Procedure Manual

Engineering Department

Facilities Engineering Services Section
April 2008
Revised December 15, 2011 (Triennial Review)
Revised April 15, 2015 (Triennial Review)

Fermilab
Fermi National Accelerator Laboratory
Office of Science / U.S. Department of Energy
Managed by Fermi Research Alliance, LLC

The primary objective at Fermilab is that operations be conducted in a safe, deliberate and controlled manner. The role of the FESS/E procedures is to provide the best knowledge available in order to accomplish the task.

This manual provides a compilation of the procedures that are intended to implement the management practices of the Facilities Engineering Services Section, Engineering Department (FESS/E).

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SECTION II **REQUIREMENTS**

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SECTION IV **PROCEDURES**

Integration
- 4.1.0.1 Project Plan Preparation
- 4.3.5.1 In-Progress Procedures
- 4.5.3.1 Request for Engineering Change Proposal
- 4.5.4.1 Subcontractor Evaluation

Scope
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Time
- None

Cost
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Quality
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Risk Management
- None

Procurement
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- 12.4.5.1 A/E Consultant Invoicing

The FESS/Engineering procedures are an established method of conducting the operation of the department that incorporates the best knowledge available. These procedures are the documented series of steps taken to accomplish the identified tasks.

The maintenance and distribution of the FESS/E procedures is the responsibility of the FESS/E Department Manager.

In order to better align with current Laboratory business practices, the FESS/E procedures incorporate applicable Department of Energy (DOE) and industry standards. While the use of these standards do not represent formal requirements, their use and reference is essential to the establishment of best identified practices in the FESS/E procedures.

The primary objective of DOE Order 413.3B, *Program and Project Management For The Acquisition of Capital Assets*, is to provide "project management direction for the acquisition of capital assets that are delivered on schedule, within budget, and fully capable of meeting mission performance and environmental, safety, and health standards." While the implementation of this order is required for projects with a Total Project Cost exceeding $20 million, FESS/E has chosen to incorporate these general principals in the execution of projects and the development of procedures.

The Project Management Institute (PMI) is a non-profit advocacy association for the project management profession. PMI defines project management as the "application of knowledge, skills, tools and techniques to a broad range of activities in order to meet the requirements of a particular project"." PMI publishes *A Guide to the Project Management Body of Knowledge* (PMBOK) that describes a system of process groups and knowledge areas that provide a framework for the management of projects.

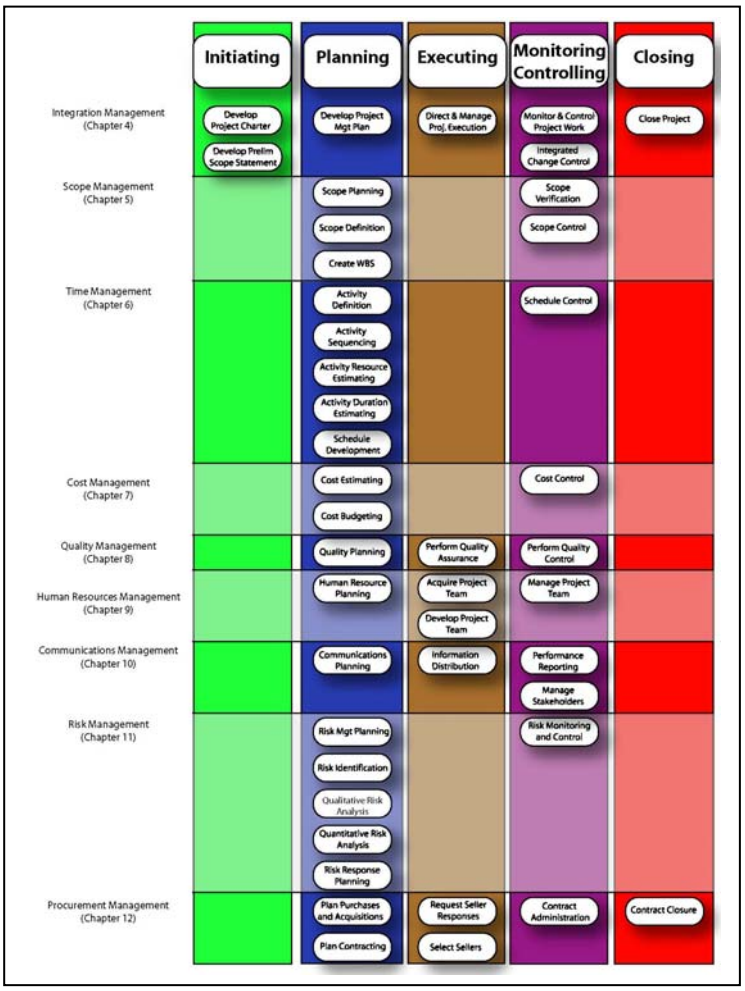
The process groups are:

- Initiating
- Planning
- Executing
- Monitoring and Controlling
- Closing

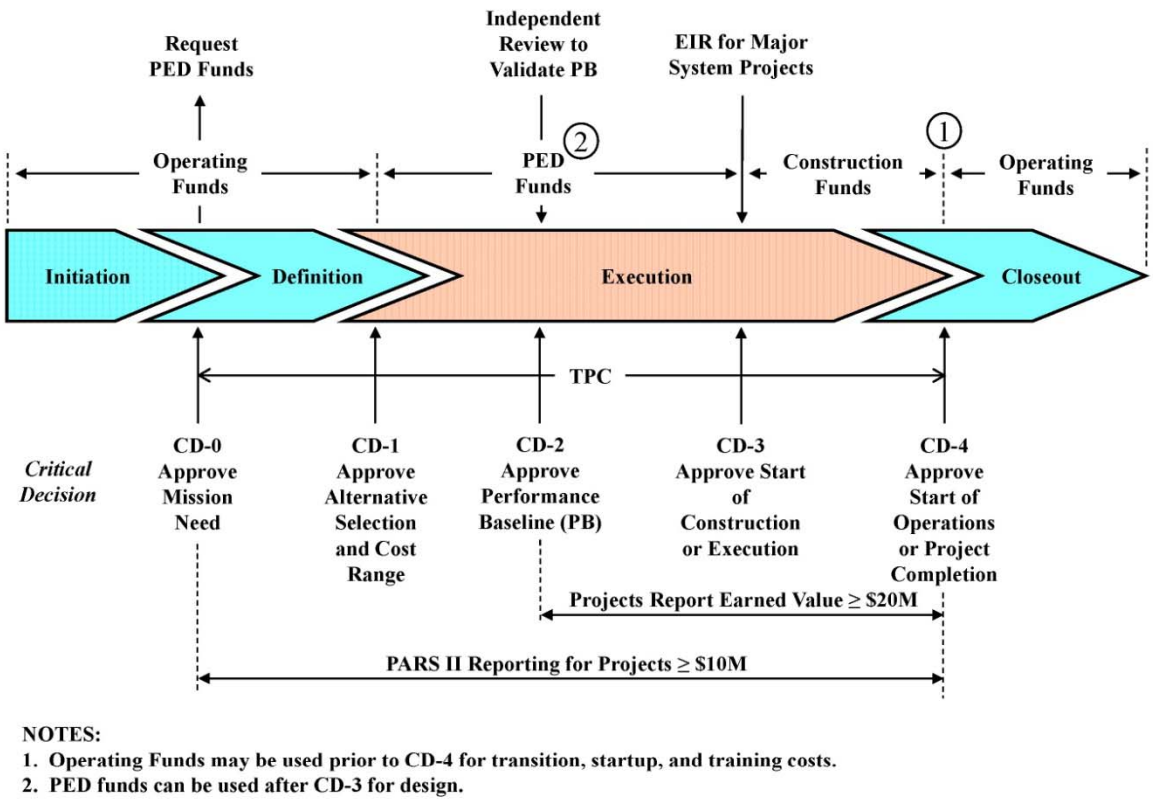
The knowledge areas are:

1. Integration
2. Scope
3. Time
4. Cost
5. Quality Human Resources
6. Communications
7. Risk Management
8. Procurement

PMI combines these processes and knowledge areas into a process chart matrix as shown below.



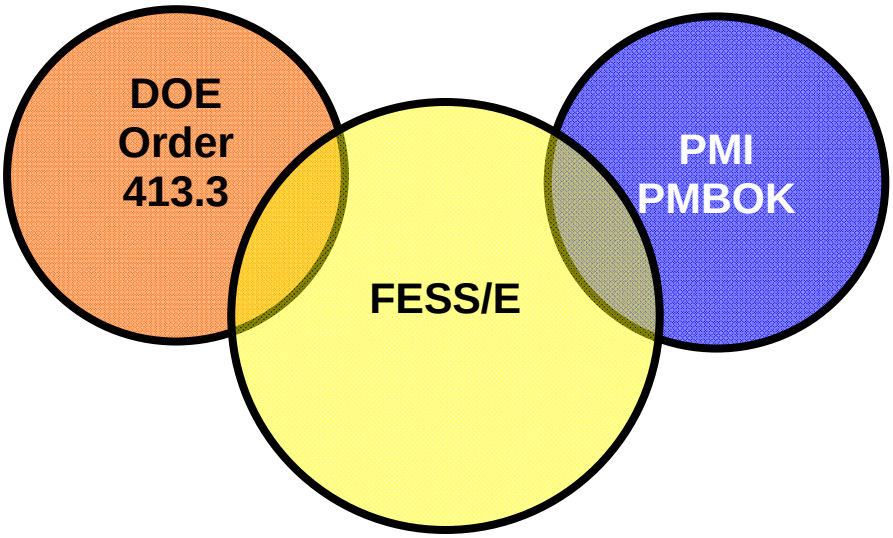
DOE Order 413.3B utilizes a series of Critical Decisions to organize the development and execution of a project. This process, shown in the chart below, serves as the guidance for the organization of the FESS/E procedures.



NOTES:
1. Operating Funds may be used prior to CD-4 for transition, startup, and training costs.
2. PED funds can be used after CD-3 for design.

Figure 1. Typical DOE Acquisition Management System for Line Item Capital Asset Projects

The FESS/E procedures provide a convergence of concepts contained in DOE Order 413.3B and the organizing principals of the PMI's Project Management Body of Knowledge (PMBOK).



REQUIREMENTS **FESS/Engineering Procedure Manual**

All FESS/Engineering procedures reside in the FESS/Engineering Procedure Manual.

All FESS/Engineering procedures will contain, as a minimum, the following information:

1. Heading with the following information
    a. Title;
    b. FESS/E Standard Operating Procedure (SOP) Identifier;
    c. Version Number;
    d. Effective Date;
    e. Subject Matter Expert;
2. Applicability statement;
3. Responsibilities assignment;
4. Procedure Steps;
5. References;
6. Revision History;

The organization of the FESS/E procedures is divided into two (2) general groups. The first group is the operational policies of the department listed below:

1. Purpose
2. FESS/E Personnel Procedures
3. Organization Assets

The operational polices include such things as job descriptions, organization chart, work priorities, training and record keeping, self assessments, etc.

The second group contains the policies related to the management of tasks and project. These sub-groups, based on PMI's Knowledge Areas are listed below:

4. Integration
5. Scope
6. Time
7. Cost
8. Quality Human Resources
9. Communications
10. Risk Management
11. Procurement

The management group contains five (5) process categories based on the PMI process groups as listed below:

1. Initiating
2. Planning
3. Executing
4. Monitoring and Controlling
5. Closing

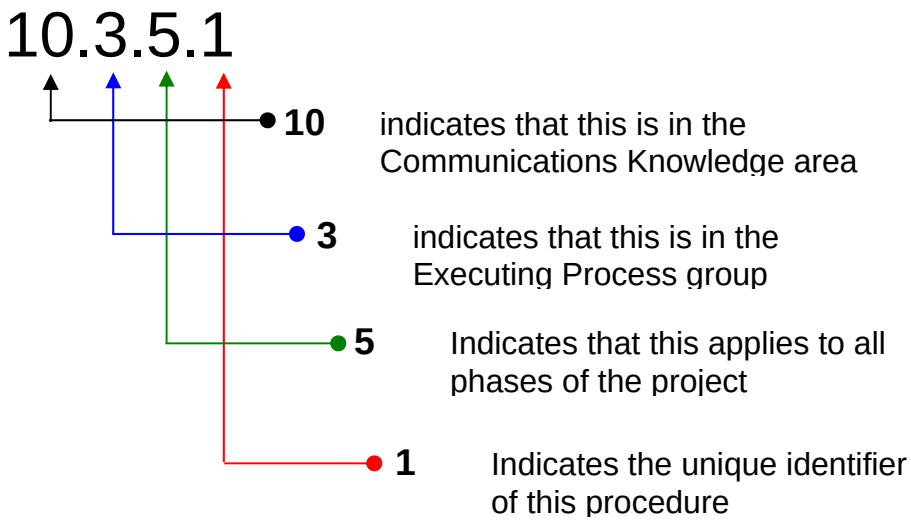
The chart below indicates the organization of FESS/E procedures.

FESS Engineering Procedure Organization					
1 FESS/E Purpose and overview items, mission, vision, prupose of procedures					
FESS/E Personnel 2 Policies	org chart, job desriptions, Responsibility matrix, work priorities and assignemtns, safety training and records, self assesment, staff meetings, group budgeting and accounting, procurements, chargeback, project reporting, correspondence, computer equipment and usage, presonnel, outside support				
Documentation and 3 design Standards					
Management Group	.1 Initiating	.2 Planning	.3 Executing	.4 Monitoring and Controlling	.5 Closing
4 Integration					
5 Scope					
6 Time					
7 Cost					
8 Quality					
9 Human Resource					
10 Communications					
11 Risk Management					
12 Procurement					

A further breakdown of each process category incorporates the phasing as described in DOE Order 413.3

x.x.0 - CD-0 – Those procedures related to CD-0 activities
x.x.1 – Those procedures related to CD-1 activities
x.x.2 – Those procedures related to CD-2 activities
x.x.3 – Those procedures related to CD-3 activities
x.x.4 – Those procedures related to CD-4 activities
x.x.5 - Those procedures related to all phases

An example of this nomenclature is shown below for the procedure for Meetings with the identifier of 10.3.5.1



PROCEDURES

SECTION IV

Standard Operating Procedure

SOP Identifier: 4.1.0.1
Revision Number: 1
Effective Date: December 15, 2011

Subject Matter Expert: J. Hunt (huntjw@fnal.gov)

Title: **Project Plan Preparation**

I Applicability

The Project Plan (PP) describes the management, control systems and procedures used by Fermi National Accelerator Laboratory (Fermilab) to meet the technical, cost, and schedule objectives of the project. The Project Plan is comprised of a Project Charter (PC), Conceptual Design Report (CDR) and Project Execution Plan (PEP). This controlling document establishes the basis for managing the project, throughout the projects life cycle including, initiating, planning, executing, monitoring/controlling and closing.

Section 1 – Project Charter (PC)
The Project Charter (PC) formally authorizes the project. The Project Charter incorporates the signed U.S. Department of Energy Construction Authorization as part of this document. The Project Charter states the project justification within the framework of the Fermilab's strategic goals. The Project Charter defines the roles and identifies the Fermilab Project Director and the Fermilab Project Manager as well as other key members of the Integrated Project Team.

Section 2 – Conceptual Design Report
The Conceptual Design Report (CDR) is intended to be a self-consistent basis for a project baseline scope, cost estimate and schedule. It is not a Title 1 report and does not answer every technical design question.

Section 3 – Project Execution Plan
The Project Execution Plan (PEP) defines the Enterprise Environmental Factors and Fermilab's Organizational Process Assets that provides project management the methodology which defines the process.

II Responsibilities

The following responsibilities have been identified:

FESS/Engineering Design Coordinator
- Direct design team efforts
- Interface with customer
- Assist in developing Project Plan documents

FESS/Engineering Project Manager/Engineer
- Establish project design team
- Interface with customer
- Develop Project Plan documents

FESS/Engineering Department Head
- Monitor, review, and comment

III Procedure

1.0 The current Project Plan template is located on the FESS/Engineering file server in Public entitled *DRAFT CDR PEP Master*. The Project Plan template shall be revised as necessary to maintain up-to-date references to DOE Directives, Fermilab policies and procedures, as well as formatting and content changes, etc. All changes must be approved by the FESS Department Head.

2.0 Review template document and revise text, figures, tables, and illustrations specific to the project.

3.0 Insert the following appendix Items into the Project Plan:

3.1 Appendix A – Conceptual Design Drawings
- Create 11x17 drawings showing a conceptual layout of the project through renderings, aerial views, site plans, floor plans, and cross sections.

3.2 Appendix B
- 3.2.1 URL List of referenced DOE Directives and Guides
- 3.2.2 URL List of referenced Fermilab Policies, Procedures, and Guidance
- 3.2.3 Integrated Project Team Responsibility Matrix
- 3.2.4 Conceptual Design Review Comments
- 3.2.5 National Environmental Policy Act (NEPA) Documentation which includes:
  - Environmental Review Form (ERF) submittal print-out
  - Signed and dated NEPA letter for DOE
  - Signed and approved Environment Evaluation Notification Form (EENF)
- 3.2.6 Sustainable Design which includes:
  - High Performance and Sustainable Buildings – Assessment and Compliance Tool spreadsheet
- 3.2.7 Engineering Risk Assessment
- 3.2.8 Whitestone Facility Maintenance and Repair Cost Data
- 3.2.9 Fermilab Work Smart Set of Standards
- 3.2.10 ES&H Multi-Organization Construction Site Safety Walkthrough
- 3.2.11 Stakeholder Input (completed only after the Comment and Compliance Review) which includes:
  - Comment and Compliance Review (CCR) Request
  - Review comments generated from CCR.

4.0 Send draft copy of Project Plan for review (see Procedure 8.3.5.1 *Document Review*s)

5.0 Add comments from CCR to Appendix B under Stakeholder Input.

6.0 Finalize Project Plan based on CCR comments.

7.0 Obtain all necessary signatures:

- Obtain signatures from FESS/E Project Manager/Engineer, FESS/E Department Head, D/S/C Project Director, and the Fermilab Section Head.
- Once these signatures have been obtained, the Project Plans shall be forwarded to the Directorate for signature.
- The Directorate will then forward the Project Plan to the DOE for final signatures.

8.0 The Project Plan is now complete. No further action is necessary.

IV References

The following references have been identified:

- FESS/Engineering Standard Operating Procedure 8.3.5.1 – Document Reviews

V Revision History

Version Number	Date	Author	Change Summary
0	12/15/2011	J. Hunt	Initial Release
1	04/15/2015	R. Alber	Triennial Review

VI Other

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Standard OperatIng Procedure

SOP Identifier: 4.3.5.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **In Progress Procedures**

I Applicability

This procedure applies to design, construction and project management tasks under the direction of FESS/Engineering.

II Responsibilities

The following responsibilities have been identified:

FESS/Engineering Employee

- Identify the absence of documented procedure;
- Develop an action plan to complete the assignment;
- Obtain concurrence of FESS/E Leadership team with approach;
- Complete task.

FESS/E Section Head

- Concur with approach to completing task assignment with documented procedure;

FESS/E Department Head

- Maintain list of non-documented procedures;
- Assign resources to investigate non-documented procedures;

III Procedure

1.0 Identify Absence of Procedure

Prior to starting a task, the FESS/E employee should identify an absence of a documented procedure.

2.0 Develop Action Plan

The FESS/E employee shall develop an action plan for completing the task assignment. The action plan should be based on:

- Corporate knowledge and past experience with similar tasks;
- Identified best management practices;
- Industry standards;
- Applicable codes, regulations and ordinances.

3.0 Obtain Concurrence on Approach

The FESS/E employee shall discuss the action plan for completing the task assignment with FESS/E Department Head and obtain concurrence on approach.

4.0 Implement Plan
The FESS/E employee shall implement the action plan for completing the task assignment.

5.0 Follow Up
The FESS/E Department Head shall maintain a list of non-documented procedures and where applicable, assign FESS/E resources to develop a procedure based on the action plan.

IV References

The following references have been identified:

- FESS/Engineering Policy 11 – In Progress Procedures

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

Standard Operating Procedure

SOP Identifier: 4.5.3.1
Version Number: 0
Effective Date: April 15, 2015

Subject Matter Expert: J. Hunt (huntjw@fnal.gov)

Title: **Request for Engineering Change Proposal**

I Applicability

This procedure applies to projects managed by FESS/Engineering and shall be followed whenever a project would like to request an engineering change proposal from the Subcontractor.

II Responsibilities

Project/Design Coordinator

- Create email request to send to Subcontractor
- Provide appropriate Engineering Change (EC) number
- Provide a detailed scope of work
- Include supporting documentation (e.g., pictures, plans, specifications)

III Procedure

1.0 Create and gather all necessary supporting documentation for the engineering change
2.0 Create email correspondence per the attached sample
3.0 Send email with supporting documentation to the Subcontractor and copy the Project Manager, Construction Coordinator, and the Procurement Administrator on the email.

