

MINOR CHANGE REQUEST FORM

MCR NO. **MCR-ENG-060,R1-004**
(e.g., MCR-ENG-021,R0-001)

The Minor Change Request (MCR) Form is to be used to process Minor, or in some necessary cases, Urgent or Temporary changes to PPPL Lab-wide procedures). The MCR should be used when changes are:

- 1) **minor** and do not warrant further SME review;
- 2) **urgent** and cannot wait the 2-4 week period for further SME review; or
- 3) **temporary**, to revert to original state by a given expiration date (must be within 6 months).

For questions about definitions of “minor,” “urgent,” and “temporary” changes, please review Lab-wide Procedure GEN-001, **Development, Review, and Approval of Lab-wide Documents**.

Person Requesting Change: Tom Jernigan Phone Ext: 2663

Department Name: PMO

Document Number: ENG-060 Revision No.: 1

Document Title: Preparation, Review & Approval of Statements of Work

Reason for change:

Provide template for Job Order Statements of Work

Change description: (Summarize and attach changed pages, with changes clearly indicated)

1) Added Attachment 3, *Sample Format and Contents for Job Order Statements of Work*; 2) Revised paragraph under “**APPLICABILITY**” page 2 to address use of Job Order Statements of Work; 3) Noted “Deliverables” instead of Section 13 in Steps 18 and 20 through 23.

1. Does this change significantly alter the intent or scope of the document? YES: NO: X

2. Does this change significantly impact ES&H? YES: NO: X

If 1 or 2 is YES, explain why the changes should not be submitted as a revision:

3. Place a check mark next to the appropriate type of change request:

- Minor change?
- Urgent change? (revision must follow within 2 weeks) X
- Temporary change?

If “temporary change” is checked, provide expiration date, allowing document to revert to original state (must be within 6 months):

Management System Owner/Designee Approval

Date

Head, PACM/Designee

Date

Release/Effective date of this MCR: 7/23/19

PPPL	PRINCETON PLASMA PHYSICS LABORATORY	PROCEDURE	No. ENG-060 Rev 1 page 1 of 6
Subject:		Effective Date:	Initiated by:
Preparation, Review & Approval of Statements of Work		8/1/18	Head, Engineering
		Supersedes: Rev. 0 January 31, 2018	Approved: Director

MCR-ENG-060,R1-004

Management System (Primary): 03.00 Engineering
Management System Owner: Head, Engineering
Management Process: 03.06 Technical Project Management
Process Owner: Head, Engineering
Subject Matter Expert (SME): Head, Engineering; Procurement Division

APPLICABILITY

This procedure applies to the acquisition of items and services needed by PPPL to fulfill its mission, including collaborations, Strategic Partnership Projects, subcontracted work, and purchased items and services – unless superseded by external agreements or contracts. A Statement of Work (SOW) is required for these acquisitions when the items or services involve any of the following:

- A. Large, complex, or non-routine work, physical work at the Laboratory
- B. Coordination of multiple work activities
- C. Being governed by more than a single engineering standard
- D. Specific testing and inspection requirements (unless the additional content normally in a SOW is covered by another document such as a technical specification or referenced national standard)

Exception:

For Statements of Work (SOWs) for services (e.g., professional services, managerial support services, basic technical support services, research and development, and consulting type services), a simplified SOW Template is located on the Procurement website. This simplified SOW is less detailed than the SOW required by this procedure and cannot be used when the procurement includes any of the following:

- A. Delivery of hardware or equipment used in or with experiments including prototypes
- B. Inspection and testing
- C. Delivery or use of custom software that has not been previously validated by PPPL
- D. Processing of hardware on site or offsite (i.e. heat treatment, coating, and plating)
- E. Required compliance with any national standards or codes

SOWs are routinely used in conjunction with subcontracts, Basic Ordering Agreements (BOAs) and Blanket Purchase Agreements (BPAs). Once a BOA subcontract is issued, each Job Order issued under a BOA requires a sufficiently detailed SOW (e.g., "Job Order Statement of Work"). Attachment 3 provides a sample of the required template to develop a Job Order Statement of Work.

MCR-ENG-060,R1-004

The level of detail in a SOW should enable a definition of the scope, cost, and schedule for the activity. Any SOW involving on-site activities needs to include job-specific safety requirements and necessary hold points to verify that safety and quality requirements are satisfied prior to proceeding with work.

This procedure applies the graded approach as detailed in Table 1.

INTRODUCTION

This procedure provides requirements and guidance for the development, review and approval of SOWs, other than those suitable for the Procurement simplified SOW template.

An SOW is typically developed for the acquisition of items and services from external providers, including those obtained for subcontractors, suppliers, collaborators or strategic partners. Applicable environment, safety and health (ES&H) requirements must be included in SOWs for subcontracted physical work that is to be performed at PPPL as defined in QA-003, Procurement Quality Assurance, and the Quality Assurance Program Description (QAPD).

MCR-ENG-060,R1-004

Attachment 1 provides a sample of the required template for developing a SOW.

When an approver cannot sign and there is no specified designee, the document must pass up the organization chart for signature. The substitute should consult appropriate technical personnel prior to signing.

