



Department of Energy  
Office of Science  
Washington, DC 20585

JAN 22 2015

MEMORANDUM FOR           STEPHANIE SHORT  
ASSOCIATE DEPUTY DIRECTOR  
OF THE OFFICE OF SCIENCE  
FOR FIELD OPERATIONS

FROM:                         STEPHEN W. MEADOR *Stephen W Meador*  
DIRECTOR  
OFFICE OF PROJECT ASSESSMENT

SUBJECT:                    Final Reports on the DOE/SC Review of the UUP and MDL  
Projects, December 2014

Attached for your consideration and use are the final reports on the Department of Energy/Office of Science reviews of the Utilities Upgrade Project (UUP) project located at Fermi National Accelerator Laboratory and the Materials Design Laboratory (MDL) project located at Argonne National Laboratory. The UUP and MDL reviews were conducted on December 9-11, 2014, at the Fermi National Accelerator Laboratory in Batavia, Illinois.

If you have any questions or would like to discuss the report further, please contact me.

Attachment

cc:

R. Won, SC-28  
C. McLaughlin, SC-33  
C. Ackerman, SC-33  
G. Brown, SC-33  
D. Michlewicz, SC-33  
S. Neus, DOE/FSO  
G. Paliulionis, DOE/ASO



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U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science

Office of Project Assessment  
Review Committee Report on the

# **Utilities Upgrade Project (UUP)**

**at Fermi National Accelerator Laboratory**

**December 2014**

# EXECUTIVE SUMMARY

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A Department of Energy/Office of Science (DOE/SC) review of the Utilities Upgrade Project (UUP) located at Fermi National Accelerator Laboratory (FNAL) was conducted on December 9-10, 2014 at FNAL. The review was conducted by the Office of Project Assessment (OPA), and chaired by Raymond Won, OPA, at the request of Stephanie Short, Deputy Associate Director, Office of Safety, Security and Infrastructure. The purpose of the review was to assess aspects of the project to determine readiness to achieve Critical Decision (CD) 2/3a, Approve Performance Baseline and Pre-Procure Master Substation Control Building.

The Committee found that the project had made good progress towards CD-2/3a. Prerequisite documentation for CD-2/3a is prepared and generally of good quality; however, additional work is needed to improve project management before the CD is approved.

## *Technical*

The performance baseline and preliminary designs are prepared for CD-2, and final design and specifications are prepared for CD-3a. Threshold Key Performance Parameters (KPPs) include: 1) replace Master Substation Control Building; and 2) install new Industrial Cooling Water (ICW) main distribution pipeline network (“backbone”) from Casey's Pond to the Main Injector ICW system. The Objective KPP include: 1) replace additional old components of the high-voltage electrical distribution system; and 2) upgrade ICW system components to protect operations from flood, drought, and old age. Document quality is good; however, two recommendations are provided to avoid unnecessary work and improve design and testing for commissioning.

## *Environment, Safety and Health (ES&H)*

ES&H documents are prepared for CD-2/3a. A National Environmental Protection Act (NEPA) determination was made and a Categorical Exclusion was issued. A Hazard Analysis Report (HAR) was issued. A National Pollutant Discharge Elimination System (NPDES) permit is required before construction begins. A Storm Water Pollution Prevention Plan (SWPP) will be prepared and submitted to the Illinois Environmental Protection Agency (IEPA) for the NPDES permit application needed prior to CD-3b.

## *Cost and Schedule*

Prerequisite documentation is prepared for CD-2/3a; however, additional work is needed to improve consistency, project interface requirements, and performance reporting thresholds. The proposed baseline includes a Total Estimated Cost (TEC) of \$34,900K and a Total Project Cost (TPC) of \$35,645K, and both are within the cost range established at CD-1. Subcontract construction is budgeted at \$20,117K. A cost contingency of \$5,570K is risk-based and appears adequate to cover risks. Architect/Engineer (A/E) and independent estimates are documented and reconciled. Add-alternates will be estimated as part of CD-3b. The project schedule at WBS Level 3 identifies 18-months for construction and 18-months of schedule contingency to CD-4, and both seem reasonable.