IV References

Section 3 of the Fermilab Construction Subcontract Terms and Conditions (FL-3)

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2015	J. Hunt	Initial Release

VI Other

1.0 Sample E-mail Request for Engineering Change Proposal

1.0 Sample E-Mail Request for Engineering Change Proposal

Jonathan W. Hunt

From:	Jonathan W. Hunt
Sent:	Tuesday, April 15, 2014 3:42 PM
To:	Whittaker Construction (danw1@mchsi.com)
Cc:	Kevin Bomstad (kevinbomstad@mediacombb.net); Russell J Alber; Timothy L Trout; Steve G. Gaugel (sgaugel@fnal.gov)
Subject:	MC-1 Building - EC-84 Add Fire Hydrant
Attachments:	SK-14 - New Fire Hydrantpdf.pdf; CU-8 Fire Hydrant.pdf

Engineering Change Proposal

The following information is provided for technical information for proposal purposes and not a direction to proceed. Please refer to the subcontract for standard terms and conditions concerning changes to the subcontract.

MC-1 Building
FESS/Engineering Project No. 6-10-20B

Identifier: EC-84 Add Fire Hydrant

Description:
This engineering change consists of all labor, equipment, transportation, overhead, bonding costs, safety oversight, Q.C. oversight, and supervision to install a new fire hydrant per the location shown on attached PDF. See attached specification for type of fire hydrant. The connection shall be made to the existing 10" ICW main in the vicinity of the location shown and shall be a hot tap connection.

Files:
- SK-14 – New Fire Hydrant
- CU-8 Fire Hydrant Standard Detail

Proposal:
The proposal for this engineering change should be submitted in accordance with Section 14, Modification Proposal-Price Breakdown of FL-1, Fermilab Subcontract General Provisions including the following:

1. Cost breakdown in sufficient detail to permit analysis of all material, labor, equipment, sub-subcontract and overhead costs, as well as profit, and shall cover all work involved in the modification, whether such work was deleted, added, or changed.
2. If the proposal includes a request for a time extension, a justification; therefore, shall also be furnished.

Please return your proposal for this Engineering Change by 4/22/14.

Should you have any technical questions, please contact me. All contractual questions should be directed to Steve Gaugel (sgaugel@fnal.gov, 630.840.5782)

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Fermi National Accelerator Laboratory
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Batavia, IL 60510
(630) 840-4312
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1

Standard OperatIng Procedure

SOP Identifier: 4.5.4.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Subcontractor Evaluation**

I Applicability

This procedure applies to the construction work activities over $100,000 in labor costs as required in FESHM 7010.

II Responsibilities

The following responsibilities have been identified:

FS/Procurement Administrator

- Chair the Subcontractor Evaluation Meeting at the completion of the contracted work;
- Document consensus agreement;
- Distribute completed documentation;

FESS/E Project Manager/Engineer

- Attend Subcontractor Evaluation Meeting;
- Transfer documentation to project file.

FESS/E Construction Coordinator

- Attend Subcontractor Evaluation Meeting.

III Procedure

1.0 Meeting

Representatives from FESS/E will attend Subcontractor Evaluation Meeting as scheduled by the FS/Procurement Administrator at the completion of the contracted work.

2.0 Documentation

The Project Engineer will transfer documentation of the Subcontractor Evaluation Meeting to the FESS/E project file.

IV References

The following references have been identified:

- FESHM Chapter 7010 http://esh-docdb.fnal.gov/cgi-bin/ShowDocument?docid=415

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

1.0 Subcontractor Performance Evaluation Form

SUBCONTRACTOR PERFORMANCE ASSESSMENT
(When required, usually applicable to Subcontracts of $100,000 or above)

1. NAME/ADDRESS/PHONE NUMBER OF SUBCONTRACTOR	2. FINAL REPORT	3. DATE OF REPORT
	3. SUBCONTRACT NUMBER/SUPPLEMENTAL AGREEMENTS	
	4. DATE OF AWARD	5. SUBCONTRACT VALUE
	7. SUBCONTRACT COMPLETION DATE	
6. PROJECT TITLE	8. PROCUREMENT ADMINISTRATOR	
	9. CONSTRUCTION COORDINATOR /TASK MANAGER	
	10. SENIOR SAFETY OFFICER	
	11. COMPETITIVE	NONCOMPETITIVE
12. SUBCONTRACT TYPE AND LIST OF SUB-SUBCONTRACTORS		
13. SUBCONTRACT EFFORT DESCRIPTION (HIGHLIGHT EACH DISCRETE ACTIVITY AND FUNCTION AS APPLICABLE)		

14. EVALUATE THE FOLLOWING AREAS:	Past Rating	N/A	(1) Unsat	(2) Marginal	(3) Satisfactory	(4) Very Good	(5) Exceptional
a. Business Relations							
b. Management of Key Personnel							
c. Schedule							
d. Cost Control							
e. ES&H (as a minimum the following factors)							
(1) Accident and injury report on the job							
(2) Adherence to company safety program							
(3) Adherence to the HA documents							
(4) Mandatory training completed							
(5) Training records management							
(6) Compliance with safety standards rules							
(7) Observation of work activities							
(8) Use of PPE when required							
f. Performance/Quality of Construction							
(1) Qualified Workers							
(2) As-built drawings							
(3) Submittals							
g. Other (specify)							
(1)							
(2)							
(3)							
(4)							
OVERALL EVALUATION							

Fermilab ES&H Manual *7010-F4-1*
WARNING: This manual is subject to change. The current version is maintained on the ESH Section website. Rev. 07/2011

15a - PERFORMANCE EVALUATION/PROGRAM TEAM EVALUATION NARRATIVE (CONSENSUS)(Attach additional documents as necessary		
15b - GIVEN WHAT WE KNOW TODAY ABOUT THE SUBCONTRACTOR'S ABILITY TO EXECUTE WHAT WAS IN THE SUBCONTRACT: ☐ We definitely would not recommend a future award - ☐ We probably would not recommend a future award - ☐ We might or might not recommend a future award - ☐ We probably would recommend a future award - ☐ We definitely would recommend a future award -		
16. NAME OF PROCUREMENT ADMINISTRATOR TEAM HEAD	MAIL STATION	PHONE NUMBER
SIGNATURE		DATE
17a. REVIEW BY REVIEWING OFFICIAL ☐ Concur ☐ Do not concur		
17b. REVIEWING OFFICIAL'S COMMENTS:		
18. NAME OF REVIEW OFFICIAL	MAIL STATION	PHONE NUMBER
SIGNATURE		DATE

Fermilab ES&H Manual *7010-F4-2*
WARNING: This manual is subject to change. The current version is maintained on the ESH Section website. Rev. 07/2011

INSTRUCTIONS FOR COMPLETING FORM

ITEM	DESCRIPTION
1 through 13	To be completed by the Procurement Administrator within 30 days after subcontractor completion
14	To be completed by the Evaluation/Program Team
14.a	BUSINESS RELATIONS -- Assess the integration and coordination of all activity needed to execute the subcontract, specifically the timeliness, completeness and quality of problem identification, corrective action plans, proposal submittals, the subcontractor's history of reasonable and cooperative behavior, customer satisfaction, timely award and management of sub-subcontracts, and whether the subcontractor met small/small disadvantaged and women-owned business participation goals.
14.b	MANAGEMENT OF KEY PERSONNEL -- Assess the subcontractor's performance in selecting, retaining, supporting, and replacing, when necessary, key personnel
14.c	SCHEDULE -- Assess the timeliness of the subcontractor against the completion of the subcontract, task orders, milestones, delivery schedules, administrative requirements, (e.g. efforts that contribute to or effect the schedule variance).
14.d	COST CONTROL -- Assess the subcontractor's effectiveness in forecasting, managing, and controlling subcontractor costs.
14.e	ES&H -- Assess the subcontractor's compliance with the overall safety concerns related to the subcontract (e.g. environmental, safety and health standards.
14.f	PERFORMANCE/QUALITY OF CONSTRUCTION -- Assess the subcontractor's conformance to contract requirements, specifications and standards of good (e.g. commonly accepted technical and professional standards).
14.g	OTHER -- List any other factor that may be relative to this the subcontractor.
OVERALL EVALUATION	Enter the overall evaluation for this subcontractor performance
15	To be completed by the evaluation/program team
16	Signature of the Chair Evaluation/Program team
17	To be completed by the Reviewing/Approving Official
18	Signature of the Reviewing/Approving Official

ASSESSMENT RATING SYSTEM

Exceptional. **Performance meets the contractual requirements and exceeds many to Fermilab's benefit. The contractual performance of the element or sub-element being assessed was accomplished with few minor problems for which corrective actions taken by the subcontractor were highly effective.**
Very Good. **Performance meets contractual requirements and exceeds some to Fermilab's benefit. The contractual performance of the element or sub-element being assessed was accomplished with some minor problems which corrective actions taken by the subcontract were effective.**
Satisfactory. **Performance meets contractual requirements. The contractual performance of the element or sub-element contains some minor problems for which corrective actions taken by the subcontractor appear or were satisfactory.**
Marginal. **Performance does not meet some contractual requirements. The contractual performance of the element or sub-element being assessed reflects a serious problem for which the subcontractor has not yet identified corrective actions. The subcontractor's proposed actions appear only marginally effective or were not fully implemented.**
Unsatisfactory. **Performance does not meet most contractual requirements and recovery is not likely in a timely manner. The contractual performance of the element or sub-element contains serious problem(s) for which the subcontractor's corrective actions appear or were ineffective.**

Distribution: Contract Administrator, Requisitioner, File

Standard Operating Procedure

SOP Identifier: 5.3.5.1
Version Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: E. Huedem (huedem@fnal.gov)

Title: **High Performance Building Checklist**

I Applicability

This procedure applies to all buildings for incorporation of sustainable design principles.

Fermilab as a Federal facility is required to comply with Executive Order 13423 "Strengthening Federal Environmental, Energy, and Transportation Management", dated January 24, 2007; 13514 "*Federal Leadership in Environmental, Energy, and Economic Performance",* dated October 5, 2009; and DOE O 436.1 "Departmental Sustainability" dated May 2, 2011. These orders set goals in the areas of energy efficiency, acquisition, renewable energy, toxics reductions, recycling, renewable energy, sustainable buildings, electronics stewardships, fleets, and water conservation. In EO 13423, Section 2(f), and EO 13514 Section 2(g), Federal agencies are required to ensure that new construction and major renovation of agency buildings comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings set forth in the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (2006).

This checklist serves as the template for the FESS/E process. The checklist is completed and included in the development of a Conceptual Design Report. Applicable elements from the checklist will be implemented during the design process, and submitted as part of the design review process. The checklist is reviewed and updated when the project is issued for proposals and again at the completion of the project. This review allows the project team to measure the design against the baseline objectives developed at the Conceptual Design stage.

II Responsibilities

The following responsibilities have been identified:

Fermi Project Director
- Participate in evaluation process;

FESS/E Project Manager/Engineer
- Assembly review team;
- Chair review meetings;
- Transfer project documentation to project file.

FESS/E Project Coordinator
- Participate in reviews

III Procedure

1. Conceptual Design Phase
   a. The initial review of the project occurs during the development of the Conceptual Design Report and is used to document the sustainable design objectives for the project. As a minimum, the

review team consists of the following (which shall include a minimum of one LEED AP accredited individual):

1. Fermilab Project Director;
2. Project Manager;
3. Project Engineer/Architect;
4. Project Coordinator.

b. The review team shall facilitate an integrated sustainable design meeting to assess, identify and collaborate sustainable vision and goals for the project as an integrated team and discuss a sustainability implementation plan for the project.
   i. The review team shall provide preliminary assessment of building features and decide on preliminary building elements and systems that could affect building energy. The goal (especially non-experimental buildings) is to reduce energy use by at least 30% relative to ASHRAE 90.1 Appendix G baseline.
c. The review team shall evaluate and complete the High Performance and Sustainable Buildings (HPSB) Guiding Principles checklist and its applicability to the project.
d. The review team shall develop preliminary Owner's Project Requirement or Criteria.
e. Documentations: The following sustainability-related documentation will be included in the Conceptual Design report and stored in project file
   i. Minutes from the sustainable meeting
   ii. Completed HPSB checklist
   iii. Owners Project Requirement or Project Criteria

2. Design Process
   a. The project team shall facilitate an integrated sustainable design meeting to refine sustainable design approach and identify measures that are appropriate to the project. The minutes from this meeting will be stored in project file.
   b. The project team shall update the HPSB checklist, if needed.
   c. The project team shall perform the building energy model and compare with ASHRAE 90.1 Appendix G baseline.
      i. Non-experiment building projects (such as offices) are required to meet or exceed the Guiding Principle requirement of 30% better than baseline, where life cycle cost effective.
      ii. The energy model for Experimental buildings with heavy process loads, which are not expected to meet the requirement of 30% better than baseline due to significant amount of process energy usage, will only document the proposed building energy with respect to the baseline.
   d. The project team shall plan or initiate commissioning process. As a minimum the project shall follow the "fundamental commissioning" approach. The project has the option to pursue "enhanced" commissioning and/or the timing on when to bring in the Commissioning Agent services into the project
      i. In addition to the Commissioning specifications, a Commissioning plan shall be included in the bid packages
      ii. The design team shall complete the installation (CPI) checklist and functional performance test (FPT) checklist specific to the project.
      iii. As a minimum, the design team shall pursue commissioning of all energy-related equipment.
   e. The project team shall develop a sustainability report summarizing the project approaches to each of the five federal sustainable guiding principles.

f. Documentations: The sustainability report shall be included in design review documents and as a minimum shall include the following attachments or references
   i. Updated HPSB checklist
   ii. Complete energy model, including input, output and summary table
   iii. Commissioning Specifications (part of the design specification)
   iv. Commissioning Plan with checklist (part of the design specification)
   v. Calculation and or documentation required for ASHRAE 55, ASHRAE 62.1,Indoor water savings
   vi. Any life cycle cost analyses
   vii. Indoor Air Quality/Flush out plan or specifications (part of the specifications)
   viii. Waste Management plan or specification (part of the specifications)

3. Construction Phase
   a. The project team shall update the HPSB checklist if needed.
   b. The project team shall review contractor submittals as they relate to the HPSB checklist.
   c. The project team shall use Commissioning Agent prior to or at the start of the construction
   d. At the start of the construction, the project manager or the commissioning agent shall inform the contractor of the commissioning responsibilities and expectations from them and their subcontractor.
   e. Documentations: Most of the sustainability related documentations at this point are part of the contract and will be submitted by the contractors
      i. Commissioning related (role assignments, CPI checklist, FPT)
      ii. All construction related data for the HPSB documentation
      iii. Indoor Air Quality and Flush out plan
      iv. Waste Management Plan

IV References

The following references have been identified:

- FESS/Engineering Policy FEP 4, Sustainability

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	E. Huedem	Triennial Review

VI Other

1.0 Example of FESS/E specific High Performance and Sustainable Buildings Guiding Principles Checklist for New Construction

1.0 Example of FESS/E specific High Performance and Sustainable Buildings Guiding Principles Checklist for New Construction

High Performance and Sustainable Buildings Guiding Principles
Checklist for New Construction

Building Name: INITIAL LEED ASSESSMENT FOR LArTF

Address: P.O. Box 500 Batavia IL 60510

These fields will populate as corresponding guiding principles and LEED credits	Updated AUG 26 2011	% HPSB Guiding Principles Achieved	100%
		Total LEED Credits (Yes column)	11
		Possible Total LEED Credits (Yes column+ Maybe Column)	13

Initial			Assessment			Final
LEED			**Sustainable Sites**		26 Points	HPSB
YES	Maybe	No				
Y			Prereq 1	Construction Activity Pollution Prevention	LEED Rqd	☑
			Credit 1	Site Selection	1	☑
			Credit 2	Development Density & Community Connectivity	5	
			Credit 3	Brownfield Redevelopment	1	
			Credit 4.1	Alternative Transportation, Public Transportation Access	6	
			Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1	
			Credit 4.3	Alternative Transportation, Low-Emitting & Fuel-Efficient Vehicles	3	
			Credit 4.4	Alternative Transportation, Parking Capacity	2	
1			Credit 5.1	Site Development, Protect or Restore Habitat	1	
1			Credit 5.2	Site Development, Maximize Open Space	1	
	1		Credit 6.1	Stormwater Design, Quantity Control	1	☑
1			Credit 6.2	Stormwater Design, Quality Control	1	☑
			Credit 7.1	Heat Island Effect, Non-Roof	1	
			Credit 7.2	Heat Island Effect, Roof	1	
			Credit 8	Light Pollution Reduction	1	
3	1	0	**Subtotal**			
LEED			**Water Efficiency**		10 Points	HPSB
YES	Maybe	No				
Y			Prereq 1	Water Use Reduction, Reduce by 20%	LEED Rqd	☑
2			Credit 1.1	Water Efficient Landscaping, Reduce by 50%	2	☑
2			Credit 1.2	Water Efficient Landscaping, No potable water use or irrigation	2	☑
			Credit 2	Innovative Wastewater Technologies	2	☑
			Credit 3.1	Water Use Reduction, 30% Reduction	2	
			Credit 3.2	Water Use Reduction, 35% Reduction	1	
			Credit 3.3	Water Use Reduction, 40% Reduction	1	
4	0	0	**Subtotal**			
LEED			**Energy & Atmosphere**		35 Points	HPSB
YES	Maybe	No				
Y			Prereq 1	Fundamental Commissioning of the Building Energy Systems	LEED Rqd	☑
Y			Prereq 2	Minimum Energy Performance	LEED Rqd	☑
Y			Prereq 3	Fundamental Refrigerant Management	LEED Rqd	☑
			Credit 1	Optimize Energy Performance:	1 to 19	
				12% New Buildings or 8% Existing Building Renovations	1	
				14% New Buildings or 10% Existing Building Renovations	2	
				16% New Buildings or 12% Existing Building Renovations	3	
				18% New Buildings or 14% Existing Building Renovations	4	
				20% New Buildings or 16% Existing Building Renovations	5	
				22% New Buildings or 18% Existing Building Renovations	6	
				24% New Buildings or 20% Existing Building Renovations	6	
				26% New Buildings or 22% Existing Building Renovations	8	
				28% New Buildings or 24% Existing Building Renovations	9	
				30% New Buildings or 26% Existing Building Renovations	10	☑
				32% New Buildings or 28% Existing Building Renovations	11	
				34% New Buildings or 30% Existing Building Renovations	12	
				36% New Buildings or 32% Existing Building Renovations	13	
				38% New Buildings or 34% Existing Building Renovations	14	
				40% New Buildings or 36% Existing Building Renovations	15	
				42% New Buildings or 38% Existing Building Renovations	16	
				44% New Buildings or 40% Existing Building Renovations	17	
				46% New Buildings or 42% Existing Building Renovations	18	
				48% New Buildings or 44% Existing Building Renovations	19	
			Credit 2	On-Site Renewable Energy *(DOE Order 430.2B)*	1 to 7	☑
				1% Renewable Energy	1	
				3% Renewable Energy	1	
				5% Renewable Energy	1	
				7% Renewable Energy	1	
				9% Renewable Energy	1	
				11% Renewable Energy	1	
				13% Renewable Energy	1	
			Credit 3	Enhanced Commissioning	2	
			Credit 4	Enhanced Refrigerant Management	2	☑
			Credit 5	Measurement & Verification	3	☑
			Credit 6	Green Power	2	
0	0	0	**Subtotal**			

LEED			Materials & Resources		14 Points	HPSB
YES	Maybe	No				
Y			Prereq 1	Storage & Collection of Recyclables	LEED Rqd	☑
			Credit 1.1	Building Reuse, Maintain 55% of Existing Walls, Floors & Roof	1	
				Building Reuse, Maintain 75% of Existing Walls, Floors & Roof	1	
				Building Reuse, Maintain 95% of Existing Walls, Floors & Roof	1	
			Credit 1.2	Building Reuse, Maintain 50% of Interior Non-Structural Elements	1	
1			Credit 2.1	Construction Waste Management, Divert 50% from Disposal	1	☑
			Credit 2.2	Construction Waste Management, Divert 75% from Disposal	1	
1			Credit 3.1	Materials Reuse, 5%	1	
			Credit 3.2	Materials Reuse,10%	1	
1			Credit 4.1	Recycled Content, 10% (post-consumer + ½ pre-consumer)	1	☑
			Credit 4.2	Recycled Content, 20% (post-consumer + ½ pre-consumer)	1	☑
	1		Credit 5.1	Regional Materials, 10% Extracted, Processed & Manufactured Regionally	1	
			Credit 5.2	Regional Materials, 20% Extracted, Processed & Manufactured Regionally	1	
			Credit 6	Rapidly Renewable Materials	1	☑
			Credit 7	Certified Wood	1	☑
3	1	0	Subtotal			

LEED			Indoor Environmental Quality		15 Points	HPSB
YES	Maybe	No				
Y			Prereq 1	Minimum IAQ Performance	LEED Rqd	☑
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	LEED Rqd	☑
			Credit 1	Outdoor Air Delivery Monitoring	1	
			Credit 2	Increased Ventilation	1	
			Credit 3.1	Construction IAQ Management Plan, During Construction	1	☑
			Credit 3.2	Construction IAQ Management Plan, Before Occupancy	1	☑
			Credit 4.1	Low-Emitting Materials, Adhesives & Sealants	1	☑
			Credit 4.2	Low-Emitting Materials, Paints & Coatings	1	☑
			Credit 4.3	Low-Emitting Materials, Carpet Systems	1	☑
			Credit 4.4	Low-Emitting Materials, Composite Wood & Agrifiber Products	1	☑
			Credit 5	Indoor Chemical & Pollutant Source Control	1	
			Credit 6.1	Controllability of Systems, Lighting	1	☑
			Credit 6.2	Controllability of Systems, Thermal Comfort	1	
			Credit 7.1	Thermal Comfort, Design	1	☑
			Credit 7.2	Thermal Comfort, Verification	1	
			Credit 8.1	Daylight & Views, Daylight 75% of Spaces	1	☑
			Credit 8.2	Daylight & Views, Views for 90% of Spaces	1	
0	0	0	Subtotal			

LEED			Innovation & Design Process		6 Points	HPSB
YES	Maybe	No				
			Credit 1.1	Innovation in Design: Provide Specific Title	1	
			Credit 1.2	Innovation in Design: Provide Specific Title	1	
			Credit 1.3	Innovation in Design: Provide Specific Title	1	
			Credit 1.4	Innovation in Design: Provide Specific Title	1	
			Credit 1.5	Innovation in Design: Provide Specific Title	1	
1			Credit 2	LEED® Accredited Professional	1	☑
1	0	0	Subtotal			

LEED			Regional Priority Credits		4 Points	HPSB
YES	Maybe	No				
			Credit 1.1	Regional Priority: Specific Credit	1	
			Credit 1.2	Regional Priority: Specific Credit	1	
			Credit 1.3	Regional Priority: Specific Credit	1	
			Credit 1.4	Regional Priority: Specific Credit	1	
0	0	0	Subtotal			
11	2	0	Subtotal Yes/Maybe/No			

Fulfillment of Guiding Principles for HPSB may result in meeting 32-34 LEED NC credits and 7 prerequisites. LEED credits and prerequisites that relate to the Guiding Principles are highlighted in yellow.