REFERENCES

- ESH-004, Job Hazard Analysis
- GEN-023, Records Management
- ESHD 5008 Safety Manual ES&H Directives
- ENG-032, Work Planning Procedure
- ENG-063, Breakdown Structure and Graded Approach Categorization
- QA-003, Procurement Quality Assurance
- P-082, Environmentally Preferable Purchasing
- PPPL Procurement Policies and Procedure Manual

MCR-ENG-060,R1-004

A. PROCEDURE

Responsibility

Action

Initiator

1. Determines if an SOW is required for the acquisition of items and services and obtains concurrence from Supervisor or PM. [See definitions of SOW in the Introduction for guidance].
2. Identifies all the items affected by the SOW and sets the SOW category as that of the most demanding of the affected items. If any category is missing, follows ENG-063 to obtain the missing category.
3. Develops SOW in accordance with the guidelines provided in

MCR-ENG-060,R1-004

Attachment 1 or Attachment 3 for Job Order SOWs, and Project/Department requirements. This includes the list of all deliverables, which is integral to the SOW Deliverables.

MCR-ENG-060,R1-004

4. Identifies required reviewers and approver per the following:
 - ES&H review and approval is required for all SOWs that involve one or more of the following:
 - PPPL on-site construction
 - Installation or modification of PPPL structures, systems, or components
 - Physical changes to PPPL site features
 - Projects that may require an environmental permit (air emissions, soil erosion, wastewater discharge, wetlands, etc.)
 - Analysis that may impact safety analysis or regulatory compliance of PPPL projects.
 - Contractor work at PPPL, such as maintenance or repair of equipment.
 - Contractor work that will require a PPPL permit and/or a Safety Watch.
 - Procurement Quality Assurance (PQA) review and approval is required for all SOWs involving one of the following:
 - Fabricated or specially modified products (A1 or A2)
 - All ITER activities
 - Installation, modification or repair of PPPL structures, systems, or components
 - Responsible Engineer (RE) shall review SOWs for categories (i.e. A-1, A-2 and A-3) of work involving the installation, modification or repair of PPPL structures, systems, or components.
 - Includes additional reviewers as appropriate to the activity. These additional reviewers need not necessarily approve the document.
 - For A3 the Cognizant Individual is the SOW approver, if the Cognizant Individual has already signed the SOW as Preparer or Responsible Engineer, the line manager of the Cognizant Individual will review and approve the SOW.
 - For A1 and A2, the Project Manager is the approver of the SOW, if there is no project manager, the line manager of the Cognizant Individual will review and approve the SOW.
5. For A-1 and A-2 SOWs: reviews requirements with QA to establish the expectations and communications needed for involvement and required support.
6. Obtains a unique identification number for the SOW from the

Operations Center.

7. Issues SOW review package to reviewers.
8. Resolves reviewer comments, updates SOW as necessary, signs the SOW as the preparer and then submits to reviewers.
9. Obtains reviewer and approver signatures.
10. Forwards the SOW to the Procurement Division, together with a requisition and other necessary documentation.
11. Provides copies of SOW to the Operations Center.
12. Ensures completed Deliverable Lists are sent to the Operations Center.
13. Whenever the SOW needs to be updated, comes to agreement with the approver on the need to suspend all or part of the activities and ensures decision is implemented. Updates SOW, increments revision level, obtains the review and approval signatures from the original functions, and reissues document once fully signed.

Procurement
Division

14. Develops subcontract agreement and support documentation. Provides PQA and the Initiator a copy of the issued subcontract or purchase order.

PQA

15. Reviews QA Plans or other documents received from the vendor at the request of the Princeton Technical Representative (PTR). Note that procedure QA-003 has defined approval requirements for PPPL requirements and subcontractor documents.

Operations Center
or Project
Administrator

16. Ensures that copies of SOWs are maintained in accordance with Project/Department requirements and procedure GEN-023, Records Management.

PTR/COG

17. Supports the procurement.
18. Ensures that all deliverables have been received and annotates accordingly in Deliverables section of the SOW.
19. Pursues missing or incomplete deliverables through Procurement.
20. Documents, in Deliverables, if there are deliverables that are no longer required, with reasons, and informs Procurement for subcontract modification and the SOW approver.

MCR-ENG-060,R1-004

MCR-ENG-060,R1-004

21. Signs the bottom of Deliverables of the SOW when all deliverables

MCR-ENG-060,R1-004

are received or otherwise dispositioned. MCR-ENG-060,R1-00-004

22. Ensures that deliverables are provided to the locations identified in Deliverables of the SOW.

MCR-ENG-060,R1-004

23. Forwards the completed and fully signed Deliverables of the SOW to the Operations Center (or other Project, Department or Division designated file center).

MCR-ENG-060,R1-004

	A1	A2	A3
Reviewers	RE, ES&H, QA		
Approvers	PM	PM	COG

Table 1 – Approvers for graded approach application

B. TRAINING

Head, Engineering 1. Provides/assures the following training.

A. Target Audience: COGs and PMs

Instructor: Head, Engineering

Training Methods:

-Incorporate in annual refresher.

-Combination of classroom, online, and reading for major updates.

Frequency:

-Initial training and annual refresher training.

B. Target Audience: All Supervisors

Distributed by: Performance Assurance and Contract Management Department, via Lab-wide documents email

MCR-ENG-060,R1-004

Training Methods:

-Read only - distribution of procedure revisions and MCRs.

Frequency:

- After revisions or MCR changes of this procedure.

C. Target Audience: Council Members

Instructor: Head, Engineering

Training Methods:

-Prepare a briefing for attendees of the weekly Laboratory Leadership Council.

Frequency:

-After revisions or MCR changes of this procedure.