## *Management*

The project appeared to be properly organized, adequately staffed, and performing well. The project manager and Control Account Managers (CAMs) are experienced and have Professional Engineer and Project Management Professional (PMP) certifications. The Integrated Project Team (IPT) plans to use design-bid-build as the project delivery method. Firm fixed-price contract awards will be competitively selected on best value. Bids for CD-3a scope are in-hand and within budget. Two issues should be resolved prior to CD-2/3a. The Acquisition Strategy contains an outdated scope description and project milestones. An acquisition plan is not prepared.

Overall, the Committee provided a total of ten specific recommendations to make the documents consistent and reduce risks. Responses should be possible without impacting the planned schedule.

# CONTENTS

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Executive Summary .....	i
1. Introduction .....	1
2. Technical.....	2
3. Environment, Safety and Health.....	4
4. Cost and Schedule .....	7
5. Project Management .....	10

## Appendices

- A. Charge Memorandum
- B. Review Participants
- C. Review Agenda
- D. Cost Table
- E. Schedule Chart
- F. Management Chart

# 1. INTRODUCTION

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The Utilities Upgrade Project (UUP) at Fermi National Accelerator Laboratory (FNAL) is a Department of Energy (DOE) line item project that will replace portions of the high voltage (HV) electrical and industrial cooling water (ICW) systems at FNAL. The objective of the project is to provide a dependable utility infrastructure from which science can be accomplished.

The UUP project obtained approval of Critical Decision (CD) 0, Approve Mission Need, on September 18, 2009, and CD-1, Approve Alternative Selection and Cost Range, on November 15, 2010. In a September 23, 2014, memorandum, Ms. Stephanie Short, Associate Deputy Director for Field Operations, requested that the Office of Project Assessment (OPA) contact an Independent Project Review (IPR) to assess UUP's readiness for CD-2, Approve Performance Baseline, and CD-3a, Approve Start of Construction, Phase A.

The scope of this project includes design and construction to replace the HV Master Substation Control Building and to install a new ICW backbone piping. Additional upgrades to these systems (e.g., replacing components at or near end of service life, upgrading the distribution networks with secondary distribution, providing additional valves, pumps, or switchgear) may be executed if the project experiences favorable cost and schedule performance.

The purpose of this review was to assess all aspects of the project—technical, cost, schedule, management, and Environment, Safety and Health (ES&H)—in preparation for the combined CD-2/3a.

## **2. TECHNICAL**

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### **2.1 Findings**

Threshold and objective scope preliminary designs for both the (HV) upgrades and the Industrial Cooling Water (ICW) upgrades have been completed and are at about the level expected for this stage of the project. The master substation control building design has been issued for long-lead procurement proposals. Price proposals from four vendors have been received and are under evaluation.

Rempe-Sharpe & Associates was contracted by FNAL to perform a design review on the ICW preliminary design on November 7, 2014. Burns & McDonnell was contracted by FNAL to perform a design review on the technical documents related to the final procurement package for the master substation control building and the preliminary design of the substation site improvements, which was also completed on November 7, 2014.

Currently the existing master substation control building's main electrical loads have been transferred over to the Kautz Road substation for load testing purposes, as it will be used to provide power along with the Village substation once the existing master substation is taken out of service. This test will end early in January 2015.

A Preliminary Design Report (PDR) has been completed and Revision 2 was signed on November 21, 2014. A Hazard Analysis Report (HAR) has been completed and Revision 2 was signed on November 21, 2014.

A final addendum is to be issued to the bidders later in December in preparation for a best and final offer for the master substation control building.

Marshalling cabinets will provide a line of demarcation between the master substation installed scope (CD-3a) and the balance of scope (CD-3b).

Sustainability and Energy Conservation considerations are addressed in the PDR and will be implemented to the extent practical for the scope of work.

A list of scope enhancements has been developed with associated costs.

### **2.2 Comments**

In the master substation control building technical specification, emergency lighting is not addressed. Arc flash study and coordination study requirements are not included in the design documents. The project team stated that this will be specified during final design and will be requirements of CD-3b authorized construction.

The technical specification for the control building front page states Revision A, while the back page states Revision B. No exterior cable tray is shown on the drawings but one is described in

the technical specification. In drawing E-28 Wireway and Cable Tray Layout the background needs to be updated to match E-23 Equipment Layout.