Pursuant to DOE Order 430.2B, as of October 1, 2008, all new buildings and major building renovations at Critical Decision One (CD-1) or lower with a value exceeding $5 million, must implement the Guiding Principles of the Executive Order and attain U.S. Green Building Council (USGBC) LEED® Gold certification.

LEED Certification Rating System

Certified: 40-49 points, **Silver:** 50-59 points, **Gold:** 60-79 points, **Platinum:** 80 points & Above

Notes:

1. WE Credit 1.2: can be met when methods are used to eliminate the usage of potable water for landscape irrigation.
2. WE Credit 2: where feasible for nonpotable use and potable use where allowed.
3. EA Credit 1: note LEED energy optimization requirements are different from the Guiding Principle minimum requirements.
4. EA Credit 2: may result in 1-3 credits.
   EA Credit 2: where life cycle cost effective
5. EQ Credit 4.4 furniture and equipment are not considered based building elements and are not included.
6. WE Prereq: Only if Life cycle cost-effective

For more information on LEED Certification and credits, visit www.usgbc.org

* This is applicable only to the LArTF Surface Buildings portion, and is not applicable to underground facilities.

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Standard OperatIng Procedure

SOP Identifier: 7.4.3.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Subcontractor Invoice Review**

I Applicability

The review of subcontractor invoices ensures that payment for work completed is reasonable. This procedure applies to projects managed by FESS/E.

II Responsibilities

The following responsibilities have been identified:

FESS/E Construction Coordinator

- Reviews subcontractor invoice for reasonableness.

FESS/E Project Manager/Engineer

- Reviews subcontractor invoice for reasonableness and funding availability;
- Forwards subcontractor invoice to the FESS Budget Office for further processing.

III Procedure

1.0 FESS/E Construction Coordinator Review

1.1 The FESS/E Construction Coordinator reviews the subcontractor invoice to ascertain that the invoice amount reasonably reflects the value of the work completed during the invoice period. In the event that the invoice is incorrect, the FESS/E Construction Coordinator works with the subcontractor to correct any discrepancies prior to proceeding to step 1.2.

2.0 FESS/E Project Manager/Engineer Review

2.1 The FESS/E Project Manager/Engineer receives an email with the scanned invoice from Accounts Payable.

2.2 The FESS/E Project Manager/Engineer reviews the subcontractor invoice for reasonableness and funding availability.

2.3 The FESS Project Manager/Engineer opens the PDF invoice and uses the STAMP command to “Stamp – Invoice Approval” to the front page of the invoice. (see attached)

2.4 The FESS/E Project Manager/Engineer prints a hard copy of the invoice, reviews and indicates whether the attached invoice is OK to pay – or – HOLD for payment approval by signing and dating the stamp making notations/corrections if needed.

2.5 The FESS/E Project Manager/Engineer electronically “Forwards” the email with the invoice attached to Martha mlgarcia@fnal.gov indicating whether or not the invoice is OK to pay or to be held.

2.6 The FESS/E Project Manager/Engineer places the reviewed hard copy of the invoice in Martha’s office mail slot. FESS/Admin will complete the approval process.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

1.0 Subcontractor Invoice Approval Stamp

OK to pay invoice
Denotes goods &/or services are satisfactory & meet specifications

_____ date _____
Requestor

_____ date _____
Department

_____ date _____
Section

HOLD invoice Reason for hold:

_____ date _____

Proj _____

Task _____

Line _____

Exp Type _____

Exp Org _____

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Standard OperatIng Procedure

SOP Identifier: 7.4.5.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **A/E Consultant Progress Reporting**

I Applicability

The review of A/E Consultant progress allows for timely reporting of A/E usage and earned value. This procedure applies to projects managed by FESS/E as required by the project.

II Responsibilities

The following responsibilities have been identified:

A/E Consultant

- Provide progress reporting data to FESS/E Project Engineer.

FESS/E Project Manager/Engineer

- Reviews progress data for reasonableness;
- Forwards progress data to FESS/A Budget Office
- Transfer documentation to project file.

FS/Procurement Contract Administrator

- Reviews progress data for reasonableness.

III Procedure

1.0 Develop Progress Report

The A/E Consultant shall submit a monthly progress status report that contains, as a minimum, the following information:

- Activities completed in the reporting period;
- Activities planned for the coming period;
- Task summary including planned versus earned information;
- Task summary percentage complete;
- Variance analysis;
- Issues and concerns.

The progress report should use the project status information contained in the task proposal as a baseline for tracking purposes.

2.0 Forward Progress Report

The A/E Consultant shall forward the progress report to the FESS/E Project Engineer and the FS/Procurement Contract Administrator. The transmittal can be in the form of electronic mail or as agreed upon.

3.0 FESS/E Project Engineer Review

3.1 The FESS/E Project Manager/Engineer reviews the A/E Consultant Project Status Report for reasonableness.

3.2 The FESS/E Project Manager/Engineer forwards the cost data to the FESS/A Budget Office for incorporation into the Task Accounting System.

3.3 The FESS/E Project Manager/ Engineer transfers the documentation to the project file.

4.0 FS/Procurement Contract Administrator Review

The FS/Procurement Contract Administrator reviews the A/E Consultant Project Status Report for reasonableness.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Standard Operating Procedure 9.3.5.1 – AE Tasking
- FESS/Engineering Standard Operating Procedure 8.4.5.1 – AE Quality Assurance
- FESS/Engineering Standard Operating Procedure 12.4.5.1 – AE Invoicing

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

1.0 Example of Baseline Data Submitted with A/E Consultant Proposal
2.0 Example of Typical A/E Consultant Progress Status Report

Example of Baseline Data Submitted with A/E Consultant Proposal

HOWARD ROARK ARCHITECTS, LLP

March 10, 2008

Project Information:
Project: SuperDuper Upgrade
FESS/Engineering Project No. 6-8-99
Project Coordinator: Hugh Jacz

Description: Professional A/E services for the SuperDuper upgrade project.

Baseline Data:

	Hours	Dollars
Data Collection	40	$3,800
Develop Design Recommendations	35	$3,325
Develop Project Definition Report	40	$3,800
Issue Project Definition Report		$200
Develop Final Design	140	$13,300
Issue Final Design Documents for Review		$400
Complete Final Design Documents	80	$7,600
TOTAL	**335**	**$32,425**

Planned Profile	
Month 1 - Issue PDR for Review	$11,125
Month 2 -Develop FD Documents	$13,300
Month 3 - Complete FD Documents	$8,000
TOTAL	**$32,425**

1234 MIES VAN DER ROAD • WRIGHTSVILLE, ILLINOIS • 60001
PHONE: 555-1212 • FAX: 555-1221

Example of Typical A/E Consultant Progress Status Report

HOWARD ROARK ARCHITECTS, LLP

Project Information:
Project: SuperDuper Upgrade
FESS/Engineering Project No. 6-8-99
Project Coordinator: Hugh Jacz

Description: Professional A/E services for the SuperDuper upgrade project.

Progress Data:
Reporting Period – March 1, 2008 through April 1, 2008

Activities Completed in the Reporting Period:

- Data Collection
- Develop Design Recommendations
- Develop Project Definition Report
- Issue Project Definition Report for Fermilab Review

Activities Planned for the Next Period

- Begin development of Final Design Documents

Cost Information

		This Reporting Period				Project To Date			
	%	Planned		Earned		Planned		Earned	
	Complete	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars
Data Collection	100%	40	$3,800	32	$3,040	40	$3,800	32	$3,040
Develop Design Recommendations	100%	35	$3,325	30	$2,850	35	$3,325	30	$2,850
Develop Project Definition Report	100%	40	$3,800	40	$3,800	40	$3,800	40	$3,800
Issue Project Definition Report			$200		$200		$200		$200
Develop Final Design									
Issue Final Design Documents for Review									
Complete Final Design Documents									
TOTAL		**115**	**$11,125**	**102**	**$9,890**	**115**	**$11,125**	**102**	**$9,890**

Variance Analysis

- None noted

Issues and Concerns

- Require Fermilab concurrence on design approach contained in Project Definition Report prior to start of Final Design Documents.

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PHONE: 555-1212 • FAX: 555-1221

Standard OperatIng Procedure

SOP Identifier: 8.3.2.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Construction Document Signoff**

I Applicability

This procedure applies to projects managed by FESS/E. The signoff of construction documents indicates that the documents are ready to be issued for procurement and that they meet the technical requirements of the project.

Drawing names on drawing: Project Contact
See Eng. Policy
Doc Date
Multiple A/S's

II Responsibilities

The following responsibilities have been identified:

FESS/E Project Manager/Engineer
- Develop sign-off sheet;
- Obtain signature sheet from A/E Consultant (if applicable);
- Transfer documentation to project archives at completion of project.

Campus Architect (DP-18 Reviewer)
- Ensure the project document(s) are consistent with the architectural and master planning strategy for the laboratory.
- Sign sheet.

AE Consultant (if applicable)
- Complete signature sheet;
- Forward signature sheet to FESS/E Project Engineer.

FESS Signatories
- Ensure that project document meets the requirements of FESS;
- Sign sheet.

Client Signatories
- Ensure that the project meets the minimum technical requirements for the project;
- Sign sheet.

III Procedure

1.0 Develop Signature Sheet

The FESS/E Project Engineer develops a signature sheet for the project with, as a minimum, the following signature slots:

- FESS/E Project Coordinator

- FESS/E Project Manager/Engineer
- FESS/E Department Head
- FESS Head
- Division/Section/Resource Center Project Contact
- Campus Architect (DP-18 Review)

2.0 A/E Consultant Letter (if applicable)

The A/E Consultant shall develop a signature sheet that indicates that the project was design in accordance with applicable codes, standards and regulations as required. The letter should be on the A/E Consultant letterhead and be signed and sealed.

This letter should be forwarded to the FESS/E Project Manager/Engineer with the deliverables of the Final Design phase.

3.0 Obtain Signatures

The signatories should be contacted and signatures obtained on the signature sheet.

4.0 Documentation

Once the signatures are obtained, the FESS/E Project Manager/Engineer transfers the documentation to the project file.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Policy 9 – Consultant Support
- FESS/Engineering Standard Operating Procedure 8.4.5.1 – AE Quality Assurance

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

1.0 Example of Signature Sheet
2.0 Example of A/E Consultant Signature Sheet

1.0 Example of Signature Sheet

Fermilab

Randal J. Wielgos
FESS Engineering Department
630.840.4720 (phone)
630.840.4980 (fax)
rwielgos@fnal.gov

Memorandum

April 9, 2015

To: File

From: R. Wielgos

Subject: Signature Sheet
Utilities Upgrade Project
High Voltage Upgrades
FESS/Engineering Project No. 3-5-163G/H/I

This signature sheet replaces the drawing signature requirements for the above listed project issued for proposals.

Randall J. Wielgos 4/9/15
R. Wielgos – UUP HV Level 2 Manager

R. Alber – UUP Project Manager

Kent Collins
K. Collins – FESS Head/UUP Project Director

Gary Van Zandbergen 4/9/15
G. VanZandbergen – Campus Architect – DP-18 Review

cc: Project File 3-5-163

Fermi National Accelerator Laboratory / Kirk and Pine Street / P.O. Box 500 / Batavia, IL 60510 / 630.840.3000 / www.fnal.gov / fermilab@fnal.gov
Managed by Fermi Research Alliance, LLC for the U.S. Department of Energy Office of Science

2.0 Example of A/E Consultant Signature Sheet

CORDOGAN, CLARK & ASSOCIATES INC.
ARCHITECTS • ENGINEERS

January 05, 2010

RECEIVED
JAN - 6 2010
FESS/ENGINEERING

Steve Dixon
FESS/Engineering
Fermilab National Accelerator Laboratory
PO Box 500, MS 214
Batavia, IL 60510-0500

Re: HACC Data Center Prep
FESS/Engineering Project No. 10-5-65A
Seal and Signature

Dear Mr. Dixon:

This letter serves to document the State of Illinois, Department of Financial and Professional Regulation license seal and my signature for the HACC Data Center Prep project.

Sincerely,
Cordogan, Clark & Associates, Inc.

John Cordogan

cc: Merle Olson, Fermilab
Michael Konopka, CCA

LICENSED ARCHITECT
JOHN G.
CORDOGAN
001-010114
STATE OF ILLINOIS

960 Ridgeway Avenue, Aurora, Illinois 60506
Tel 630.896.4678 • Fax 630.896.4987

Standard OperatIng Procedure

SOP Identifier: 8.3.2.2
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Securing Construction Documentation**

I Applicability

The proper securing of construction documents during the procurement phase of the project ensures that inadvertent changes to the documents do not occur. This procedure applies to projects managed by FESS/E.

II Responsibilities

The following responsibilities have been identified:

AE Consultant (if applicable)

- Produces an electronic set of the construction documents;
- Forwards construction documents to FESS/E Project Manager/Engineer.

FESS/E Project Manager/Engineer

- Transfer construction documents to project archives.

III Procedure

1.0 A/E Consultant (if applicable)

1.1 The A/E Consultant develops a set of documents (drawings, specifications, exhibit A, etc.) that represent the state of the construction documents that will be issued for solicitation. This should include the signature sheet for the project (see FESS/Engineering Standard Operating Procedure 8.3.2.1 – Construction Document Signoff).

1.2 The electronic form of the construction documents should be provided in an Adobe Acrobat (www.adobe.com) format.

1.3 In addition, the electronic set of the construction documents should be provided in the following format:

- Drawings: AutoCAD native format;
- Specifications: Microsoft Word native format;
- Exhibit A: Microsoft Word native format;

1.4 The A/E Consultant forwards the electronic version of the construction documents to the FESS/E Project Manager/Engineer. Preferably, the electronic documents should be provided in a CD-ROM media.

2.0 Transfer Electronic Files

The FESS/E Project Manager/Engineer shall move the electronic version of the construction documents to the appropriate area of the FESS server.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Policy 9 – Consultant Support
- FESS/Engineering Standard Operating Procedure 8.4.5.1 – AE Quality Assurance
- FESS/Engineering Standard Operating Procedure 8.3.2.1 – Construction Document Signoff

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

Standard OperatIng Procedure

SOP Identifier: 8.3.5.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Document Reviews**

I Applicability

This procedure applies to document reviews for projects managed by FESS/Engineering and is intended to provide a framework for the review and distribution of design and construction documents with the following goals:

- Agreement and documentation of Customer requirements and FESS/E response to those requirements;
- Review of developing designs by Fermilab divisions and sections for:
  - Appropriateness of proposed systems;
  - Impacts on existing systems and operations;
  - Specific technical requirements to be incorporated into the design;
  - Compliance with best and required practices of authority having jurisdiction.
- Reviews are performed in accordance with the Fermilab Engineering Manual
- Reviews are performed in compliance with the Director Policy No.18 – Construction Modification Policy
- Notification of affected Fermilab divisions and sections when a project is released for proposals.

For the purposes of this procedure definitions are summarized below:

- "Fermilab" is Fermi National Accelerator Laboratory;
- "FESS/E" is Facilities Engineering Services Section, Engineering department;
- "Customer" is the Fermilab group that tasked FESS/E to develop the design and construction documents.
- "SPOC" is the Single Point Of Contact.
- "Building modifications" are defined as any modification which modifies any structural element of the building, adds or removes additional interior walls, or modifies any of the existing high voltage electrical, HVAC, fire protection, sanitary sewer, potable water, or industrial water services.
- "Construction" is any combination of engineering, procurement, erection, installation, assembly, or fabrication activities involved in creating a new facility or altering, adding to, or rehabilitating an existing facility. It also includes the alternation and repair (including dredging, excavating and painting) of buildings, structures, or other real property, as well as any construction & excavation activities conducted as part of environmental remediation efforts.

II Responsibilities

The following responsibilities have been identified:

Division/Section/Resource Center Head

- Appoint a Single Point of Contact (SPOC);

Division/Section/Resource Center (D/S/R) SPOC

The Single Point of Contact within each D/S/RC will be responsible for the following:

- Control distribution of documents to be reviewed within each Division/Section;

- Ensure that the documents to be reviewed are routed to the correct groups or individuals within the Division/Section/Resource Center;
- Review the documents to determine the appropriate internal Division/Section/Resource Center routing, considering the specific Division/Section/Resource Center requirements to ensure that the appropriateness of the proposed systems, impacts on existing systems and operations and specific technical requirements in the design is acceptable.
- Ensure that internal D/S/R comments are reviewed for appropriateness and internal conflict resolution prior to being entered into the comment database;
- Coordinate submission of review comments into the tracking database.

FESS/E Project Engineer

- Establishing the number and type of reviews based on the project requirements and the Fermilab Engineering Manual Risk Assessment Worksheet;
- Establishing distribution list;
- Coordinate the development of the distribution cover sheet;
- Coordinate the establishment of an electronic file;
- Initiate a review notification;
- Coordinate the response to comments received.

FESS Admin Support

- Maintain Standard Distribution Templates;
- Maintain current CCR_List;
- Issue a review notification.

III Procedure

1.0 Establish Review Criteria

The review criteria will be tailored to each specific project and be driven by the project requirements and the Engineering Risk Assessment Worksheet of the Fermilab Engineering Manual. Listed below are general guidelines for reviews:

1.1 Review Types

Reviews commonly used are listed below

1.1.1 A Comment and Compliance Review (CCR) is used to determine the appropriateness of the proposed systems, impacts on existing systems and operations, specific technical requirements to be incorporated into the design and compliance with best and required practices of the authority having jurisdiction.

1.1.2 Other reviews, driven by project specific requirements and outcome of the Engineering Risk Assessment may be undertaken. The type, distribution and length of these reviews should be based on the project specific requirements and the Fermilab Engineering Manual.

1.2 Number of Reviews

At least one (1) CCR is generally required for each phase of the project. For example, a General Plant Project (GPP) usually has a review during the Conceptual Design phase and another during the Final Design Phase. One (1) CCR may be appropriate for smaller scale projects. In the event that a project is not subject to a CCR, documentation should be included in the project file noting the circumstances surrounding this decision.

1.3 Review Timing
The review should occur when a project is sufficiently developed to a point where reviewers are able to determine the impacts on existing systems and operations.

1.4 Review Length
In general, a CCR is ten (10) working days in duration. In the event that a shorter time is provided by project driven requirements, documentation should be included in the project file noting the circumstances surrounding this decision.

2.0 Distribute Review Documents
In general, review documents are distributed, reviewed and commented upon electronically. A standard review list of SPOCS and required recipients is maintained as a Listserv by (an) appointee(s) of the FESS Engineering Department. The listing of the members of the current Listserv **FESS_CCR** is located on the FESS Engineering file server at Shared Files/CCR Listserv.

