ADVANCED ACQUISITION PLAN

For

Mu2e Conventional Facilities
and
MC Beamline Enclosure

March 20, 2014

Muon-to-electron conversion (Mu2e) Project

Contents

1. DEFINITIONS:

A. "Advanced Acquisition Plan: (AAP**)** or "Acquisition Planning," means the process by which the efforts of all personnel responsible for an acquisition are coordinated and integrated through a comprehensive plan for fulfilling the Fermilab's requirement in a timely manner and at a reasonable cost.

B. "Acquisition Streamlining," means any effort that results in more efficient and effective use of resources to design and develop, or produce quality systems. This includes ensuring that only necessary and cost-effective requirements are included, at the most appropriate time in the acquisition cycle, in solicitations and resulting contracts for the design, development, and production of new systems.

2. POLICY:

Fermilab will perform and establish an Advanced Acquisition Plan for this complex procurement in order to promote and provide for the following:

A. Full and open competition and to the maximum extent practicable, and with due regard to the nature of the supplies and services procured.

B. This planning shall integrate the efforts of all personnel responsible for significant aspects of the acquisition.

C. The purpose of this planning is to ensure that Fermilab meets its requirement in the most effective, economical and timely manner.

3. GENERAL PROCEDURES

A. Acquisition Planning should begin as soon as FRA's need is identified; preferably well in advance of when the contract award(s) need to be issued.

B. Requirements personnel should avoid issuing requirements on an urgent basis or with unrealistic delivery or performance schedules, since it generally restricts competition and increases prices.

4. LOCATION:

The Mu2e Conventional Facilities and MC Beamline Enclosure project are located on the Fermilab site, approximately three (3) miles east of the City of Batavia in Kane County, Illinois. The approximate locations of the two (2) construction sites for this procurement are at the intersection of Kautz Road and Giese Road, in Kane County.

5. GENERAL SCOPE OF WORK:

This procurement consists of two (2) projects that will result in a single RFP, however, be awarded in two (2) construction subcontracts, due to one being a congressional line item and one a GPP. The two projects are the Mu2e Conventional Facilities and MC Beamline Enclosure. The two projects will be managed, monitored and reported separately using the mechanisms established by the Mu2e Project for the Mu2e Conventional Facilities and the Project Plan for the MC Beamline Enclosure. The purpose of Mu2e is to search for Charged Lepton Flavor Violation. If observed, this would be definitive evidence of new physics that is not currently in the Standard Model.

The program will require the construction of the Mu2e Conventional Facilities. The Mu2e work scope is divided into site prep including mobilization clearing, grubbing, certain utilities, excavation and the building. The building includes concrete, structural steel, finishes, thermo and moisture protection, plumbing, mechanical, electrical fire protection and fire alarms, as required to provide a complete facility to construct, operate and maintain the Mu2e experimental apparatus. Also included is the MC Beamline Enclosure which constructs a buried, cast-in-place concrete box enclosure to house beamline magnets routed to both the Mu2e Facility and the MC-1 Building.

This procurement is in furtherance of Fermilab's Prime Contract No. DE-AC02-07CH11359 with the Department of Energy (DOE) for the operation of Fermi National Accelerator Laboratory (hereinafter called Fermilab).

Tom Lackowski is the Level 2 manager for WBS 3.0, Conventional Facilities within the Mu2e Project structure and the Project Manager for the GPP MC Beamline Enclosure. The detailed Title II engineering for both projects has been developed using the Architectural and Engineering firm of Middough Inc., who has an office in Oak Brook, Illinois.

6. LEVEL 2 MANAGER RESPONSIBILITIES (GPP PROJECT MANAGER):

The Level 2 Manager (Tom Lackowski) is responsible for this procurement, including but not limited to, the following functions:

A. Promoting and providing for full and open competition.

B. Shall form a team consisting of those who will be responsible for significant aspect of the procurement, such as technical (Kurt Krempetz and Marcus Larwill), Procurement (Sandra Efstathiou and Steve Gaugel) and Legal (Trevor Orsinger).

C. Ensuring that specific plans, drawings, work statements, (Exhibit A and Addendum A), technical specifications and other necessary documents are

sufficient for issuance of the RFP, award and successful completion of the procurement.