For the ICW upgrades, there is a disconnect between the baseline scope in the PDR and what was presented by the project team: dredging of Andy's Pond and Swan Lake is part of the baseline scope in the PDR, but was included with the Objective KPPs in the project's presentation.

The Objective KPPs should be evaluated for the potential impact of rework on baseline scope (Threshold KPPs), specifically the work at Andy's Pond and Swan Lake. An evaluation of inlet heights should be performed based on dredging Andy's Pond and Swan Lake. Piping should not have to be reworked between Threshold and Objective KPPs.

The project team should consider developing a plan to assess the impacts to the scope, costs, and risks of the project and disruptions to operations for all piping connections between new and existing ICW piping.

### **2.3 Recommendations**

1. Prioritize Objective KPPs (based on risk and impact) and then finalize the design only on that scope that the project expects to have contingency to fund. Complete this prioritization by CD-2/3a.
2. Contract with an independent commissioning agent for design/constructability reviews, validation of testing of equipment, and overall systems integration within 30 days of CD-2/3a.
3. Recommend CD-2/3a approval.

## **3. ENVIRONMENT, SAFETY and HEALTH**

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### **3.1 Findings**

FNAL presented substantial evidence of the incorporation of the DOE Order 413.3b CD-2/3a Environment, Safety, and Health (ES&H) requirements into the UUP. The ES&H requirements have been appropriately and sufficiently defined for the CD-2/3a stage. The ES&H aspects are being properly addressed. The Hazard Analysis Report (HAR) has been completed and the final National Environmental Policy Act (NEPA) determination has been issued. The necessary permits are in place to allow Phase A scope to commence. Three recommendations related to ES&H were identified. Also, several comments related to the next CD phase (CD-3b) were made.

### **3.2 Comments**

The project team, as described in the Project Management Plan (PMP) Section 3.3, includes adequate ES&H support. The project Basis of Estimate (BOE) includes two hours per week of ES&H support. The assigned ES&H Coordinator for the UUP project has over 30 years of construction safety experience and has been working in ES&H at Fermilab for over 12 years. Also supporting the project are the Facilities Engineering and Services Section (FESS) Environmental Manager, and representatives from Environment, Safety, Health, and Quality (ESH&Q) including the Construction Safety Officer, the Electrical Authority Having Jurisdiction (AHJ), the Fire Protection AHJ, and the Hazard Control Technology team. ESH&Q has been actively involved in the Master Substation (MSS) and ICW design reviews and has been actively assisting the project with the identification of permit requirements for MSS and ICW.

Fermilab has a well-established Integrated Safety Management (ISM) Plan, which is fully integrated into construction projects. FNAL established the necessary policies, processes, and contract requirements to effectively manage construction hazards. For example, Fermilab ES&H Manual (FESHM) Chapter 7010, “ES&H Program for Construction” describes work planning/hazard analysis requirements for subcontractors and identifies the roles and responsibilities of line management. Additionally, contract documents Exhibit A and Addendum A contain a comprehensive list of subcontractor ES&H requirements.

The NEPA determination has been completed and issued as Categorical Exclusion. The State of Illinois Historic Preservation Review has been completed. No other permits are required for CD-3a. The Preliminary Security Vulnerability Assessment Report (PSVAR) is complete. The project will not change the safeguards and security requirements at FNAL.

The HAR was last updated in November 2014 and has been approved by the DOE/Fermi Site Office (FSO). The anticipated demolition and construction hazards and controls are well defined and all hazards are mitigated to a “moderate” rating. Five moderate hazards and five minor hazards were identified. The moderate hazards include: demolition of the MSS; various hazards typical to construction; excavation; electrical work; and confined space in electrical vaults. The operational hazards affecting the MSS design are incorporated into the design, but also should be

added to the HAR (see Recommendation 3). The design of the new substation building and the electrical equipment will improve operational safety.

Prior to CD-3b, several additions to the HAR will be needed:

- Demolition hazards (Section 4.2.1 and Appendix A): Add structural collapse, noise, radiological, asbestos, fire, and spills.
- Construction hazards (Section 4.2.2 and Appendix A): Add noise, radiological (soil density gauge; activated soil), fire, asbestos, and spills.