2.1 Standard Distribution List (FESS_CCR)
The distribution list for reviews should contain, as a minimum, the following:

2.1.1 FESS/Engineering
FESS/E Quality Control Representative
Project Engineers

2.1.2 FESS
Section Head
Department Heads
Senior Safety Officer
Budget Officer
Site Services Head
Facilities Management Head
Logistics and Property Control Head
Wilson Hall Building Manager

2.1.3 Accelerator Division
Division Head
Deputy Head
Operations Department Head
Senior Safety Officer
Radiation Safety Officer

2.1.4 Single Point of Contact
Computing Division
ES&H Section
Workforce Development and Resources Section
Particle Physics Division
Technical Division
Directorate Chief Operating Officer

2.1.5 Integrated Project Team (not included in **FESS_CCR** – should be addressed separately)
Customer Contact
Project Engineer/Project Manager
Project Coordinator
FS/Procurement

2.2 Create Electronic File
The electronic review files should consist of the documents to be reviewed and the distribution cover sheet in an Adobe pdf format. These documents should be located in the Review area of the FESS FTP Site in order to be accessible to reviewers outside of FESS.

2.3 Issue Review Notification
Electronic notification of a review should be issued via e-mail and should contain, as a minimum, the following information

- Project Name;
- FESS/E Project Number;
- FESS/E Contact;
- Review Start Date;
- Review End Date;
- Project Description;
- List of Review Documents.

3.0 Comment Collection
Comments that result from reviews are entered by the reviewer into an electronic comment database. This database is a FileMaker Pro database and is currently titled Review Comments.fp5 and is located on FESS Engineering file server.

3.1 The comment form will contain, as a minimum, the following information

- Reviewer Name;
- Comment Date;
- FESS/E Project Number;
- Drawing or Specification Reference;
- Comment.

3.2 Reviewers are encouraged to enter “No Comment” in the database for projects reviewed without any exception taken in order to document the review process.

4.0 Comment Response
The integrated project team will respond to comments entered into the electronic database.

5.0 Issue Construction Phase Notification
When a project is sent out for proposals during the construction phase notification is sent to the distribution list that received the reviews. This notification is done via e-mail and is similar to the process described in section 2.0 above.

IV References

The following references have been identified:

- FESS/Engineering Policy FEP 9, Consultant Support
- Fermilab Engineering Manual

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

1.0 Example of Review Notification Form
2.0 Example of Comment Form
3.0 Example of Proposal Notification Form
4.0 Example of Engineering Risk Assessment Worksheet

1.0 – Example of Review Notification Form

From:	owner-fess_ccr@listserv.fnal.gov on behalf of FESS_AdminSupport <FESS_AdminSupport@fnal.gov>
Sent:	Tuesday, April 14, 2015 11:50 AM
To:	fess_ccr
Cc:	Ryan P Schultz; Patrick G Hurh; Cory F. Crowley; Kamran Vaziri
Subject:	FESS Comment & Compliance Review - C-0 Detector Hall Upgrades

FESS Comment & Compliance Review

Please review the referenced information for appropriateness of the proposed systems, impacts on existing systems and operations, specific technical requirements to be incorporated into the design and compliance with best and required practices of authority having jurisdiction.

C-0 Detector Hall Upgrades

FESS/Engineering Project No. 10-9-2

Review Start Date: April 14, 2015
Comments Due Date: April 28, 2015
Contact: Jonathan Hunt, FESS Engineering (x4312, huntjw@fnal.gov)

Description:
This project will upgrade the conventional facilities infrastructure of the C-0 Detector Hall to allow for additional storage of activated beamline components.

Files:
An electronic version of the files can be found at:
ftp://fess-ftp.fnal.gov/public/Reviews/Project/10-9-2/
(this site is available from both on-site and offsite locations)

The FESS Environmental Review Form can be found at:
http://fess-ogfp.fnal.gov:8095/EnvironmentalReview/faces/home.xhtml
Reference Project No. **10-9-2**

Comments:
Please enter comments in the Review Comment Database. The link is shown below:
http://fess-fmp-prd/fmi/iwp/cgi?-db=Eng-Review%20Comments&-loadframes
Use the "**Guest Account**" option and reference Project No. **10-9-2** when entering comments.

2.0 – Example of Comment Form

Fermilab
FESS/Engineering

Please ensure that your review included a review of the project for appropriateness of the proposed systems, impacts on existing systems and operations and specific technical requirements to be incorporated into the design

PLEASE ENTER THE FOLLOWING INFORMATION

Reviewer:
Ayres, Dukes, Miller, Peterson

Project Number
15-1-3

UIP ECP (If applicable)

Project Phase:
Comment and Compliance

Comment Date:
September 11, 2007

Print | Duplicate | Main Menu

COMMENT

Drawing Reference:
E-6

START WITH PAGE NUMBER FIRST FOLLOWED BY SECTION OR DETAIL REFERENCE. Example: A-1, Detail 4

Specification Reference:

PROVIDE SPECIFICATION SECTION AND PARAGRAPH IF APPLICABLE.
Example: 02070 1.5.D.2 (Page 02070-2)

Comment

Notes field shows emergency lighting and "night" lights remain on continuously. Must be able to shut-off "night" light for light leak tests.

RESPONSE

Project Contact Response:

Disagree for Reasons Noted Below

Comment:

Code required emergency lighting can not be on a switched leg. Switching of night lights requires further investigation

Date Printed: 2/22/2008 FESS 05/01

3.0 – Example of Proposal Notification Form

From:	owner-fess_ccr@listserv.fnal.gov on behalf of Odarka A Jurkiw <ojurkiw@fnal.gov>
Sent:	Thursday, April 09, 2015 2:08 PM
To:	fess_ccr
Cc:	Tom Powers; Joseph T Pathiyil; Daniel A Wolff; Steven L Hays; Ryan A. Crawford
Subject:	Issued for Proposals - Utilities Upgrade Project – High Voltage Electrical Work

Issued for Proposals

The following project has been forwarded to the Finance Section/Procurement Department for procurement activities. This serves as notification only. No action is required.

Utilities Upgrade Project – High Voltage Electrical Work

FESS/Engineering Project No. 3-5-163G/H/I

****Please note – This is a sub-project of the Utilities Upgrade Project.**

Contact: Randy Wielgos, FESS Engineering (x4720, rwielgos@fnal.gov)

Comment & Compliance Review: Concurrent – Comments Due April 23, 2015
DP-18: Completed, April 9, 2015

Description:
Construction and installation of a new Master Substation switchgear/control building, installation of a new 345KV gas circuit breaker and the replacement of the 13.8 KV oil distribution switches.

Files:
An electronic version of the files can be found at:
ftp://fess-ftp.fnal.gov/public/Projects/UUP/95%25%20Drawings%20Addendum%20A%20Exhibit%20A/LDP
(this site is available from both on-site and offsite locations)

4.0 - Example of Engineering Risk Assessment Worksheet

Engineering Risk Assessment

Interpreting the Graded Approach Worksheet

The purpose of this chapter is to define a risk-based graded approach for use in engineering projects. This process helps the lead engineer and department head evaluate project risks and determine the appropriate level of documentation and review a project needs. The project manager may add additional requirements, as defined in **Chapter 1: Requirements and Specifications**.

The lead engineer and department head complete the graded approach worksheet as part of the specification process. Completion of the graded approach worksheet is a way to quantify project risk early in a project. If a project carries a high level of risk, the engineer needs to complete further risk analysis based on guidelines from other governing organizations.

Definitions

Graded Approach: *A graded approach uses a list of factors to establish the appropriate level of formality a project requires.*
Risk-Based Graded Approach: *A risk-based graded approach evaluates the level of risk in various risk elements in order to establish the appropriate level of controls a project requires.*
Risk Element: *A risk element is an aspect of a project that could prevent its successful completion, without appropriate control measures.*

Risk Assessment

The Engineering Policy Manual Team has identified 15 potential risk elements to evaluate for each project.
The department head and lead engineer determine the level of risk for each element and document it using the graded approach worksheet. The department head and lead engineer can use the guidelines in this chapter to determine the overall level of risk and to highlight high-risk categories. This risk assessment applies to the engineering subproject at hand, not the overall project. A subproject is a self-contained engineering task, component or system that generally falls under the responsibility of a single department. Subprojects do not take on the risk level of the larger project.

The engineer should record, in Tables 1 and 2 below, risk assessment integer values between 1 and 5, as follows:
1 low risk
2 low to medium risk
3 medium risk
4 medium to high risk
5 high risk
Definitions of the risk levels are given below with criteria for risk levels 1, 3 and 5. Levels 2 and 4 are implied to fall between those provided.

Interpreting the Graded Approach Worksheet

The lead engineer fills out an engineering and project risk element table for his or her project or subproject. If the project or subproject has a risk score of 5 in any engineering risk element (A - G), it requires formal control as described within the Engineering Manual chapters indicated in the table below. If the subtotal of the risk scores for the elements related to one chapter is higher than the high risk score indicated in the table below, the topic covered in that chapter requires formal control. If the project or subproject has a risk score of 5 in any project risk element (A - O), or the project management risk (H - O) subtotal is 25, notify the project manager. The project manager may choose to elevate formal control requirements to address elevated project management risk (H - O).

Engineering Risk Assessment

Project: Liquid Argon Test Facility (LArTF)
Lead Engineer: C. Federowicz
Department: FESS/Engineering
Date: July 28, 2011

Chapter		Engineering Risk Element							High Risk	Subtotal	Assessment
		A	B	C	D	E	F	G			
1	Requirements and Specifications	1	2				2		≥ 10	5	Standard Risk
3	Requirements and Specification Review	1	2		2	1	2		≥ 16	8	Standard Risk
4	System Design	1	2	2		1	2	1	≥ 19	9	Standard Risk
5	Engineering Design Review	1	2	2		1	2	1	≥ 19	9	Standard Risk
6	Procurement and Implementation		2		2	1	2	1	≥ 16	8	Standard Risk
7	Testing and Validation	1				1	2	1	≥ 13	5	Standard Risk
8	Release to Operations						2		≥ 4	2	Standard Risk
9	Final Documentation		2				2		≥ 7	4	Standard Risk

Project Risk Element								High Risk	Subtotal	Assessment
H	I	J	K	L	M	N	O			
3	2	1	2	1	3	1	2	≥ 25	15	Standard Risk

Engineering Risk Elements	
A	Technology
B	Environmental Impact
C	Vendor Issues
D	Resource Availability
E	Safety
F	Quality Requirements
G	Manufacturing Complexity

Project Risk Elements	
H	Schedule
I	Interfaces
J	Experience / Capability
K	Regulatory Requirements
L	Project Funding
M	Project Reporting Requirements
N	Public Impact
O	Project Cost

Engineering Risk Assessment

Project: Liquid Argon Test Facility (LArTF)
Lead Engineer: C. Federowicz
Department: FESS/Engineering
Date: July 28, 2011

	Score	
Technology	1 - Low Risk	1

This defines the degree of technical complexity the Lead Engineer or engineering team will face in executing the project.

1 The project will use off-the-shelf technology.
3 Engineers will purchase and modify off-the-shelf technology.
5 The project will require the development of new technology.

Environmental Impact	2 - Low to Medium Risk	2

This defines the potential level of environmental impact.

1 There will be no environmental impact.
3 The project may have some environmental impact but will not require an environmental assessment, as determined by FESHM.
5 The project will require an environmental impact statement.

Vendor Issues	2 - Low to Medium Risk	2

This defines the degree of complexity to be expected with vendors. Complicating factors may include long-lead-time items and issues with vendor qualification and reliability.

1 Vendors could cause minor issues.
3 Vendors could cause manageable complications.
5 Vendor issues could result in significant schedule delays or cost overruns or could otherwise jeopardize the successful completion of the project.

Resource Availability	2 - Low to Medium Risk	2

This defines the availability of internal and external resources to plan and execute the project.

1 Resources will be readily available.
3 Resources could be somewhat restricted.
5 The difficulty of obtaining resources puts the project schedule at high risk.

Quality Requirements	1 - Low Risk	1

This determines the effort required to achieve the quality level the customer assigns to the final product.

1 The quality requirements can be met easily with existing infrastructure.
3 The quality requirements are challenging but can be met with existing infrastructure.
5 The quality requirements are beyond the capability of existing infrastructure.

Safety	2 - Low to Medium Risk	2

This defines the safety issues the project team will encounter while completing the project.

1 The project will require standard safety considerations.
3 The project will require increased diligence due to its location, the configuration of the product or the type of work required. This includes work requiring review according to FESHM.
5 The project will require very restrictive safety considerations. This includes work requiring review and personnel safety systems.

Manufacturing Complexity

1 - Low Risk	1

This defines the degree of complexity to be expected when combining the elements of technology, operations and schedule in product manufacturing.
1 The manufacturing processes will be routine.
3 The project will require an existing technology that the manufacturer has not previously used.

5 The project will require new or complex manufacturing methods.

Schedule

3 - Medium Risk	3

This defines how much time the Lead Engineer or engineering team will have to complete the schedule.

1 Time will be unlimited.
3 The schedule will be somewhat constrained.
5 The subproject will be on the overall project critical path and has no schedule contingency.

Interfaces

2 - Low to Medium Risk	2

This defines the risk associated with the complexity of integrating multiple subprojects.
1 One department at Fermilab will be involved with a standalone project.
3 Project success depends upon contributions from multiple departments at Fermilab.
5 Project success depends upon contributions from multiple institutions.

Experience/Capability

1 - Low Risk	1

This defines the level of experience and capability project team members will have.
1 Only experts will participate.
3 A blend of experts and inexperienced personnel will participate.
5 Only inexperienced personnel will participate.

Regulatory Requirements

2 - Low to Medium Risk	2

This identifies the degree to which oversight by governmental or other regulatory agencies will impact the project.
1 Regulatory agencies will have minor to no involvement.
3 The Department of Energy, DOE, will have direct regulatory involvement.
5 DOE, as well as state or federal government, will have regulatory involvement.

Project Funding

1 - Low Risk	1

This defines the availability and approval status of project planning and execution funds.
1 A single source within Fermilab will fund the project.
3 A source outside of Fermilab will fund the project.
5 Multiple sources outside of Fermilab will fund the project.

Project Reporting Requirements | 3 - Medium Risk | 3

This indicates the level of reporting to the senior management the project requires.

1 Reports to senior management about the project will not be required.
3 The project will require quarterly performance reports.
5 The project will be highly visible. Top management or outside agencies will schedule visits and issue monthly performance reports.

Public Impact | 1 - Low Risk | 1

This indicates how much the project will affect the public or public opinion.

1 The public will not be affected.
3 The public may be somewhat affected and should be informed with news releases.
5 The project may have an impact on the public. The public should be involved through public forums and may participate in advisory councils.

Project Cost | 2 - Low to Medium Risk | 2

This defines how much the project is projected to cost.

1 The project will be within the department operating budget.
3 The project will require divisional budget planning.
5 The project will require laboratory or DOE budget tracking and reporting.

Standard Operating Procedure

SOP Identifier: 8.3.5.2
Version Number: 0
Effective Date: April 15, 2015

Subject Matter Expert: K. Sienkiewicz (kateps@fnal.gov)

Title: **FESS Design Review (FDR) Procedure**

I Applicability

FESS is responsible for construction, conventional design, and land use planning activities unless otherwise delegated. A single line of management will be established for each conventional design and construction project regardless of the number of phases involved and/or crossover of organization lines. Where different divisions/sections are responsible for individual phases of design and/or construction, a memo of understanding will be generated by the organization holding the budget, clearly establishing line responsibilities and interfaces.

FESS will review proposed land use changes and proposed conventional construction designs for compliance with Fermilab policies, sustainability, and compatibility with land use plans. Programmatic designs impacting conventional systems will be evaluated by FESS.

Conventional construction is the demolition, modification, or construction of land features, infrastructure, facilities, and/or buildings. It also includes activities changing land use, impacting aesthetics, exiting, facility or site accessibility, energy consumption, or public perception of Fermilab. Programmatic equipment and emergency repairs are exempt from this procedure except as they affect conventional systems.

II Responsibilities

The following responsibilities have been identified:

Project Point of Contact (POC)/Requestor

- Initiates, prepares, and submits the FESS Design Review (FDR)
- Ensures correct and complete information is submitted
- Uploads relevant supporting documents
- If necessary, making modifications to document(s) – only allowed prior to the completion of the review
- Follows up with FESS/E and FDR Reviewer on status and outcome of the review

FESS/E Project Interface Administrator (FESS Subject Matter Experts)

- Primary Reviewer:
    - Reviews data within area of responsibility for completeness and accuracy
    - Ensures design and plans are consistent with Fermilab policies and procedures
    - Comments and/or requests changes and/or additional information if necessary
- Secondary Reviewer:
    - Performs responsibilities and tasks listed above in the absence of the primary reviewer

FDR Reviewer

- Facilitates and monitors the FDR process for the project
- Performs aesthetic review
- Ensures finalization of the review

- Summarizes reviewers' comments
- Notifies POC/requestor when review is complete

III Procedure

The following steps outline the FDR process.

1.0 Submit Form

Pertinent details about each section of the FDR form is provided below.

1.1 General Information

The FDR form is located online via the FESS website: http://fess.fnal.gov/index.html

Filling in yellow-highlighted fields on the form is mandatory. Information in these fields should be as specific and descriptive as possible.

1.2 Project Information

This section of the form provides an overview of the project.

- Project/Activity Title: Keep this short and descriptive. This should be the same project name as listed in project and budgetary files.
- Project Number/Identifier: Suggested format is [Division/Section][YY]-[Unique Identifier]; an example is FE09-001 for the first FESS project of 2009.
- Status: The red blinking light will turn green once the form is successfully submitted.
- Point of Contact:
  - Begin by typing the first couple digits of the person's ID number, wait for the list to auto-populate, and then choose the correct name. Entering the information in this manner will ensure the system properly accepts the name; as opposed to typing the full name in manually, and the system finding some type of error.
  - The POC is the project personnel that will be contacted by FESS for additional information, if necessary.
- Project Description:
  - Provide a narrative description of the project, focusing on physical activities, such as digging, demolishing, constructing. Include the magnitude of the project (area of the new building, length of utility, volume of soil to be excavated, magnitude of radioactivity). Describe any changes in site operations that will take place because of the project.
  - If the activity involves construction, you must upload a site map showing the location of the project and project limits.
- Question Mark Buttons: There are two question mark buttons in this section which provide additional direction and information.

1.3 Project Cost and Schedule

This section provides an overview of the project cost and schedule as known at the time of the form submittal to the best knowledge of the project.

- Estimated Project Cost
- Estimated Start Date: Choose the date from the calendar that pops up either by pushing the calendar button or by clicking the mouse in the editable field.
- Estimated Project Duration: Enter the information in either months OR days, not both.

1.4 Project Interfaces

This is the area that will determine which disciplines in FESS must review the project documentation. Answer the questions for any impacts the project will have on the subject areas. If "yes" is checked for any of the areas, a yellow box will appear. It is mandatory to fill this box in. Provide a brief explanation of how the project will impact the chosen areas being as specific as possible. For example, provide the electrical loads (kW), water use (GPM), or area of roofing.

1.5 Attachments

Attach relevant project documents. At a minimum, if the project involves any construction, a site map showing the project location and project limits must be uploaded.

2.0 FESS Review

The project interfaces will review the FDR form information and attachments within their discipline. Additional information may be requested by the project interfaces to clarify design questions. The POC should be prepared to answer these requests throughout the review period.

3.0 Review Completion

The FDR Reviewer will notify the project POC when the review is completed. However, the POC should stay abreast of the review status, and touch base with the FDR Reviewer if the POC has a question concerning the FDR status.

IV References

The following references have been identified.

- Fermilab *Construction, Conventional Design, and Land Use Planning Policy* within the Business Operations Management System
- FESS/E SOP 8.3.5.1 Document Reviews

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2015	K. Sienkiewicz	Initial Release

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Standard OperatIng Procedure

SOP Identifier: 8.4.5.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **A/E Consultant Quality Assurance**

I Applicability

Project execution requires quality control measures to ensure that the project requirements and goals are achieved.

The A/E Consultant shall implement its own Quality Control program applicable to the services provided to Fermilab. To dovetail with Fermilab's Quality Assurance Program the A/E Consultant shall submit their corporate Quality Assurance Plan. These measures may vary depending on the complexity of the project but should provide means of insuring sound engineering decisions early in the design process, interdisciplinary cross-coordination and minimized errors and omissions.

The A/E Consultant shall submit a Project Specific Quality Control Plan for approval by Fermilab for each tasking purchase order. This may be done by reference to the A/E Consultant's Corporate Quality Assurance Plan, with additional project specific measures stated.

During the course of the performance of services the A/E Consultant shall submit written documentation that the measures proposed in the Project Specific Quality Control Plan have been executed.

II Responsibilities

The following responsibilities have been identified:

AE Consultant

- Submit Corporate Quality Control Plan;
- Include Project Specific Quality Control Plan with tasking proposal, if required;
- Transmit to Project Engineer records of the implementation of quality control measures.

