirect Cost	0	0	0	0	0	286	286	300	0	(14)	286	286	0
WBS[3]Totals:	0	0	0	0	0	1,673	1,673	1,672	0	1	1,673	1,673	0
2.1.5 Detector Plane Prototypes													
Direct Cost + Escalation	0	0	0	0	0	390	390	394	0	(4)	390	390	0
Indirect Cost	0	0	0	0	0	106	106	102	(0)	4	106	106	0
WBS[3]Totals:	0	0	0	0	0	495	495	496	(0)	(0)	495	495	0
2.1.6 Steel Management													
Direct Cost + Escalation	0	0	0	0	0	53	53	53	0	(0)	53	53	0
Indirect Cost	0	0	0	0	0	4	4	5	(0)	(0)	4	4	0
WBS[3]Totals:	0	0	0	0	0	57	57	58	(0)	(0)	57	57	0
WBS[2]Totals:	0	0	0	0	0	7,621	7,621	7,621	0	0	7,621	7,621	0
2.2 Scintillator Detector Fabrication													
2.2.1 Scintillator Strips													
Direct Cost + Escalation	0	0	0	0	0	2,890	2,890	2,867	0	22	2,890	2,890	0
Indirect Cost	0	0	0	0	0	266	266	289	(0)	(23)	266	266	0
WBS[3]Totals:	0	0	0	0	0	3,156	3,156	3,156	0	(0)	3,156	3,156	0
2.2.2 Fiber													
Direct Cost + Escalation	0	0	0	0	0	4,236	4,236	4,270	0	(34)	4,236	4,236	0
Indirect Cost	0	0	0	0	0	60	60	26	(0)	34	60	60	0
WBS[3]Totals:	0	0	0	0	0	4,296	4,296	4,296	(0)	(0)	4,296	4,296	0

NuMI Other Project Costs

($000's Omitted)

Cost Performance Report - Work Breakdown Structure													
Contractor: Fermi National Accelerator Laboratory				Contract Type/No:			Project Name/No:		Report Period:				
Location: Batavia							NuMI Other Proj Costs		3/31/04	4/30/04			
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work	Tgt. Profit/ Fee %		Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling			
1	62,200		0	0	0	62,200	0		0	0			
WBS[2] WBS[3] Results...	Current Period					Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance				
Item	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Budgeted	Latest Revised Estimate	Variance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
2.2.3 Scintillator Modules													
Direct Cost + Escalation	0	0	0	0	0	1,899	1,899	1,893	0	6	1,899	1,899	0
Indirect Cost	0	0	0	0	0	83	83	89	0	(6)	83	83	0
WBS[3]Totals:	0	0	0	0	0	1,982	1,982	1,982	0	0	1,982	1,982	0
2.2.4 Photodetector Systems													
Direct Cost + Escalation	0	0	0	0	0	2,156	2,156	2,170	0	(14)	2,156	2,156	0
Indirect Cost	0	0	0	0	0	23	23	9	0	14	23	23	0
WBS[3]Totals:	0	0	0	0	0	2,179	2,179	2,179	0	(0)	2,179	2,179	0
2.2.5 Mux Boxes & Connectors													
Direct Cost + Escalation	0	0	0	0	0	1,394	1,394	1,397	(0)	(4)	1,394	1,394	0
Indirect Cost	0	0	0	0	0	27	27	23	(0)	4	27	27	0
WBS[3]Totals:	0	0	0	0	0	1,421	1,421	1,421	(0)	0	1,421	1,421	0
2.2.6 Calibration Systems													
Direct Cost + Escalation	0	0	0	0	0	1,102	1,102	1,103	0	(0)	1,102	1,102	0
Indirect Cost	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[3]Totals:	0	0	0	0	0	1,103	1,103	1,103	0	0	1,103	1,103	0
2.2.7 Ass'y & Test Equipment													
Direct Cost + Escalation	0	0	0	0	0	1,677	1,677	1,677	(0)	(0)	1,677	1,677	0
Indirect Cost	0	0	0	0	0	53	53	53	(0)	(0)	53	53	0
WBS[3]Totals:	0	0	0	0	0	1,731	1,731	1,731	(0)	(0)	1,731	1,731	0
2.2.8 Factories													
Direct Cost + Escalation	0	0	(8)	0	8	3,232	3,232	3,266	0	(35)	3,232	3,232	0
Indirect Cost	0	0	0	0	0	47	47	4	0	43	47	47	0
WBS[3]Totals:	0	0	(8)	0	8	3,279	3,279	3,271	0	8	3,279	3,279	0
2.2.9 Scintillator Management													
Direct Cost + Escalation	0	0	0	0	0	371	371	375	(0)	(4)	371	371	0
Indirect Cost	0	0	0	0	0	9	9	5	0	4	9	9	0
WBS[3]Totals:	0	0	0	0	0	379	379	379	(0)	(0)	379	379	0
WBS[2]Totals:	0	0	(8)	0	8	19,525	19,525	19,517	0	8	19,525	19,525	0
2.3 Electronics, DAQ & Database													
2.3.1 Near Detector Front End													
Direct Cost + Escalation	4	0	22	(4)	(22)	4,111	4,107	3,978	(4)	129	4,138	4,138	0
Indirect Cost	0	0	4	(0)	(4)	446	446	495	(0)	(49)	446	446	0
WBS[3]Totals:	4	0	26	(4)	(26)	4,557	4,553	4,473	(4)	80	4,585	4,585	0
2.3.2 Far Detector Front-end													
Direct Cost + Escalation	0	0	0	0	0	1,590	1,590	1,593	0	(2)	1,590	1,590	0
Indirect Cost	0	0	0	0	0	82	82	79	0	3	82	82	0
WBS[3]Totals:	0	0	0	0	0	1,673	1,673	1,672	0	1	1,673	1,673	0

NuMI Other Project Costs

($000's Omitted)

Cost Performance Report - Work Breakdown Structure													
Contractor:	Fermi National Accelerator Laboratory				Contract Type/No:			Project Name/No:		Report Period:			
Location:	Batavia							NuMI Other Proj Costs		3/31/04		4/30/04	
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work		Tgt. Profit/ Fee %		Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling		
1	62,200		0		0	0	62,200	0		0	0		
WBS[2]	Current Period					Cumulative to Date					At Completion		
WBS[3]	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance			Latest	
Results...	Work	Work	Work			Work	Work	Work				Revised	
Item	Scheduled	Performed	Performed	Schedule	Cost	Scheduled	Performed	Performed	Schedule	Cost	Budgeted	Estimate	Variance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
2.3.3 Data Routing & Trigger Farm													
Direct Cost + Escalation	3	2	0	(1)	2	1,229	1,212	1,210	(17)	2	1,241	1,241	0
WBS[3]Totals:	3	2	0	(1)	2	1,229	1,212	1,210	(17)	2	1,241	1,241	0
2.3.4 Data Acquisition & Triggering													
Direct Cost + Escalation	0	0	0	0	0	391	389	389	(1)	0	391	391	0
WBS[3]Totals:	0	0	0	0	0	391	389	389	(1)	0	391	391	0
2.3.5 Database													
Direct Cost + Escalation	0	0	0	0	0	10	10	10	0	(0)	10	10	0
Indirect Cost	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[3]Totals:	0	0	0	0	0	10	10	10	0	(0)	10	10	0
2.3.6 Auxilliary Systems													
Direct Cost + Escalation	0	2	0	1	2	459	454	492	(5)	(38)	460	460	0
Indirect Cost	0	0	0	0	0	37	35	49	(2)	(14)	37	37	0
WBS[3]Totals:	0	2	0	2	2	496	489	541	(7)	(52)	497	497	0
2.3.7 Electronics Management													
Direct Cost + Escalation	0	0	0	0	0	143	143	217	0	(74)	143	143	0
Indirect Cost	0	0	0	0	0	2	2	1	0	1	2	2	0
WBS[3]Totals:	0	0	0	0	0	146	146	218	0	(72)	146	146	0
2.3.8 Slow Control & Monitoring													
Direct Cost + Escalation	0	0	5	0	(5)	437	437	367	0	70	437	437	0
Indirect Cost	0	0	0	0	(0)	12	12	13	(0)	(0)	12	12	0
WBS[3]Totals:	0	0	5	0	(5)	449	449	380	0	69	449	449	0
2.3.9 HV System													
Direct Cost + Escalation	0	0	0	0	0	67	67	66	(0)	0	67	67	0
Indirect Cost	0	0	0	0	0	10	10	11	0	(0)	10	10	0
WBS[3]Totals:	0	0	0	0	0	77	77	77	(0)	0	77	77	0
WBS[2]Totals:	7	4	32	(3)	(28)	9,027	8,997	8,969	(29)	28	9,069	9,069	0
2.4 Far Detector Installation													
2.4.1 FDI Completed Design Tasks													
Direct Cost + Escalation	0	0	0	0	0	0	0	0	0	0	0	0	0
Indirect Cost	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[3]Totals:	0	0	0	0	0	0	0	0	0	0	0	0	0
2.4.2 FDI Management													
Direct Cost + Escalation	0	0	0	0	0	541	541	550	0	(9)	541	541	0
Indirect Cost	0	0	0	0	0	43	43	34	(0)	9	43	43	0
WBS[3]Totals:	0	0	0	0	0	584	584	584	0	(0)	584	584	0

NuMI Other Project Costs

($000's Omitted)