C. RECORDS MANAGEMENT

Records Documented	Record Custodian	Where Record Kept	Record Duration
Statement of Work*	Operations Center (or Designated Project/Department/ Division Custodian)	Operations Center (or file center designated by Project/ Department/Division)	Lifetime of Project
Deliverables List			

* Note that Procurement Files will also contain the SOW, but they will be only kept for the time designated for procurement files, which may be less than the lifetime of the project.

ATTACHMENTS

1. Sample Format and Content Requirements for Statements of Work (including documentation/deliverables list)
2. Sample Statement of Work Deliverables Worksheet
3. Sample - Job Order Statement of Work for BOAs

MCR-ENG-060,R1-004

STATEMENT OF WORK*(Enter either "Statement of Work")***FOR****TITLE OF WORK TO BE PERFORMED***(Enter the name of the items or services being specified in this document)***CAT:** ☐A1 ☐A2 ☐A3**UNIQUE IDENTIFIER:****Reference Work Planning #:****REVISION 0****DATED *Month DD, YYYY***PREPARED BY: _____
Cognizant Individual (COG)REVIEWED BY: _____
Responsible EngineerREVIEWED BY: _____
ES&HREVIEWED BY: _____
Quality & AssuranceAPPROVED BY: _____
Supervisor / Project Manager

**PRINCETON UNIVERSITY
PLASMA PHYSICS LABORATORY
P.O. BOX 451
PRINCETON, N.J. 08543
609-243-2000**

MCR-ENG-060,R1-004

NOTE: Items and Services that have the potential to impact ES&H require appropriate review and signature by representatives from the ES&H organization.

NOTE: When on-site work by contractors is involved, the content of sections 4.2.2 and 8 can only be removed with explicit and traceable approval of ES&H.

1.0 INTRODUCTION & SCOPE

Provide background information, as appropriate, to aid the Subcontractor's understanding of the nature of the items, work and services required. Information on the Laboratory, projects, or systems should be included, if they provide valuable context.

Describe, to the extent that it would be helpful to the Subcontractor, the intended use of the item/system or services being procured, fabricated or installed in a summary type statement.

2.0 APPLICABLE DOCUMENTS

Provide a listing of those documents that are referenced in the SOW. These may include industry standards issued by nationally recognized organizations (e.g., ASME, IEEE, NFPA, ANSI, OSHA, etc.), bulletins, manuals, drawings, and DOE Orders. References should be to the specific items required by this SOW. For example, rather than stating PPPL Engineering Standards, include the name of the standards that apply (e.g., ES-MECH-007, Hoisting and Rigging).

The listing should include the edition/revision level of each listed document or have a statement that the applicable edition/revision level is the latest in effect at the time of fabrication, installation or subcontract award. If only part of a particular document is in effect or applicable, it should be so noted.

The source location of the referenced documents should be specified. Industry standards may be presumed to be available to all industry participants. Government and PPPL documents should be made available in hard copy form, or at a public Internet web site. Internet addresses should be included in the SOW. PPPL Policies and Procedures are available at:

<http://bp.pppl.gov/procedures.html>

<http://bp.pppl.gov/policy.html>

3.0 APPLICABLE DRAWINGS

Provide a listing of those drawings that are part of the SOW.

The listing should include the edition/revision level of each drawing or have a statement that the applicable edition/revision level is the latest in effect at the time of fabrication, installation or subcontract award. If only part of a particular drawing is in effect or applicable, it should be so noted.

MCR-ENG-060,R1-004

The source location of the referenced drawings should be specified. Drawings should be made available in hard copy form, or at a public Internet web site. Internet addresses should be included in the SOW.

4.0 RESPONSIBILITIES

4.1. PRINCETON PLASMA PHYSICS LABORATORY

Describe single-point contact, reporting, project organization, supplies provided, etc.

4.2. SUBCONTRACTOR

4.2.1. PPPL General Requirements

Describe supervision required, reporting, compliance with PPPL procedures, on-site training required, etc.

4.2.2 Notification Requirements Off-Normal Events and Issues

This notification must be in all on-site work SOWs and must be posted in a highly visible location where the work is to be performed.

Note: Contacting the PPPL Emergency Services Unit at X3333 to obtain emergency assistance and taking immediate actions to protect workers, guests and visitors takes precedence over the notification requirements described herein.

The Subcontractor shall notify PPPL within 15 minutes of becoming aware of off-normal events and issues; off-normal events and issues include:

- Personnel injuries of any kind
- Near misses that could have resulted in significant (recordable injury or worse) worker injuries
- Uncontrolled or unforeseen personnel exposure to radiation, chemical, biological or physical hazards (e.g., noise, laser, ultraviolet light, heat, etc.)
- Fire emergency of any kind
- Any unexpected discovery of an uncontrolled hazardous energy source (e.g., live electrical power circuit, etc.) not including discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin
- Any failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout)
- Damage of any kind to Laboratory property
- Damage of any kind to personal property owned by PPPL employees, guests and visitors

MCR-ENG-060,R1-004

- Any spills of chemicals, fuels, lubricants, etc.
- Other off-normal events and issues deemed by the

Subcontractor to require notification

In the event of an off-normal event or issue, the Subcontractor and its lower-tier subcontractors SHALL:

- Notify PPPL Emergency Services Unit at X3333 for emergency response, if required
- Take immediate action to evacuate and post affected area, if required
- STOP related work or work in affected area
- Take actions to post and safe-off affected area
- Within 15 minutes: Contact Subcontractor Site Supervisor, PPPL PTR, ESH Construction Safety Engineer and ESH Head

Regarding these off-normal events or issues, no recovery actions (other than those immediately required to preserve life safety) or repairs are to take place until they are reviewed by the Subcontractor and PPPL, and specifically authorized by the PPPL PTR (who has consulted with SMEs) or ESH Department Head. Resumption of work that has been stopped by PPPL due to off-normal events and issues must follow the provisions of PPPL Policy P-012, STOP Work Authority.