FESS/E Project Engineer

- Review Project Specific Quality Control Plan submitted with tasking proposal;
- Transfer documentation to project archives at completion of project.

III Procedure

1.0 Corporate Quality Control Plan

The AE Consultant submits the Corporate Quality Control Plan to BSS/Procurement prior to the establishment of a master subcontract.

2.0 Submit Project Specific Quality Control Plan

The AE Consultant shall include with tasking proposals a Project Specific Quality Control Plan that contains the methods to ensure that quality controls measures are in place for the execution of the task. This document should be tailored to the specific tasking and may reference the Corporate Quality Control Plan.

3.0 Review Project Specific Quality Control Plan

As part of the review of the AE Consultant proposal, the Project Engineer will review the Project Specific Quality Control Plan. Any irregularities/changes should be coordinated with the AE Consultant.

4.0 Documentation

4.1 At the closeout of the project tasking, or as appropriate, the AE Consultant shall submit written documentation that the measures proposed have been executed.

4.2 Upon receipt of the documentation, the Project Engineer shall review and transfer the documentation to the project archives.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Policy 9 – Consultant Support
- FESS/Engineering Standard Operating Procedure 9.3.5.1 – AE Tasking
- FESS/Engineering Standard Operating Procedure 10.3.5.2 - Meetings

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

Standard OperatIng Procedure

SOP Identifier: 9.3.5.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Architectural/Engineering Consultant Tasking**

I Applicability

This procedure applies to the establishing tasking purchase orders under a master subcontract with architectural and engineering (A/E) consultant firms.

II Responsibilities

The following responsibilities have been identified:

FESS/E Project Engineer

- Develop scope, schedule and budget criteria with the Customer contact;
- Prepare Request for Proposal memorandum to FS/Procurement;
- Review A/E Consultant proposal;
- Prepare and circulate purchase requisition.

FS/Procurement Contract Administrator

- Issue Request for Proposal to A/E Consultant
- Review A/E Consultant proposal;
- Issue purchase order.

III Procedure

1.0 Develop Memorandum

The FESS/E Project Engineer is responsible for meeting with client and developing an understanding of the scope, schedule and budget requirements for the project. This information shall be incorporated into a memorandum to Finance Section, Procurement Department (FS/P).

The FESS/E Project Engineer will develop a memorandum to FS/P that requests that a formal Request for Proposal (RFP) be issued to an A/E Consultant. The RFP should, as a minimum, contain the following information:

- Project Description;
- Scope of Services;
- Expected Deliverables;
- Preliminary Schedule;

This memorandum should be addressed to Contract Administrator of FS/P with copies to the Project File, Division/Section/Research Center Client contact and FESS/E Department Head.

2.0 Issue Request For Proposal

BSS/Procurement will issue a formal letter-format RFP to the A/E Consultant.

3.0 Proposal Preparation

Upon receiving a written request for proposal from FS/Procurement the A/E Consultant is responsible for preparing a proposal that accurately reflects the cost and schedule implication of the scope of services described in the RFP.

During the proposal preparation, the A/E Consultant may contact the Project Engineer to answer technical questions and to arrange site visits. All contractual issues shall be directed to the FS/Procurement Contract Administrator.

Unless otherwise specified in the RFP, all proposals shall be submitted within ten (10) business days after receipt.

Fee Proposals shall be sent to the FS/Procurement Subcontract Administrator with a copy to the FESS/E Project Engineer.

The A/E proposal shall include, as a minimum, the following information:

- Project description, describing the A/E's understanding of the program requirements of the task.
- Scope of Services, listing the services and the deliverables offered by the A/E for the fees quoted. Itemize variations, if any, to the requirements stated in this handbook and the A/E Services Subcontract.
- Schedule, proposing the time the task or each phase of the task will take to complete, indicated in days or weeks. The time should start from a “NTP” date and not actual dates.
- Cost, providing a detailed labor hour and rate breakdown of the proposed fee maximum by phase and task, listing personnel titles as they appear in the A/E Subcontract. Supplement this detail with the submittal of a completed Consultant Price Summary. Include a proposed cap cost for reimbursable expenses if allowed by the A/E Subcontract.
- Baseline Progress Reporting Requirements, for the tasking that includes, as a minimum, the following information:
  - Logical, sequential listing of tasks;
  - Expected cost associated with task (including both labor and reimbursables)
  - Monthly projection of expected costs
- All other requirements required by the A/E Subcontract or RFP.

4.0 Proposal Review

Upon receipt of the A/E proposal, the FS/P Contract Administrator will forward the proposal to the FESS/E Project Engineer for review and action. If acceptable, a purchase requisition will be written.

5.0 Purchase Requisition

After completing the review of the proposal, the FESS/E Project Engineer develop a purchase requisition and circulates it for signatures.

6.0 Issue Purchase Order

Upon receipt of the approved purchase requisition, the FS/P Contract Administrator will issue a purchase order for the task. The issuance of the purchase order signifies that point at which the A/E may begin work on the task.

IV References

The following references have been identified:

- FESS/Engineering Policy FEP 9 - Consultant Support
- FESS/Engineering Policy FEP 5 - Tailoring
- FESS/Engineering Standard Operating Procedure 8.4.5.1 – AE Quality Assurance
- FESS/Engineering Standard Operating Procedure 7.4.5.1 – AE Progress Reporting
- FESS/Engineering Standard Operating Procedure 12.4.5.1 – AE Invoicing

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

1.0 Example of memorandum to FS/P
2.0 Example of RFP memo to A/E firm
3.0 Example of A/E proposal

1.0 Example of memorandum to FS/P

Fermilab

Engineering Department
Facilities Engineering Services Section
630.840.8501 (phone)
630.840.4980 (fax)

Memorandum

October 5, 2007

To: B. Cibic, BSS/Procurement

From: S. Dixon, FESS/Engineering

Subject: Request for Professional Services
Lab BEG Lighting Upgrade
FESS/Engineering Project No. 8-2-151C

Please request a Not-To-Exceed proposal for professional A/E services from Crawford Murphy & Tilly Inc. (CMT) for engineering services for the Lab BEG Lighting Upgrade project.

Description:
The existing interior lighting at the Lab BEG Connection is based on unit fixtures intended for an industrial setting. Recent analysis and client input has determined that a more conventional lighting arrangement is preferred. Such a system was included in the original design, but removed as part of a value management exercise. This task will investigate the possibility of removing the existing system and installing the original design.

Scope:
The tasking should request engineering support for the following phases:

Phase 1 – Investigation
This phase will evaluate the existing electrical systems and develop a recommendation for replacement fixtures. In addition, budget cost estimates will be provided for the proposed upgrades. Specific tasks include:

1. Meetings at Fermilab;
2. Field visits to inspect existing conditions;
3. Investigation of proposed upgrades;
4. Development of budgetary cost estimates;
5. Report preparation

Phase 2 – Title 2 Documents
This phase will prepare the construction documents suitable for competitive bidding purposes. Specific tasks include:

1. Meetings at Fermilab;
2. Development of drawings;
3. Development of specifications;

Deliverables:
The following is the minimum expected deliverables:

Phase 1: Summary report of investigation/evaluation results
Phase 2: Construction documents

Schedule:
Start Task: November 2007
Complete Phase 1: Start Date + 4 weeks
Complete Phase 2: Start Date + 8 weeks

Bob, could you please forward this proposal to CMT and ask that they contact me to discuss this request for proposal in greater detail. Please request that they return their proposal by October 22, 2007

Please contact me at x8501 with questions.

Cc: E. Crumpley, FESS/E
E. McHugh m/s 355
J. Niehoff, FESS/E
Project File 6-7-16

2.0 Example of RFP memo to A/E firm

Fermilab

Fermi National Accelerator Laboratory
P.O.Box 500 • Batavia, Illinois • 60510-0500
Phone: 630/840-4255FAX 630/840-2907
Procurement, Mail Station 210

October 8, 2007

Mr. Bernard D. Held, P.E.
Crawford, Murphy & Tilly, Inc.
600 North Commons Drive, Suite 107
Aurora, IL 60504

Subject: Request for Professional Services
Lab BEG Lighting Upgrade
FESS/Engineering Project No. 8-2-151C

Dear Mr. Held:

Please submit a Not-To-Exceed proposal for professional A/E services for engineering services for the Lab BEG Lighting Upgrade project.

Description:
The existing interior lighting at the Lab BEG Connection is based on unit fixtures intended for an industrial setting. Recent analysis and client input has determined that a more conventional lighting arrangement is preferred. Such a system was included in the original design, but removed as part of a value management exercise. This task will investigate the possibility of removing the existing system and installing the original design.

Scope:
The tasking should request engineering support for the following phases:

Phase 1 – Investigation
This phase will evaluate the existing electrical systems and develop a recommendation for replacement fixtures. In addition, budget cost estimates will be provided for the proposed upgrades. Specific tasks include:

1. Meetings at Fermilab;
2. Field visits to inspect existing conditions;
3. Investigation of proposed upgrades;
4. Development of budgetary cost estimates;
5. Report preparation

Phase 2 – Title 2 Documents
This phase will prepare the construction documents suitable for competitive bidding purposes. Specific tasks include:

1. Meetings at Fermilab;
2. Development of drawings;
3. Development of specifications;

2

Deliverables:
The following is the minimum expected deliverables:

Phase 1: Summary report of investigation/evaluation results
Phase 2: Construction documents

Schedule:
Start Task: November 2007
Complete Phase 1: Start Date + 4 weeks
Complete Phase 2: Start Date + 8 weeks

Please submit your proposal by close of business October 22, 2007. Also, please contact Steve Dixon at (630) 840-8501 to discuss this RFP in greater detail.

If you have any questions please feel free to contact me at (630)840-4255.

Sincerely,

Thomas R. Powers
Procurement Administrator

cc: Steve Dixon, MS 214
Bob Cibic, MS 210
File

3.0 Example of A/E proposal

CMT
AVIATION
HIGHWAYS & BRIDGES
WATER & WASTEWATER
LAND DEVELOPMENT

Crawford, Murphy & Tilly, Inc. Consulting Engineers

October 22, 2007

Thomas R. Powers
Procurement Administrator
Fermilab
PO Box 500, Mail Station 210
Batavia, IL 60510

Dear Mr. Powers:

Re: Fermilab -- Lab BEG Lighting Upgrade
FESS Engineering Project Number: 8-2-151C

This letter is our response to the October 8 request for proposals for the Lab BEG Lighting Upgrade project. Our proposal is based on a site visit made by CMT's [redacted], as well as the information provided in the RFP.

Background Information:
The existing interior lighting at the Lab BEG Connection is based on unit fixtures intended for an industrial setting. Recent analysis and user input suggests that a more conventional lighting arrangement would better serve the buildings use. This project will investigate the possibility of replacing the existing lighting system with a lighting system that conforms with Fermi conventional lighting systems. As a part of this project, CMT will be available for general electrical questions related to the facility.

Project Approach:
CMT intends to perform this project with personnel from our Aurora office. [redacted] will provide the engineering services with AutoCAD assistance from CMT Aurora office technicians. Our staff is familiar with Fermi design and drafting standards and will follow them for this project. It is our understanding that this project requires an investigative phase to evaluate the existing system and determine requirements for a replacement lighting system, and estimate the costs of replacement. A summary report of these findings will be presented that would conclude Phase 1 (the investigative phase). Fermilab will then determine if the project will proceed. If so, in Phase 2, CMT will design the replacement system, prepare plans, specifications and estimates for the project. CMT will not proceed with Phase 2 without authorization by Fermilab's project manager.

Schedule and Cost:
CMT is prepared to perform this project in substantial conformance with the schedule proposed in the RFP. We understand that a notice to proceed will be issued in November, 2007 with Phase 1 to be completed in four (4) weeks. Once authorized, Phase 2 would follow in approximately eight (8) weeks. We estimate the effort and cost of this project to include 112 man-hours at a cost of [redacted] Phase 1 would be approximately 33% of the total effort or [redacted]

Please call if you have any questions.

Sincerely,
CRAWFORD, MURPHY & TILLY, INC.

Bernard D. Held

Bernard D. Held, P.E.
Sr. Vice President

FERMILAB CONSULTANT PRICE SUMMARY

DATE 23-Oct-07

CONSULTANT NAME: CRAWFORD, MURPHY & TILLY, INC.

CONTRACT NO.:

TASK ORDER NO.:

PROJECT NAME: **Lab BEG Lighting Upgrade**

PERSONNEL DESCRIPTION*	HOURS	CONTRACT RATE*	ESTIMATED COST (ALL PHASES)
PRINCIPAL	4	[redacted]	[redacted]
SENIOR PROJECT ENGINEER	2	[redacted]	[redacted]
PROJECT ENGINEER	78	[redacted]	[redacted]
SENIOR ENGINEER	0	[redacted]	[redacted]
ENGINEER	0	[redacted]	[redacted]
TECHNICAL MANAGER	0	[redacted]	[redacted]
PLANNER	0	[redacted]	[redacted]
REGISTER LAND SURVEYOR	0	[redacted]	[redacted]
SENIOR ENGINEERNG TECHNICIAN	0	[redacted]	[redacted]
ENGINEER TECHNICIAN	28	[redacted]	[redacted]
ENGINEER ASSISTANT	0	[redacted]	[redacted]
CLERICAL	0	[redacted]	[redacted]
TOTAL LABOR			[redacted]
LABOR BY PHASE:	STUDY OR CDR		
	TITLE I		
	TITLE II		[redacted]
	BIDDING		
	TITLE III (Constr. a		
COMPUTER CHARGES (Attach Detail)			$0.00
REIMBURSABLE EXPENSES ESTIMATE			[redacted]
TOTAL MAXIMUM FEE	**(rounded)**		[redacted]

CONTRACT ATTACHMENT / EXHIBIT: A - PROFESSIONAL SERVICES COST ESTIMATE
CLIENT: FERMILAB
PROJECT DESCRIPTION: Lab BEG Lighting Upgrade
CMT PROJECT NUMBER: TBD
CRAWFORD MURPHY & TILLY, INC. CONSULTING ENGINEERS

Prep By	AB
DATE	10/23/07
Apprvd	BDH
DATE	10/23/07

TASK NO.	TASKS \ CLASSIFICATIONS	PRINCIPAL	SR PROJECT ENGR / TECH MGR / ARCH	PROJECT ENGINEER	SR ENGINEER / TECHNICAL MGR	ENGINEER	SR TECHNICAL MGR	PLANNER	LAND SURVEYOR	SR TECHNICIAN	TECHNICIAN	TECHNICIAN ASSISTANT	CLERICAL	MAN HOURS & LABOR SUMMARY
	2006 - 2008 HOURLY RATES													TOTAL
1	Kick-off Meeting with Fermi Staff			4										4
2	Field collection of existing condition data			6										6
3	Review, analyze and prepare photometrics			6										6
4	Prepare Report with Exhibits and budgetry cost estimate			12							4			16
5	Report review meeting with Fermi Staff			4										4
6	Prepare pre-fimal plans, specs and estimate			24							16			40
7	Pre-final plans review meeting			4										4
8	Prepare final plans, specs and estimate			12							8			20
9	QA/QC	2	2	2										6
10	Project Management	2		4										6
11														
12														
13														
14														
15														
	TOTAL MAN HOURS	4	2	78							28			112
	SUBTOTAL - BASE LABOR EFFORT													

	TASKS (CONTINUED)	TOTAL LABOR EFFORT	DIRECT EXPENSE & REIMBURSABLES											TOTAL FEE
			TRAVEL MILEAGE	MEALS & LODGING	PRINTING	EQUIP-MENT	MISC	SURVEY MTL	SUBS	OTHER EXP	OTHER EXP	OTHER EXP	TOTAL EXPENSE	
1	Kick-off Meeting with Fermi Staff		$10										$10	
2	Field collection of existing condition data		$10										$10	
3	Review, analyze and prepare photometrics													
4	Prepare Report with Exhibits and budgetry cost estimate				$50								$50	
5	Report review meeting with Fermi Staff		$10										$10	
6	Prepare pre-fimal plans, specs and estimate				$100								$100	
7	Pre-final plans review meeting		$10										$10	
8	Prepare final plans, specs and estimate				$100								$100	
9	QA/QC													
10	Project Management													
11														
12														
13														
14														
15														
	TOTALS													
	TIME PERIOD OF PROJECT	2004	2005	2006	2007	TOTAL	EST % OF OT HRS INCLUDED ABOVE						MULTI-YEAR + OT	
	PERCENTAGE OF WORK TO BE PERFORMED BY YEAR			100%		100%	AVERAGE OVERTIME RATE PREMIUM						MLTPLR & AMT	
	WEIGHTING FACTOR FOR 3% ANNUAL ADJUSTMENT			1.0609		1.0609	OT ADJUSTMENTFACTOR						1.0609	
	ESTIMATED CONTINGENCY												5%	
	ROUNDING													
	TOTAL FEE													

Lab BEG Lighting Upgradel eng fee_10-22-07.xls TAB: ESTIMATE OF ENGINEERING FEE 1 OF 1 10/23/2007 8:21 AM

Standard OperatIng Procedure

SOP Identifier: 10.2.3.1
Revision Number: 1
Effective Date: September 11, 2013

Subject Matter Expert: J. Hunt (huntjw@fnal.gov)

Title: **SWPPP & NOI Submittals**

I Applicability

Many studies over the past twenty years have shown that runoff from urban and industrial areas typically contains significant quantities of the same types of pollutants that are found in municipal wastewater and industrial discharge and can cause similar water quality problems. Therefore, as mandated by Congress under the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) storm water program was created as a national program for addressing the nonagricultural sources of storm water discharges that adversely affect the quality of our nation's waters. Although the NPDES is a federal program, individual states have the option of creating their own permit process, upon approval of the USEPA. The state of Illinois has chosen to do this so the federal NPDES program has been delegated to the state.

For construction projects that disturb one or more acres total land area, a General NPDES Permit for Storm Water Discharges from Construction Site Activities will be required. The permit, formally labeled ILR10, describes the process for getting coverage approval. In short, as part of the permit approval, a Notice of Intent (NOI) and a Storm Water Pollution Prevention Plan (SWPPP) document must be submitted to the Illinois Environmental Protection Agency (IEPA) a minimum of 30 calendar days prior to the start of construction. To expedite the process and not delay projects by an additional 30 days waiting for a contract to be awarded, FESS Eng will generate the NOI and SWPPP (identifying Fermi Directorate as Contractor and DOE as Owner) in conjunction with the project specifications and Exhibit A.

A copy of the project specific SWPPP and erosion control plan drawing(s) shall then be included with the Exhibit A for all bidders to review and subsequently sign off once the project is awarded.

II Responsibilities

Project Engineer

- Complete on Environmental Review Form (ERF) and determine if a SWPPP and NOI are required.
- Ensure BMPs (see Illinois Urban Manual) have been incorporated into the Soil Erosion and Sedimentation Control Plan
- Complete the Notice of Intent (NOI) Form
- Create a project specific Storm Water Pollution Prevention Plan (SWPPP)
- Email completed, signed NOI, SWPPP, and Erosion Control drawings to IEPA
- Complete Notice of Termination (NOT) Form

Construction Coordinator

- Ensure all of the subcontractors sign the certification page of the SWPPP
- Ensure a copy of the SWPPP remains at the construction site for the duration of the project
- Verify that a copy of the letter of notification of coverage, along with the General NPDES Permit for Storm Water Discharges from Construction Site Activities or other indication that storm water

discharges from the site are covered under an NPDES permit, shall be posted at the site in a prominent place for public viewing.

- Ensure that the subcontractor is following all terms and conditions of the permit, which includes inspecting erosion control devices throughout the project duration, keeping an inspection log, and handing over the reports to the CC on a weekly basis.

FESS Environmental Officer

- Review SWPPP and NOI prior to submittal to the Directorate for signoff

FESS Administrative Support

- Get signatures from the Directorate on the SWPPP Certification page
- Get signatures from the DOE on NOI Form and SWPPP Certification page
- Ensure completed, signed NOI form and SWPPP document goes to the Project Engineer
- Get signatures from the DOE on NOT Form for submittal to IEPA

Directorate - Signoff

DOE - Signoff

III Procedure

1.0 Project Engineer completes an ERF and determines if a SWPPP and NOI are required.

2.0 Project Engineer generates project specific SWPPP for submittal to IEPA at the time of Comment Compliance Review.

3.0 Project Engineer completes the online version of the IEPA NOI Form (located at http://www.epa.state.il.us/water/permits/storm-water/forms/notice-intent-construction.pdf) and prints the completed form for hard copy signatures by the DOE.

4.0 FESS Environmental Officer reviews the completed NOI and SWPPP.

5.0 FESS Administrative Support transmits completed NOI and SWPPP to Directorate for Director's signature on SWPPP Certification page only.