Cost Performance Report - Work Breakdown Structure													
Contractor:	Fermi National Accelerator Laboratory			Contract Type/No:			Project Name/No:		Report Period:				
Location:	Batavia						NuMI Other Proj Costs		3/31/04	4/30/04			
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work	Tgt. Profit/ Fee %		Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling			
1	62,200		0	0	0	62,200	0		0	0			
WBS[2]	Current Period					Cumulative to Date					At Completion		
WBS[3]	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance				
Results...	Work	Work	Work			Work	Work	Work				Latest Revised	
Item	Scheduled	Performed	Performed	Schedule	Cost	Scheduled	Performed	Performed	Schedule	Cost	Budgeted	Estimate	Variance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
2.4.3 SDN-FDI Construction Oversight													
Direct Cost + Escalation	0	0	0	0	0	115	115	115	0	0	115	115	0
WBS[3]Totals:	0	0	0	0	0	115	115	115	0	0	115	115	0
2.4.4 FDI Soudan Lab Infrastructure Setup													
Direct Cost + Escalation	0	0	0	0	0	470	470	469	0	1	470	470	0
Indirect Cost	0	0	0	0	0	3	3	4	0	(0)	3	3	0
WBS[3]Totals:	0	0	0	0	0	473	473	473	0	0	473	473	0
2.4.5 SDN-FDI Detector Installation													
Direct Cost + Escalation	0	0	0	0	0	2,960	2,960	2,953	0	7	2,960	2,960	0
Indirect Cost	0	0	0	0	0	0	0	6	0	(6)	0	0	0
WBS[3]Totals:	0	0	0	0	0	2,960	2,960	2,959	0	0	2,960	2,960	0
2.4.6 SDN-FDI DNR Costs													
Direct Cost + Escalation	0	0	0	0	0	382	382	378	0	4	382	382	0
Indirect Cost	0	0	0	0	0	0	0	1	0	(1)	0	0	0
WBS[3]Totals:	0	0	0	0	0	382	382	378	0	3	382	382	0
2.4.7 FDI Alignment & Survey													
Direct Cost + Escalation	0	0	0	0	0	58	58	58	0	(1)	58	58	0
Indirect Cost	0	0	0	0	0	10	10	9	0	0	10	10	0
WBS[3]Totals:	0	0	0	0	0	67	67	67	0	(0)	67	67	0
WBS[2]Totals:	0	0	0	0	0	4,581	4,581	4,576	0	4	4,581	4,581	0
2.5 Near Detector Installation													
2.5.1 NDI Infrastructure													
Direct Cost + Escalation	47	22	74	(25)	(52)	341	310	316	(31)	(6)	402	402	0
Indirect Cost	15	7	12	(8)	(5)	91	81	66	(10)	15	110	110	0
WBS[3]Totals:	62	28	86	(33)	(58)	431	391	382	(40)	9	512	512	0
2.5.2 NDI Plane Assembly													
Direct Cost + Escalation	0	0	0	0	0	393	393	403	0	(10)	393	393	0
Indirect Cost	0	0	0	0	0	123	123	111	(0)	12	123	123	0
WBS[3]Totals:	0	0	0	0	0	516	516	514	0	2	516	516	0
2.5.3 NDI Detector Installation													
Direct Cost + Escalation	143	76	86	(67)	(10)	335	268	344	(67)	(76)	778	778	0
Indirect Cost	43	24	26	(19)	(2)	76	55	82	(21)	(27)	200	200	0
WBS[3]Totals:	186	100	112	(86)	(12)	412	324	426	(88)	(102)	977	977	0
2.5.4 NDI Facility Experimental Infrastructure													
Direct Cost + Escalation	6	3	41	(3)	(38)	130	125	191	(5)	(67)	133	133	0
Indirect Cost	2	1	8	(1)	(7)	25	24	35	(2)	(12)	26	26	0
WBS[3]Totals:	8	4	49	(4)	(45)	155	148	226	(7)	(78)	160	160	0

NuMI Other Project Costs

($000's Omitted)

Cost Performance Report - Work Breakdown Structure													
Contractor:	Fermi National Accelerator Laboratory				Contract Type/No:			Project Name/No:		Report Period:			
Location:	Batavia							NuMI Other Proj Costs		3/31/04	4/30/04		
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work		Tgt. Profit/ Fee %		Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling		
1	62,200		0		0	0	62,200	0		0	0		
WBS[2]	Current Period					Cumulative to Date					At Completion		
WBS[3]	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance				
Results...	Work	Work	Work			Work	Work	Work				Latest Revised	
Item	Scheduled	Performed	Performed	Schedule	Cost	Scheduled	Performed	Performed	Schedule	Cost	Budgeted	Estimate	Variance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
2.5.5 RBI SB&O Experimental Systems Outfitting													
Direct Cost + Escalation	0	0	0	0	0	2,909	2,909	2,944	0	(35)	2,909	2,909	0
WBS[3]Totals:	0	0	0	0	0	2,909	2,909	2,944	0	(35)	2,909	2,909	0
WBS[2]Totals:	255	132	247	(123)	(115)	4,423	4,288	4,492	(135)	(204)	5,074	5,074	0
2.6 MINOS Project Management													
2.6.1 FNL-Project Management													
Direct Cost + Escalation	3	3	4	(0)	(1)	1,163	1,163	1,204	(0)	(41)	1,188	1,188	0
Indirect Cost	1	1	1	(0)	(0)	364	364	333	(0)	31	372	372	0
WBS[3]Totals:	4	4	5	(0)	(1)	1,527	1,527	1,537	(0)	(10)	1,560	1,560	0
2.6.2 ANL-Project Management													
Direct Cost + Escalation	0	0	0	0	0	96	96	96	0	(0)	96	96	0
Indirect Cost	0	0	0	0	0	1	1	1	0	0	1	1	0
WBS[3]Totals:	0	0	0	0	0	98	98	98	0	(0)	98	98	0
WBS[2]Totals:	4	4	5	(0)	(1)	1,625	1,625	1,635	(0)	(10)	1,658	1,658	0
3.1 NuMI Conceptual Design													
3.1.1 FNL-BD-NuMI CDR													
Direct Cost + Escalation	0	0	0	0	0	407	407	407	0	0	407	407	0
Indirect Cost	0	0	0	0	0	82	82	80	0	2	82	82	0
WBS[3]Totals:	0	0	0	0	0	489	489	487	0	2	489	489	0
3.1.2 FNL-BD-NuMI FESS CDR													
Direct Cost + Escalation	0	0	0	0	0	282	282	282	0	0	282	282	0
Indirect Cost	0	0	0	0	0	64	64	64	0	0	64	64	0
WBS[3]Totals:	0	0	0	0	0	346	346	346	0	0	346	346	0
3.1.3 FNL-NuMI Beam Design													
Direct Cost + Escalation	0	0	0	0	0	612	612	612	0	(0)	612	612	0
Indirect Cost	0	0	0	0	0	186	186	184	0	3	186	186	0
WBS[3]Totals:	0	0	0	0	0	798	798	796	0	3	798	798	0
3.1.4 FNL-BD-NuMI Project Management													
Direct Cost + Escalation	0	0	0	0	0	184	184	184	0	(0)	184	184	0
Indirect Cost	0	0	0	0	0	51	51	50	0	1	51	51	0
WBS[3]Totals:	0	0	0	0	0	235	235	234	0	1	235	235	0
3.1.5 FNL-Soudan Lab Design													
Direct Cost + Escalation	0	0	0	0	0	55	55	56	0	(1)	55	55	0
Indirect Cost	0	0	0	0	0	10	10	9	0	1	10	10	0
WBS[3]Totals:	0	0	0	0	0	65	65	65	0	0	65	65	0
WBS[2]Totals:	0	0	0	0	0	1,934	1,934	1,928	0	6	1,934	1,934	0

NuMI Other Project Costs

($000's Omitted)

Cost Performance Report - Work Breakdown Structure													
Contractor: Fermi National Accelerator Laboratory				Contract Type/No:			Project Name/No:		Report Period:				
Location: Batavia							NuMI Other Proj Costs		3/31/04	4/30/04			
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work	Tgt. Profit/ Fee %		Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling			
1	62,200		0	0	0	62,200	0		0	0			
WBS[2]	Current Period					Cumulative to Date					At Completion		
WBS[3]	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance				
Results...	Work	Work	Work			Work	Work	Work				Latest Revised	
Item	Scheduled	Performed	Performed	Schedule	Cost	Scheduled	Performed	Performed	Schedule	Cost	Budgeted	Estimate	Variance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3.2 MINOS Detector R&D													
3.2.1 FNL-MINOS Scintillator R&D													
Direct Cost + Escalation	0	0	0	0	0	872	872	870	0	2	872	872	0
Indirect Cost	0	0	0	0	0	115	115	118	0	(2)	115	115	0
WBS[3]Totals:	0	0	0	0	0	988	988	988	0	0	988	988	0
3.2.2 FNL-MINOS Steel R&D													
Direct Cost + Escalation	0	0	0	0	0	549	549	550	0	(1)	549	549	0
Indirect Cost	0	0	0	0	0	95	95	94	0	1	95	95	0
WBS[3]Totals:	0	0	0	0	0	644	644	644	0	(0)	644	644	0
3.2.3 FNL-RD-Neutrino Oscillation R&D													
Direct Cost + Escalation	0	0	0	0	0	116	116	116	0	0	116	116	0
Indirect Cost	0	0	0	0	0	20	20	20	(0)	0	20	20	0
WBS[3]Totals:	0	0	0	0	0	136	136	136	(0)	0	136	136	0
WBS[2]Totals:	0	0	0	0	0	1,768	1,768	1,768	(0)	0	1,768	1,768	0
3.3 MINOS Cavern													
3.3.0 Preconstruction Work													
Direct Cost + Escalation	0	0	0	0	0	758	758	758	0	0	758	758	0
WBS[3]Totals:	0	0	0	0	0	758	758	758	0	0	758	758	0
3.3.1 Cavern Construction													
Direct Cost + Escalation	0	0	0	0	0	6,597	6,597	6,597	0	0	6,597	6,597	0
WBS[3]Totals:	0	0	0	0	0	6,597	6,597	6,597	0	0	6,597	6,597	0
3.3.2 Cavern Outfitting													
Direct Cost + Escalation	0	0	0	0	0	7,171	7,171	7,171	0	0	7,171	7,171	0
WBS[3]Totals:	0	0	0	0	0	7,171	7,171	7,171	0	0	7,171	7,171	0
WBS[2]Totals:	0	0	0	0	0	14,527	14,527	14,527	0	0	14,527	14,527	0
3.4 Soudan/MINOS Operating													
3.4.1 UMN-Mine Crew Support/Soudan Gen'l Operations													
Direct Cost + Escalation	0	0	0	0	0	1,523	1,523	1,503	0	20	1,523	1,523	0
Indirect Cost	0	0	0	0	0	8	8	27	0	(20)	8	8	0
WBS[3]Totals:	0	0	0	0	0	1,531	1,531	1,531	0	(0)	1,531	1,531	0
3.4.2 UMN-Breitung Township Building Rental													
Direct Cost + Escalation	0	0	0	0	0	75	75	75	0	(0)	75	75	0
WBS[3]Totals:	0	0	0	0	0	75	75	75	0	(0)	75	75	0
3.4.3 UMN-E Peterson Salary													
Direct Cost + Escalation	0	0	0	0	0	71	71	71	0	0	71	71	0
WBS[3]Totals:	0	0	0	0	0	71	71	71	0	0	71	71	0
WBS[2]Totals:	0	0	0	0	0	1,677	1,677	1,677	0	(0)	1,677	1,677	0