5.0 REQUIREMENTS

This section contains performance, design, maintenance, and construction requirements. Indicate "not applicable" for those subsections that are not applicable to the item or work activity being procured, fabricated or installed.

5.1. PERFORMANCE REQUIREMENTS

5.1.1. PERFORMANCE CHARACTERISTICS

Identify the functional characteristics which have been established by analysis or design including those which are not necessarily mission critical, but which must be specified to properly constrain a complete design. State requirements in quantitative terms that can be measured to determine acceptability of end-products and services.

5.1.2. OPERATING ENVIRONMENT

State the environment that the component is to withstand such as maximum/ minimum temperature, humidity, pressure, magnetic fields, radiation, etc. Specify any constraints to eliminate an environmental impact (e.g., no PCB's, CFC's, etc.).

5.1.3. DESIGN LIFE

Identify the required life cycle of the product in terms of cycles or hours of operation required. Include requirements for shelf-life and storage prior to usage.

5.1.4. RELIABILITY

Identify reliability requirements by stating in quantitative terms such as mean time to failure, duration of down time, etc.

5.1.5. MAINTAINABILITY

Include schedule of intended maintenance per storage or operating hour. Describe requirements for service such as access doors; built in tools; self test capability; test jacks; and other appropriate requirements.

5.1.6. HUMAN FACTORS

Specify requirements related to user operation, such as color recognition, foolproof assembly, interlocks, etc.

5.1.7. SUSTAINABILITY

PPPL's prime contract requires the purchase of certain types of environmentally preferable products such as, but not limited to, EPEAT-registered electronic devices, ENERGYSTAR and FEMP-listed energy-consuming equipment, Water-Sense listed products, bio-based materials, EPA-designated recycled content products, non ozone-depleting chemicals and non-toxic or less toxic alternatives when practical. Where such products are available and meet the technical requirements of the work, they should be specified to the maximum extent practical. In addition, SOWs for architecture and facility design, new construction, major renovations, demolition and maintenance services should conform to applicable building energy efficiency requirements and sustainable design practices, inventory, tracking and reporting of recyclables, and the specification on sustainable building materials and equipment to the maximum extent practical. Additional information on environmentally preferable products is available online at: https://pppl.princeton.edu/PPPL_Environmentally_Preferable_Purchasing

5.2. EQUIPMENT DEFINITION**5.2.1. SPECIFICATIONS AND STANDARDS**

Identify any specifications and standards documents that govern activity or item, such as requirements that apply from nationally recognized codes and standards as well as federal/military specifications and standards. Be clear regarding which aspects are governed by which specifications or standards. Any referenced documents should also be listed in Section 2.0.

5.2.2. GENERAL DESIGN FEATURES

Specify physical characteristics such as size, weight, shape, and individual critical dimensions. Requirements may be descriptive or expressed in quantitative terms. All requirements should be verifiable by inspection and should include appropriate tolerances.

5.2.3. MATERIALS

List specific materials that are required and any materials that are prohibited for the various parts of the hardware. For subcontracts, identify any material/equipment that is being provided by PPPL.

5.2.4. ELECTROMAGNETIC INTERFERENCE AND SUSCEPTIBILITY

Identify the electromagnetic radiation of fields the hardware may be subjected to (the susceptibility specification) and the maximum electromagnetic radiation permitted from the hardware (the interference specification).

5.2.5. IDENTIFICATION AND MARKING

Include requirements for marking and coding the parts of the hardware such as wiring, plumbing, nameplates, etc. (see procedure ENG-012, Identification and Control of Items).

5.2.6. WORKMANSHIP

List requirements for acceptable workmanship such as: IPC 610, Electronic Workmanship Standards; ASME and AWS codes for qualified welders and procedure; PPPL specific requirements for workmanship; or generally accepted industry practice, if appropriate. Also include requirements for cleaning and painting of hardware. Standards should be listed in Section 2.0.

Include a statement that maintenance and repair work must comply with original equipment manufacturer recommendations; including parts, workmanship standards, parts, and functionality.

5.2.7 SUBCONTRACTOR EQUIPMENT USE

Subcontractors must provide their own equipment and not use government equipment. Work activities anticipated to be performed by the subcontractor shall be reviewed by ESH and the respective SME, when appropriate. Subcontractors shall provide evidence of qualification and competence in the performance of their duties including the use of powered equipment. Should the use of government equipment become absolutely necessary, that use of equipment will require a liability release covering the use of PPPL equipment to be defined in the subcontract. All vehicles being used for work activities on the PPPL site, regardless of their maximum capable speed, must be equipped with safety belts prior to entrance.

6.0 TEST & INSPECTION REQUIREMENTS**6.1. PERFORMANCE TESTS**

Identify each of the performance tests that the supplier is to perform on the hardware before shipping and the acceptance criteria that must be met. These may include destructive and nondestructive tests. The tests should verify that the specified performance values have been met.