D. Participate in the review of offers with procurement.

E. Review and approve this Advanced Acquisition Plan (AAP) in concurrence with Ron Ray.

7. CONTENTS OF ADVANCED ACQUISITION PLAN (AAP):

A. ACQUISITION BACKGROUND AND OBJECTIVES:

(1) Statement of need:

This procurement is for two (2) civil construction subcontracts that consist of the following two (2) major elements of the Mu2e Project: "Mu2e Conventional Facilities" and "MC Beamline Enclosure". The Mu2e Conventional Facilities work will construct the Mu2e Detector Hall, an industrial-type structure with a built up roof and metal siding on a braced structural steel frame system, and a cast-in-place reinforced concrete structure under the majority of the building. The building and below grade areas are outfitted to provide the environment to construct, support and operate, the scientific equipment that comprise the experiment. The MC Beamline Enclosure work will construct buried cast-in-place concrete box shaped enclosures between the Delivery Ring, formally named the PBar Rings and the Mu2e facility with a spur routed to the MC-1 Building.

(2) Cost:

The construction cost estimate for the Mu2e Conventional Construction is $12,170,027.00. The estimated cost for the MC Beamline Enclosure is $6,780,000.00, with $2,450,000.00 available in FY14 funding and the remainder anticipated in FY15 funding.

Cost Estimates for both the Mu2e Conventional Facilities and the MC Beamline Enclosures have been developed for fixed price subcontracts. The contract documents have been used to generate the scope of the work to be estimated. The estimated construction costs are based on cost data taken from Means Cost Estimating Guides, historical data and recent construction history at Fermilab. Cost estimates are elaborated bottoms up estimates.

Cost estimates were developed in the conceptual stage using in-house FESS/Engineering staff. The final design estimates were initially developed by the A&E Middough for both projects. The estimates were reviewed by each discipline within FESS/Eng. and differences were discussed with the A&E. In some cases the estimate was changed and in some cases the scope or materials were changed in the contract documents, to accommodate the project's requirements and Fermilab standards. The estimates are owned by the Level 2 Manager for the Mu2e Conventional Facilities and the Project Manager for the Beamline GPP.

(3) Capability or Performance:

The CAM (Control Account Manager), along with procurement, develops Qualification (go/no-go) and Evaluation Criteria in order to ascertain overall capability in selecting the best subcontractor in meeting the technical requirements and at the best value. To determine the Best Value to Fermilab, both technical and cost/price considerations shall be considered as the overall basis for the selection of the successful Offeror for this procurement. The following factors will be considered:

a. Project Management (Capabilities and Experience)
    1. Corporate requirements for onsite Project management.
    2. Employed systems for managing work, including schedules, RFI's and Submittals.
b. Experience in similar type structures.
c. Quality and Safety Plans
d. Support for Small Business (Past performance on supporting small business & Small Business Subcontracting Plan)

Fermilab may also have the option to have on-site oral presentations at Fermilab as part of the Final Evaluation in order to assist in determining the Best Value to FRA.

(4) Delivery or Performance Requirements:

The Mu2e Conventional Facilities project includes the following contractual milestones:

Milestone 0 – 0 Calendar Days - Notice to Proceed (NTP) - This milestone marks the point where construction work may begin.

Milestone 1 – 80 Calendar Days after NTP - ICW, DWS and Gas utilities rerouted around excavation.

Milestone 2 – 98 Calendar Days after NTP – Building Excavation complete.

Milestone 3 – 165 Calendar Days after NTP – Base slab concrete complete.

Milestone 4 –200 Calendar Days after NTP – Lower walls complete.

Milestone 5 –258 Calendar Days after NTP – Structural concrete complete to grade / structure backfilled to grade.

Milestone 6 –305 Calendar Days after NTP – Structural Steel erected and detailed.

Milestone 7 – 385 Calendar Days after NTP – Building weather tight.

Milestone 8 – 444 Calendar Days after NTP – Electrical Power systems energized.

Milestone 9 -458 Calendar Days after NTP – 30 ton overhead cranes installed and tested.

Milestone 10 –479 Calendar Days after NTP – Substantially complete / Beneficial Occupancy Issued.

Milestone 11–501 Calendar Days after NTP – Project Complete / Final Acceptance Issued.

The MC Beamline Enclosure project includes the following contractual milestones:

Milestone 0 – 0 Calendar Days - NTP #1- This milestone marks the point where construction work may begin.

Milestone 1 – 37 Calendar Days - All critical shop drawings submitted.

Milestone 2 – 112 Calendar Days - Excavation substantially complete

Milestone 3– 220 Calendar Days - Enclosure concrete substantially complete including base slabs, walls and roof slabs.

Milestone 4 – 311 Calendar Days - Earthwork and berms complete, final g grading and seeding complete.