NuMI Other Project Costs

($000's Omitted)

Cost Performance Report - Work Breakdown Structure													
Contractor:	Fermi National Accelerator Laboratory				Contract Type/No:			Project Name/No:		Report Period:			
Location:	Batavia							NuMI Other Proj Costs		3/31/04	4/30/04		
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work		Tgt. Profit/ Fee %		Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling		
1	62,200		0		0	0	62,200	0		0	0		
WBS[2]	Current Period					Cumulative to Date					At Completion		
WBS[3]	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance			Latest	
Results...	Work	Work	Work			Work	Work	Work				Revised	
Item	Scheduled	Performed	Performed	Schedule	Cost	Scheduled	Performed	Performed	Schedule	Cost	Budgeted	Estimate	Variance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
General and Administrative	0	0	0	0	0	0	0	0	0	0	0	0	0
Undistributed Budget											0	0	0
Sub Total	266	140	275	(126)	(135)	66,707	66,542	66,710	(165)	(168)	67,434	67,434	0
Contingency + MINOS Scope Reserve											3,796	3,796	0
Total NuMI Other Proj Costs	266	140	275	(126)	(135)	66,707	66,542	66,710	(165)	(168)	71,230	71,230	0
UK In-Kind Contribution	(3)	(2)	0	0	(2)	(4,822)	(4,804)	(4,802)	18	(2)	(5,272)	(5,272)	0
Minnesota Preconstruction Funds	0	0	0	0	0	(758)	(758)	(758)	0	0	(758)	(758)	0
Minnesota Construction Funds FY99	0	0	0	0	0	(3,000)	(3,000)	(3,000)	0	0	(3,000)	(3,000)	0
Total US Funds	263	138	275	(126)	(137)	58,127	57,980	58,151	(147)	(170)	62,200	62,200	0
WBS[2]Totals:													
Direct Cost + Escalation	205	107	223	(98)	(116)	44,121	43,990	44,193	(131)	(203)	44,694	44,694	0
Indirect Cost	61	33	52	(28)	(19)	2,681	2,647	2,617	(34)	30	2,834	2,834	0
Subtotal	266	140	275	(126)	(135)	46,801	46,637	46,810	(165)	(174)	47,528	47,528	0
UK In-Kind Contribution	(3)	(2)	0	0	(2)	(4,822)	(4,804)	(4,802)	18	(2)	(5,272)	(5,272)	0
Total MINOS Detector	263	138	275	(126)	(137)	41,979	41,833	42,009	(147)	(176)	42,257	42,257	0
Direct Cost + Escalation	0	0	0	0	0	19,273	19,273	19,253	0	20	19,273	19,273	0
Indirect Cost	0	0	0	0	0	633	633	646	0	(14)	633	633	0
Subtotal	0	0	0	0	0	19,906	19,906	19,900	0	6	19,906	19,906	0
Minnesota Preconstruction Funds	0	0	0	0	0	(758)	(758)	(758)	0	0	(758)	(758)	0
Minnesota Construction Funds FY99	0	0	0	0	0	(3,000)	(3,000)	(3,000)	0	0	(3,000)	(3,000)	0
Total Project Support	0	0	0	0	0	16,148	16,148	16,142	0	6	16,148	16,148	0
Contingency + MINOS Scope Reserve											3,796	3,796	0
Total US Funds	263	138	275	(126)	(137)	58,127	57,980	58,151	(147)	(170)	62,200	62,200	0

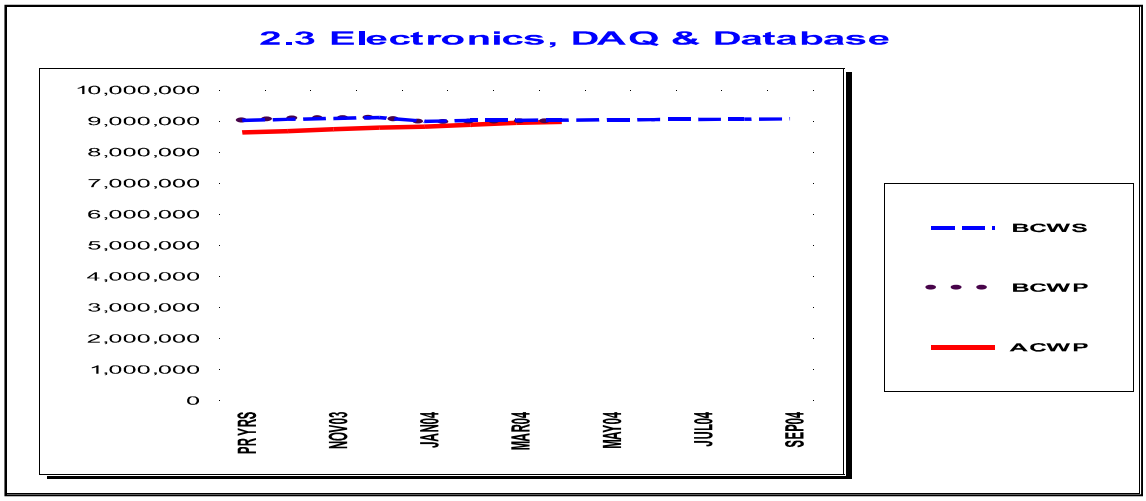
NuMI Other Project Costs

($000's Omitted)

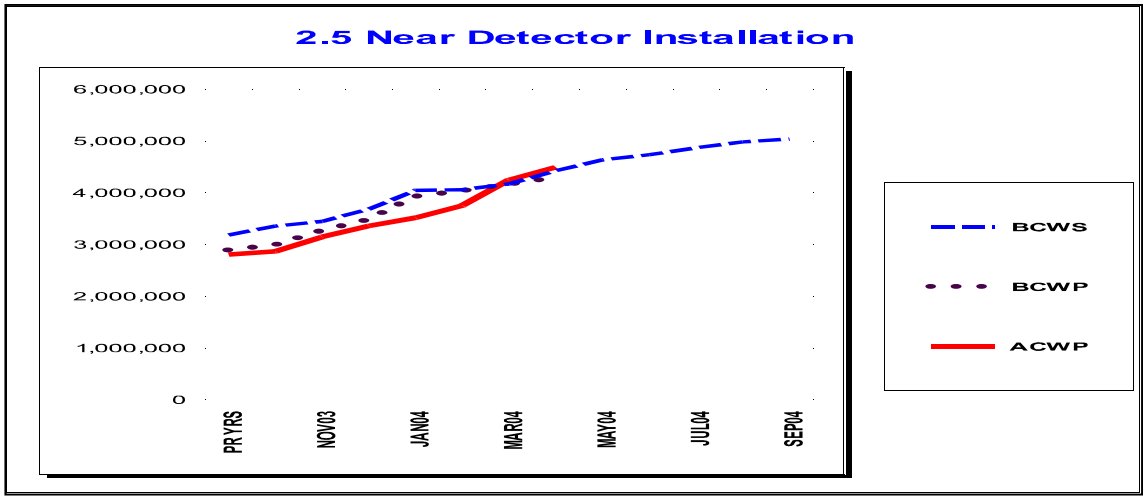
Cost Performance Report - Baseline																
Contractor:	Fermi National Accelerator Laboratory				Contract Type/No:			Project Name/No:				Report Period:				
Location:	Batavia							NuMI Other Proj Costs				3/31/04		4/30/04		
(1) Original Contract Target Cost		(2) Negotiated Contract Changes		(3) Current Target Cost		(4) Est. Cost Authorized Authorized Unpriced Work		(5) Contract Budget Base (3) + (4)				(6) Total Allocated Budget		(7) Difference (5) - (6)		
62,200		0		62,200		0		62,200				62,200		0		
(8)Contract Start Date 10/1/97		(9)Contract Definitization Date 10/1/97				(10)Last Item Delivery Date 4/30/04			(11)Contract Completion Date 4/30/04			(12)Estimated Completion Date 4/30/04				
Item	BCWS Cum to Date	BCWS for Report Period	Budgeted Cost for Work Scheduled (Non-Cumulative) Six Month Forecast +1 MAY04	+2 JUN04	+3 JUL04	+4 AUG04	+5 SEP04	+6 OCT04	(Enter Specific Periods) FY 05					Undist Budget	Total Budget
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
PM Baseline (Beginning of Period)	66,441	266	221	109	146	126	65	36	23	0	0	0	0	0	67,434
PM Baseline (End of Period)	66,707		221	109	146	126	65	36	23	0	0	0	0	0	67,434
Contingency + MINOS Scope Reserve															3,796
Total NuMI Other Project Costs															71,230
UK In-Kind Contribution															(5,272)
Minnesota Preconstruction Funds															(758)
Minnesota Preconstruction Funds FY99															(3,000)
Total US Funds															62,200

NuMI Other Project Costs

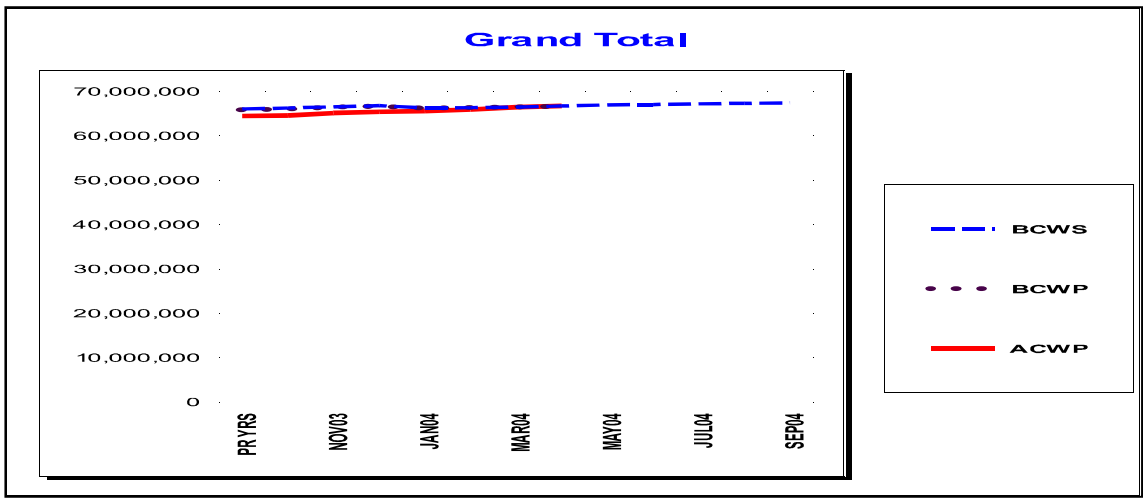
($000's Omitted)



	PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04
BCWS	9,017	9,052	9,079	9,111	8,987	9,014	9,019	9,027	9,034	9,042	9,049	9,057	9,063
BCWP	9,018	9,086	9,095	9,104	8,958	8,979	8,993	8,997					
ACWP	8,628	8,669	8,734	8,781	8,815	8,875	8,937	8,969					



	PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04
BCWS	3,182	3,354	3,445	3,680	4,045	4,057	4,168	4,423	4,633	4,731	4,866	4,980	5,035
BCWP	2,886	2,983	3,262	3,473	3,920	4,030	4,156	4,288					
ACWP	2,805	2,868	3,146	3,357	3,514	3,750	4,245	4,492					



	PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04
BCWS	66,033	66,242	66,505	66,760	66,278	66,322	66,441	66,707	66,928	67,038	67,183	67,309	67,374
BCWP	65,744	65,908	66,338	66,547	66,121	66,259	66,402	66,542					
ACWP	64,452	64,566	65,116	65,378	65,572	65,874	66,435	66,710					

NuMI Other Project Costs

($000's Omitted)

Program:	Description:	Approval:
NUMIOPC	NuMI Other Proj Costs	Program Manager
Run Date: 05/12/04	Status Date: 4/30/2004	Functional Manager
		Cost Account Manager

DESCRIPTION		PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04	FY05	TOTAL
2.1 Magnets: Steel & Coils																
2.1.1 Steel Plane Fabrication	BCWS	4,628	1	(27)	0	0	0	0	0	0	0	0	0	0	0	4,601
	ACWP	4,601	0	0	0	(0)	0	0	0	0	0	0	0	0	0	4,601
2.1.2 Steel handling fixtures	BCWS	773	0	20	0	0	0	0	0	0	0	0	0	0	0	793
	ACWP	793	0	0	0	0	0	0	0	0	0	0	0	0	0	793
2.1.3 Near Detector Support Structures	BCWS	5	0	(3)	0	0	0	0	0	0	0	0	0	0	0	1
	ACWP	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2.1.4 Magnet Coil	BCWS	1,562	0	111	0	0	0	0	0	0	0	0	0	0	0	1,673
	ACWP	1,673	0	0	0	(1)	0	0	0	0	0	0	0	0	0	1,672
2.1.5 Detector Plane Prototypes	BCWS	501	0	(5)	0	0	0	0	0	0	0	0	0	0	0	495
	ACWP	496	0	0	0	0	0	0	0	0	0	0	0	0	0	496
2.1.6 Steel Management	BCWS	71	0	(14)	0	0	0	0	0	0	0	0	0	0	0	57
	ACWP	57	0	0	0	0	0	0	0	0	0	0	0	0	0	58
WBS[2] Totals:	BCWS	7,539	1	81	0	0	0	0	0	0	0	0	0	0	0	7,621
	ACWP	7,622	0	0	0	(1)	0	0	0	0	0	0	0	0	0	7,621
2.2 Scintillator Detector Fabrication																
2.2.1 Scintillator Strips	BCWS	2,998	0	0	(26)	0	0	0	0	0	0	0	0	0	0	2,971
	ACWP	2,972	0	0	0	0	0	0	0	0	0	0	0	0	0	2,972
2.2.2 Fiber	BCWS	4,039	0	0	(78)	0	0	0	0	0	0	0	0	0	0	3,961
	ACWP	3,961	0	0	0	0	0	0	0	0	0	0	0	0	0	3,961
2.2.3 Scintillator Modules	BCWS	2,008	0	0	(26)	0	0	0	0	0	0	0	0	0	0	1,982
	ACWP	1,982	0	0	0	0	0	0	0	0	0	0	0	0	0	1,982
2.2.4 Photodetector Systems	BCWS	1,720	0	0	(19)	0	0	0	0	0	0	0	0	0	0	1,702
	ACWP	1,702	0	0	0	0	0	0	0	0	0	0	0	0	0	1,702
2.2.5 Mux Boxes & Connectors	BCWS	1,063	0	0	30	0	0	0	0	0	0	0	0	0	0	1,094
	ACWP	1,093	0	0	0	0	0	0	0	0	0	0	0	0	0	1,093
2.2.6 Calibration Systems	BCWS	3	0	0	(3)	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.2.7 Ass'y & Test Equipment	BCWS	1,729	0	0	(8)	0	0	0	0	0	0	0	0	0	0	1,721
	ACWP	1,721	0	0	0	0	0	0	0	0	0	0	0	0	0	1,721
2.2.8 Factories	BCWS	3,188	0	0	91	0	0	0	0	0	0	0	0	0	0	3,279
	ACWP	3,279	0	0	0	0	0	0	(8)	0	0	0	0	0	0	3,271
2.2.9 Scintillator Management	BCWS	355	0	0	24	0	0	0	0	0	0	0	0	0	0	379
	ACWP	379	0	0	0	0	0	0	0	0	0	0	0	0	0	379
WBS[2] Totals:	BCWS	17,104	0	0	(15)	0	0	0	0	0	0	0	0	0	0	17,089
	ACWP	17,089	0	0	0	0	0	0	(8)	0	0	0	0	0	0	17,081
2.3 Electronics, DAQ & Database																
2.3.1 Near Detector Front End	BCWS	4,545	30	24	28	(100)	24	1	4	4	5	5	5	5	5	4,585
	ACWP	4,175	40	31	47	35	58	62	26	0	0	0	0	0	0	4,473
2.3.2 Far Detector Front-end	BCWS	1,184	0	0	0	12	0	0	0	0	0	0	0	0	0	1,197
	ACWP	1,197	0	0	0	(1)	0	0	0	0	0	0	0	0	0	1,196
2.3.5 Database	BCWS	48	0	0	0	(38)	0	0	0	0	0	0	0	0	0	10
	ACWP	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10
2.3.6 Auxilliary Systems	BCWS	202	0	0	0	0	0	0	0	0	0	0	0	0	0	206
	ACWP	247	1	0	0	0	0	0	0	0	0	0	0	0	0	250

NuMI Other Project Costs

($000's Omitted)

Program: NUMIOPC	Description: NuMI Other Proj Costs	Approval: Program Manager
Run Date: 05/12/04	Status Date: 4/30/2004	Functional Manager
		Cost Account Manager

DESCRIPTION		PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04	FY05	TOTAL
2.3.7 Electronics Management	BCWS	146	0	0	0	0	0	0	0	0	0	0	0	0	0	146
	ACWP	184	0	34	0	0	0	0	0	0	0	0	0	0	0	218
2.3.8 Slow Control & Monitoring	BCWS	445	0	0	0	5	0	0	0	0	0	0	0	0	0	449
	ACWP	373	0	0	0	(1)	2	0	5	0	0	0	0	0	0	380
2.3.9 HV System	BCWS	82	1	0	0	(6)	0	0	0	0	0	0	0	0	0	77
	ACWP	77	0	0	0	0	0	0	0	0	0	0	0	0	0	77
WBS[2] Totals:	BCWS	6,652	31	25	29	(126)	25	2	5	5	5	5	5	5	5	6,670
	ACWP	6,263	41	65	47	34	60	62	32	0	0	0	0	0	0	6,604
2.4 Far Detector Installation																
2.4.1 FDI Completed Design Tasks	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.4.2 FDI Management	BCWS	661	0	0	0	(77)	0	0	0	0	0	0	0	0	0	584
	ACWP	577	5	2	0	0	0	0	0	0	0	0	0	0	0	584
2.4.3 SDN-FDI Construction Oversight	BCWS	58	0	0	0	57	0	0	0	0	0	0	0	0	0	115
	ACWP	115	0	0	0	0	0	0	0	0	0	0	0	0	0	115
2.4.4 FDI Soudan Lab Infrastructure Setup	BCWS	509	0	0	0	(36)	0	0	0	0	0	0	0	0	0	473
	ACWP	473	0	0	0	0	0	0	0	0	0	0	0	0	0	473
2.4.5 SDN-FDI Detector Installation	BCWS	3,084	0	0	0	(124)	0	0	0	0	0	0	0	0	0	2,960
	ACWP	2,759	0	200	0	0	0	0	0	0	0	0	0	0	0	2,959
2.4.6 SDN-FDI DNR Costs	BCWS	708	0	0	0	(326)	0	0	0	0	0	0	0	0	0	382
	ACWP	378	0	0	0	0	0	0	0	0	0	0	0	0	0	378
2.4.7 FDI Alignment & Survey	BCWS	57	0	0	0	10	0	0	0	0	0	0	0	0	0	67
	ACWP	67	0	0	0	0	0	0	0	0	0	0	0	0	0	67
WBS[2] Totals:	BCWS	5,077	0	0	0	(496)	0	0	0	0	0	0	0	0	0	4,581
	ACWP	4,369	5	202	0	0	0	0	0	0	0	0	0	0	0	4,576
2.5 Near Detector Installation																
2.5.1 NDI Infrastructure	BCWS	253	6	24	6	2	5	74	62	35	3	26	17	0	0	512
	ACWP	170	20	14	13	2	16	61	86	0	0	0	0	0	0	382
2.5.2 NDI Plane Assembly	BCWS	516	0	0	0	0	0	0	0	0	0	0	0	0	0	516
	ACWP	514	0	0	0	(0)	0	0	0	0	0	0	0	0	0	514
2.5.3 NDI Detector Installation	BCWS	6	2	2	177	3	7	28	186	171	95	109	97	55	39	977
	ACWP	39	0	113	14	38	39	71	112	0	0	0	0	0	0	426
2.5.4 NDI Facility Experimental Infrastructure	BCWS	66	59	14	0	0	0	10	8	5	0	0	0	0	0	160
	ACWP	124	9	16	8	6	6	8	49	0	0	0	0	0	0	226
2.5.5 RBI SB&O Experimental Systems Outfitting	BCWS	2,341	106	51	52	359	0	0	0	0	0	0	0	0	0	2,909
	ACWP	1,957	33	135	177	111	176	355	0	0	0	0	0	0	0	2,944
WBS[2] Totals:	BCWS	3,182	172	91	235	364	12	111	255	210	98	134	115	55	39	5,074
	ACWP	2,805	63	278	211	157	237	495	247	0	0	0	0	0	0	4,492
2.6 MINOS Project Management																
2.6.1 FNL-Project Management	BCWS	1,448	0	61	4	4	3	4	4	4	4	4	4	4	15	1,560
	ACWP	1,505	5	4	4	4	5	5	5	0	0	0	0	0	0	1,537
2.6.2 ANL-Project Management	BCWS	98	0	0	0	0	0	0	0	0	0	0	0	0	0	98
	ACWP	98	0	0	0	0	0	0	0	0	0	0	0	0	0	98
WBS[2] Totals:	BCWS	1,546	0	61	4	4	3	4	4	4	4	4	4	4	15	1,658
	ACWP	1,603	5	4	4	4	5	5	5	0	0	0	0	0	0	1,635