6.2. ACCEPTANCE TESTS

Identify each of the acceptance tests and inspections that PPPL is to perform. If these tests and inspections require participation by supplier personnel, their participation should be specified. Also state where and when they must be performed. Acceptance criteria must be clearly identified. (See procedure QA-004)

6.3. SUPPLIER HOLD POINTS

Identify hold points for the supplier where inspections must be made and approved prior to continuing work. Hold points are especially critical when additional fabrication and assembly will obscure performed work and workmanship. (See procedure QA-003).

7.0 QUALIFICATIONS

List specific qualifications of workers. For example, describe if a subcontractor must provide certification or proof that repair personnel successfully completed manufacturer's training, or that welders are certified per a specific ANSI/ASME code section, or that equipment operators have documentation that they are qualified or certified to operate the equipment. Indicate what proof of the qualifications is required (resume, certification card, operator license, certificate of manufacturer's training, etc.) Qualifications for Hoisting and Rigging and mobile equipment operation and repair may be found in the specific Engineering Standard.

8.0 ENVIRONMENT, SAFETY, AND HEALTH

The ES&H Department will provide assistance in developing this section. Identify requirements to preclude or limit hazards to personnel, the environment and /or equipment including necessary hold points to verify that safety requirements are satisfied prior to proceeding with work. Refer to hazards in assembly, disassembly, test, transport, storage, operations, and/or maintenance. Specify all applicable safety requirements unique to PPPL.

General ES&H Statement

A general ES&H Compliance Statement should be included with subcontracts, such as:

"The subcontractor shall comply with:

- the specific PPPL documents, requirements, permits and courses listed in this Statement of Work;*
- the completed subcontractor Integrated Safety Management (ISM) Plan, and*
- all applicable Federal, State, and local laws, regulations and requirements whether or not they are specifically listed in the Statement of Work or subcontract.*

MCR-ENG-060,R1-004

- *the requirement that all vehicles being used for work activities on the PPPL site, regardless of their maximum capable speed, must be equipped with safety belts prior to entrance.*

The following are ES&H controls that must be included in the SOW if they are applicable to the work – for example if on-site work at PPPL is to be performed by a supplier, include appropriate provisions from the following items.

PPPL has safety programs that include the following areas Confined Space Permits, Digging Permits, Penetration and Fire Seal permits, Flame permits, Radiation Work permits, Lock-out/Tagout of energy sources, and restrictions on working alone. The subcontractor must confirm with their PPPL contact person that all prerequisites have been met before initiating any activity that involves these areas.”

JHA

The PPPL Job Hazard Analysis (JHA) form (see procedure ESH-004, Job Hazard Analysis) can be used as a tool to help identify ES&H hazards, controls, and related PPPL requirements that potentially apply to a subcontract. Those items identified using the JHA should then be incorporated into the SOW or subcontract documents. The ES&H Department/Industrial Hygiene will provide assistance in developing this section. Subcontractor personnel must be briefed on JHAs, just as PPPL staff must.

The JHA form can be found at the following web site:

http://bp.pppl.gov/JHA_online.doc

Specific PPPL requirements documents

Include a list of specific PPPL procedures, policies and ESH Directives that are applicable to the subcontractor's work scope. Those documents should be provided to potential subcontractors, either via email, Web access or as hard-copies. The list should choose from PPPL policy, procedure and ES&H documents, as applicable:

A PPPL approved lock-out tag-out procedure, and application of locks and tags by affected individuals, is required in most cases to mitigate hazards associated with any potential energy sources (electrical, mechanical, cryogenic, etc.).

<http://bp.pppl.gov/procedures.html>

<http://bp.pppl.gov/policy.html>

http://bp.pppl.gov/ESHD_MANUAL/sm.html

Applicable PPPL Permits

Include a list of PPPL permits that are applicable to the subcontractor's work scope. The list should choose from the following permits, as applicable:

- Confined Space Permit,*
- Radiological Work Permit,*
- Hot Work Permit,*
- Flame Permit,*
- Digging Permit,*
- Penetration Permits*
- Air Permit (NJDEP)*
- Wetlands Permit / Transition Area (NJDEP)*
- Soil Erosion Permit (Freehold Soil Conservation District FSCD)*

Specific OSHA requirements

Cite specific OSHA regulations that are applicable to the subcontractor's work scope if they warrant additional focus or attention by the subcontractor (note that subcontractors are required to comply with OSHA regulations by law). The cognizant individual should pay particular attention to the need for designating "competent person(s)" if the work scope requires such under OSHA. The SOW must clearly specify if this accountability will rest with PPPL or the subcontractor. PPPL Competent Persons and SMEs for specific OSHA sections are listed at: http://spportal.pppl.gov/bp/Lists/PPPL_Experts The Safety Division can be consulted for advice in this regard. For hoisting and rigging and for mobile equipment, reference the specific PPPL Engineering Standards where specific OSHA requirements may be listed and where all OSHA and ASME requirements are detailed in the specific requirements sections.