Milestone 5 – 344 Calendar Days - Substantially complete / Beneficial Occupancy Issued. Weather tight security wall erected in existing Delivery Ring, Concrete wall at Station 0-05, concrete wall at 0+0 removed.

Milestone 6- 372 Calendar Days - Final Acceptance of all work / Final Acceptance Issued. This milestone marks the completion of the project including punch list items, clean-up and acceptance of as-built drawings and submittals.

(5) Risks:

There are definitely safety concerns and proven "track record" needs to be established in this area.

Construction capabilities and background in this type of construction are also a risk.

The proximity of the two projects overlaps considerably in area, excavation, soil stockpiles and construction schedule. In order for the Laboratory to have a continuation of services, eliminate construction conflicts, and contractor responsibilities, these two (2) projects will be evaluated and awarded to one (1) contractor with two (2) separate Subcontracts. Combining the two projects so that they are constructed by a single subcontractor will allow for an efficient prosecution of the work, due to the similarity in the materials and trades involved and also provide the best value for the Laboratory.

B. PLAN OF ACTION:

(1) Sources:
There are two (2) ways that will be utilized to develop prospective sources for a "Bidders List." Fermilab personnel will recommend sources based on previous experience and familiarity. Secondly, when the RFP is issued it will be posted on FedBizOpps, with a geographic limit to the Chicago metro area, in order to maximize visibility and competition.

(2) Competition:
The goal of this procurement is to strive for full and open competition. As stated previously, Fermilab will utilize FedBizOps, and recommendations through Fermilab personnel.

(3) Source Selection Procedures:

Source selection will be conducted on a "Best Value" basis. Best Value employs a trade-off process that permits award to other than the lowest priced Offeror, or other than the highest technically rated Offeror. The following factors will be considered:

a. Project Management (Capabilities and Experience)
    1. Corporate requirements for onsite Project management.
    2. Employed systems for managing work, including schedules, RFI's and Submittals.
b. Experience in similar type structures.
c. Quality and Safety Plans
d. Support for Small Business (Past performance on supporting small business & Small Business Subcontracting Plan)

The evaluation team will agree on the final evaluation criteria prior to issuance of the RFP. Scoring will be performed based upon the criteria to create a score for each vendor, upon which the final recommendation will be based.

(4) Contracting Considerations:

i. The subcontract type will be Firm-Fixed Price (FFP) type.
ii. The funding is not currently available for this entire Project, however, anticipated to be available in next fiscal year. There is partial funding available for the Beamline this fiscal year.
iii. Clauses (e.g., safety, etc.) in the subcontract will flow down to the subcontractor's sub-subcontractors.
iv. Prior to award and due to the nature of this procurement, a Best and Final Offer (BAFO) may be issued to all Offerors.
v. Upon selection of an offeror, negotiation may be used on certain aspects of the procurement to definitize the procurement.

(5) Budgeting and Funding:

The Mu2e Conventional Facilities procurement will be funded after DOE's CD-2/3 review and approval. The MC Beamline Enclosure funding is limited in FY14, with the remainder of the funds to be authorized in FY15. The solicitation will incorporate a requirement for a payment schedule based on milestones. This will provide for a mechanism to monitor progress but also as a means to assess the funding liability of the subcontractor to Fermilab.

(6) Management Information Requirements:
The management system that will be used to monitor the subcontractor's progress, but is not limited to, weekly construction meetings, submission of reports, and inspection of work and review of the Milestone Payment Schedule.

(7) Quality, Assurance, Reliability and Warranties:
The Project will follow the Mu2e Quality Assurance Plan which conforms to and incorporates the Fermilab Integrated Quality Assurance Program. The subcontractor will be required to submit its own Quality Assurance Plan for the execution of this scope of work. Also, a Project Quality Control Plan (PQC) must be submitted no later than ten (10) days after receipt of the award of the subcontract.

The subcontractor shall perform specified or required tests to verify that quality control measures are adequate, and conform to the subcontract requirements. Results of all tests taken both pass and fail tests, shall be recorded on the Quality Control report for the date taken. Additionally, the following Completion Inspections will occur during the term of the subcontract: Beneficial Occupancy Inspection, Punch List Inspection and Final Acceptance Inspection.

(8) Logistics Considerations:

i. Warranties – Warranties from the subcontractor shall apply to the following equipment:
   - Self-adhering sheet waterproofing
   - Insulated-core Metal Wall Panels
   - Built-up Bituminous Roofing
   - Aluminum Entrances & Storefronts
   - Aluminum Framed Curtain Wall System
   - Luminous Canopy Ceilings
   - Mechanical Equipment
   - Electrical Equipment

ii. Quality control requirements: The subcontractor quality control requirements are explained in Addendum A.