NuMI Other Project Costs

($000's Omitted)

Program: NUMIOPC	Description: NuMI Other Proj Costs	Approval: Program Manager
Run Date: 05/12/04	Status Date: 4/30/2004	Functional Manager
		Cost Account Manager

DESCRIPTION		PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04	FY05	TOTAL
3.1 NuMI Conceptual Design																
3.1.1 FNL-BD-NuMI CDR	BCWS	489	0	0	0	0	0	0	0	0	0	0	0	0	0	489
	ACWP	487	0	0	0	0	0	0	0	0	0	0	0	0	0	487
3.1.2 FNL-BD-NuMI FESS CDR	BCWS	346	0	0	0	0	0	0	0	0	0	0	0	0	0	346
	ACWP	346	0	0	0	0	0	0	0	0	0	0	0	0	0	346
3.1.3 FNL-NuMI Beam Design	BCWS	798	0	0	0	0	0	0	0	0	0	0	0	0	0	798
	ACWP	796	0	0	0	0	0	0	0	0	0	0	0	0	0	796
3.1.4 FNL-BD-NuMI Project Management	BCWS	235	0	0	0	0	0	0	0	0	0	0	0	0	0	235
	ACWP	234	0	0	0	0	0	0	0	0	0	0	0	0	0	234
3.1.5 FNL-Soudan Lab Design	BCWS	65	0	0	0	0	0	0	0	0	0	0	0	0	0	65
	ACWP	65	0	0	0	0	0	0	0	0	0	0	0	0	0	65
WBS[2] Totals:	BCWS	1,934	0	0	0	0	0	0	0	0	0	0	0	0	0	1,934
	ACWP	1,928	0	0	0	0	0	0	0	0	0	0	0	0	0	1,928
3.2 MINOS Detector R&D																
3.2.1 FNL-MINOS Scintillator R&D	BCWS	995	0	0	0	(8)	0	0	0	0	0	0	0	0	0	988
	ACWP	988	0	0	0	0	0	0	0	0	0	0	0	0	0	988
3.2.2 FNL-MINOS Steel R&D	BCWS	649	0	0	0	(4)	0	0	0	0	0	0	0	0	0	644
	ACWP	644	0	0	0	0	0	0	0	0	0	0	0	0	0	644
3.2.3 FNL-RD-Neutrino Oscillation R&D	BCWS	136	0	0	0	0	0	0	0	0	0	0	0	0	0	136
	ACWP	136	0	0	0	0	0	0	0	0	0	0	0	0	0	136
WBS[2] Totals:	BCWS	1,780	0	0	0	(12)	0	0	0	0	0	0	0	0	0	1,768
	ACWP	1,768	0	0	0	0	0	0	0	0	0	0	0	0	0	1,768
3.3 MINOS Cavern																
3.3.0 Preconstruction Work	BCWS	758	0	0	0	0	0	0	0	0	0	0	0	0	0	758
	ACWP	758	0	0	0	0	0	0	0	0	0	0	0	0	0	758
3.3.1 Cavern Construction	BCWS	6,597	0	0	0	0	0	0	0	0	0	0	0	0	0	6,597
	ACWP	6,597	0	0	0	0	0	0	0	0	0	0	0	0	0	6,597
3.3.2 Cavern Outfitting	BCWS	7,171	0	0	0	0	0	0	0	0	0	0	0	0	0	7,171
	ACWP	7,171	0	0	0	0	0	0	0	0	0	0	0	0	0	7,171
WBS[2] Totals:	BCWS	14,527	0	0	0	0	0	0	0	0	0	0	0	0	0	14,527
	ACWP	14,527	0	0	0	0	0	0	0	0	0	0	0	0	0	14,527
3.4 Soudan/MINOS Operating																
3.4.1 UMN-Mine Crew Support/Soudan Gen'l Operations	BCWS	1,709	0	0	0	(178)	0	0	0	0	0	0	0	0	0	1,531
	ACWP	1,531	0	0	0	0	0	0	0	0	0	0	0	0	0	1,531
3.4.2 UMN-Breitung Township Building Rental	BCWS	114	0	0	0	(39)	0	0	0	0	0	0	0	0	0	75
	ACWP	75	0	0	0	0	0	0	0	0	0	0	0	0	0	75
3.4.3 UMN-E Peterson Salary	BCWS	73	0	0	0	(2)	0	0	0	0	0	0	0	0	0	71
	ACWP	71	0	0	0	0	0	0	0	0	0	0	0	0	0	71
WBS[2] Totals:	BCWS	1,896	0	0	0	(219)	0	0	0	0	0	0	0	0	0	1,677
	ACWP	1,677	0	0	0	0	0	0	0	0	0	0	0	0	0	1,677
Grand Totals:	BCWS	61,236	203	258	252	(485)	41	117	263	219	107	143	123	63	59	62,599
	ACWP	59,651	114	550	262	193	302	561	275	0	0	0	0	0	0	61,909

NuMI Other Project Costs

($000's Omitted)

Program:	Description:	Approval:
NUMIOPC	NuMI Other Proj Costs	Program Manager
Run Date: 05/12/04	Status Date: 4/30/2004	Functional Manager
		Cost Account Manager

DESCRIPTION		PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04	FY05	TOTAL
2.1 Magnets: Steel & Coils																
2.1.1 Steel Plane Fabrication	BCWS	130	0	0	0	0	0	0	0	0	0	0	0	0	0	130
	ACWP	171	0	0	0	0	0	0	0	0	0	0	0	0	0	171
2.1.2 Steel handling fixtures	BCWS	437	0	0	0	0	0	0	0	0	0	0	0	0	0	437
	ACWP	560	0	0	0	0	0	0	0	0	0	0	0	0	0	560
2.1.3 Near Detector Support Structures	BCWS	36	0	0	0	0	0	0	0	0	0	0	0	0	0	36
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1.4 Magnet Coil	BCWS	564	0	0	0	0	0	0	0	0	0	0	0	0	0	564
	ACWP	839	0	0	0	0	0	0	0	0	0	0	0	0	0	839
2.1.5 Detector Plane Prototypes	BCWS	355	0	0	0	0	0	0	0	0	0	0	0	0	0	355
	ACWP	375	0	0	0	0	0	0	0	0	0	0	0	0	0	375
2.1.6 Steel Management	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
WBS[2] Totals:	BCWS	1,521	0	0	0	0	0	0	0	0	0	0	0	0	0	1,522
	ACWP	1,946	0	0	0	0	0	0	0	0	0	0	0	0	0	1,946
2.2 Scintillator Detector Fabrication																
2.2.1 Scintillator Strips	BCWS	111	0	0	0	0	0	0	0	0	0	0	0	0	0	111
	ACWP	344	0	0	0	0	0	0	0	0	0	0	0	0	0	344
2.2.2 Fiber	BCWS	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.2.3 Scintillator Modules	BCWS	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11
	ACWP	284	0	0	0	0	0	0	0	0	0	0	0	0	0	284
2.2.5 Mux Boxes & Connectors	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	37	0	0	0	0	0	0	0	0	0	0	0	0	0	37
2.2.6 Calibration Systems	BCWS	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.2.7 Ass'y & Test Equipment	BCWS	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	ACWP	139	0	0	0	0	0	0	0	0	0	0	0	0	0	139
2.2.8 Factories	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.2.9 Scintillator Management	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[2] Totals:	BCWS	144	0	0	0	0	0	0	0	0	0	0	0	0	0	144
	ACWP	805	0	0	0	0	0	0	0	0	0	0	0	0	0	805
2.3 Electronics, DAQ & Database																
2.3.1 Near Detector Front End	BCWS	356	15	13	15	15	13	1	0	0	0	0	0	0	0	428
	ACWP	652	15	13	11	7	20	28	16	0	0	0	0	0	0	762
2.3.2 Far Detector Front-end	BCWS	112	0	0	0	0	0	0	0	0	0	0	0	0	0	112
	ACWP	176	0	0	0	0	0	0	0	0	0	0	0	0	0	176
2.3.6 Auxilliary Systems	BCWS	97	0	0	0	0	0	0	0	0	0	0	0	0	0	102
	ACWP	166	1	0	0	0	0	0	0	0	0	0	0	0	0	168
2.3.7 Electronics Management	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.3.8 Slow Control & Monitoring	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NuMI Other Project Costs

($000's Omitted)

Program: NUMIOPC	Description: NuMI Other Proj Costs	Approval: Program Manager
Run Date: 05/12/04	Status Date: 4/30/2004	Functional Manager
		Cost Account Manager

