



Final Report

Director's Review of Project Procurement Support

August 8-9, 2012

Issued August 15, 2012

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Executive Summary:

Fermilab procurement operations are operating at adequate levels, but are challenged to effectively cope with any significant workload increases envisioned under Mu2e and LBNE projects. Funding and staffing constraints are creating situations where Fermilab procurement leadership are prioritizing decisions that focus on immediate procurement activity at the expense of sound long term management of procurement programs. Fermilab procurement cost to place a dollar and percentage of procurement employees to lab population are on the low range of peers in the DOE complex while the percentage of the Lab budget going through Fermilab procurement is in the high range. While the 2012 DOE PERT review revealed no significant system weaknesses, fundamental issues on training, cost/price analysis, and contract administration require attention.

Procurement organization structure enhancements, paradigm shifts in dealing with project requirements versus institutional workload, and additional qualified staff are required to inspire confidence from DOE that Fermilab can effectively support Mu2e and LBNE projects. Cost type contracts for these projects valued at 3-4 times greater than any contract awarded over the last 5 years at Fermilab will require skill sets currently not available at Fermilab procurement at sufficient levels. Procurement management will be required to focus more than they currently do on management activities to ensure the Fermilab procurement function works properly to support activities 3-5 years downstream.

Fermilab management approval and support of a procurement staffing plan to meet current and future project procurement needs is essential particularly in view of current laboratory funding challenges.

In conclusion, additional qualified staffing, procurement management paradigm shifts, and Fermilab senior management support is essential to effectively meet Mu2e and LBNE procurement requirements. The review committee does not feel the current procurement organization is capable of supporting these projects without this support.

1.0 Introduction

A Director's CD-1 Review of Procurement Project Support was held on August 8-9, 2012 at the Fermi National Accelerator Laboratory. This review is to gain appropriate confidence of the readiness of the FNAL to successfully plan and execute the projects procurements. The Procurement Department, the Mu2e Project and the LBNE Project were specifically assessed during this review, but the scope of the review is looking at how procurements are done for all current and future projects. The charge included a list of specific questions to be addressed as part of the review. The assessment of the Review Committee is documented in the body of this report.

This report is broken down into two basic sections after the Executive Summary. The first section is answering the charge questions. The assessment is generally organized by Findings, Comments and Recommendations. Findings are statements of fact that summarize noteworthy information presented during the review. The Comments are judgment statements about the facts presented during the review and are based on reviewers' experience and expertise. The comments are to be evaluated by the project team and actions taken as deemed appropriate. Recommendations are statements of actions that should be addressed by the project team.

The last section of the report is the Appendices that contain the reference materials for this review. The Charge for this review is shown in Appendix A. The review was conducted per the agenda shown in Appendix B. The Reviewers' assignments are noted in Appendix C, Reviewers Assignments for Breakout sessions are in Appendix D and their contact information is listed in Appendix E. Appendix F is a table that contains all the recommendations included in the body of this report.

2.0 Are there approved procurement strategies and procurement plans for Mu2e and LBNE? Are these adequate for the anticipated quantity and values of the proposed procurements on each project?

Yes, No, No

Findings:

- Mu2e Acquisition Strategy is approved; the Procurement Management Plan is in draft form.
- LBNE has a draft Acquisition Strategy but no Procurement Management Plan.
- The Mu2e Procurement Management Plan does not address the number of procurements, critical procurements; known foreign procurements or the value of the procurements. Tailored procurement strategies have not been developed.

Comments:

- Extensive market research has been conducted in regards to the three critical solenoid subcontracts; the information gained has been used in refining the technical requirements. The technology used in these devices is sufficiently advanced that minimal R&D will be required.
- Advance Procurement Plans should be developed further at appropriate stages of the project.

Recommendations:

1. Ensure the Procurement Management Plans address procurement strategies, quantities and values for all the required procurements.
2. LBNE should have the Acquisition Strategy approved prior to CD 1 that considers Far site procurement strategies.