Applicable PPPL ES&H training courses

Include a list of PPPL ES&H training courses that are applicable to the subcontractor's work scope. State if the training must be provided by PPPL or if equivalent subcontractor training may be substituted with prior PPPL approval. State if a written or practical Test is required. The list should choose applicable courses from those listed at:

MCR-ENG-060,R1-004

<http://hr.pppl.gov/SafetyCourses.htm> and include them in the SOW. A sample list of potential course includes:

<i>Safety Courses at PPPL</i>	<i>Written Test*</i>
<i>Advanced Electrical Safety (see EUT)</i>	
<i>Aerial Lift Boom (Classroom)</i>	<i>YES</i>
<i>Aerial Boom Lift (OJT)</i>	
<i>Asbestos Awareness</i>	<i>No</i>
<i>Basic Electrical Safety</i>	<i>YES</i>
<i>Bloodborne Pathogens</i>	<i>No</i>
<i>Bubblesuit Training</i>	<i>YES</i>
<i>Capacitor Bank Access</i>	<i>YES</i>
<i>Capacitor Bank Access OJT</i>	
<i>Compressed Gases & Cryogenic Liquids</i>	<i>YES</i>
<i>Confined Space Entry</i>	<i>YES</i>
<i>CPR</i>	<i>No</i>
<i>Crane Operator (Classroom)</i>	<i>YES</i>
<i>Crane Operator (OJT)</i>	
<i>D-site Access Training</i>	
<i>Disposable Respirators</i>	<i>No</i>
<i>Electric Utilization Training (EUT)</i>	<i>YES</i>
<i>ES&H Issues in the Workplace (Grad Students)</i>	<i>No</i>
<i>Fall Protection</i>	<i>YES</i>
<i>Fire Extinguisher Training</i>	<i>YES</i>

MCR-ENG-060,R1-004

<i>Fire Watch Training (For D-site Fire Watch Qualification)</i>	<i>No, lecture only (Prereq. Fire extinguisher Training)</i>
<i>Forklift Training (Classroom)</i>	<i>YES</i>
<i>Forklift Training (OJT)</i>	
<i>Forklift Rigging (Classroom)</i>	
<i>Forklift Rigging (OJT)</i>	
<i>General Employee Training</i>	<i>YES</i>
<i>General Employee Training for Subcontractors</i>	<i>YES</i>
<i>Hazard Communication (Formerly Right-to-Know)</i>	<i>YES</i>
<i>Hazardous Waste Generator's Training</i>	<i>Read Only</i>
<i>Hazmat Handling/On-site Transportation</i>	
<i>Hearing Conservation</i>	<i>YES</i>
<i>Hoisting & Rigging (Classroom)</i>	<i>YES</i>
<i>Hoisting & Rigging (OJT)</i>	
<i>Integrated Safety Management</i>	<i>No</i>
<i>Ladder Safety</i>	<i>YES</i>
<i>Laser Safety</i>	<i>YES</i>
<i>Lead Safety</i>	<i>YES</i>
<i>Lockout/Tagout</i>	<i>YES</i>
<i>Machine Guarding</i>	<i>YES</i>
<i>NSTX Access</i>	
<i>Personal Protective Equipment</i>	<i>YES</i>
<i>Radiation Safety</i>	<i>YES</i>

MCR-ENG-060,R1-004

<i>Respiratory Protection</i>	<i>YES</i>
<i>Scissor Lift (Classroom)</i>	<i>YES</i>
<i>Scissor Lift (OJT)</i>	
<i>Tritium Work Practices (donning & doffing)</i>	<i>No</i>
<i>Working Under the Vacuum Vessel During D&D</i>	<i>Read Only</i>

** Challenge testing only allowed in extreme emergency cases.*

Additional ES&H Controls

The following are additional ES&H Controls that should be considered for inclusion in the Statement of Work:

- State that the subcontractor's safety record will be considered in the proposal/bid evaluations. Request supporting information.*
- State that the subcontractor's number of injury/illness cases, in the last year or even longer, will be included in the proposal/bid evaluation requirements. Request supporting information.*
- Work subcontracted by PPPL is frequently subcontracted to sub-tier contractors and, at times, sub-tier contracts are not known at the time of the initial subcontract award. The Statement of Work should address the method by which PPPL ES&H Requirements (imposed on the subcontractor) are subsequently applied to work performed by their sub-tier contractors.*
- If the work is to be performed at D-Site, or some other restrictive area, state that a briefing by PPPL personnel on the unique safety requirements will be included in the Pre-Proposal/Pre-Bid Conference.*
- Consider including a requirement for the Subcontractors to submit an ISM Plan (examples of when this is appropriate include: subcontractor replacement of underground water pipes in the vicinity of electrical and gas utilities, and subcontractor inspection and repair of on-site cranes) Submittal of the ISM Plan should be required within a certain number of days of subcontract award. State that receipt of the Plan will be a condition of letting the Subcontractor begin on-site work. [PPPL review of the ISM Plan should be by the Cog/ATI/Construction Manager/requisitioner and an individual with an ES&H background. PPPL should review and approve the ISM Plan.]*

MCR-ENG-060,R1-004

NOTE: An ISM Plan (Heath & Safety Plan) per ESHD 5008, Section 1, Subsection 1.4.4 (http://bp.pppl.gov/ESHD_MANUAL/safety/sm1.pdf) must be provided for review and approval for all construction projects. This and other statements cited in Subsection 1.4.4 must be included in all SOWs for construction projects.