DESCRIPTION		PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04	FY05	TOTAL
2.3.9 HV System	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[2] Totals:	BCWS	566	16	14	16	15	14	1	0	0	0	0	0	0	0	643
	ACWP	993	16	14	11	7	20	28	16	0	0	0	0	0	0	1,106
2.4 Far Detector Installation																
2.4.1 FDI Completed Design Tasks	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.4.2 FDI Management	BCWS	89	0	0	0	0	0	0	0	0	0	0	0	0	0	89
	ACWP	47	0	0	0	0	0	0	0	0	0	0	0	0	0	47
2.4.4 FDI Soudan Lab Infrastructure Setup	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
2.4.7 FDI Alignment & Survey	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[2] Totals:	BCWS	89	0	0	0	0	0	0	0	0	0	0	0	0	0	89
	ACWP	54	0	0	0	0	0	0	0	0	0	0	0	0	0	54
2.5 Near Detector Installation																
2.5.1 NDI Infrastructure	BCWS	158	1	17	4	1	3	63	62	35	3	26	17	0	0	389
	ACWP	101	17	12	7	(2)	4	0	2	0	0	0	0	0	0	141
2.5.2 NDI Plane Assembly	BCWS	501	0	0	0	0	0	0	0	0	0	0	0	0	0	501
	ACWP	468	0	0	0	(0)	0	0	0	0	0	0	0	0	0	468
2.5.3 NDI Detector Installation	BCWS	3	0	0	0	0	3	17	176	162	86	99	88	46	22	703
	ACWP	11	0	10	8	15	34	59	108	0	0	0	0	0	0	244
2.5.4 NDI Facility Experimental Infrastructure	BCWS	15	0	0	0	0	0	10	8	5	0	0	0	0	0	37
	ACWP	17	0	1	5	6	4	8	17	0	0	0	0	0	0	57
2.5.5 RBI SB&O Experimental Systems Outfitting	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[2] Totals:	BCWS	677	1	17	4	1	6	90	246	201	89	125	105	46	22	1,630
	ACWP	596	17	22	20	18	43	66	127	0	0	0	0	0	0	911
2.6 MINOS Project Management																
2.6.1 FNL-Project Management	BCWS	1,398	0	61	4	4	3	4	4	4	4	4	4	4	15	1,511
	ACWP	1,356	5	4	4	4	5	5	5	0	0	0	0	0	0	1,388
2.6.2 ANL-Project Management	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[2] Totals:	BCWS	1,398	0	61	4	4	3	4	4	4	4	4	4	4	15	1,511
	ACWP	1,356	5	4	4	4	5	5	5	0	0	0	0	0	0	1,388
3.1 NuMI Conceptual Design																
3.1.1 FNL-BD-NuMI CDR	BCWS	99	0	0	0	0	0	0	0	0	0	0	0	0	0	99
	ACWP	99	0	0	0	0	0	0	0	0	0	0	0	0	0	99
3.1.2 FNL-BD-NuMI FESS CDR	BCWS	112	0	0	0	0	0	0	0	0	0	0	0	0	0	112
	ACWP	112	0	0	0	0	0	0	0	0	0	0	0	0	0	112
3.1.3 FNL-NuMI Beam Design	BCWS	530	0	0	0	0	0	0	0	0	0	0	0	0	0	530
	ACWP	529	0	0	0	0	0	0	0	0	0	0	0	0	0	529
3.1.4 FNL-BD-NuMI Project Management	BCWS	132	0	0	0	0	0	0	0	0	0	0	0	0	0	132
	ACWP	132	0	0	0	0	0	0	0	0	0	0	0	0	0	132

NuMI Other Project Costs

($000's Omitted)

Program: NUMIOPC	Description: NuMI Other Proj Costs	Approval: Program Manager
Run Date: 05/12/04	Status Date: 4/30/2004	Functional Manager
		Cost Account Manager

DESCRIPTION		PR YRS	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04	AUG04	SEP04	FY05	TOTAL
3.1.5 FNL-Soudan Lab Design	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[2] Totals:	BCWS	872	0	0	0	0	0	0	0	0	0	0	0	0	0	872
	ACWP	872	0	0	0	0	0	0	0	0	0	0	0	0	0	872
3.2 MINOS Detector R&D																
3.2.1 FNL-MINOS Scintillator R&D	BCWS	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
	ACWP	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
3.2.2 FNL-MINOS Steel R&D	BCWS	46	0	0	0	0	0	0	0	0	0	0	0	0	0	46
	ACWP	46	0	0	0	0	0	0	0	0	0	0	0	0	0	46
3.2.3 FNL-RD-Neutrino Oscillation R&D	BCWS	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	ACWP	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
WBS[2] Totals:	BCWS	62	0	0	0	0	0	0	0	0	0	0	0	0	0	62
	ACWP	62	0	0	0	0	0	0	0	0	0	0	0	0	0	62
3.4 Soudan/MINOS Operating																
3.4.1 UMN-Mine Crew Support/Soudan Gen'l Operations	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3.4.2 UMN-Breitung Township Building Rental	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBS[2] Totals:	BCWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACWP	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Totals:	BCWS	5,330	17	91	24	20	23	95	250	205	93	129	109	49	38	6,472
	ACWP	6,686	38	40	36	30	68	99	148	0	0	0	0	0	0	7,144

NuMI Project Obligations

$000's Omitted

Wk Pkg	WBS #	Inst Code	DESCRIPTION	Total Budget Mar-04	Amounts as of May 31, 2004 PTD Cost	PO Encumbrances	Requisition Encumbrances	PTD Obligations	Remaining Obligation Authority
YAA	1.1.1.1		EPB/Physics Design Phase	139	139			139	(0)
YAB	1.1.1.2		EPB/Title I & II Design Phase	851	1,028			1,028	(177)
YAC	1.1.1.3.1		EPB/Title III	221	253			253	(32)
YAD	1.1.1.3.2.1		EPB/Fabrication	1,508	1,602	207	20	1,829	(321)
YAE	1.1.1.3.2.2		EPB/Assembly	1,007	564	0		564	443
YAG	1.1.1.3.2.3		EPB/Lambertston Construction	402	417	51		468	(66)
YAH	1.1.1.3.2.4		EPB/Refurbish & Repair B2 Magnets	18	124			124	(106)
YAK	1.1.1.3.2.5		EPB/Refurbish & Repair 3Q120 Magnets	96	114	2		116	(21)
YAL	1.1.1.3.2.6		EPB/Fabricate Add'l Trim Magnets	89	343			343	(254)
YAM	1.1.1.3.2.7		EPB/Refurbish 5.5 - 2.87 - 60 Trim Dipoles	79	20			20	58
YAF	1.1.1.3.3		EPB/Installation	609	889	27		917	(307)
	1.1.1.3.4		EPB/Precommissioning	8	0			0	8
YAI	1.1.1.4		EPB/Beamline Tests	63	44			44	19
YAJ	1.1.1.5		EPB/Controls Software & Permit	198	2			2	196
YBA	1.1.2.1		NBD/Physics Design Phase	611	780			780	(170)
YBB	1.1.2.2		NBD/Title I & II Design Phase	3,587	4,842	3		4,845	(1,258)
YBC	1.1.2.3.1		NBD/Title III	211	149	45	121	315	(104)
YBD	1.1.2.3.2		NBD/Construction	3,957	3,512			3,512	446
	1.1.2.3.3		NBD/Installation	1,679	1,226	99		1,325	354
	1.1.2.3.4		NBD/Precommissioning	593	0			0	593
YCB	1.1.3.2		PSS/Title I & II Design Phase	1,521	1,678			1,678	(158)
YCC	1.1.3.3.1		PSS/Title III	205	133	1		134	71
YCD	1.1.3.3.2		PSS/Construction & Fabrication	2,745	2,910	29		2,939	(193)
YCE	1.1.3.3.3		PSS/Installation	602	349	37		386	216
	1.1.3.3.4		PSS/Precommissioning	20	0			0	20
YDA	1.1.4.1		HDA/Physics Design Phase	60	60			60	0
YDB	1.1.4.2		HDA/Title I & II Design Phase	526	536			536	(10)
YDC	1.1.4.3.1		HDA/Title III	59	51			51	9
	1.1.4.3.2.1		HDA/Misc Construction Materials	11	3	7		10	1
YDE	1.1.4.3.2.2		HDA/Absorber Construction	221	165			165	55
YDF	1.1.4.3.2.3		HDA/Vacuum Window Construction	31	31			31	1
	1.1.4.3.2.4		HDA/Installation	526	146	179	3	329	197
YEA	1.1.5.1		NBM/Physics Design Phase	86	80			80	6
YEB	1.1.5.2		NBM/Title I & II Design Phase	306	270	29		299	7
YEF	1.1.5.4		NBM/Downstream Hadron Monitors	89	88	9		97	(8)

NuMI Project Obligations

$000's Omitted

Wk Pkg	WBS #	Inst Code	DESCRIPTION	Total Budget Mar-04	Amounts as of May 31, 2004 PTD Cost	PO Encumbrances	Requisition Encumbrances	PTD Obligations	Remaining Obligation Authority
YFA	1.1.6.1		ALS/Physics Design Phase	67	89			89	(22)
YFB	1.1.6.2		ALS/Title I & II Design Phase	11	9			9	2
YFC	1.1.6.3.1		ALS/Prepare Alignment Documentation	0	2			2	(2)
YFE	1.1.6.3.3		ALS/Title III	85	84	0		84	1
YFF	1.1.6.3.4		ALS/Installation	142	19			19	123
YGA	1.1.7.1		WVG/Physics Design Phase	24	1			1	23
YGB	1.1.7.2		WVG/Title I & II Design Phase	446	533			533	(87)
YGC	1.1.7.3.1		WVG/Title III	257	110			110	147
YGD	1.1.7.3.2		WVG/Construction	981	1,201	3		1,203	(222)
	1.1.7.3.3		WVG/Installation	826	51	101	20	172	653
YHA	1.1.8.1		INST/Physics Design Phase	20	50			50	(30)
YHB	1.1.8.2		INST/Title I & II Design Phase	207	150			150	57
YHC	1.1.8.3.1		INST/Title III	848	255			255	592
YHD	1.1.8.3.2		INST/Controls, Cables & Safety Systems Construction	349	247	10		256	93
YHE	1.1.8.3.3		INST/Controls, Cables & Safety Systems Installation	1,050	938	58		997	54
YHF	1.1.8.3.4		INST/Miscellaneous Installation Activities	145	162	8		170	(25)
	1.1.8.3.5		INST/Precommission Controls, Cables & Safety Systems	8	0			0	8
	1.1.8.4		INST/Moveable Shield Wall for the Target Hall	237	13			13	224
YJA	1.1.9		Hadronic Hose (Close-out)	62	63			63	(1)
YIA	1.2.1		Facility Const Physics Design Phase	70	70			70	(0)
YIB	1.2.2		Facility Const Title I Design Phase	1,438	1,437			1,437	1
YIC	1.2.3		Facility Const Title II Design Phase	2,975	2,974			2,974	1
YID	1.2.4.2		Facility Const Title III Services	6,174	6,739	5		6,744	(570)
YIE	1.2.4.3		Site Preparation & Utilities	1,098	1,094			1,094	4
YIF	1.2.4.4		Underground Work	34,788	35,492	19	90	35,601	(813)
YIG	1.2.4.5		Service Buildings & Outfitting	17,799	17,764	(0)		17,764	35
YII	1.2.4.7		FNL Procurements for Conventional Construction	482	421	1		422	60
YIL	1.2.4.8.1		Facility Const ESH&H	853	801			801	52
YIM	1.2.4.8.2		Facility Const FESS Non-Engineering	591	328			328	263
YIN	1.2.4.8.3		Facility Const UG Advisory Panel	1,205	1,226			1,226	(21)
YIO	1.2.4.8.4		Facility Const Miscellaneous	263	311	32		342	(79)
YIP	1.2.4.8.5		Facility Const Prebid Document Update	1,155	1,051			1,051	104
YKA	1.3.1		FY 98 Project Management	275	141			141	133
YKB	1.3.2		FY 99 Project Management	560	661			661	(102)
YKC	1.3.3		FY00 Project Management	575	663			663	(88)
YKD	1.3.4		FY01 Project Management	688	423			423	265