6.0 NOI and SWPPP are then forwarded to DOE for review and signatures as owner on both the NOI and SWPPP.

7.0 Completed NOI/SWPPP documents returned to FESS Admin. Support. FESS Admin. Support returns NOI/SWPPP documents to FESS Eng.

8.0 FESS Eng emails PDF versions of NOI, SWPPP, and Erosion Control Plan Drawings to IEPA at: epa.constilr10swppp@illinois.gov a minimum of 30 calendar days prior to the start of construction.

9.0 After emailing the signed NOI and SWPPP PDFs, IEPA requires that the original, signed NOI form be mailed to the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Permit Section
P.O. Box 19276
Springfield, IL 62794-9276

Typically, FESS Eng generates the letter for Directorate to copy onto their letterhead, with attached original NOI. The Directorate then submits the documents to IEPA. The IEPA NOI permit fee is waived for Fermilab projects.

10.0 Copy of SWPPP is then added to project Exhibit A documents

11.0 Once a contract for the project is awarded, the Construction Coordinator is responsible for having the subcontractor and all sub-tier contractors sign-off on the SWPPP Certification page.

12.0 FESS Eng is responsible for maintaining all signatures and revisions to project specific SWPPP for the duration of the project. The original, signed SWPPP and revisions will reside within FESS Eng office documents and computer project files. Copies of the signed documents will be given to FESS Eng Construction Coordinators and subcontractors for their reference in the field. The Construction Coordinator shall keep copies of the inspection reports throughout the duration of the project.

13.0 The Construction Coordinator shall verify that a copy of the letter of notification of coverage along with the General NPDES Permit for Storm Water Discharges from Construction Site Activities or other indication that storm water discharges from the site are covered under an NPDES permit shall be posted at the site in a prominent place for public viewing.

14.0 Electronic copies of all NOI/SWPPP documents shall be filed in the current project files under the folder No. 5 titled “ES&H Documents”.

15.0 Any substantial modifications to the project such as: address changes, new contractors, area coverage, additional discharges to waters of the state, or other substantial modifications require a revised NOI to be submitted to the IEPA.

16.0 FESS Eng generates the Notice of Termination (NOT) form once it is determined that the unpaved areas of the site have reached a minimum of 70% vegetative cover and all other terms and conditions of the permit have been met.

17.0 FESS Admin. Support transmits completed NOT form to DOE for signature and submittal to IEPA, either electronically or through the mail, in order to close out the project.

IV References

The following references have been identified:

General NPDES Permit for Storm Water Discharges From Construction Site Activities (NPDES Permit No. ILR10) - http://www.epa.state.il.us/water/permits/storm-water/general-construction-permit.pdf

Illinois Urban Manual – www.aiswcd.org/IUM

V Revision History

Version Number	Date	Author	Change Summary
0	12/15/2011	J. Hunt	Initial Release
1	04/15/2015	J. Hunt	Triennial Review

VI Other

1.0 Notice of Intent (NOI) Form – http://www.epa.state.il.us/water/permits/storm-water/forms/notice-intent-construction.pdf

2.0 Notice of Termination (NOT) Form – http://www.epa.state.il.us/water/permits/storm-water/forms/notice-termination-construction.pdf

3.0 SWPPP Template

4.0 Sample Letter to the Directorate for original signature
5.0 Sample Letter to the DOE for original signature
6.0 Sample Letter to IEPA for transmittal of original, signed NOI

3.0 SWPPP Template

NPDES PERMIT NO. ILR 10
STORM WATER POLLUTION PREVENTION PLAN
FOR THE
[PROJECT NAME] PROJECT

I. PROJECT OVERVIEW

1.0 SITE DESCRIPTION

This project will construct [description of construction project].

1.1 Construction Sequence

Soil disturbing activities are planned to begin on [start date] and completed by [end date].

- [Order of construction activities]

(e.g. Installation of erosion control measures; demolition of existing building, pavement, and utilities; installation of underground utilities; construct building expansion; parking lot reconstruction; finish grading and stabilization with permanent seeding, mulch, and blankets; and construction site cleanup.)

1.2 Site Area

The area of soil disturbance for the proposed project is estimated to be [x.xx] acres. An additional [x.xx] acres of excess soil stockpiling shall be included for a total of [x.xx] acres of total soil disturbance.

1.3 Runoff Estimates

The entire Fermilab site is 6,800 acres. The nominal increase in impervious area created with this project will not result in any increased runoff from the site.

The receiving water for this project is [tributary creek or river].

1.4 Site Maps

Rev. 0 1 [Project Name] Project
Month DD, YYYY Storm Water Pollution Prevention Plan

Refer to Drawings, [Sheet Numbers] for Sedimentation and Erosion Control Plans for this Project. [See Part IV.D.1.e of the General NPDES Permit for required contents of the SESC Plan]

2.0 STORM WATER CONTROLS

Stabilization and Structural practices to be incorporated will be in accordance to the Illinois Urban Manual (2012) and as shown in the attached Erosion Control Plans and Details

2.1 Erosion and Sediment Controls

[Summarize the design intent of the soil erosion and sediment control plan. Include statements describing how the project will:

- Minimize the amount of soil exposed during construction activity;
- Minimize the disturbance of steel slopes;
- Minimize sediment discharges from the site;
- Provide and maintain natural buffers around surface waters, direct storm water to vegetated areas to increase sediment removal and maximize storm water infiltration, and;
- Minimize soil compaction and preserve topsoil]

2.2 Stabilization Practices

Temporary and permanent seeding within the construction areas will be employed as well as with the excess soil stockpile areas. Permanently seeded areas will be protected with the use of [site specific measures such as straw mulching and erosion control blankets]. [See Part IV.D.2.b of the General NPDES Permit for ideas of specific stabilization practices to employ]

Dates when major grading activities occur, or when major activities temporarily cease or portions of permanent stabilization commence shall be recorded in the weekly inspection log sheets.

Where initiation of stabilization measures are precluded by snow cover, stabilization measures shall be initiated as soon as practical.

2.3 Structural Practices

Confinement of sediment within the construction site area will be controlled by [site specific measures such as silt fences, inlet protection, and rock check dams]. [See Part IV.D.2.c of the General NPDES Permit for ideas of specific structural practices to employ]

The functioning drainage characteristics during the sequence of construction will be of equal or improved quality when compared to the original site conditions.

2.4 Pollution Prevention

Building Materials, construction debris, landscape materials and fertilizers shall be kept protected from precipitation and storm water flows by protective storage and covering and proper disposal of materials in construction site dumpsters.

Fermilab has a written Spill Prevention, Control, and Countermeasures (SPCC) Plan which details the United States Environmental Protection Agency's Oil Pollution Prevention regulations' applicability to Fermilab, lists all oil sources subject to the regulation, describes potential spill predictions (direction of flow, rates, and controls), describes the site's water drainage scheme, and contains procedures for inspecting, spill response, and reporting. Spill Prevention is also covered in Fermilab's ESH&Q Department's FESHM Chapter 8030 Chemical Releases, Spill Prevention and Response.

2.5 Other Controls

No solid materials, including building materials, shall be discharged to Waters of the State, except as authorized by a Section 404 permit.

All phases of construction will have designated Concrete Truck Washout areas to protect any discharges from entering drainage ways.

2.6 Best Management Practices for Post-Construction Storm Water Management

Post-construction storm water management practices to include [site specific measures such as a minimum sloped drainage ditch and rip rap protection at outfall locations]. [See Part IV.D.2.h(i) of the General NPDES Permit for ideas of specific post-construction storm water management practices to employ]

2.7 Approved State or Local Plans

The management practices and controls as defined in this plan shall be in accordance to Illinois Urban Manual (2012). No other local documents or plans apply to work activities on this project.

3.0 MAINTENANCE

All erosion and sediment control measures shall be maintained in functional condition through completion of the project by the *Subcontractor and as follows:*

1. [Add site specific measures]

(e.g. maintain site areas; maintain silt fencing and vegetative boundaries; install and maintain temporary/permanent seeding; maintenance of stockpile areas; maintenance of sedimentation basin; and maintain concrete truck washout areas and disposal of material)

Typical Maintenance Procedures shall be as follows:

1. Removal and disposal of accumulated sediments to ensure functionality
2. Replacement and or repair of devices damaged from storms or construction activities
3. Dust Control procedures on site roads and construction areas will be maintained through periodic watering as required and removal of loose material on all paved areas at the end of each work day.

4.0 INSPECTIONS

Site inspections will be conducted by qualified Fermi personnel and *Subcontractor personnel* in accordance to the permit requirements and at a minimum of at least once every seven calendar days and within 24 hours of the end of a storm or by the end of the following business or work day that is ½ inch or greater.

Inspections may be reduced to once per month when construction activities have ceased due to frozen conditions. Weekly inspections will recommence when construction activities are conducted, or if there is ½" or greater rain event, or a discharge due to snowmelt occurs.

The Subcontractor shall call the automated Fermi Site Weather Station at (630) 840-2172 for continuous 24 hour precipitation totals in determining inspection response to rainfall and snow events.

The Subcontractor shall also maintain a field log of inspection reports and submit a copy of the log to the Fermi Construction Coordinator at the end of each week through completion of the project.

Any failures of erosion control devices or instances of noncompliance to the permit shall be followed with corrective action immediately.

5.0 NON-STORM WATER DISCHARGES

Water and concrete generated in the designated Concrete Truck Washout areas will be removed from the site and disposed of as unsuitable material once stabilized.

6.0 SPILL RESPONSE PROCEDURE

Fermilab has a written Spill Prevention, Control, and Countermeasures (SPCC) Plan which details the United States Environmental Protection Agency's Oil Pollution Prevention regulations' applicability to Fermilab, lists all oil sources subject to the regulation, describes potential spill predictions (direction of flow, rates, and controls), describes the site's water drainage scheme, and contains procedures for inspecting, spill response, and reporting.

II. ADDITIONAL REQUIREMENTS FOR STORM WATER DISCHARGE FROM INDUSTRIAL ACTIVITIES OTHER THAN CONSTRUCTION

No other activities expected

III. CONTRACTOR AND SUBCONTRACTOR RESPONSIBILITIES

The overall contractor is Fermi Research Alliance LLC (FRA). For the overall scope of the project, the subcontractor that will be responsible for the erosion and sediment control measures for each particular job will be identified in this Plan. An authorized representative from the subcontracting firms will sign this document certifying compliance with the General Permit conditions.

IV. SEDIMENTATION AND EROSION CONTROL PLAN

(Pages following certification page)

OWNER CERTIFICATION
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Department of Energy
Batavia Area Office
DOE Fermi Group Manager
P.O. Box 2000
Batavia, IL 60510
(630) 840-3281

_____
Michael J. Weis

_____
Date

CONTRACTOR CERTIFICATION
"I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification."

Fermi Research Alliance LLC
Wilson and Kirk Rds.
P.O. Box 500
MS 105
Batavia, IL 60510
(630) 840-3211

_____
Nigel Lockyer
Fermilab Director

_____
Date

SUBCONTRACTOR CERTIFICATION
"I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with the industrial activity from the construction site identified as part of this certification."

Firm:

_____

_____

_____

Phone: _____

_____
Owner/Representative

_____
Date

SUBCONTRACTOR CERTIFICATION
"I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with the industrial activity from the construction site identified as part of this certification."

Firm:

_____ _____
Owner/Representative

_____

_____ _____
Date

Phone: _____

SUBCONTRACTOR CERTIFICATION
"I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with the industrial activity from the construction site identified as part of this certification."

Firm:

_____ _____
Owner/Representative

_____

_____ _____
Date

Phone: _____

SUBCONTRACTOR CERTIFICATION
"I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with the industrial activity from the construction site identified as part of this certification."

Firm:

_____ _____
Owner/Representative

_____

_____ _____
Date

Phone: _____

4.0 Sample Letter to the Directorate for original signature

Fermilab

From: Randy Ortgiesen, FESS

To: Pier Oddone via Bruce Chrisman

SUBJECT: NOTICE OF INTENT (NOI) AND STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR NEW MUON LAB EXPANSION PROJECT

Date: September 17, 2009

The attached SWPPP must be signed by the Fermilab Director as Contractor where indicated, and then forwarded, along with the attached NOI to the Fermi Site Office for signature as Owner. These signed documents will be returned to FESS and submitted electronically to the Illinois Environmental Protection Agency to begin the 30 day clock to obtain coverage of the subject project by the General Permit for Storm Water Discharges from Construction Site Activities.

If you have any questions, please do not hesitate to contact Rod Walton at extension 2565.

Attachments

5.0 Sample Letter to the DOE for original signature

Mr. Mark E. Bollinger
Acting Site Manager
Fermi Site Office
U.S. Department of Energy
PO Box 2000
Batavia, IL 60510

Dear Bollinger:

SUBJECT: NOTICE OF INTENT (NOI) AND STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR MI-8 EXPANSION PROJECT

The subject project requires coverage under the Illinois General Permit for Storm Water Discharges from Construction Site Activities. Under new procedures initiated by the Illinois Environmental Protection Agency (IEPA), the NOI and the SWPPP (attached) must be submitted to IEPA electronically in order to start the 30 day clock for acceptance.

Please sign the NOI and SWPPP Certification where indicated and return to this office for electronic submittal. If you have any questions, please contact Dr. Rod Walton at extension 2565.

Sincerely yours,

Bruce Chrisman

Enclosures

6.0 Sample Letter to IEPA for transmittal of original, signed NOI

Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Permit Section
P.O. Box 19276
Springfield, Illinois 62794-9276

SUBJECT: NOTICE OF INTENT (NOI) FOR MI-8 EXPANSION PROJECT

Please find enclosed the original Notice of Intent to discharge storm water under the Illinois General Permit for Construction Site Activities. Copies of the NOI and the Storm Water Pollution Prevention Plan (SWPPP) were sent to your office via email on March 8, 2010.

If you have any questions, please contact Rod Walton at (630) 840-2565 or Jon Hunt at (630) 840-4312.

Sincerely yours,

Bruce Chrisman

Standard OperatIng Procedure

SOP Identifier: 10.3.3.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Amendments**

I Applicability

This procedure applies to projects managed by FESS/E. An Amendment is a document that is issued to the offerers during the proposal period prior to the receipt of proposals. An Amendment is used to clarify or modify the scope a project.

II Responsibilities

The following responsibilities have been identified:

FESS/E Project Coordinator
- Assembles amendment documents (text, drawings, etc,);
- Develops Amendment memo.

FESS/E Project Engineer
- Reviews Amendment documents for project impact.

Division/Section Client
- Reviews Amendment documents for project impact.

FS/Procurement Administrator
- Determines if Amendment impacts the request for proposal period;
- Issues formal Amendment to Offerers.

III Procedure

1.0 Develop Amendment Documents

The FESS/E Project Coordinator develops the Amendment documents that describe in text and/or drawings the modified scope of work. This documentation should include a document with, as a minimum, the following information:

- Amendment Identifier;
- FESS/E Project Name;
- FESS/E Number;

The Amendment documents are reviewed by the FESS/E Project Engineer.

2.0 Distribute Amendment

The Amendment documents are forwarded to the FS/Procurement Administrator. Copies are provided to the Division/Section/Research Center Client, the FESS/E Project Engineer and the FESS/E Department Head.

3.0 Issue Amendment of Solicitation
The FS/Procurement Administrator issues the Amendment of Solicitation to the Offerers.

4.0 Documentation
The FESS/E Project Engineer transfers the documentation to the project file.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Standard Operating Procedure 10.2.5.3 – Drawing Requirements

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

1.0 Example of Amendment Document
2.0 Example of Amendment of Solicitation issued by fS/Procurement Administrator

1.0 Example of Amendment Document

AMENDMENT NO. 1
To the construction documents for:

GCC COMPUTER ROOM-B
FESS/Engineering Project No. 8-4-98D

Fermi National Accelerator Laboratory
Batavia, Illinois

Amendment Date March 08, 2006

Changes/Clarifications to the Drawings:

1. Drawing E-24

Delete this drawing **"CARD ACCESS/SECURITY".**

Changes/Clarifications to the Specifications:

1. Addendum-A, Page 7

Add item 13 under "Demolition"

Provide a dust enclosure for the concrete saw cutting, floor removal, ICW pipe removal, excavation, etc. for the installation of new electrical duct bank into the existing Electrical Equipment Room. Enclosure is to ensure that no dust gets into the existing electrical equipment.

2.0 Example of Amendment of Solicitation issued by FS/Procurement Administrator

AMENDMENT 0F SOLICITATION

AMENDMENT NO. 1	DATE OF AMENDMENT: March 9, 2006
SOLICITATION NO. FESS-181875-RWC/REDESIGN	DATE ISSUED: February 13, 2006
PROJECT NO. 8-4-98D	OPENING DATE: March 13, 2006
TITLE OF PROJECT: GCC Computer Rom B	

Bidders must acknowledge this Amendment prior to the hour and date set forth in the solicitation by one of the following methods:

1. By completing the Representations, Certifications and Acknowledgements (Form FL-6)
2. By separate telegram or letter.

If by virtue of this Amendment you desire to change a bid already submitted, such change may be made by telegram or letter, provided such telegram or letter makes reference to the Solicitation and this Amendment and is received prior to the time set for opening.

The above reference Solicitation is amended as follows:

Reference – Drawing No.E-24, "Card Access/Security."
All Planholders are to delete this drawing and the requirements contained therein as Non-applicable to this solicitation.

Reference – Addendum "A" to Exhibit "A", Page 7.
Add Item 13, under "Demolition," as follows:

"Provide a dust enclosure for the concrete saw cutting, floor removal, ICW pipe removal, excavation, etc. for the installation of new electrical duct bank into the existing Electrical Equipment Room. Enclosure is to ensure that no dust gets into the existing electrical equipment."

Solicitation Opening Date: Remains at March 13, 2006 (4:30 p.m., Local Prevailing Time).

All other terms and conditions remain unchanged.

Fermi National Accelerator Laboratory P.O. Box 500 Batavia, Il 60510 M.S. 210	Ron W. Cypret Ron W. Cypret Senior Procurement Administrator 630/840-3839 FAX 630/840-2907

RECEIVED
MAR 10 2006
FESS/ENGINEERING

FESS/Engineering
DISTRIBUTION
8-4-98D
Project File

Standard OperatIng Procedure

SOP Identifier: 10.3.3.2
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Procurement Period Questions**

I Applicability

This procedure applies to projects managed by FESS/E.

A Bid Period Question is a communication between a potential Offerer and a member of the integrated project team that occurs while the project is out for solicitations but prior to receipt of proposals.

II Responsibilities

The following responsibilities have been identified:

Project Team Member
- Responds to question from Offerers;
- Documents conversation;
- Forwards conversation documentation.

FESS/E Project Manager/Engineer
- Reviews Bid Period Question documentation for project impact;
- Consults with BSS/Procurement Administrator to determine if Amendment to Solicitation is required;
- Transfers documentation to project file.

Division/Section/Resource Center Client
- Reviews Bid Period Question documentation for project impact.

FS/Procurement Administrator
- Consults with FESS/E Project Engineer to determine if Amendment to Solicitation is required;

III Procedure

1.0 Bid Period Question

The member of the integrated project team that responds to a bid period question documents that question and responds to the potential Offerer. The documentation includes, as a minimum, the following information:

- FESS/E Project Name;
- FESS/E Number;
- Date;
- Contact Name;
- Contact Company;
- Contact Telephone Number;

- Question;
- Response.

2.0 Distribute Documentation

The Bid Period Question documentation is, as a minimum, forwarded to the following:

- FS/Procurement Administrator;
- FESS/E Project Engineer;
- FESS/E Project Coordinator;
- FESS/E Manager;
- Division/Section/Resource Center Client.

3.0 Documentation

The FESS/E Project Engineer transfers the documentation to the project file.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Standard Operating Procedure 10.2.5.3 – Drawing Requirements
- FESS/Engineering Standard Operating Procedure 10.3.3.1 – Amendments

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

1.0 Example of Bid Period Question form

1.0 Example of Bid Period Question form

Bid Period Question

Project: GCC Computer Room C
FESS/Engineering Project No. 8-4-104

Date: January 24, 2008
Contact: Cindy, West Elsdon Electric
Phone: 1-815-761-3388

Question:
Are the jumper cables between the batteries included in the Fermi-provided batteries for the UPS

Response:
Yes, the battery to battery connections are part of the batteries supplied by Fermilab for installation by the ssubcontractor. The cables from the batteries to the disconnect switches are not supplied by Fermi and are supplied and installed by the subcontractor.

Steve Dixon
FESS/Engineering
Fermi National Accelerator Laboratory
Phone: (630) 840-8501
Fax: (630) 840-4980
E-Mail: steveo@fnal.gov

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Standard OperatIng Procedure

SOP Identifier: 10.3.5.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Meetings**

I Applicability

Project execution requires various types of meetings to review progress discuss issues and share information. This procedure provides guidelines for improving the effectiveness and efficiency of meetings and gatherings

II Responsibilities

The following responsibilities have been identified:

FESS/E Project Engineer

- Determine the need for meetings
- Act as or designate Meeting Facilitator;

Meeting Facilitator

- Ensure meeting follows the agenda;
- Takes, prepares and distributes meeting minutes;
- Ensures meeting schedule and timing rules are followed.