3.0 Have Advance Procurement Plans been identified and/or prepared as appropriate for each project? Do these plans support the projects' schedules and are appropriate procurement milestones included in the schedules?

No

Findings:

- No Advance Procurement Plans have been developed.
- Both projects desire CD3a procurement activity.
- Several procurements are desired to be accomplished in next 6-9 months.

Comments:

- An Advance Procurement Plan policy should be developed and implemented for all procurements.
- Standard procurement durations should be developed for all projects, including realistic detailed procurement milestones.
- Once developed the specific APPs should be loaded into the Project Master schedule.

Recommendation:

3. Develop a Fermilab advance procurement plan system with standards to be applied to all projects.

4.0 Have the project procurement staff resources been adequately estimated and included in the respective project cost estimates throughout the life of the project?

No, for either project.

Findings:

- Mu2e has 1.5 FTE at peak while LBNE had 2 FTE in its schedule.

Comments:

- The existing Fermilab procurement staff of 20 is struggling to meet current requirements, and requires an influx of resources to meet the projected project demands
- A comparison to FY2011 Center for Advanced Purchasing Studies (CAPS) benchmarking data shows the following relative cost/size of the Fermilab procurement staff compared to 22 other DOE facility contractors. While these comparisons may appear to be noteworthy at first glance, they reveal a lack of investment by Fermilab management in staffing a procurement operation to support project procurement workload envisioned by Mu2e and LBNE projects.
 - Cost to spend ratio: Fermilab 1.2%, DOE Laboratory complex mean 2.29%, complex median 1.90% Fermilab is lowest in complex
 - Cost of Procurement as % of prime contract funding: Fermilab .54%, complex mean .95%, complex median .90%, Fermilab is lowest
 - Ratio of Procurement employees to total lab employees: Fermilab 1.08%, complex mean 1.7%, complex median 1.43%.
- The current funding profile for LBNE indicates that a large volume of contracting activity will occur in the out years, in the magnitude of 1/3 of the existing annual procurement volume per year.
- Contract administration is not adequately considered in schedules.
- QA resources, which can significantly impact procurement support, do not appear to be adequately addressed in project schedules.
- Several cost type contracts expected to exceed DOE approval thresholds locally and at the operations level are envisioned and contract administration and adequate staffing are not addressed.

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- Benchmarking with other laboratories on projects of similar or like sizes has not been done.
- Committee members recommend that 8-10 personnel are required to support project workload alone.

Recommendations:

4. Fermilab procurement and project management should benchmark with other projects of similar size and complexity and develop a procurement project staffing plan.
5. Lab management may consider the possibility of direct funding project procurement resources from projects if overhead funding is unavailable.

5.0 Are there sufficient resources and experience within Fermilab procurement to effectively manage the types and values of the procurements anticipated on Mu2e and LBNE considering other workload?

No to LBNE and Mu2e

Findings:

- The DOE PERT review that stated no significant systems deficiencies exist, but had concerns on fundamental procurement issues of training, contract administration and cost price analysis. (See benchmarks with other existing labs stated above.)
- Existing resources have some relevant experiences and backgrounds for the anticipated workload.
- LBNE will have significant cost type contracts that will require DOE HQ approvals.
- Existing staff are prioritizing day to day workload to support Fermilab and are not positioned to cope with day to day project procurement workload.
- The largest contract written by Fermilab over the last 5 years was valued at \$18.1 million for a building on site.
- These projects are estimated to be in excess of \$ 1 billion together, with several awards in excess of \$50 million.
- Procurement energy multipliers such as e-commerce, automated contract writing systems and dedicated IT support do not exist at Fermilab. These systems, if implemented could reduce the number of additional procurement personnel needed to support projects.