NuMI Project Obligations

$000's Omitted

Wk Pkg	WBS #	Inst Code	DESCRIPTION	Total Budget Mar-04	Amounts as of May 31, 2004 PTD Cost	PO Encumbrances	Requisition Encumbrances	PTD Obligations	Remaining Obligation Authority
YKE	1.3.5		FY02 Project Management	703	324			324	378
YKF	1.3.6		FY03 Project Management	541	421			421	120
	1.3.7		FY04 Project Management	108	371			371	(262)
	1.3.8		FY05 Project Management	130	0			0	130
YKZ	1.3.9		Unallocated Budget	817	0			0	817
YQF	2.1.1.1.1	FNL	EDI&A Far Detector Final Design	70	70			70	0
YQG	2.1.1.1.2	FNL	EDI&A Near Detector Final Design	41	41			41	0
YQA	2.1.1.1.99	FNL	EDI&A Steel Plane Fabrication	0	0			0	0
YQH	2.1.1.1.3.1	FNL	EDI&A Oversight	67	67			67	0
YQI	2.1.1.1.3.2	UMN	EDI&A Oversight	36	36	0		36	0
YQB	2.1.1.2	FNL	4 Plane Proto Far & Near	79	79			79	0
YQC	2.1.1.3	FNL	Module 1 Steel	1,740	1,740			1,740	0
YQD	2.1.1.4	FNL	Module 2 Steel	1,722	1,722			1,722	0
YQE	2.1.1.6	FNL	Near Steel	845	845			845	0
YQM	2.1.2.1	FNL	EDI&A Steel Handling Fixtures	424	424			424	0
YQN	2.1.2.2	FNL	Far Detector Fixtures	177	177			177	0
YQO	2.1.2.3	FNL	Near Detector Fixtures	192	192			192	0
YQS	2.1.3.1	FNL	EDI&A Near Detector Support Structures	1	1			1	0
	2.1.3.2	FNL	Purchase Near Detector Support Structures	0	0			0	0
	2.1.3.3	FNL	Purchase Near Bookend	0	0			0	0
YQY	2.1.4.1	FNL	EDI&A Magnet Coil	527	527			527	0
YQZ	2.1.4.2	FNL	Coil Materials - Far Detector	329	329			329	0
YRA	2.1.4.3	FNL	Coil Materials - Near Detector	76	76			76	0
YRB	2.1.4.4	FNL	Cooling System - Far Detector	5	5			5	0
YRI	2.1.4.5	FNL	Coil Fixtures - Near Detector	32	32			32	0
YRC	2.1.4.6.1	FNL	Instrumentation/Monitoring-Far Detector	142	142			142	0
YRH	2.1.4.6.2	UMN	Instrumentation/Monitoring-Far Detector	63	62	1		63	0
YRD	2.1.4.6.99	FNL	Instrumentation/Monitoring-Far Detector	0	0			0	0
YRE	2.1.4.7	FNL	Instrumentation/Monitoring-Near Detector	33	33			33	0
YRF	2.1.4.8	FNL	Manufacture Near Coil Parts	302	302			302	0
YRG	2.1.4.9	FNL	Far Coil Prototype	165	165			165	0
YRM	2.1.5.1	FNL	EDI&A Detector Plane Prototypes	35	35			35	0
YRN	2.1.5.2	FNL	Far 4 Plane Proto	197	197			197	0
YRO	2.1.5.3	FNL	Far 4 Plane Training School	10	10			10	0
YRP	2.1.5.4	FNL	Materials Handling Prototype	115	115			115	0
YRQ	2.1.5.5	FNL	Near 4 Plane Prototype	138	138			138	0

NuMI Project Obligations

$000's Omitted

Wk Pkg	WBS #	Inst Code	DESCRIPTION	Total Budget Mar-04	Amounts as of May 31, 2004 PTD Cost	PO Encumbrances	Requisition Encumbrances	PTD Obligations	Remaining Obligation Authority
	2.1.5.6	FNL	Near 4 Plane Training School	0	0			0	0
YRW	2.1.6.1	FNL	Steel Mgmt Travel	58	58			58	0
YSA	2.2.1.1.1	FNL	EDI&A Scintillator Strips	375	375			375	0
YSB	2.2.1.1.2	ANL	EDI&A Scintillator Strips	188	188			188	0
YSC	2.2.1.1.3	UMN	EDI&A Scintillator Strips	16	16			16	0
YSD	2.2.1.1.4	CALT	EDI&A Scintillator Strips	60	60			60	0
YSL	2.2.1.1.6	TUF	EDI&A Scintillator Strips	7	7			7	0
YSP	2.2.1.2.1	ANL	Scintillator Strip Extruding	0	0			0	0
YTB	2.2.1.2.3	FNL	Scintillator Strip Extruding	2,325	2,325			2,325	0
YSE	2.2.2.1.2	IU	EDI&A Fiber	91	91			91	0
YSF	2.2.2.1.3	UMN	EDI&A Fiber	32	32			32	0
YSG	2.2.2.1.5	FNL	EDI&A Fiber	99	99			99	0
YSH	2.2.2.1.6	CALT	EDI&A Fiber	86	86			86	0
YSQ	2.2.2.2.1	CALT	Fiber M&S	1,272	1,272			1,272	0
YUK	2.2.2.2.2	TAMU	Fiber M&S	123	123			123	0
YST	2.2.2.2.4	IU	Fiber M&S	2,157	2,157			2,157	0
YUN	2.2.2.2.5	JMU	Fiber M&S	103	103			103	0
YSJ	2.2.3.1.1	UMN	EDI&A Module Design & Prototyping	302	302			302	0
YSI	2.2.3.1.2	ANL	EDI&A Module Design & Prototyping	46	46			46	0
YSK	2.2.3.1.3	FNL	EDI&A Module Design & Prototyping	153	153			153	0
	2.2.3.1.4	IU	EDI&A Module Design & Prototyping	0	0			0	0
YSM	2.2.3.1.5	CALT	EDI&A Module Design & Prototyping	9	9			9	0
YSN	2.2.3.1.6	TUF	EDI&A Module Design & Prototyping	4	4			4	0
YUO	2.2.3.2	UMN	Scintillator Module Parts - Near Detector	54	54			54	0
YSW	2.2.3.3.1	FNL	Scintillator Module Parts - Far Detector	1,080	1,080			1,080	0
YTF	2.2.3.3.2	TUF	Scintillator Module Parts - Far Detector	74	74			74	0
YUS	2.2.3.4	FNL	Scintillator Module Parts	261	261			261	0
YSO	2.2.4.1.2	TXA	EDI&A Photodetector Systems	124	124			124	0
YSX	2.2.4.2.1	TXA	Photodetectors	1,355	1,355			1,355	0
YUL	2.2.4.2.3	ATH	Photodetectors	23	23			23	0
YSY	2.2.4.3.1	TXA	PMT Bases and Mounting for SM1	200	200			200	0
YUP	2.2.4.3.2	UCL	PMT Bases and Mounting for SM2	0	0			0	0
YSU	2.2.5.1.2	IU	EDI&A Mux Boxes & Connectors	89	89			89	0
YSV	2.2.5.1.4	FNL	EDI&A Mux Boxes & Connectors	46	46			46	0
YSZ	2.2.5.1.5	IU	QC LED Computer System	31	31			31	0
YSR	2.2.5.2.1	IU	Connectors	159	159			159	0

