



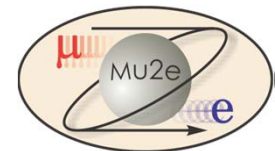
U.S. DEPARTMENT OF
ENERGY

Office of
Science

Mu2e Director's Review Conventional Facility RFP, Cost and Schedule

Tom Lackowski

7/9/2014



RFP

- The Mu2e Conventional Facilities, project # 6-10-2 was issued for RFP on 6/18/2014. Proposals are due 7/23/2014.
 - We are anticipating extending the pricing period by as much as two weeks due to amendments.
 - RFP issued stating conditions that construction funds are approved by DOE (CD-3).
 - Proposals are valid for 150 Calendar days.
- The Mu2e Conventional Facilities RFP was issued with the GPP, MC Beamline Enclosure, Project # 6-10-22, to be awarded to a single proposer.
 - The projects will be managed as two distant project under separate contracts.

RFP Restraints

- Issuing the RFP was contingent on DOE's consent to the Acquisition Plan and RFP for mu2e Conventional Facilities and the MC Beamline Enclosure, received on 6/17/2014.
- RFP also contingent on the Accelerator Div. ES&H approval of the Preliminary Radiation Assessment, received 6/16/2014.
- NEPA approved 6/12/2012.

Cost Estimate

- The cost estimate was developed by Middough Inc.
 - Estimates and schedules were prepared at the 60% and 90% design level.
 - Discipline engineers and estimator worked together developing the estimates.
 - Fermilab engineers reviewed the estimates and took ownership of scope and costs.
 - This was useful not only as a check of the estimate but also brought to light a number of material issues that were able to be resolved.
 - Estimate performed using RS Means and Middough's Cost data.
 - Middough's estimate was adjusted for additions and changes made after receipt of final drawings from the A&E.
 - \$11,966,300 (Middough) + \$344,127 (Fermi) = \$12,310,427

Management and Engineering Estimate

- The estimate for Management and engineering costs was developed using a percent of the estimated construction cost.
 - Subdivided by:
 - Preliminary / Final Design
 - Construction Phase
 - Project Close
 - Subdivided by:
 - In-house labor (hours)
 - Travel, Equipment and in-house consultants (M&S)
 - Consultants (M&S)
 - Subdivided by year
- Costs not included in % of construction such as survey (used to be provided by lab) and

Example showing Final Design

5/14/2014

Projected EDIA estimate based on the cost of contraction

Distribution to Mu2e

Construction Cost Basis for determining EDIA Estimate

\$12,310,427

Base Estimated Cost of Construction

Mu2e Detector Service Building & Hall	\$11,956,300
Addendum cost estimate	\$344,127

Used for Final Design Estimate

See EDIA Summary for Construction and Project Close phase

			Inception to Date Obligations			EDIA based on Estimated Cost of Construction				Projected Labor Hours and M&S by Year and Phase of work								
			Engineering costs and obligations from Crystal reports April 30, 2014	M&S	Labor Hours Spent	M&S	Labor Hours (based on \$96/Hr.)	Unspent M&S	Unspent Labor Hours	FY12	FY14	FY14 1st Q to April 30.	FY14 May 1 to CD-2/3	FY15	FY16	FY17	FY18	FY19
Preliminary/Final	13.5% of TECC=PI(EDIA)	\$1,661,908				\$1,201,959	4,791											
475.159	Engineering, Design and Inspection	27% of PI(EDIA)	\$448,715	\$363,800	\$115,410	2,438	\$140,000	3,216	\$24,592	778	Labor			778				
											M&S			\$ 24,592				
475.697	Management and Administration	13% of PI(EDIA)	\$216,048	\$120,007	\$48,113	749	\$64,814	1,575	\$16,702	826	Labor			826				
											M&S			\$ 16,702				
475.161	Consultants	60% of PI(EDIA)	\$997,145	\$967,352			\$997,145				M&S			\$ 29,792				

5/14/2014

Projected EDIA estimate based on the cost of contraction

Construction Cost Basis for determining EDIA

\$14,046,095

Base Estimated Cost of Construction

Mu2e Detector Service Building & Hall	\$12,310,427
B Procured Items	\$1,469,207
Delivery Ring Upgrades	\$266,460