(9) Government Furnished Property:

The following Government furnished property will be provided to the subcontractor: temporary power Equipment; steel core for abort; overhead bridge cranes; one pad mounted transformer, one switchboard, two switches and insulated triplexed aluminum cable.

(10) Government Furnished Information:

The applicable documents that will be furnished to the subcontractor are Exhibit A, Addendum A and all specifications and drawings cited in Addendum A. (Note: this documentation is not all inclusive of the required documentation for this procurement.)

(11) ES&H:

The proposed project(s) will be performed under the Fermilab Integrated Safety and Environmental Management system encompassing the Federal Occupational and Health Administration (OSHA) 29 Code of Federal Regulations 19226, Subpart C, to ensure protection of workers, the public, and the environment. This will be implemented into management and work process planning at all levels.

Fermilab ES&H Manual (FESHM) Chapter 7010 entitled ES&H Program for Construction references and incorporates the appropriate sections of 10 CFR 851 Worker Safety and Health Program and 29 CFR 1926 Safety and Health Regulations for Construction. This chapter specifics the roles and responsibilities of Fermi Research Alliance personnel and the expectations of their subcontractors. The flown down mechanism is the Exhibit A which is an appendix to the FESHM Chapter 7010. The Exhibit A Section 6, Environment Safety and Health, delineates the expectations of the subcontractor. The Exhibit A verifies this flown down through a submission, and acceptance by Fermilab, of the subcontractor's ES&H plan prior to commencement of any work. Exhibit A and Addendum A reinforces and is supplemental to the requirements in Section 31, Environment, Safety and Health (ES&H) of the Fermilab Construction Subcontract Terms and Conditions (FL-3). The Subcontractor will be responsible for complying with all relevant Environmental, Safety, and Health executive laws, regulations and permits including taking all necessary ES&H precautions in connection with the performance of the Subcontract in order to protect all persons and property.

The Subcontractor shall recognize the importance of integrating safety into the performance of their work to prevent damage, injury, or loss to individuals, the environment, and the Project, including of materials and

equipment incorporated into the Project. Subcontractor assumes responsibility for following all ES&H requirements and programs related to the performance of the Project.

The Subcontractor shall comply with the following ES&H requirements and documentation:

i. OSHA 1910 General Industry Regulations and 1926 “Safety and health regulations for construction”, and 10CFR851 Worker Safety and Health Program.

ii. NFPA-70E (2009) - Standard for Electrical Safety in the Workplace

iii. Environmental requirements 40CFR260 Hazardous Waste Management System, 40CFR261 Identification and Listing of Hazardous Waste, the Clean Air Act-40CFR50, 40CFR60, 40CFR61, and 40CFR63.

iv. Construction Subcontractor’s ES&H Plan for the construction.

v. Task specific hazard analysis documents.

vi. Accident Reporting Requirements: The Subcontractor will immediately report orally, and in writing within two (2) days, any ES&H related injury, loss, damage, or accident arising from the Work to the LBNE on-site representative. In addition, the Subcontractor and its Sub-subcontractors will immediately report to the Fermilab on-site representative all non-incidental spills, and all other significant impacts to the environment (soil, water, air) in performance of the Project. The Subcontractor will also immediately notify the Fermilab on-site representative of any failure to comply with state and federal environmental laws, rules, and regulations.

vii. The Subcontractor shall provide all basic Personal Protective Equipment (PPE) required for the Work (hard hats, safety toe boots, and safety glasses) unless otherwise stated in the Scope of Work. Unique PPE required for any work.

viii. The Subcontractor is responsible for screening all of its subcontractors with respect to safety and to adopt a safety selection process consistent with requirements defined herein. In addition, the Subcontractor is responsible for flowing down all ES&H requirements of the Subcontract to its subcontractors, including monitoring and enforcing compliance.

ix. Responsibility: the Subcontractor’s responsibility for ES&H under this Article is not intended in any way to relieve the Subcontractors and its Sub-subcontractors of their own contractual and legal obligations and responsibilities.

The Mu2e project has compiled the Mu2e Preliminary Shielding Assessment (beams doc 4611-v2), which incorporates the shielding assessment drawings, for review and approval per the requirements of the Fermilab Radiological Control Manual. Accelerator ES&H has stipulated, in accordance with the Fermilab Radiological Control Manual the training requirements associated with radiological concerns. These specific training requirements are stated in Addendum A, section 3.0, Items Affecting Work Planning. A more general reference is included in Exhibit A section 6.14 Radiation Protection.