NuMI Project Obligations

$000's Omitted

Wk Pkg	WBS #	Inst Code	DESCRIPTION	Total Budget Mar-04	Amounts as of May 31, 2004 PTD Cost	PO Encumbrances	Requisition Encumbrances	PTD Obligations	Remaining Obligation Authority
YUM	2.2.5.2.3	FNL	Connectors	10	10			10	0
YWJ	2.2.5.2.4	FNL	Connectors - Rework	30	30			30	0
YSS	2.2.5.3.1	IU	Mux Boxes	447	447			447	0
YUQ	2.2.5.3.2	TUF	Mux Boxes	225	225			225	0
YUG	2.2.5.3.4	TXA	Mux Boxes	56	56			56	0
YTA	2.2.6.1.1	FNL	EDI&A Calibration Systems	0	0			0	0
	2.2.6.3.1	FNL	Light Injection System - Near Detector	0	0			0	0
YTK	2.2.7.1.1	ANL	EDI&A Ass'y & Test Equipment	243	243			243	0
YTJ	2.2.7.1.2	FNL	EDI&A Ass'y & Test Equipment	35	35			35	0
YTN	2.2.7.1.3	UMN	EDI&A Ass'y & Test Equipment	47	47			47	0
YTM	2.2.7.2.1.1	ANL	Prototype Factory Equip Purch/Fabr	255	255			255	0
YTO	2.2.7.2.1.2	UMN	Prototype Factory Equip Purch/Fabr	22	22			22	0
YTL	2.2.7.2.1.3	FNL	Prototype Factory Equip Purch/Fabr	152	152			152	0
YTP	2.2.7.2.2.1	ANL	Factory 1 Equip Purch/Fabr	217	217			217	0
YTI	2.2.7.2.2.2	CALT	Factory 1 Equip Purch/Fabr	103	103			103	0
YTQ	2.2.7.2.2.3	FNL	Factory 1 Equip Purch/Fabr	25	25			25	0
YTC	2.2.7.2.2.4	UMN	Factory 1 Equip Purch/Fabr	57	57			57	0
YTG	2.2.7.2.3.1	ANL	Factory 2 Equip Purch/Fabr	307	307			307	0
	2.2.7.2.3.2	FNL	Factory 2 Equip Purch/Fabr	0	0			0	0
YTD	2.2.7.2.3.3	UMN	Factory 2 Equip Purch/Fabr	165	165			165	0
YUT	2.2.7.2.4.1	ANL	Equip for Soudan Purch/Fabr	31	31			31	0
	2.2.7.2.4.2	FNL	Equip for Soudan Purch/Fabr	0	0			0	0
YUH	2.2.7.2.4.3	UMN	Equip for Soudan Purch/Fabr	0	0			0	0
	2.2.7.2.5.1	FNL	Near Detector Site Equip Purch/Fabr	0	0			0	0
YTE	2.2.7.2.6.1	ANL	Other Equipment	61	61			61	0
YUI	2.2.7.2.6.3	UMN	Other Equipment	0	0			0	0
YTT	2.2.8.1	ANL	EDI&A Factories	28	28			28	0
YTR	2.2.8.2	CALT	Factories Ass'y Line Outfitting 1	164	164			164	0
YTS	2.2.8.3	UMN	Factories Ass'y Line Outfitting 2	172	172			172	0
YTU	2.2.8.4.1	CALT	Module Production	1,243	1,243			1,243	0
YUU	2.2.8.4.2	UMN	Module Production	1,164	1,164			1,164	0
YUV	2.2.8.4.3	ANL	Near Detector Production	500	500			500	0
YTW	2.2.9.1.1	FNL	Scintillator Mgmt Salaries	3	3			3	0
YTV	2.2.9.1.2	ANL	Scintillator Mgmt Salaries	101	101			101	0
YTX	2.2.9.1.3	UMN	Scintillator Mgmt Salaries	60	60			60	0
YUJ	2.2.9.2.1	FNL	Scintillator Mgmt Travel	0	0			0	0

NuMI Project Obligations

$000's Omitted

Wk Pkg	WBS #	Inst Code	DESCRIPTION	Total Budget Mar-04	Amounts as of May 31, 2004 PTD Cost	PO Encumbrances	Requisition Encumbrances	PTD Obligations	Remaining Obligation Authority
YTH	2.2.9.2.2	ANL	Scintillator Mgmt Travel	27	27			27	0
YTZ	2.2.9.2.3	CALT	Scintillator Mgmt Travel	149	149			149	0
YTY	2.2.9.2.4	UMN	Scintillator Mgmt Travel (Paid by FNL)	39	39			39	0
YUA	2.3.1.1.1	ANL	EDI&A Near Detector Front End	897	897			897	0
YUB	2.3.1.1.2	FNL	EDI&A Near Detector Front End	568	568			568	0
YWF	2.3.1.1.3	IIT	EDI&A Near Detector Front End	96	96			96	0
YUW	2.3.1.2.1	ANL	Parts Order and Assembly NDFE	514	501	14		514	0
YUD	2.3.1.2.2	FNL	Parts Order and Assembly NDFE	2,159	2,157	2		2,159	0
YWG	2.3.1.3.1	ANL	Production Checkout NDFE	125	125			125	0
YWH	2.3.1.3.2	FNL	Production Checkout NDFE	157	152	4		157	0
YWI	2.3.1.4	ANL	Installation NDFE	0	0			0	0
YUC	2.3.2.1.2	HVD	EDIA Far Detector Front End	351	351			351	0
YUE	2.3.2.1.3	FNL	EDIA Far Detector Front End	121	121			121	0
YUX	2.3.2.2.2	HVD	Parts Order and Assembly FDFE	399	399			399	0
YUF	2.3.2.2.3	FNL	Parts Order and Assembly FDFE	296	296			296	0
YUY	2.3.2.3.1	HVD	Production Checkout FDFE	29	29			29	0
	2.3.2.3.2	FNL	Production Checkout FDFE	0	0			0	0
	2.3.2.4.1	ANL	Installation FDFE	0	0			0	0
YVM	2.3.5.1	UMN	EDIA Database	0	0			0	0
YVN	2.3.5.2	UMN	Database Purchase & Programming	10	10			10	0
YUZ	2.3.6.2.2	FNL	Clock Distribution System	228	228			228	0
YVT	2.3.6.4	IIT	Auxiliary Systems	24	24			24	0
YVV	2.3.7.1	ANL	Electronics Mgmt Travel	47	47			47	0
YVA	2.3.7.2	ANL	NDFE Electronics Level 3 Manager	171	171			171	0
YVX	2.3.8.2.1	FNL	Procurement and Assembly	44	44			44	0
YVY	2.3.8.2.2	UMN	Procurement and Assembly	424	344	80		424	0
YVZ	2.3.9.3	TAMU	HV System	4	4			4	0
YWD	2.3.9.4	FNL	HV System	73	73			73	0
	2.4.1.1	SDN	FDI Completed Design Tasks	0	0			0	0
YWB	2.4.1.1.2	FNL	EDI&A FDI Infrastucture	0	0			0	0
	2.4.1.2	FNL	FDI Soudan Completed Design Tasks	0	0			0	0
YVB	2.4.2.1	SDN	FDI Minecrew Management	300	300			300	0
YVK	2.4.2.2	FNL	FDI Minecrew Management	234	234	0		234	0
YVU	2.4.2.4	TAMU	FDI Minecrew Management	49	49			49	0
YVC	2.4.3	SDN	FDI MINOS Construction Oversight	115	115			115	0
YVD	2.4.4.1	SDN	FDI Soudan Lab Infrastructure Setup	451	451			451	0

NuMI Project Obligations

$000's Omitted

Wk Pkg	WBS #	Inst Code	DESCRIPTION	Total Budget Mar-04	Amounts as of May 31, 2004 PTD Cost	PO Encumbrances	Requisition Encumbrances	PTD Obligations	Remaining Obligation Authority
YWC	2.4.4.2	FNL	FDI Soudan Lab Infrastructure Setup	22	22			22	0
YVE	2.4.5	SDN	FDI Labor Costs	2,959	2,959			2,959	0
YVF	2.4.6	SDN	FDI DNR Costs	378	378			378	0
YVG	2.4.7.1	SDN	FDI Purchases & Setup	0	0			0	0
YVI	2.4.7.2	FNL	FDI Alignment & Survey	67	67			67	0
YXA	2.5.1.1	FNL	NDI Infrastrucure EDI&A	47	47			47	0
YVL	2.5.1.2.1	FNL	NDI Install Support Structure	0	0			0	0
YVO	2.5.1.2.2	FNL	NDI Install Racks	331	303	28		331	0
	2.5.1.2.3	FNL	NDI NHI Install LCW System	50	43	8		50	0
YVP	2.5.1.2.6	FNL	NDI Install Coil Power Supply	1	1			1	0
	2.5.1.2.7	PITT	NDI NHI Rack Component Fabrication	13	13			13	0
YWE	2.5.2.1.2	IIT	NDI Plane Assembly EDI&A	10	10			10	0
YVJ	2.5.2.2	FNL	NDI New Muon Assembly Area Setup	161	161			161	0
YVW	2.5.2.3	FNL	NDI Assembly of Detector Planes-One Shift	342	342			342	0
	2.5.3.1	FNL	NDI Detector Installation EDI&A	114	114			114	0
	2.5.3.2	FNL	NDI Hall Tech Area Setup	219	219			219	0
	2.5.3.3	FNL	NDI Spectrometer Plane Installation	264	198	66		264	0
	2.5.3.4	FNL	NDI Calorimeter Plane Installation	0	0			0	0
YVR	2.5.3.5	FNL	NDI Detector Electronics Installation	45	45			45	0
YVS	2.5.3.6	FNL	NDI Magnet Coil Installation	14	8	6		14	0
	2.5.4		NDI Facility Experimental Infrastructure	296	227	69		296	0
YWL	2.5.5	RBI	NDI SB&O Experimental Systems Outfitting	2,944	2,944			2,944	0
YYA	2.6.1	FNL	Project Management	1,541	1,541			1,541	0
YYB	2.6.2	ANL	Project Management	98	98			98	0
YZA	3.1.1	FNL	BD-NuMI CDR	487	487			487	0
YZB	3.1.2	FNL	BD-NuMI FESS CDR	346	346			346	0
YZC	3.1.3.1	FNL	BD-NuMI Beam (FNAL)	555	555			555	0
YZD	3.1.3.2	FNL	BD-NuMI Beam E&D (IHEP)	241	241			241	0
YZE	3.1.4	FNL	BD-NuMI Project Management	234	234			234	0
YZV	3.1.5	FNL	NuMI-Soudan Lab CDR	65	65			65	0
YZF	3.2.1	FNL	MINOS Scintillator R&D	988	988			988	0
YZG	3.2.2	FNL	MINOS Steel R&D	644	644			644	0
YZH	3.2.3	FNL	RD-Neutrino Oscillation R&D	136	136			136	0
	3.3	SDN-CONST	MINOS Cavern	10,769	0	10,769		10,769	0
YZU	3.4.1	SDN-OPER	NuMI-Mine Crew Support/Soudan Gen'l Operations	1,531	1,531			1,531	0
YZX	3.4.2	SDN-OPER	NuMI-Breitung Township Building Rental	75	75			75	0

NuMI Project Obligations

$000's Omitted

Wk Pkg	WBS #	Inst Code	DESCRIPTION	Total Budget Mar-04	Amounts as of May 31, 2004 PTD Cost	PO Encumbrances	Requisition Encumbrances	PTD Obligations	Remaining Obligation Authority
YZW	3.4.3	SDN-OPER	NuMI-E Peterson Salary	71	71			71	0
			Totals	**160,642**	**146,844**	**12,009**	**254**	**159,108**	**1,534**