- A statement that the subcontractor must inform its employees of the contents of their ISM Plan, including hazards and controls should also be included in subcontracts. This requires subcontractor to hold a pre-job briefing before starting on-site work. [Relying on "paper" alone is not the most effective way to convey requirements. The one-on-one conversations of an on-site pre-job brief are invaluable.] A Pre-Job Briefing form should be attached to the subcontract that must be signed prior to starting the job. A Job Hazard Analysis form signed by affected workers can be used as documentation of a pre-job brief. The JHA form can be found at the following web site:
http://bp.pppl.gov/JHA_online.doc
- Consider including a sample ISM Plan with the RFP/RFB.
- State that PPPL will monitor execution of the ISM Plan and subcontract compliance.
- Identify waste that is generated from work performed, construction, installation and or cleanup efforts. Specify type of waste generated for the purpose of reducing waste to landfill and separate by type. Specify contractor or PPPL PTR who is responsible for waste and recyclables generated. Contact Facilities and Site Services to ensure proper containers and size are available for the project. Dispose of waste and recyclables in the proper containers and provide weight for each category for contractors taking materials off site (e.g. scrap metal, clean wood, concrete, wires, asphalt, fill dirt etc.). Weight shall be provided in pounds or metric tons.
- For all cleanup efforts ensure that property items are excessed through material services. This includes furniture, computer related items and equipment. Those items will be inspected by Material Services to be excessed, sold, reused or properly disposed.

9.0 QUALITY ASSURANCE REQUIREMENTS

Provide a description of the quality assurances and controls that need to be implemented for this work. At least include a general statement such as "Work under this SOW shall be performed under an effective Quality Assurance Program. The Subcontractor shall maintain an effective Quality Assurance Program to assure that the Subcontractor's work meets the required quality and is performed in accordance with contractual requirements. Subcontractor's quality assurance function shall be actively involved in the planning, processing oversight, problem resolution, and determination of acceptability of all work under this SOW. The function shall be organized to have sufficient authority and independence to identify quality problems, verify conformance of supplied items or services to specified requirements and obtain satisfactory resolution of conflicts involving quality."

MCR-ENG-060,R1-004

Select and include appropriate specific requirements from the list contained at:

<http://www-local.pppl.gov/ga/PQA/QAClauses.doc>

Consult Procurement Quality Assurance to assist in determining these requirements and agree upon general approach to supplier/subcontractor oversight.

10.0 SHIPPING STORAGE AND HANDLING

Specify the requirements for packing (e.g., crating, pallets, accelerometers, nitrogen purge, desiccant, etc.), shipping and handling of the component. Identify temperature and humidity storage requirements. Specify labeling to be placed on shipping container. Also identify requirement for receipt inspection, if necessary.

11.0 WARRANTY

Identify if a warranty is required or desired and describe in detail.

12.0 ATTACHMENTS

Provide a list of attachments, including each attachment referred to in the text of the SOW. Attachments may include examples of documentation of similar work, done previously.

13.0 DOCUMENTATION & DELIVERABLES

Documentation deliverables required: List the required documents that must be delivered to fulfill the requirements. State "None" if there are no documents required.

SOWs that include environmentally preferable materials / products / services must include a requirement for vendor documentation of compliance with these requirements. Copies of the Document Deliverable Checklist for such procurements shall be provided to the Environmental Services Division (ESD) to facilitate Laboratory and DOE sustainability reporting. When Deliverable Is Required: Define a relative timeframe when the deliverable needs to be received.

Deliverable Format: Defines whether the specific deliverable will be maintained digitally or in paper format. It can also define the file type (PDF, Excel, PowerPoint, etc.) if you need to be that specific.

Deliverable Received: A check is placed in this column to designate receipt of that deliverable.

Storage Location for Deliverable: This defines where the master set of documents would be kept and where one would go to find the records for the SOW. Project management or department policy may dictate the location. The Operations center can also be used. The records must be retrievable.

Exceptions: Use this area to justify when a Documentation Deliverable is not received and the order can still be closed. A justification must be given.

MCR-ENG-060,R1-004

Notes / Exceptions – If one of the deliverables cannot be delivered and missing this deliverable is acceptable, or, if other exceptions occur, it must be noted and approved by the Cog's supervisor/project manager when they sign-off on the deliverables.

Deliverables List

PO / Subcontract / BOA / BPA #: _____

#	Physical Deliverables Required	When Deliverable Is Required	Deliverable Received (✓)
1			
2			
3			
4			
5			
Exceptions (Add justification for any missing physical deliverables that will not be received):			

#	Document Deliverables Required	When Deliverable Is Required	Deliverable format (paper, electronic etc.)	Storage Location for Deliverable	Deliverable Received (✓)
1					
2					
3					
4					
5					
Exceptions (Add justification for any missing document deliverables that will not be received):					

Princeton Technical Representative/COG: _____

(Sign-off and provide to the Operations Center when job is completed and deliverables are dispositioned and placed/filed in Operations Center (or other Project, Department or Division designated file center)

Sample Statement of Work Deliverables Worksheet

Attachment 2

MCR-ENG-060,R1-004

Statement of Work Deliverables Worksheet

These are examples of items to consider when determining deliverables to require and list in the Documentation and Deliverables section of a particular Statement of Work (this worksheet is not part of the SOW itself.)