Noteworthy hazards with site-specific procedures include asbestos containing materials (ACM) and radiologically activated soil. Asbestos is present in the MSS capacitor tree and is likely to be found in some of the other electrical equipment. FNAL will inspect for ACM after the MSS is shutdown, and will abate ACM under their established contract with an abatement company. Asbestos-containing transite pipe will be encountered during excavation for ICW tie-ins. Once exposed, the contractor will notify Fermilab to abate with their abatement contractor. Radiologically activated soil may be encountered during the ICW excavation. Fermilab will sample the soil in any area where contamination may be found and advise the contractor on the proper disposal location. If found, contamination levels are expected to be extremely low. No additional training beyond General Employee Radiological Training (GERT) will be required and the impact to the excavation and on-site transport plan will be negligible.

Prior to CD-3b, FNAL should ensure asbestos (transite pipe) and radiological hazard potential locations (soil where direct boring through berm) are described in the ICW specifications. Fermilab should also ensure that asbestos locations in the MSS (capacitor tree; switchgear; etc.) are described in the demolition specifications. Both specifications should explain the FNAL process for surveying with their own Industrial Hygiene (IH) and Radiation Protection (RP) staff, abating these items with their own abatement subcontractor, and the number of days this is likely to impact the construction subcontractor's schedule.

The MSS drawings include eyewashes at each end of the MSS near the battery racks. Federal OSHA and NFPA 70e requirements regarding eyewashes and showers are open to interpretation. The UUP ES&H Coordinator consulted on this issue with FESS ES&H (FESS is responsible for the operations and maintenance of the MSS) during the review. The response was to include an eyewash and shower (see Recommendation 1).

The HV (MSS construction and installation) specifications Addendum A states that the Subcontractor's Field Superintendent can serve as the Subcontractor's Safety Representative. FNAL is planning on this approach for the MSS demolition/site preparation and ICW phases. Given the construction hazards associated with these projects, management of risk may be negatively impacted without a dedicated Subcontractor Safety Representative for all three phases of the project (see Recommendation 2).

FNAL expects the ICW contractor to provide a competent person at each excavation location. Both 29 CFR 1926.32(f) and the current Exhibit A text are not explicit in this regard. Prior to

CD-3b, Exhibit A should be revised to specifically state that an excavation competent person shall be present at all active excavation locations.

Regarding scope additions under consideration, several of the additions have significant permitting requirements (e.g., Army Corps) that could take months to accomplish and could potentially impact the overall project schedule and the on-time achievement of CD-4.

### **3.3 Recommendations**

4. Revise MSS drawings and specifications to include an eyewash and shower instead of just an eyewash. (Required for CD-2/3a: MSS design)
5. Include a subcontractor safety representative in the ICW and MSS projects. It would be prudent to have a subcontractor safety representative for the entire project except perhaps low risk phases, if any, of the ICW and MSS projects. Explicit safety representative qualifications should be listed in the project specifications. (Required for CD-2/3a as the cost of the subcontractor safety representative would have to be added to the baseline cost estimate.)
6. Revise the HAR to address the operational hazards associated with the MSS that have already been incorporated into the design. (Required for CD-2/3a as these are incorporated into the MSS design and specifications.)

## 4. COST and SCHEDULE

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### 4.1 Findings

PROJECT STATUS as of November 30, 2014		
Project Type	Line Item	
CD-1	Planned: Nov 2010	Actual: 11/15/2010
CD-2/3A	Planned: May 2015	Actual:
CD-3B	Planned: Dec 2015	Actual:
CD-4	Planned: Sep 2018	Actual:
TPC Percent Complete	Planned: 9.1%	Actual: 7.2%
TPC Cost to Date	\$2,569,574	
TPC Committed to Date	\$3,017,402	
TPC	\$35,645,000	
TEC	\$34,900,000	
Contingency Cost (w/Mgmt Reserve)	\$5,570,000	
Contingency Schedule on CD-4	18 months	
CPI Cumulative	* NA	
SPI Cumulative	* NA	

The applicable objective for CD-2/3a is to obtain Acquisition Executive approval of the UUP performance baseline and establish readiness to initiate early procurement for the new Master Substation (MSS). A Total Project Cost (TPC) of \$35.6 million is proposed. An estimated breakdown of costs includes: a Total Estimated Cost (TEC) of \$34.9 million, contingency of \$5.6 million (19 percent), and Other Project Cost (OPC) of \$0.745 million. The project is scheduled for CD-3b in December 2015 and CD-4 in September 2018. This plan provides schedule contingency of 18 months on the CD-4 date.