EDIA Estimate for Construction and Project Closeout Phases

			Inception to Date Obligations			EDIA based on Base Cost				Remaining Labor Hours and M&S by Year and Phase of work								
			Engineering costs and obligations from Crystal reports Feb 28 2014	M&S	Labor Hours Spent	M&S	Labor Hours (based on \$96/Hr. Current Rate)	Unspent M&S	Unspent Labor Hours	May 1 to FY14	FY15	FY16	FY17	FY18	FY19			
Construction Phase	10.30% of TECC=CP(EDIA)	\$1,456,918				\$308,068	\$10,897					12	9					
	Engineering, Design and Insp	76% of CP(EDIA)	\$1,102,966	\$155,342	\$9,871		\$9,721		\$9,721	Labor		5,416	4,642					150
				\$0					\$0	M&S		\$97,200	\$74,000					\$0
	Survey QA FY15 Labor											80						
	Survey QA FY15 Equipment & Travel (LOE)											\$12,500						
	Survey QA FY16 Labor (LOE)													80				
	Survey QA FY16 Equipment & Travel (LOE)																	\$12,500
	Engineering, Design & Inspection FY15 Equipment & Travel (LOE)				Julie							\$2,100						
	Engineering, Design & Inspection LOE FY16 to Beneficial Occupancy Equipment & Travel												\$1,400					
	Management and Administrat	16% of CP(EDIA)	\$218,538	\$21,414	\$2,053		\$2,013		\$2,013	Labor		1,239	967					40
				\$0						M&S		\$13,600	\$9,800					\$0
	Consultants	9% of CP(EDIA)	\$135,415	\$135,415	\$0		\$0		\$0	M&S		\$121,900	\$13,515					\$0



Independent Cost Estimate (ICE)

- DOE Washington is managing the ICE for Conventional Construction.
 - The contract documents were sent to the person performing the estimate on April 11, 2014. The start of this work was delayed until after the P5 report and was scheduled to begin in the end of June.
 - The independent estimate has not been
 - The other subprojects will receive a review.

Memorandum

APRIL 11, 2014

To: Mr. Roderick Knight
22 Mountain View Terrace
New Milford, Ct 06776

From: T. Lackowski, FESS/Engineering

Subject: Contract Documents for Mu2e Conventional Facilities ICE Review
FESS/Engineering Project No. 14-1-46

This morning we are sending to you completed contract documents for the Mu2e Conventional Facilities. The printed documents are scheduled to be delivered on Monday or Tuesday via UPS. I will forward you the tracking number when I receive it from our Printer.

The documents you will be receiving are the Exhibit A, Exhibit B (Technical Specifications) and the Drawings. Within the Exhibit A is an Addendum A at the front that has the specifics for this project such as contract milestones, issues affecting the work, materials and services provided by Fermilab. The materials and services are covered in my estimate under a different WBS than the fixed price subcontract associated with these documents. The Exhibit A also describes that we are combining the Mu2e Conventional Facilities subcontract with a subcontract for the MC Beamline Enclosure. The MC Beamline Enclosure is separately funded and constructs a buried enclosure to house the beamline equipment that will transport beam to Mu2e and adjacent facilities. The MC Beamline Enclosure project is not part of scope of the Mu2e Line Item project.

Also included in the contract documents are the appropriate Terms and Conditions (FL's) that can be found at: <http://bss.fnal.gov/procurement/proctrmcon1.html>

Our DOE Site office will inform Robin Noyes of DOE-APM that we have sent you this material.

Cc: Pepin Carolan, DOE Site Office
Paul Philp, DOE Site Office
Ron Ray
Doug Glenzinski
Project File 6-10-2

Attachment



Schedule

- Middough generated two schedules
 - One based on a sophisticated subcontractor, multi-tasking and;
 - One based on a less sophisticated, one trade at a time, type subcontractor.
- Fermilab developed a detailed schedule which is in-between the two schedules above.
 - The Fermi generated schedule is used for the baseline planning package durations and has an 85% confidence.
 - The Fermi schedule was used to generate Subcontract milestones.
 - Can demonstrate P6 schedule