Hardware: <i>List hardware items and, for each item, select the tests documents, etc. from the right hand columns that you require.</i>		
1.	• Heat Treatment Charts	• Installation Plan
2.	• Dimensional Inspection Reports	• Qualifications and Certifications
3.	• Surface Quality	• Equipment Calibration History
4.	• Weld Inspection Reports	• Non-Conformance Reports
5.	• Visual Inspections	• Disposal Plan/Clean Up Plan
6.	• Electrical Test Reports	• Material Certifications
7.	• Non-Destructive Examination (NDE) Reports	• Radiographs
8.	• Mechanical Test Reports	• User Manuals
9.	• Performance Test Reports	• Repair Manuals
10.	• Performance Graphs / Charts	• Maintenance Manuals
11.	• Magnetic Permeability Reports	• Design data/calculations
12.	• Completed Travelers/Process sheets	• QA Plan
13.	• Preliminary Drawings	• As-Built Drawings
14.	• Environmental Preferred Products documents	
Software: <i>List software items and, for each item, select the tests documents, etc. from the right hand columns that you require.</i>		
1.	• Source Code	• User Manual
2.	• Stress Test Results	• Training Material
3.	• Testing Verifications	• Non-Conformance Reports
4.	• Code Documentation	• QA Plan
5.	• Installation Plan	
Research: <i>List research items and, for each item, select the tests documents, etc. from the right hand columns that you require.</i>		
1.	• Data (Define Format)	• Material Certifications
2.	• Research Results Report	• Procedure Plan
3.	• Analysis	• CRADA
4.	• Status Reports (Weekly/Monthly)	• Funding Procedure
5.	• Proposed Next Steps	• Equipment Calibration History
6.	• Patents	• Qualifications and Certifications
Safety and Health: <i>List ES&H items and, for each item, select the tests documents, etc. from the right hand columns that you require.</i>		
1.	• ISM Plan	• Digging Permit (PPPL ENG-024)
2.	• QA Plan	• Penetration Permit (PPPL ENG-028)
3.	• Welding Plan (PPPL ENG-037)	• Radiological Work Permit(PPPL ESH-008)
4.	• Lift Plan (PPPL ES-MECH-007)	• Confined Space Permit (PPPL IH-OP-24)
5.	• Hot Work Permit (see ESU)	• Inspection/Test Plans
6.	• Flame Permit (see ESU)	• Installation Plan
7.	• Air Permit (NJDEP)	• Soil Erosion Permit (FSCD)
8.	• Wetlands Permit (NJDEP)	

JOB ORDER STATEMENT OF WORK FOR BASIC ORDERING AGREEMENT

Title: Description of work for this Subcontract Addendum (Job Order)

CAT: A1, A2, A3 as applicable

Revision: 0, 1, 2, etc. (omit from form when using DocMan)

Requisition No.: Requisition number is required before submitting to Procurement

REQUIRED REVIEWS/APPROVAL:

Note: When SOW is managed thru DocMan, it is mandatory to list the required reviewer(s)/Approver by name with exception of ES&H and QA.

PREPARED BY: _____

Name

REVIEWED BY: _____

Name if known, ES&H if Work is performed on PPPL site

REVIEWED BY: _____

Name if known, Quality Assurance if Work is A1 or A2

APPROVED BY: _____

Name, Responsible Engineer Required if Work is A1, A2 or A3 for work involving installation, modifications or repair of PPPL structures, systems, or components

APPROVED BY: _____

Name For A3 Work, the COG is the SOW Approver, if the COG has already signed the SOW as Preparer or Responsible Engineer, the Line Manager of the Cognizant Individual will review and approve the SOW. For A1 and A2 Work, the Project Manager is the Approve. If there is no Project Manager, the Line Manager of the COG will review and approve the SOW.

PRINCETON PLASMA PHYSICS LABORATORY

P.O. BOX 451

PRINCETON, N.J. 08543

609-243-2000

MCR-ENG-060,R1-004

RECORD OF CHANGES

[illegible]

SCOPE OF WORK

The Subcontractor shall provide all materials, labor, supervision, equipment, and expertise required to complete the following Work (Typical lead-in sentence to general work description) ensure this aligns with Deliverables):

Break out if detail is required

Continue as needed

ATTACHMENT(S)

Attachment 1, Deliverables List (always Attachment 1)

Continue as needed

REFERENCE(S) List references numerically. If it's a drawing list as "PPPL Drawing xxx, Rev.xx.

"Parent" Statement of Work for BOA Subcontract (always Reference 3.1)

Continue to list references numerically

GENERAL REQUIREMENTS: This statement applies to all BOA Job Order SOWs.

Upon receipt of an appropriate BOA Job Order, Subcontractor agrees to perform the Work required by this Job Order Statement of Work, maintaining full compliance with the referenced BOA Subcontract and any other documents included or referenced therein or elsewhere in this Job Order Statement of Work.

SPECIAL REQUIREMENTS:

List all specific requirements to this section including any QAPD and ES&H Requirements not identified in the BOA Subcontract or the Statement of Work referenced therein.

Sample - Job Order Statement of Work for BOAs

Attachment 3

MCR-ENG-060,R1-004

Attachment 1 - Deliverables List

#	Physical Deliverables Required	When Deliverable Is Required	Deliverable Received (✓)
1			
2			
3			
4			
5			

Exceptions: Add justification for any missing physical deliverables that will not be received.

#	Document Deliverables Required	When Deliverable Is Required	Deliverable format (paper, electronic etc.)	Storage Location for Deliverable	Deliverable Received (✓)
1					
2					
3					
4					
5					

Exceptions: Add justification for any missing physical deliverables that will not be received.

Princeton Technical Representative: _____

(Sign-off and provide to the Operations Center when job is completed and deliverables are dispositioned and placed/filed in Operations Center (or other Project, Department or Division designated file center)

MCR-ENG-060,R1-004