Comments:

- Fermilab procurement has successfully operated at minimal staffing levels with management prioritizing daily activities in support of institutional procurement activity. Procurement supervisors themselves maintain a full procurement workload at the expense of accomplishing management activities such as training, file compliance reviews, and other procurement management activity.

- Mu2e procurements are less challenged than LBNE in terms of skill sets, but, are still competing with existing workload requirements.
- Procurement management has done an extremely exceptional job in passing previous DOE PERT reviews considering staffing levels and procurement tools available to staff.
- Procurement management should evaluate past paradigms for procurement support to ensure projects are effectively supported.
- Fermilab is undergoing significant funding challenges and procurement staffing requirements for these projects and senior laboratory management support and approval is essential for success.

Recommendations:

6. Fermilab procurement management should develop a comprehensive staffing plan that includes project workload, for Senior Fermilab management and approval.
7. Recommend Fermilab COO reach out to other Laboratory COO personnel to understand requirements for effective procurement support.
8. Fermilab should consider development of an oversight model to gauge project progress that includes the level of procurement support.

6.0 Appendices

- A) Charge
- B) Agenda
- C) Report Outline and Reviewer Writer Assignments
- D) Reviewer Assignments for Breakout Sessions
- E) Reviewers Contact Information
- F) Table of Recommendations

Appendix A
Charge
Director's Review of Project Procurement Support
August 8-9, 2012

The Committee is to conduct a Director's Review to assess FNAL's process for planning and execution of procurements on Mu2e, LBNE and other upcoming DOE projects. The main focus of this review is to gain appropriate confidence of the readiness of the FNAL to successfully plan and execute those procurements. The review is to be conducted by an external team consisting of experts with experience in DOE laboratory procurement organizations, DOE major construction project procurements and also in project management.

The need to conduct this assessment resulted from several recent external reviews on Fermilab projects, DOE has raised concerns with Fermilab leadership regarding the need for timely management of technical or vendor problems on procurements to avoid budget and/or schedule risk to the project baselines. With the number of major projects increasing at Fermilab (Mu2e and LBNE projects preparing for CD-1 approval and Project X on the horizon), DOE has further challenged Fermilab leadership to ensure the readiness of the Lab/project procurement teams, plans and resources to adequately support the Mu2e and LBNE projects.

This team is to work closely with Fermilab procurement leadership and the project managers of the Mu2e and LBNE projects to complete this assessment. In performance of a general assessment of the Lab's Project Procurement Support, the committee should address the following specific questions:

Charge Questions for the respective phase of each project:

1. Are there approved procurement strategies and procurement plans for Mu2e and LBNE? Are these adequate for the anticipated quantity and values of the proposed procurements on each project?
2. Have Advance Procurement Plans been identified and/or prepared as appropriate for each project? Do these plans support the projects' schedules and are appropriate procurement milestones included in the schedules?
3. Have the project procurement staff resources been adequately estimated and included in the respective project cost estimates throughout the life of the project?
4. Are there sufficient resources and experience within FNAL procurement to effectively manage the types and values of the procurements anticipated on Mu2e and LBNE considering other workload?

Finally, the committee should present findings, comments, recommendations, and answers to the above questions at a closeout meeting with Fermilab's Management and the Management of the Procurement Department, Mu2e and LBNE. A written report is to be provided within a week after the review to ensure that a plan for follow-on implementation of any recommendations is in place by the time of the planned DOE mini-review of Mu2e in mid-September.