The project cost baseline was supported by two reconciled cost estimates. The first estimate was performed by the A/E firm responsible for design. A second estimate was provided by an independent A/E firm. The two estimates were reconciled as means of validating the TPC and Performance Measurement Baseline (PMB). During the reconciliation process, the higher of the two estimates was assigned to the final estimate. The PMB for the substation procurement is supported by bids-in-hand. The bid values are consistent with the current plan.

The project team developed a Risk Registry with 28 itemized entries mapped to the project WBS elements. The highest identified risks were associated with high bids and labor rate changes. The project team completed a Monte Carlo analysis, which projected a need for 12.5 months of schedule contingency and cost contingency of \$2.0 million with an 80% confidence level.

The PMB presented includes budget and schedule to achieve the Threshold KPPs. Possible scope additions are identified totaling \$17 million dollars if contingency funds become available. Examples of these additional scope items include the replacement of aging oil switches, major breakers, and HV line feeders. The additional scope also includes additional pumping and storage capacity to the fire and process water system.

The project will be delivered using FNAL's certified Earned Value Management System (EVMS). The Control Account Managers (CAMs) are identified and have undergone EVMS specific training. A Primavera schedule was presented which included 162 activities, 1 Level 1 milestone, 6 Level 2 milestones, and 14 Level 3 milestones. Additional Level 3 milestones are expected to be added once the construction contract is let. The PMB entered in Cobra (the EVMS tool) appeared inconsistent with Primavera. The laboratory provided an updated schedule that will be integrated into Cobra before CD-2/3a approval.

An important milestone in the project plan is the cut-over of HV power from the current MSS to the Kautz Road substation. This will mark a critical stage in the project where the work on the new substation can begin. The project team has validated the alternate means of providing site power through a temporary reconfiguration test. FNAL expressed that they will provide any necessary support of off-project work required to maintain operations of overall utility systems.

## **4.2 Comments**

The PMB is supported by a reconciled estimate that was developed through a rigorous process. The associated schedule was developed with appropriate detail for this phase of the project. The schedule was logically developed and has limited constraints and lags. The PMB is developed sufficiently to track and manage the project.

The Risk Registry and general risk analysis appears optimistic; however, the schedule contingency to CD-4 and cost contingency the project is currently holding both appear sufficient. The project should consider adding entries to the Risk Registry to increase the effectiveness of the tool. Potential example entries include: damage to electrical equipment during installation, feeder cable damage while sitting dormant during MSS construction, interface conflicts between the substation and general site work, and unforeseen conditions in the MSS basement.

Other notable comments include:

- Consider purchasing additional warranty on the electrical gear as the gear will sit installed and de-energized for a significant period of time,
- Aligning the milestone dates shown in the project schedule with those listed in the Project Execution Plan (PEP), and
- Define the threshold values for cost and schedule requiring variance analysis.

## **4.3 Recommendations**

7. The project should update and freeze the PMB allowing sufficient time to update the associated project documents. This will require updating the Primavera schedule, Cobra data, and the PEP. Prior to CD-2/3a, the Federal Project Director should carefully review this documentation/data to ensure that they are aligned.
8. Document the commitment of FNAL management to support additional infrastructure requirements in the event the project misses the planned August 2015 shutdown

window. It is clear that FNAL management fully understands the support required, but is essential to the success of the project that new requirements are not added.

9. The project team needs to define the threshold values for cost and schedule analysis reporting. This could be accomplished by updating the laboratories EVMS System Description or adding a section to the PEP.
10. The cost and schedule committee recommends the project proceed to CD-2/3a once the recommendations described above are incorporated into the project documents.

## **5. PROJECT MANAGEMENT**

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### **5.1 Findings and Comments**

The KPPs are defined and documented in the PEP. Independent design reviews have been performed on the HV electrical and ICW preliminary designs. Quotations for the Phase A scope have been received and are being evaluated. Phase A scope will shut-down the MSS for replacement. While it is out of service, the Kurtz Road and Village Substation will be used to serve the loads. The utility upgrades of the electrical and cooling water systems will require significant modifications to the current operating mode of the laboratory to ensure that research is not negatively affected. These required operational changes, due to the construction, are being coordinated with FNAL to minimize impacts to research.