Meeting Participants

- Arrive on time;
- Attend and contribute to meeting discussions.

III Procedure

1.0 Plan Meeting

The Meeting Facilitator completes the activities listed below:

1. Determine meeting type;
2. Determine what must occur prior to the meeting to make it successful;
3. Determine what must be accomplished for the meeting to be completed;
4. Determine who should attend the meeting;
5. Determine what material the participants need ahead of time;
6. Schedule meeting location.

2.0 Announce Meetings

The Meeting Facilitator completes the activities listed below:

1. Issue agenda;
2. Date, time and location of the meeting;
3. Special instruction, if required, in preparation of the meeting;
4. Forward pertinent documentation that should be reviewed prior to the meeting.

3.0 Conduct Meeting

The Meeting Facilitator performs the activities listed below:

a. Ensure adequate facilities, room arrangement, and that all equipment is operational;
b. Identify room specific exiting, emergency instructions, bathroom locations and related items;
c. Pass around a sign-in sheet or roster, if appropriate;
d. Summarize roles, goals, objectives, agenda;
e. Ensures meeting schedule and timing rules are followed;
f. Takes meeting minutes that include, as a minimum, the following information:
    - Date;
    - Time;
    - Meeting Location;
    - Project Information (Name, FESS/E Project Number);
    - Attendee information (Name, Affiliation);
    - Topic;
    - Appropriate description of meeting content;
    - Identification of action items including assignment and schedule for completion.

4.0 Follow Up

The Meeting Facilitator issues meeting minutes to the project team, usually within five (5) working days of the meeting.

Meetings with detailed and/or complex issues may require the issuance of draft meeting minutes to confirm factual accuracy. The Meeting Facilitator issues the draft meeting minutes. Upon receiving comments, the final meeting minutes should be issued within five (5) working days to the project team.

5.0 Revisions

When appropriate, revisions to final meeting minutes should be issued. The revised meeting minutes should be sent to all recipients of the original meeting minutes.

IV References

The following references have been identified:

- FESS/Engineering Policy FEP 5, Tailoring
- FESS/Engineering Policy FEP 9, Consultant Support

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

1.0 Examples of meeting minutes

1.0 Example of meeting minutes

Steve Dixon

From: "Steve Dixon" <steveo@fnal.gov>
To: "Russell J. Alber" <ralber@fnal.gov>; "Ronald Jedziniak" <jedziniak@fnal.gov>; "Ron W. Cypret" <rcypret@fnal.gov>; "Michael P. Michalak" <michalak@fnal.gov>; "Merle L. Olson" <merleo@fnal.gov>; "Louis D. Weller" <lweller@cmtengr.com>; "John D. MacNerland" <jak@fnal.gov>; "James H. Niehoff" <niehoff@fnal.gov>; "Gerry J. Bellendir" <gerryb@fnal.gov>; "Gerald E. Halm" <jhalm@cmtengr.com>; "Emil Huedem" <huedem@fnal.gov>; "David J. Ritchie" <ritchie@fnal.gov>; "Charles A. Federowicz" <chuckf@fnal.gov>; "Gary Van Zandbergen" <gvanz@fnal.gov>
Cc: "Victoria A. White" <white@fnal.gov>; "Robert S. Tschirhart" <tsch@fnal.gov>; "Gregory B. Mitchell" <gmitchel@fnal.gov>; "Edward Crumpley" <crumpley@fnal.gov>; "David L. Nevin" <nevin@fnal.gov>; "Bernard D. Held, P.E." <bheld@cmtengr.com>; "Amy Pavnica" <pavnica@fnal.gov>
Sent: Tuesday, May 10, 2005 8:18 AM
Subject: GTR - Meeting Minutes 10MAY05

MEETING MINUTES

No meeting was held on 5/10, but this message will include recent information for the project team

GCC Tape Robot Room

FESS/Engineering Project No. 8-4-100
Date: May 10, 2005

Objective: Provide infrastructure to support Robotic Tape Storage functions in the Grid Computer Center.

Attendees:

- Computing Division - G. Bellendir, J. MacNerland, D. Ritchie
- FESS/E - R. Alber, G. Van Zandbergen, C. Federowicz, M. Olson, R. Jedziniak, R. Walton, S. Dixon

This weekly meeting will discuss progress on developing a set of subcontract documents for the adaptive reuse of the existing space into space suitable for robotic tape storage.

The scope of this project includes:

1. The conversion of the existing North Computer Room.
2. The connection of the two (2) existing CRAC units in Computer Room #1
3. The connection of the existing CRAC unit in the UPS Room.
4. The upgrade of the entrance to the building.

DISCUSSION TOPICS
Listed below are the discussion topics for this project:

Tape Robot Room

1. E. Heudem has reviewed the computing equipment planned for the TRR in order to verify if one (1) 30 Ton CRAC unit is adequate. Here's the assumptions:
    - Computing equipment loads from the tape robots and mover nodes is less than 53 kW;
    - Tape Robot: Temperature of 75 degrees F and 45% relative humidity +/- 10%
    - UPS Equipment: Temperature of 77 degress F and 0%-95% relative humidity.

2. Based on the analysis and assumptions, one (1) 30 ton CRAC unit is adequate.
3. There was a request to develop a budgetary cost estimate for installing a 100 kVA standby generator for the Tape Robot Equipment, Mover Nodes and Network Equipment supporting the TRR. Listed below is a summary of the estimatedcost for that work:

125 kVA Diesel Generator	$50,000
Concrete Pad w/Containment	$5,000
Ductbank with conductors (150 LF)	$20,000
New Panelboards (2)	$12,000
Rework Existing Circuits	$15,000
Subtotal	$102,000
Suggested Contingency	$26,000
Total	$128,000

The above estimate is based soley on equipment and expected installation costs and will change as the design is refined. These estimates DO NOT include EDIA or Indirect Cost multipliers that will have to be applied in the event that this work becomes part of a GPP project.

Contingency Analysis
The following is a listing of the scope changes identifed during the design phase of the project:

Description	Add	Deduct	Balance	Notes
Contingency per CDR			$83,000	Includes EDIA and Preprocured
Demolish Fence at Entry		$1,500	$84,500	Done by others
Provide Opening at Gas Bottle Room		$2,000	$86,500	Done by others
Install Door at Gas Bottle Room	$1,200		$85,300	
Infill Opening at Old Entry	$500		$84,800	
Humidifier in Network Room	$14,217		$70,583	Average of Offers
Increase Size of UPS (20->40)	$17,000		$53,583	
Provide For Future 40 kVA UPS	$15,000		$38,583	Breaker, conduit and disconnect
Floor Tile in Network Room	$3,500		$35,083	Patch and install new over existi
Floor Tile In Lobby	$1,500		$33,583	Patch and install new over existi
Light Fixtures in TRR (8)	$1,600		$31,983	Assumed use of salvaged fixture
	$54,517	**$3,500**		

Baseline Estimate of Construction	$377,000
Contingency Usage	$49,417
Revised Estimate of Construction	$426,417
Available Contingency	8%

For reference, the recently completed HDCF Conversion project required 38% contingency for construction alone.

ACTION ITEMS
The following action items have been identified

FESS/E

Steve Dixon

From: "Steve Dixon" <steveo@fnal.gov>
To: "Travis Barta" <tbarta@burnsmcd.com>; "Russell J. Alber" <ralber@fnal.gov>; "Ronald Jedziniak" <jedziniak@fnal.gov>; "Rodney Walton" <rwalton@fnal.gov>; "Merle L. Olson" <merleo@fnal.gov>; "Lee Hammond" <lhammond@fnal.gov>; "Lackowski, Thomas W" <tomski@fnal.gov>; "John R. Steenken" <jsteenken@burnsmcd.com>; "John J. Santic" <santic@fnal.gov>; "James H. Niehoff" <niehoff@fnal.gov>; "Gary Van Zandbergen" <gvanz@fnal.gov>; "Emil Huedem" <huedem@fnal.gov>; "Charles A. Federowicz" <chuckf@fnal.gov>; "Karen Stelling" <kstelling@burnsmcd.com>
Cc: "Keith W. Schuh" <schuh@fnal.gov>; "Bill Miller" <Miller@soudan.umn.edu>; "Earl Peterson" <eap@physics.umn.edu>; "Edward Crumpley" <crumpley@fnal.gov>; "James L. Priest" <priest@fnal.gov>; "John W. Cooper" <jcooper@fnal.gov>; "Marvin L. Marshak" <marshak@umn.edu>; "Ronald E. Ray" <rray@fnal.gov>
Sent: Tuesday, January 23, 2007 10:41 AM
Attach: PLAN@1232-2.pdf; PLAN@ 1222-10.pdf
Subject: NOvA - T1 Meeting Minutes 22JAN07

MEETING MINUTES

NOvA Project

FESS/Engineering Project No. 15-1-3
University of Minnesota Project No. 896-06-1711
Burns & McDonnell Project No's. 44261 (Chgo) & 44267 (KC)
Date: January 22, 2007

Attendees:
Fermilab: M. Olson, G. VanZandbergen, J. Niehoff, S. Dixon
Burns and McDonnell: K. Stelling, P. Terry, J. Steeken, J. Rehak

Meeting Topic: Title 1 Progress Meeting - Architectural Issues

DISCUSSION TOPICS
Listed below are the discussion topics:

1. Proposed Plan Revisions
   - There was a review of two (2) plans prepared by BMD for the Service Building and surrounding area (copies attached)
   - Both plans were well received and incorporated refinements to the original scheme.
   - The plan at 1232-2 provided better maintenance access to the generators. The concept is a louvered panel that could be removed for the installation of the generators. In addition, the panel could be removed in the event that the generators had to be serviced/replaced.
   - The entry vestibule on both plans could be reworked with the interior doors opening to the east to allow the offices to slide to the north and provide a bit more space for the control room space.
   - The consensus was to proceed with the scheme identified as Plan@1232-2 since it offered the benefits of less excavation, better access to the Level 7 walkway at elevation 1240'-4" and took advantage of the views to the southwest portion of the site.
2. Fire Protection
   - The Fire Protection Room is approximately 20' x 22'
   - The current scheme is to provide water storage in interior water tanks in the space shown as the "Water Tank" room.
   - The Fire Protection design will assume that the water tanks are installed and piped to the pump.
   - The roof of the Water Tank Room could match the height of the adjacent Detector Enclosure and provide a clear height of ~30 feet.

- 60,000 gallons of water is needed for fire protection purposes.
- This configuration would likely require a centrifugal pump for the foam suppression system.
- The following walls would be 2-hour rated: generator rooms, mechanical room, water tank room.
- The two hour walls could be 8' high cmu for durability topped by metal studs/gyp board to the underside of the ceiling
- The walls around the Computer Room will be 1 hour rated.
- NFPA-850 should be consulted for transformer distances from the building
- NFPA-30 should be consulted for propane storage.

3. Shielding
   - The barite fill on the roof should extend outward of the Detector Enclosure walls.
   - Several walls in the Service Building were originally indicated as being constructed of barite-enhanced concrete. The current configuration should be reviewed with the experimenters to determine the required shielding.
   - Typical building sections through the Detector Enclosure and Service Building should be developed for the review.
4. Follow up - These comments were discussed offline after the meeting
   - If possible, there should be access from the Service Building to the Level 5 walkway (1222'-10"). This looks possible in the Plan@1232-2 scheme
   - If needed, the Mechanical Room can fill the space shown as Fire Protection Equipment. This Fire Protection Room could then take up space near the Water Tank Room, allowing a direct access to the exterior for installing and maintaining the equipment.

ACTION ITEMS
The following action items have been identified

FESS/E

1. Follow up with shielding

WBS 2.9
None identified

Burns and McDonnell

1. Develop plan.
2. Provide cross section for shielding review

SCHEDULE

The following preliminary milestones have been discussed.

- Progress Meeting: To Be Determined
- Comment and Compliance Review: mid-February 2007
- Quality Assurance Review: late-March 2007
- Title 1 Complete: late-April 2007
- Director's Review for CD-2/3A - To be scheduled ~ May 2007
- DOE Review for CD-2/3A: To be scheduled ~ July 2007

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Standard OperatIng Procedure

SOP Identifier: 10.3.5.2
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Project Correspondence**

I Applicability

Project execution requires various types of project correspondence. This procedure provides guidelines for documenting the project related correspondence.

Correspondence related to a project shall be retained and transmitted to Fermilab at the end of each phase of the project or task. Such correspondence shall be treated as design calculations and includes telephone conversations, fax messages, meeting minutes, vendor meeting minutes and other related correspondence.

II Responsibilities

The following responsibilities have been identified:

FESS/E Project Engineer

- Determine the required documentation;
- Transfer documentation to project archives at completion of project;

Participants

- Document correspondence;
- Transmit to Project Engineer.

III Procedure

1.0 Document Conversation

The Participant completes documentation of conversations and vendor meetings with notes that contain the following the activities listed below:

1. Date;
2. Project Information;
3. Participant Information
    a. Name;
    b. Affiliation;
4. Contact Information
    a. Name
    b. Company
    c. Telephone/Fax numbers
5. Topic;
6. Design Impact.

2.0 Transmit Information

The Participant shall forward the completed correspondence documentation to the FESS/E Project Engineer in a timely manner based on the topic discussed and project impact.

IV References

The following references have been identified:

- FESS/Engineering Standard Operating Procedure 10.3.5.2 - Meetings

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

Standard OperatIng Procedure

SOP Identifier: 10.3.5.3
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Minimum Drawing Requirements**

I Applicability

This procedure applies to drawings produced for FESS/E projects.

II Responsibilities

The following responsibilities have been identified:

Drawing Initiator

- Create drawing with required information.

III Procedure

1.0 Create Drawing

All drawings should have, as a minimum, the following information:

- Identification of FES section and Engineering department;
- Name of drawing initiator;
- Date;
- Project name;
- Project number;
- North arrow (of appropriate)
- Scale.

IV References

None noted

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

Standard OperatIng Procedure

SOP Identifier: 10.5.3.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **O&M Manual Distribution**

I Applicability

This procedure applies to projects managed by FESS/E.

Operations and Maintenance (O&M) Manuals for equipment installed during the construction phase of a project are required for the proper stewardship of the equipment.

II Responsibilities

The following responsibilities have been identified:

Project Coordinator

- Collects O&M Manuals from subcontractor/vendor;
- Develops transmittal memo;
- Distribute documentation;
- Transfers documentation to project file.

III Procedure

1.0 Assemble Documentation

The Project Coordinator collects the O&M Manuals submitted by the subcontractor/vendor.

2.0 Develop Transmittal Memo

The Project Coordinator prepares a transmittal memo that includes, as a minimum, the following information:

- FESS/E Project Name;
- FESS/E Number;
- Date;
- List of O&M Manuals.

3.0 Distribute Documentation

The documentation, as a minimum, forwarded to the following:

- Building Manager (2 copies);
- FESS/O Department Head (3 copies);
- FESS/Project File (1 copy).

The following contacts should be copied on the transmittal memo (without attachments)

- FESS/E Project Manager/Engineer;
- Division/Section/Resource Center Client.

4.0 Documentation

The FESS/E Project Coordinator transfers the documentation to the project file.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Standard Operating Procedure 10.3.5.1 – Correspondence

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

1.0 Example of O&M Manual Transmittal Memo

1.0 Example of O&M Manual Transmittal Memo

Fermilab

March 25, 2002

MEMO TO: Distribution

FROM: S. Dixon, FESS/Engineering

SUBJECT: ELECTRICAL AND MECHANICAL O&M MANUALS
FCC Utility Improvements
FESS/Engineering Project No. 10-5-28

The following is forwarded for your information and records:

- Electrical and Mechanical O&M Manual, date 03/21/02

Distribution:

Bill Shull, FESS/Operations (3 copies) M/S 303
J. MacNerland, Computing Division (2 copies) M/S 370

cc: R. Ortgiesen, FESS/M (w/out encl.)
S. Krstulovich, FESS/M (w/out encl.)
G. Bellendir, CD (w/out encl.) m/s 369
Project File 10-5-28 (w/encl.)
Chrono File

Standard Operating Procedure

SOP Identifier: 10.5.4.1
Version Number: 0
Effective Date: April 15, 2015

Subject Matter Expert: J. Hunt (huntjw@fnal.gov)

Title: **Beneficial Occupancy**

I Applicability

The Fermilab Construction Subcontract Terms and Conditions (FL-3) provides in Section 27 – "Use and Possession Prior to Completion" that Fermilab shall have the right to take possession of or use of any completed or partially completed part of the work, prior to completion of the subcontract work. Most Fermilab schedules on larger projects identify milestones at which time Fermilab plans to take Beneficial Occupancy.

The determination to take Beneficial Occupancy, and when, should be evaluated carefully. If Fermilab's possession or use delays the progress of the work or causes additional expense to the subcontractor, equitable adjustments shall be made in the subcontract price or the time of completion, and the subcontract modified in writing accordingly. However, when Beneficial Occupancy milestones have been incorporated in the bid documents and subsequently in the subcontract, Fermilab's liability for interference or delays is modified and a careful evaluation needs to be made of each situation.

II Responsibilities

The following responsibilities have been identified:

Construction Coordinator

- Obtain 10-day notice from Subcontractor prior to Beneficial Occupancy Inspection
- Organize and conduct Beneficial Occupancy Inspection and obtain signatures of participants on the Sign-In Sheet. Use the Beneficial Occupancy Certificate as a guide for participant invitations.
- Collect, evaluate, and consolidate all deficiency lists from participants.
- Complete Deficiency List with Subcontractor
- Complete the Beneficial Occupancy Certificate
- Complete the Beneficial Occupancy Emergency Plan and issue to distribution list for implementation
- Issue Beneficial Occupancy documentation to distribution list

Beneficial Occupancy Inspection Participants

- Sign Beneficial Occupancy Inspection Sign-In Sheet provided by Construction Coordinator
- Note any deficiencies in the work, safety hazards present in the subject area, or general concerns and communicate to the Construction Coordinator

Construction Manager/Lead Engineer

- Address any discrepancies/disagreements arisen from the Beneficial Occupancy Inspection.

III Procedure

1.0 Beneficial Occupancy Inspection

- 1.1 Note any issues that do not conform to the contract documents on the Deficiency List
- 1.2 Note any contracted work that has not been completed yet on the Deficiency List

1.3 Note any issues that may interfere with subcontractor's work in completing the project on the Beneficial Occupancy Certificate
1.4 Note any fire protection concerns on the Beneficial Occupancy Certificate
1.5 Note any safety concerns to either the subcontractor or Fermilab staff on the Beneficial Occupancy Certificate
1.6 Note any limitations or conditions on the use of the space on the Beneficial Occupancy Certificate
1.7 Note any exceptions or conditions on the operation and maintenance of systems or areas on the Beneficial Occupancy Certificate
1.8 Noted items to be collected, evaluated, and consolidated from all participants.

2.0 Complete the Beneficial Occupancy Emergency Plan
3.0 Complete the Beneficial Occupancy Certificate
4.0 Acquire all necessary signatures
5.0 Issue Beneficial Occupancy
5.1 Transmit original, signed Beneficial Occupancy Certificate to the Procurement Administrator
5.2 Transmit copies to all others on the Distribution List on the Beneficial Occupancy Certificate.
5.3 Transmit copies of the Beneficial Occupancy Emergency Plan to persons on the Distribution List on the Beneficial Occupancy Certificate.

IV References

Section 27 of the Fermilab Construction Subcontract Terms and Conditions (FL-3)

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2015	J. Hunt	Initial Release

VI Other

1.0 Beneficial Occupancy Certificate
2.0 Deficiency List
3.0 Beneficial Occupancy Inspection Sign-In Sheet
4.0 Beneficial Occupancy Emergency Plan

BENEFICIAL OCCUPANCY CERTIFICATE

Project Title: _____

Subcontractor: _____

Subcontract No. _____

FESS/Engineering Project No._____

I. AREA DESCRIPTION

In accordance with Section 27 – "Use and Possession Prior to Completion" of the Fermilab Construction Subcontract Terms and Conditions (FL-3), which is part of this subcontract, Fermilab hereby takes use or possession of the following subcontractor work areas and/or features (i.e. mechanical equipment, etc.) prior to subcontract completion (reference additional sheets or drawings as needed):

_____

_____

_____

II. INSPECTION

Inspection Date: _____

The Beneficial Occupancy Inspection was completed and except as noted herein the inspection party found the work to be substantially in accord with the subcontract.

Prior to taking possession or using any of the work areas, Fermilab shall furnish the subcontractor a list of items of work remaining to be performed or corrected on those portions of the work areas and/or features to be used or occupied in the form of a Deficiency List. The Deficiency List is attached to this document. This listing however does not relieve the subcontractor from complying with the terms of the subcontract.

See attached "Beneficial Occupancy Inspection Sign-In Sheet" for list of inspection participants.