Appendix B
Agenda
 Director's Review of Project Procurement Support
 August 8-9, 2012

WEDNESDAY, AUG 8, 2012

8:00 – 8:20 AM 20 **Executive Session - Comitium (WH2SE)** B. Miller/Review Team

PLENARY SESSIONS Comitium (WH2SE)

8:20 – 8:30 AM 10 **Welcome** J Anderson

8:30 – 9:45 AM 75 **FNAL Procurement Overview** J. Collins

9:45 – 10:00 AM 15 **BREAK**

10:00 – 11:00 AM 60 **Mu2e Project Overview** D. Glenzinski

11:00 – 12:00 PM 60 **LBNE Project Overview** E. McCluskey

12:00 – 1:00 PM 60 **LUNCH**

PARALLEL BREAKOUT SESSIONS

1:00 – 4:00 PM 180 (BREAK available at 2:45 PM outside Comitium)

Session 1: Mu2e Project Comitium (WH2SE) D. Glenzinski

Session 2: LBNE Project One North (WH1N) E. McCluskey

4:00 – 5:00 PM 60 **Executive Session - Comitium (WH2SE)** B. Miller/Review Team

THURSDAY, AUG 9, 2012

8:00 – 8:30 AM 30 **Executive Session - Comitium (WH2SE)** B. Miller/Review Team

BREAKOUT SESSION

8:30 – 11:00 AM 150 (BREAK available at 9:45 AM outside Comitium)

Session 3: Procurement Comitium (WH2SE) J. Collins

11:00 – 12:00 PM 60 **Follow-up/Validation (Procurement/Mu2e/LBNE need to be available for Committee)** B. Miller/Review Team
 Comitium (WH2SE)

12:00 – 1:00 PM 60 **LUNCH**

1:00 – 3:30 PM 150 **Executive Session (Draft Report, Closeout Slides) - Comitium (WH2SE)** B. Miller/Review Team

3:30 – 3:45 PM 15 **BREAK**

3:45 – 4:30 PM 45 **Closeout** All
 Comitium (WH2SE)

4:30 – 5:00 PM 30 **Executive Out brief** B. Miller/J. Anderson/
 Anderson Office (WH2W) G Bock

Appendix C

Report Outline and Reviewer Writing Assignments

Director's Review of Project Procurement Support

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The following charge questions have primary and alternate individuals assigned for writing assignments. Sub elements to each charge question are to be addressed, in addition to any that reviewers may have are listed as well.

Charge Questions for the respective phase of each project:

1. Are there approved procurement strategies and procurement plans for Mu2e and LBNE? Are these adequate for the anticipated quantity and values of the proposed procurements on each project?

(Schaufele/ Gudagni)

- Sub element 1.1: Are the strategies tailored to each procurement, or is one method consistently used? Does the strategy match the type of procurement (R & D, commercial buy, prototype, etc)
- Sub element 1.2: How many approved strategies exist to date and how many are estimated for the project? What are the three largest procurement plans for each project and what is threshold for having an approved strategy?
- Sub element 1.3: Has any market research been performed, or do the approved strategies include milestone dates for market research.
- Sub-element 1.4: Are vendor/contractor outreach efforts identified and planned for in the strategies?

2. Have Advance Procurement Plans been identified and/or prepared as appropriate for each project? Do these plans support the projects' schedules and are appropriate procurement milestones included in the schedules? (Gudagni/Schaufele)

- Sub element 2.1: Of the existing Advance Procurement Plans, are key dates included in sufficient detail in each project schedule (Design complete, Date to Procurement, Solicitation Date, Award Date, Completion Date)?
- Sub-element 2.2: Are adequate durations included in the schedule for procurement actions depending on the complexity, dollar value, and evaluation and negotiation strategies?
- Sub-element 2.3: How many Advance Procurement Plans exist, and how many are anticipated for each project.
- Sub-element 2.4: Are DOE review and approval thresholds included in project schedules based on existing DOE approval thresholds?

3. Have the project procurement staff resources been adequately estimated and included in the respective project cost estimates throughout the life of the project? (Ingraffia/Miller)

- Sub-element 3.1: Are procurement resources direct charged to project or come out of OH charges to the project. If direct charged, how are hours and rates estimated for procurements?
- Sub-element 3.2: Do schedules reflect procurement contract administration cost estimates through contract completion if direct charged?
- Sub-element 3.3: What are the total estimated procurement staff resources, according to schedules, estimated for the life of each project? Do they match results against Sub-element 2.3 in terms of adequacy?