The project team and IPT have been identified (see Appendix F). The project team includes an experienced project manager and CAMs that have significant experience and have both PE and PMP certifications. The project is being well managed and has been adequately staffed to support the successful completion of the project. The organization chart should be revised to clarify that the associate Project Managers are managing their respective design and construction scopes and that they report to the PM. The project team was well prepared for the review and had excellent presentations to the Committee.

The Acquisition Strategy (AS) was approved on July 23, 2010. The Acquisition Plan has not been developed. The AS contains an outdated scope description and project milestones that are not consistent with current baseline scope and milestone dates as described in the PEP. This document should describe the current baseline scope and milestones and include a high level description that would cover future scope additions such as “replacement of end of life utility components.” The PEP and other project documents should not include the use of the phrase “scope enhancements”. It may be beneficial to request the qualifications of significant lower tier subcontractors to be included in General Contractor’s offer and evaluated as part of the best value selection. Pre-briefing to the DOE/FSO prior to submission of request for proposals (RFPs) and award packages for approval may facilitate the approval process. Sufficient planning is necessary to develop the solicitation package, obtain appropriate internal reviews, and DOE/FSO approval prior to the March 25, 2015 date for issue of the RFPs.

### **5.2 Recommendations**

11. Revise the AS prior to CD-2/3a to update the changes in baseline scope and milestones since its approval in July 2010.
12. Develop an Acquisition Plan by January 31, 2015 in order to meet the March 25, 2015 date to issue the solicitations. Time frames should be established to include all phases of the procurement process, and include time for finishing specifications and drawings, submission of technical and financial documents to Procurement, development of the solicitation package, internal procurement/business reviews and DOE/FSO approval, receipt of offers, and evaluation/award requirements.

# Appendix A Charge Memo

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**Department of Energy**  
Washington, DC 20585

SEP 23 2014

MEMORANDUM FOR STEPHEN W. MEADOR  
DIRECTOR  
OFFICE OF PROJECT ASSESSMENT

FROM: STEPHANIE A. SHORT   
ASSOCIATE DEPUTY DIRECTOR FOR FIELD  
OPERATIONS

SUBJECT: Independent Project Review (IPR) of the Utilities Upgrade  
Project (UUP) at Fermi National Accelerator Laboratory  
(FNAL)

I request that you organize an IPR of the UUP project at FNAL on December 9-10, 2014. The purpose of this IPR is to concurrently review aspects of the project to assess overall readiness for Critical Decision (CD)-2, Approve Performance Baseline, and CD-3A, Approve Start of Construction, Phase A.

The UUP project obtained approval of CD-0 on September 18, 2009, and CD-1 on November 15, 2010. To expedite the start and completion of this project, the CDs for the UUP project are tailored to allow procurement and construction to proceed in two phases.

This review will support CD-2 and CD-3A. In carrying out its charge, the review committee should consider the following questions:

1. Are all Key Performance Parameters (KPPs) sufficiently defined and documented to establish the project performance baseline? Are preliminary designs for all project scope (i.e., for CD-2), final design for Phase A scope (i.e., for CD-3A), and the respective design review reports complete? Similarly, is the Phase A scope towards achieving the KPPs sufficiently defined and documented?
2. Are the project cost and scope consistent with the draft Project Execution Plan and preliminary performance baseline? Has the schedule been appropriately updated? Is adequate cost, schedule and scope contingency identified to mitigate risk prior to and after CD-3A? Is an Earned Value Management System employed and ready to begin monthly PARS-II reporting in a timely manner?
3. Are the solicitation documents accurate and sufficiently mature to support the procurement and/or construction of the Phase A scope under CD-3A? Are the Acquisition Strategy and Acquisition Plan updated and approved? Are cost estimates reconciled and bids or quotes in-hand?

4. Have Environmental, Safety and Health aspects of the project been adequately addressed? Have the Hazard Analysis Report and final National Environmental Policy Act determination been issued? Are the necessary permits in place to allow the Phase A scope to commence?
5. Are there any interdependencies with other projects or significant research operations? If so, have they been identified and are there plans in place to mitigate risk for the Phase A scope?
6. Is the project being managed (i.e., properly organized and adequately staffed) to support the project to successful completion? Has the Integrated Project Team responded appropriately to recommendations from prior reviews?