III. CONDITIONS

It shall be understood that Fermilab's possession of the described work does not waive the provisions of the Subcontract regarding guarantees and that Fermilab will provide the

Subcontractor every reasonable opportunity to complete his Subcontract work as expeditiously as is practicable and with the following conditions and understandings:

A. **CONTRACTUAL IMPACT** (if any):_____

_____

_____

Procurement Administrator:_____ Date:_____

B. **OCCUPANCY IMPACTS** (if any):_____

_____

_____

Construction Manager/Lead Engineer:

_____ Date:_____

C. **ES&H CONCERNS** (if any):_____

_____

_____

Landlord Division/Section Senior Safety Officer:

_____ Date:_____

Note: The Landlord Division/Section Senior Safety Officer should consider FESHM 2060 "Working Planning and Hazard Analysis" when Fermilab personnel or its subcontractors are working in the area being possessed by the laboratory. To assist with this planning and analysis, the Beneficial Occupancy Emergency Plan form should be used.

D. **FIRE PROTECTION CONCERNS** (if any):_____

_____

_____

ESH&Q-FPE or FESS Eng:_____ Date:_____

Fire Department Chief:_____ Date:_____

E. **FESS OPERATIONAL CONCERNS** (if any): Operation and maintenance of the beneficially accepted systems or areas by Fermilab are subject to the following conditions or exceptions:

_____

_____

FESS Facility Management Head:_____ Date:_____

IV. BENEFICIAL OCCUPANCY AGREEMENT

Construction Subcontractor:

Accepted_____
(Subcontractor)

Fermilab:

Acceptance Recommended_____ Date:_____
(Landlord)

Acceptance Recommended_____ Date:_____
(Procurement Administrator)

Acceptance Approved_____ Date:_____
(FESS Head)

Distribution:
Procurement Administrator (original)
Signatories
FESS/ES&H Senior Safety Officer
ESH&Q Security Department - Head
FESS Budget Office
ESH&Q - FPE

DEFICIENCY LIST

This list developed with the subcontractor's participation shall be as complete as the status of the work justifies. Any significant qualifications relating to completing the work should be noted. The subcontractor shall notify the Fermilab Construction Coordinator when items have been completed and ready for inspection.

Project Title: _____

Subcontractor: _____

Subcontract No. _____

FESS/Engineering Project No._____

Date: _____

Item No.	Description	Status	Notes
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

BENEFICIAL OCCUPANCY INSPECTION

SIGN-IN SHEET

Inspection Date: _____

Subcontractor: _____

Fermilab:

Printed Name	*Department*

Fermilab

BENEFICIAL OCCUPANCY EMERGENCY PLAN

Location
Project Name/No.:
Location:
Construction Subcontract No.:
Construction Coordinator/Group:
Area of Beneficial Occupancy (Attach Annotated Drawing):

Responsible Division/Section and Personnel
Division/Section Accepting Beneficial Occupancy:
On-Site Building Manager/Dept. Head:
On-Site Emergency Warden(s):
Emergency Call List Provided To Communication Center: ____ Yes ____ No

Shelters, Evacuation Routes, and Assembly Areas
Designated Tornado and National Alert Shelter(s):
Designated Evacuation Routes:
Designated Evacuation Assembly Area:

Safety and Communication Equipment Status			
Equipment	**Installed (Y/N)**	**Operable (Y/N)**	**Comments**
Fire Detection System			
Fire Suppression System			
FIRUS Monitoring			
Telephones			
Fire Extinguishers			
Exit Signs			
Shelter Signs			
Fire Alarm Pull Boxes			
Emergency Lighting			
Site-wide Emergency Warning			
Other_____			

Compensatory Measures

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Standard Operating Procedure

SOP Identifier: 10.5.4.2
Version Number: 0
Effective Date: April 15, 2015

Subject Matter Expert: J. Hunt (huntjw@fnal.gov)

Title: **Final Acceptance**

I Applicability

A Final Acceptance Certificate is used for the purpose of contractually establishing when the subcontracted work has been completed in accordance with the subcontract documents and constitutes the start of the warranty period. The Subcontractor warrants that work performed under this subcontract conforms to the subcontract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Subcontractor or any sub-subcontractor or supplier at any tier. Acceptance by Fermilab is final and conclusive except for any warranty item. Warrantee items are independent and should not delay issuance of Final Acceptance. Acceptance shall be made as promptly as practical after completion and inspection.

II Responsibilities

Construction Coordinator

- Ensure that all Punchlist items have been completed
- Ensure that all of the close out items have been completed in accordance with the subcontract
- Ensure that all environmental requirements of the subcontract have been met
- Obtain 5-day notice from Subcontractor prior to Final Acceptance Inspection
- Initiate and conduct the Final Acceptance Inspection
- Solicit the necessary signatures and submit to the Construction Manager/Lead Engineer for distribution

Final Acceptance Inspection Participants

- Sign Final Acceptance Inspection Sign-In Sheet provided by Construction Coordinator

Construction Manager/Lead Engineer

- Distribute completed, signed Final Acceptance Certificate
- Forward the original to the Procurement Administrator for his information and use

III Procedure

1.0 Ensure all Deficiency/Punchlist items have been completed.

2.0 Ensure all of the following close out items have been completed in accordance with the subcontract:
- 2.1 All operating manuals
- 2.2 Training sessions by the subcontractor
- 2.3 As-built drawings
- 2.4 Spare parts
- 2.5 Any other close out items

3.0 Ensure all of the following environmental requirements have been met:
- 3.1 Waste disposal
- 3.2 Maintenance of soil erosion and control features as required by the ES&H Plan and/or Storm Water Pollution Prevention Plan. However, it is permitted that permanent

vegetation need not be completely established as this is generally accepted to be a warranty item.

3.3 Any other environmental requirements of the subcontract

4.0 Initiate Final Acceptance Inspection

5.0 Submit completed Final Acceptance Certificate, with signatures, to the Construction Manager/Lead Engineer

6.0 Forward the original to the Procurement Administrator and copies to all others on the Distribution List on the Final Acceptance Certificate.

IV References

Section 26.2 of the Fermilab Construction Subcontract Terms and Conditions (FL-3)

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2015	J. Hunt	Initial Release

VI Other

1.0 Final Acceptance Certificate

2.0 Attachment A - Final Acceptance Inspection Sign-In Sheet

FINAL ACCEPTANCE CERTIFICATE

Project Title: _____

Subcontractor: _____

Subcontract No. _____

FESS/Engineering Project No._____

On _____, a complete inspection was made of this subcontract work. The inspection party listed in Attachment A found the work to be complete and constructed in accordance with the subcontract drawings, specifications and modifications thereto.

As of _____, this subcontract work is accepted by FERMI NATIONAL ACCELERATOR LABORATORY. Warranty provisions of the Fermilab Construction Subcontract Terms and Conditions (FL-3) are initiated as of this accepting date.

Final Acceptance Agreement: Signatures indicate that the named party is authorized to accept the work or assigned responsibility on behalf of Fermilab.

- Acceptance from Subcontractor:

  _____Date_____

  (Subcontractor Representative)

- Acceptance from Finance Section:

  _____Date_____

  (Procurement Administrator)

- Acceptance from Landlord Division/Section:

  _____Date_____

  (Landlord Division/Section Representative)

- Acceptance from Facilities Engineering Services Section:

_____Date_____

(FESS Head)

  - Acceptance from Operations:

    _____Date_____

    (FESS/Facilities Management Head)

  - Acceptance from Services:

    _____Date_____

    (FESS/Services Head)

  - Acceptance from Engineering:

    _____Date_____

    (FESS/Engineering Head)

  - Acceptance from Engineering:

    _____Date_____

    (FESS/Engineering Construction Manager)

Distribution:

Procurement (original)
Signatories
FESS/ES&H Senior Safety Officer
FESS/Lead Engineer
Fire Department - Chief
Security Department - Manager
FESS Budget Office
ESH&Q - FPE

ATTACHMENT A

FINAL ACCEPTANCE INSPECTION SIGN-IN SHEET

Inspection Date: _____

Subcontractor: _____

Fermilab:

Printed Name	*Department*

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Standard OperatIng Procedure

SOP Identifier: 12.3.3.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: R. Alber (ralber@fnal.gov)

Title: **Field Directed Engineering Change Orders**

I Applicability

This procedure applies to the identification, approval and implementation of field directed change orders during fixed price construction subcontracts.

- Field directed change orders < $5,000 (no approvals required)
- Field directed change orders $5,000 to $25,000 (departmental/customer approvals required)
- No field directed change orders > $25,000

II Responsibilities

The following responsibilities have been identified:

FESS/Engineering Construction Coordinator (CC)
(This procedure pertains solely to FNAL qualified Construction Coordinators of FESS/Engineering as an employee of Fermilab Research Alliance, LLC – subcontract personnel are excluded)

- Identify the proposed change
- Request written proposal from subcontractor (RFP)
- Field direct changes < $5,000
- Institute approval of field directed changes >= $5,000

FESS/Engineering Project Engineer (PE)/Construction Manager (CM)

- Prepare Purchase Requisition/Change Order
- Secure approval of FESS/Engineering Department Manager (and Customer Representative, if required) for field directed changes $5,000 to $25,000

FESS/Engineering Department Head

- Approve field directed changes $5,000 to $25,000

Customer Representative

- Approve field directed changes $5,000 to $25,000 (required if project is funded from customer provided task code – not required if project is funded by GPP, line item, etc.)

FS Procurement Administrator

- Process subcontract Supplemental Agreement(s) upon receipt of approved change requisition(s)

III Procedure

1.0 Field Directed Changes < $5,000

1.1 The FESS/Engineering Construction Coordinator (CC) has the authority to field direct changes that cost less the $5,000 subject to the following procedure:

1.1.1 CC will identify field changes with the subcontractor

1.1.2 CC will request a written proposal (RFP) from the Subcontractor that shall contain the following information:

- Proposal prepared on subcontractor's letterhead
- Date
- Project Name
- PO number
- Description of proposed change
- Cost of proposed change w/supporting documentation (or established T&M basis – not to exceed)
- Additional calendar days requested associated with this change
- Signature of authorized company representative

1.1.3 CC will submit written RFP to FESS/Engineering Project Engineer (PE)/Construction Manager (CM)

1.1.4 PE/CM will verify that appropriate funds are available to support the change and that the written proposal was found to be fair and reasonable. Upon concurrence with PE/CM, CC and/or FS Procurement Administrator will field direct subcontractor to perform the change

1.1.5 PE/CM will prepare the Purchase Requisition/Change Order

1.1.6 FS Procurement Administrator will process subcontract Supplemental Agreement(s) upon receipt of approved change requisitions(s)

1.2 The CC may field direct several changes each less than $5,000 up to an authority limit of $25,000. At no time shall the sum of the changes unsupported by approved purchase requisitions exceed $25,000. Once approved requisitions are in place for the outstanding changes, the $25,000 authority limit is reset and the CC is authorized to approve additional changes.

1.3 The FS Procurement Administrator may at his/her discretion hold several approved change requisitions to issue a supplemental agreement incorporating several changes.

2.0 Field Directed Changes $5,000 to $25,000

2.1 The FESS/Engineering Construction Coordinator (CC) has the authority to field direct changes that cost greater than $5,000 but less than $25,000 subject to the following procedure:

2.1.1 CC will identify field changes with the subcontractor

2.1.2 CC will request a written proposal (RFP) from the Subcontractor that shall contain the following information:

- Proposal prepared on subcontractor's letterhead
- Date
- Project Name
- PO number
- Description of proposed change
- Cost of proposed change w/supporting documentation (or established T&M basis – not to exceed)
- Additional calendar days requested associated with this change
- Signature of authorized company representative

2.1.3 PE/CM will verify that appropriate funds are available to support the change and that the written proposal was found to be fair and reasonable

2.1.4 CC will submit written RFP to FESS/Engineering Project Engineer (PE)/Construction Manager (CM)

2.1.5 PE/CM will prepare the Purchase Requisition/Change Order

2.1.6 PE/CM will submit initial paper requisition to FESS/Engineering Department Head for review and approval

2.1.7 If project is funded by a customer funded task code, CM will submit initial paper requisition to Customer Representative for review and approval, If project is funded by GPP, line item, etc, Customer Representative approval is not required)

2.1.8 PE/CM will submit to project file, Procurement Administrator, Customer Representative (if customer funded task) and CC a copy of the initial paper requisition with a copy of the proposal with the following signature approvals:

- FESS/Engineering Department Head
- FESS/Engineering Project Engineer/Construction Manager
- FESS/Engineering Construction Coordinator
- Customer Representative (if customer funded request)

2.1.9 Upon receipt of signed paper requisition, CC and/or FS Procurement Administrator will field direct subcontractor to perform the change

2.1.10 PE/CM will initiate the final Purchase Requisition/Change Order within three (3) business days of the field directed change

2.1.11 FS Procurement Administrator will process subcontract Supplemental Agreement(s) upon receipt of approved change requisitions(s)

2.2 The CC may field direct changes under this procedure up to an authority limit of $25,000 until such time that the change orders are supported by approved requisitions. Once approved requisitions are in place, the $25,000 authority limit is reset and the CC is authorized to approve additional changes.

2.3 The FS Procurement Administrator may at his/her discretion hold several approved change requisitions to issue a supplemental agreement incorporating several changes.

3.0 NO field directed change orders are allowed for changes over $25,000. Change orders must follow laboratory approval processes and will be directed by supplemental agreement issued by FS Procurement Administrator.

3.1 The FESS/Engineering Construction Coordinator (CC) does not have the authority to field direct changes that cost greater than $25,000. Change orders greater than $25,000 shall be processed based on the following procedure:

3.1.1 CC will identify field changes with the subcontractor

3.1.2 CC will request a written proposal (RFP) from the Subcontractor that shall contain the following information:

- Proposal prepared on subcontractor's letterhead
- Date
- Project Name
- PO number
- Description of proposed change
- Cost of proposed change w/supporting documentation (or established T&M basis – not to exceed)
- Additional calendar days requested associated with this change
- Signature of authorized company representative

3.1.3 Submit written proposal to FESS/Engineering Project Engineer (PE)/Construction Manager (CM)

3.1.4 PE/CM will verify that appropriate funds are available to support the change and that the written proposal was found to be fair and reasonable

3.1.5 PE/CM will prepare and submit the Purchase Requisition/Change Order (subject to prevailing change control limits)

3.1.6 FS Procurement Administrator will process subcontract Supplemental Agreement(s) upon receipt of approved change requisition(s)

IV References

The following reference has been identified:

- FESS/Engineering Policy 7 – TM/CC Support

V Revision History

Version Number	Date	Author	Change Summary
0	04/05/2010	R. Alber	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

1.0 Field Directed Engineering Change Order Authority - Approval

1.0 Field Directed Engineering Change Order Authority - Approval

Fermilab

David A. Carlson
Business Services Section
630.840.8998
carlson@fnal.gov

Memorandum

April 1, 2010

To: Randy Ortgiesen, FESS Head
Ed Crumpley, FESS/Engineering Department Head

From: David A. Carlson
Head, Business Services Section

David A. Carlson

Subject: Field Directed Engineering Change Order Authority

Pursuant to the delegation of authority[1] to the Head of the Business Services Section by the Fermilab Director to act for and obligate Fermi Research Alliance, LLC with respect to all Fermilab procurement matters, I delegate authority to FESS/Engineering to make field directed changes as prescribed in the FESS/Engineering Department **Standard Operating Procedure No. 12.3.3.1** (Effective Date: 3/11/10) entitled **Field Directed Engineering Change Orders.**

With this authority, FESS/Engineering will possess the ability to commit the Laboratory to an amount not to exceed $25,000 as prescribed in the aforementioned procedure. All change orders exceeding $25,000 will be processed exclusively by approved change requisitions and supplemental agreements as prepared by my procurement personnel.

cc: B. Chrisman
J. Collins

[1] P. Oddone, "Delegation of Authority," May 30, 2008.

Fermi National Accelerator Laboratory / Kirk Road and Pine Street / P.O. Box 500 / Batavia, IL 60510 / 630.840.3000 / www.fnal.gov / fermilab@fnal.gov
Office of Science / U.S. Department of Energy / Managed by Fermi Research Alliance, LLC

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Standard OperatIng Procedure

SOP Identifier: 12.4.5.1
Revision Number: 2
Effective Date: December 15, 2011

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **A/E Consultant Invoicing**

I Applicability

This procedure applies to the reviewing and approving invoices for purchase orders under a master subcontract with architectural and engineering (A/E) consultant firms.

II Responsibilities

The following responsibilities have been identified:

A/E Consultant Contact

- Prepare invoice in accordance with master subcontract and purchase order;
- Submit invoice;

FESS/E Project Manager/Engineer

- Review invoice;
- Approve invoice;

III Procedure

1.0 Prepare Invoice – A/E Consultant

The A/E Consultant shall prepare an invoice with the following information contained as a minimum:

- Master Subcontract Number;
- Tasking Purchase Order Number;
- Unique A/E Invoice Number'
- Billing Period;
- FESS/E Project Name;
- FESS/E Project Number;
- FESS/E Project Engineer Name;
- Description of Services;
- Financial Summary Information;
- Percentage of Fee Expended;
- Percentage of Work Completed;
- Remaining Fee Amount.

2.0 Submit Invoice – A/E Consultant

The A/E Consultant shall submit the invoice to the following address:

Fermi National Accelerator Laboratory
M/S 112
Post Office Box 500
Batavia, Illinois 60510
Attention: FS/Accounting

3.0 Review Invoice – FESS/E Project Engineer

3.1 Upon receiving an A/E Consultant invoice, the Project Engineer shall review the invoice to determine if the invoice accurately reflects the scope of work completed during the invoice period.

3.2 The FESS/E Project Manager/Engineer reviews the invoice for reasonableness and funding availability.

3.3 The FESS Project Manager/Engineer opens the PDF invoice and uses the STAMP command to "Stamp – Invoice Approval" to the front page of the invoice. (see attached)

3.4 The FESS/E Project Manager/Engineer prints a hard copy of the invoice, reviews and indicates whether the attached invoice is OK to pay – or – HOLD for payment approval by signing and dating the stamp making notations/corrections if needed.

3.5 The FESS/E Project Manager/Engineer electronically "Forwards" the email with the invoice attached to Martha mlgarcia@fnal.gov indicating whether or not the invoice is OK to pay or to be held.

3.6 The FESS/E Project Manager/Engineer places the reviewed hard copy of the invoice in Martha's office mail slot. FESS/Admin will complete the approval process.

IV References

The following references have been identified:

- FESS/Engineering Policy FEP 9, Consultant Support

V Revision History

Version Number	Date	Author	Change Summary
0	04/15/2008	S. Dixon	Initial Release
1	12/15/2011	R. Alber	Triennial Review
2	04/15/2015	R. Alber	Triennial Review

VI Other

1.0 Example of A/E Invoice
2.0 Example of Invoice Approval Stamp

1.0 Example of invoice containing required information.

HOWARD ROARK ARCHITECTS, LLP

---INVOICE---

February 19, 2008

FERMILAB
M/S 112
Post Office Box 500
Batavia, Illinois 60510
Attn: BSS/Accounting

Billing Information:
Master Subcontract Number: 561245
Purchase Order Number: 517772
Invoice Number: 517772-1
Billing Period: August 01, 2008 through August 31, 2008

Project Information:
Project: SuperDuper Upgrade
FESS/Engineering Project No. 6-8-99
Project Coordinator: Hugh Jacz

Description: Professional A/E services related to Title 2 services for the SuperDuper upgrade project.

Billing Summary:

	Purchase Order Limit	Billings This Period	Previous Billings	Total To Date	Remaining
Labor	$40,000.00	$23,796.00	$5,000.00	$28,796.00	$11,204.00
Direct Costs	$4,000.00	$822.62	$0.00	$822.62	$3,177.38
TOTALS	**$44,000.00**	**$24,618.62**	**$5,000.00**	**$29,618.62**	**$14,381.38**

Percent Expended to Date: 70.4%
Percentage of Task Complete: 80%

TOTAL AMOUNT DUE THIS INVOICE: $24,618.62

1234 MIES VAN DER ROAD • WRIGHTSVILLE, ILLINOIS • 60001
PHONE: 555-1212 • FAX: 555-1221

Master Subcontract Number
Purchase Order Number
Invoice Number
Billing Period

Project Name
FESS/E Project Number
FESS/E Project Coordinator

Description of services performed

Indicate percentage of fee expended and percentage of task completed

Provide backup data on separate attachment indicating personnel job classification, billing rates, hours expended and subtotaled for each classification and direct costs

Invoice amount

2.0 – Example of Invoice Approval Stamp

OK to pay invoice
Denotes goods &/or services are satisfactory & meet specifications

_____ date _____
Requestor

_____ date _____
Department

_____ date _____
Section

HOLD invoice Reason for hold:

_____ date _____

Proj _____
Task _____
Line _____
Exp Type _____
Exp Org _____