General Quality Requirements are stated in Exhibit A section 5.13, Quality Requirements, with specific Project Quality Control Plan requirements stated in the Addendum A for the Mu2e Conventional Facilities and MC Beamline Enclosure projects.

(12) Contract Administration:

Ron Ray is the Project Manager, Tom Lackowski is the CAM and System Manager, Kurt Krempetz and Marcus Larwill are Project Engineers, Steve Gaugel is the Procurement liaison, and the writer (Sandra Efstathiou) of this AAP is providing the contract and procurement oversight for both the Mu2e Conventional Facilities and Beamline Enclosure and projects. The administrative functions on this acquisition are as follows:

i. Incorporation of revisions and changes into the subcontract through Supplemental Agreements, including revisions of applicable schedules and cost adjustments.
ii. Direction of liaison activities with the subcontractor for coordination of engineering technical requirements.
iii. Determination and coordination of delivery instructions with the subcontractor.
iv. Follow up with subcontractor for compliance with contractual requirements for progress reports.
v. Negotiation of subcontractor proposals (i.e., changes and claims) resulting from subcontractor change notices.
vi. Administering invoices in coordination with technical approval and processing for payment by Accounts Payable.
vii. Establish property control, including government furnished property.
viii. Review, evaluation and approval of milestone payments.
ix. Evaluation and review of progress reports, for adherence to the subcontract requirements.

x. Coordination of subcontractor – furnished technical data for technical review.
xi. Involvement in construction meetings with the subcontractor to review schedules, sots and problem areas.

(13) Other considerations:

The below considerations are relevant to the Mu2e Conventional Facilities and MC Beamline Enclosure procurements.

i. Davis Bacon Determination
ii. Occupational Safety and Health Act (OSHA)
iii. Small Business Subcontracting Plan
iv. Intellectual Property Clauses (i.e., data rights)

(14) Small Business:

Small businesses will be solicited for this procurement. Provisions for the requirement of a small business subcontracting plan will be included in the solicitation. If a large business receives the award for this project, their small business subcontracting plan will be reviewed and approved by the Fermilab Small Business Liaison Officer (SBLO).

(15) Milestones for the Acquisition Cycle:

1.1 Item	1.2 Estimated Duration	1.3 Estimated Start	1.4 Estimated Completion
Acquisition Plan DOE Review and Approval	4 weeks	May 2, 2014	June 2, 2014
Draft RFP DOE Review and Approval	4 weeks	May 2, 2014	June 2, 2014
RFP Solicitation	4 weeks	June 5, 2014	August 4, 2014
Response Evaluation	2 weeks	August 5, 2014	August 18, 2014
DOE CD-2/3 Approval	4 weeks	August 18, 2014	September 30, 2014
CFO Subcontract Review and Approval	1 week	October 1, 2014	October 8, 2014
DOE Subcontract Award Review and Approval	1 week	October 8, 2014	October 15, 2014
Subcontract Award and Release	1 week	October 20, 2014	October 20, 2014
Full funding for MC Beamline Issued	—	—	November 1, 2014

(16) Identification of participants in the review of the AAP:
The following individuals will review and comment on this AAP: Bob Cibic, Joe Collins, Tom Lackowski, and Ron Ray.

(17) Evaluation Process:

i. Unacceptable proposals – The CAM, along with procurement will determine whether or not each proposal satisfies the formal requirement so the solicitation and meets the Qualification Criteria. Any proposal not meeting the Qualification Criteria should be eliminated from further consideration.

ii. Perform evaluation – The CAM, along with procurement will examine each proposal, evaluating the technical and business/management proposals, which shall be evaluated independently of cost.

Upon completion of discussions, all outstanding questions/concerns about any of the proposals should have

been answered. A request for Best and Final Offers (BAFO) might be considered if needed.

The final evaluation is performed to arrive at findings and conclusions that will permit a selection.

Debriefings shall not be conducted without the participation of Procurement.

(18) Award and review of post award progress:
A subcontract will be submitted to Fermilab management/DOE for review and approval. Upon approval, the award (subcontract) will be issued to the successful subcontractor.

(19) Debriefing of unsuccessful offerors:
After the selection is announced, unsuccessful Offerors may submit written request for debriefings. Such requests should be received within two (2) weeks after the selection.

X _____

Sandra T. Efstathiou
Senior Procurement Administrator

cc: R. Ray
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File