David Michlewicz will serve as the Office of Operations Program Management point of contact for this review. If you have any questions, please call David at (301) 903-8432. I would appreciate receiving your office's report within 60 days of the conclusion of the review.

cc:

R. Won, SC-28  
C. McLaughlin, SC-33  
G. Brown, SC-33  
D. Michlewicz, SC-33  
S. Neus, FSO  
R. Alber, FNAL  
K. Collins, FNAL

## Appendix B Review Committee

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Department of Energy/Office of Science Review of the  
Utilities Upgrade Project (UPP)  
December 9-10, 2014

### REVIEW COMMITTEE PARTICIPANTS

#### Department of Energy

Ray Won, DOE/SC, Chair

#### Review Committee

##### Subcommittee 1: Technical

\*Jeff Pittman, PNNL  
Javier Sevilla, SLAC  
Michele Solaroli, TJNAF

##### Subcommittee 2: ES&H

\*Norm Picker, SLAC  
John Aloï, BNL

##### Subcommittee 3: Cost and Schedule

\*Stan Tuholski, LBNL  
Julia Chaffin, SLAC  
Stephen Langish, PPPL

##### Subcommittee 4: Management

\*Jack Stellern, ORNL  
Teresa Danforth, TJNAF

\*Lead

#### Observers

Stephen Meador, DOE/SC  
David Michlewicz, DOE/SC  
Gary Brown, DOE/SC  
Pete Bako, DOE/APM  
Steve Neus, DOE/FSO  
Tiffany Tran, SLAC

# Appendix C Review Agenda

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## Department of Energy/Office of Science CD-2/3a Review of the Utilities Upgrade Project (UUP) at FNAL December 9-10, 2014

### AGENDA

#### **Tuesday, December 9, 2014—Fermilab Comitium (WH2SE)**

8:00 am	DOE Executive Session .....	R. Won/G. Brown/D. Michlewicz
8:30 am	Fermilab Welcome .....	T. Meyer
8:40 am	Project Welcome .....	K. Collins
	<ul style="list-style-type: none"><li>• Mission Need</li><li>• Key Operational Issues</li><li>• Operational Coordination</li></ul>	
9:00 am	WBS 1 Project Management.....	R. Alber
	<ul style="list-style-type: none"><li>• Scope, Cost &amp; Contingency</li><li>• Acquisition Strategy</li><li>• Risk and Contingency</li><li>• EVMS</li></ul>	
9:45 am	Environment, Safety and Health (ES&H).....	J. Cassidy
10:00 am	Break	
10:15 am	Site Tour	
11:30 am	Lunch – 2 <sup>nd</sup> Floor Crossover	
12:20 pm	Photo for Reviewers Only - Atrium	
12:30 pm	WBS 2 High Voltage.....	R. Wielgos
1:30 pm	WBS 3 Industrial Cooling Water.....	C. Federowicz
2:30 pm	Break	
2:45 pm	Breakout Sessions	
	<ul style="list-style-type: none"><li>• Management—Comitium (WH2SE)</li><li>• Cost and Schedule—Snake Pit (WH2NE)</li><li>• ES&amp;H—Black Hole (WH2NW)</li><li>• High Voltage—Theory (WH3NW)</li><li>• Industrial Cooling Water—ConFESSional (WH5E)</li></ul>	
5:00 pm	DOE Executive Session – Comitium (WH2SE)	
6:00 pm	Adjourn	