4. Are there sufficient resources and experience within FNAL procurement to effectively manage the types and values of the procurements anticipated on Mu2e and LBNE considering other workload?
(Miller/Ingraffia/Mantsch/Schaufele/Gudagni)

- Sub-element 4.1: List by individual each type of procurement they are capable of buying considering their background and experience. Does each of these individuals have commensurate experience performing contract administration requirements?
- Sub-element 4.2: Are there any projected staff increases anticipated to meet project procurement requirements, if so what level of procurement expertise will be sought?
- Sub-element 4.3: What are the 10 largest dollar value contracts awarded over the last 5 years and who was the buyer/administrator and what source selection methods were employed?
- Sub-element 4.4: What are each projects expectations towards procurement support, dedicated staff matrixed to the project, or obtaining support as required?
- Sub-element 4.5: Who are the planned procurement leads for each project?
- Sub-element 4.6: Are there anticipated key workforce turnovers anticipated over the next 5 years and does succession planning exist?
- Sub-element 4.7: What is the average work load over the last 3 years broken out by major contracts and simplified purchasing in terms of numbers and dollars?
- Sub-element 4.8: What is the anticipated dollar value for each project and timing over the next 5 years?

Appendix D

Reviewer Assignments for Breakout Sessions

Director's Review of Project Procurement Support

August 8-9, 2012

Wednesday, August 08	Review Committee	Participants
Session 1: Mu2e Project – Comitium (WH2SE)	Tony Guadagni Paul Mantsch Sherrie Schaufele	Doug Glenzinski Mike Lamm Tom Page Tom Lackowski Ron Evans
Session 2: LBNE Project – One North (WH1N)	Joe Ingraffia Barry Miller	Jim Strait Elaine Mccluskey Tracy Lundin Bruce Baller Barry Norris Tom Powers
Thursday, August 09		
Session 3: Procurement – Comitium (WH2SE)	Tony Guadagni Joe Ingraffia Paul Mantsch Barry Miller Sherrie Schaufele	Joe Collins Bill Koncelik Bob Cibic Tom Powers Ron Evans

Appendix E
Reviewers' Contact Information
Director's Review of Project Procurement Support
August 8-9, 2012

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Appendix F
Table of Recommendations
 Director's Review of Project Procurement Support
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#	Recommendations	Assigned to	Status/Action	Date
2.0	Are there approved procurement strategies and procurement plans for Mu2e and LBNE? Are these adequate for the anticipated quantity and values of the proposed procurements on each project?			
1	Ensure the Procurement Management Plans address procurement strategies, quantities and values for all the required procurements.			
2	LBNE should have the Acquisition Strategy approved prior to CD 1 that considers Far site procurement strategies.			
3.0	Have Advance Procurement Plans been identified and/or prepared as appropriate for each project? Do these plans support the projects' schedules and are appropriate procurement milestones included in the schedules?			
3	Develop a Fermilab advance procurement plan system with standards to be applied to all projects.			
4.0	Have the project procurement staff resources been adequately estimated and included in the respective project cost estimates throughout the life of the project?			
4	Fermilab procurement and project management should benchmark with other projects of similar size and complexity and develop a procurement project staffing plan.			
5	Lab management may consider the possibility of direct funding project procurement resources from projects if overhead funding is unavailable.			

#	Recommendations	Assigned to	Status/Action	Date
5.0	Are there sufficient resources and experience within Fermilab procurement to effectively manage the types and values of the procurements anticipated on Mu2e and LBNE considering other workload?			
6	Fermilab procurement management should develop a comprehensive staffing plan that includes project workload, for Senior Fermilab management and approval.			
7	Recommend Fermilab COO reach out to other Laboratory COO personnel to understand requirements for effective procurement support.			
8	Fermilab should consider development of an oversight model to gauge project progress that includes the level of procurement support.			