#### **Wednesday, December 10, 2014 – Comitium (WH2SE)**

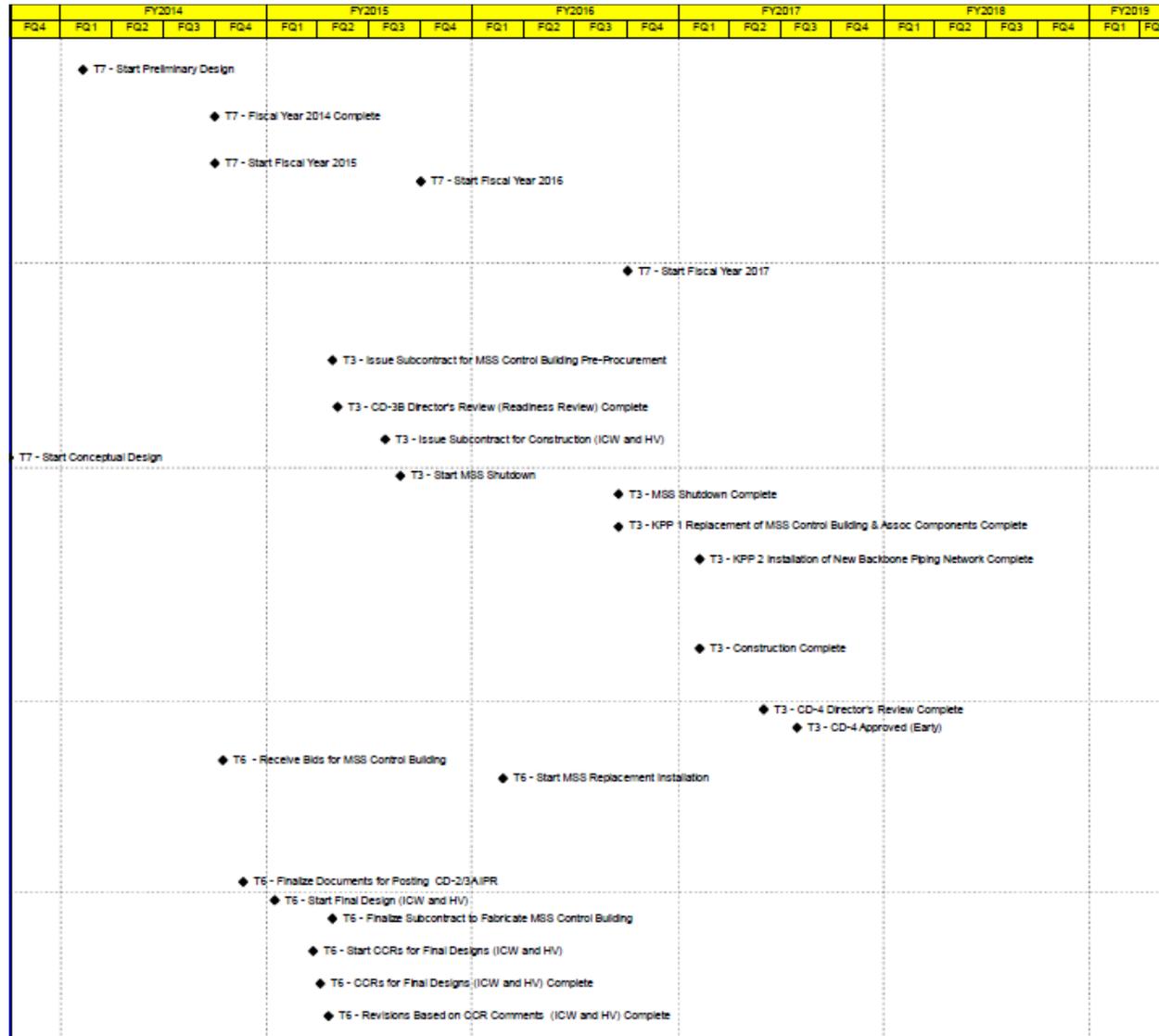
8:00 am	Report Writing
9:00 am	Closeout Dry Run #1/Coordination with Laboratory
10:15 am	Break
10:30 am	Closeout Dry Run #2
11:30 am	Closeout Presentation
12:00 pm	Lunch/Adjourn

## Appendix D UUP Funding Profile

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<b>Fiscal Year</b>	<b>FY 10</b>	<b>FY 11</b>	<b>FY 12</b>	<b>FY 13</b>	<b>FY 14</b>	<b>Total</b>
Other Project Costs	\$387	\$245	\$11	\$27	\$75	<b>\$745</b>
TEC PED					\$4,450	<b>\$4,450</b>
TEC Construction					\$30,450	<b>\$30,455</b>
<b>Total Project Cost (\$K)</b>	<b>\$387</b>	<b>\$245</b>	<b>\$11</b>	<b>\$27</b>	<b>\$34,975</b>	<b>\$35,645</b>

# Appendix E UUP Schedule Chart



# Appendix F UUP Management Chart

## Utilities Upgrade Project Organization

