



Statement of Work

Title: 400 Area Substation Study

Revision Number: Rev 1

Date: 8-16-16

1.0 INTRODUCTION / BACKGROUND

MSA Electrical Utilities (Buyer) is responsible for the operation and maintenance of the Hanford Site transmission and distribution system, including the B5S4 (aka 451B) substation that serves the Hanford 400 area. Assuming D4 (Deactivation, Demolition, Decontamination, Decommissioning) efforts will begin in 2040 and conclude in 2045, there will be no need for power in the 400 area after 2045. In the meantime, Electrical Utilities will need to distribute power to the 400 area for at least the next thirty years. This poses the question if the aging infrastructure in the 400 area substation is reliable enough, or is the correct configuration for continued operation through 2045.

The work scope of this Statement of Work (SOW) is to develop viable options for providing electrical power to the loads served by the B5S4 substation through the conclusion of 400 Area D4 activities. This SOW will also conduct a lifecycle cost analysis of the options presented, and provide a best value recommended path forward for 400 Area electrical distribution from 2017 through 2045

2.0 OBJECTIVE

Develop technically feasible, potentially time phased, options for future power delivery to the 400 Area through the conclusion of D4 activities. All viable options must meet DOE RL's mission needs as specified in the criteria listed in Section 3.0, with a recommended option based upon a weighted analysis of feasible options.

3.0 DESCRIPTION OF WORK – SPECIFIC

To complete the desired task, the subcontractor shall follow the boundaries listed below for a complete analysis. This study will assume the owner will have physical and operational control of the distribution system, until D4 is complete (with the exception of item 1.c. below):

- 1) At a minimum, analyze
 - a) The lowest life cycle cost option for maintaining the existing configuration of B5S4. This encompasses the maintenance/upgrades of the substation transformers, circuit breakers, protective components as well as switchgear and its related components, and station service, as needed to support the Hanford mission in a reliable manner.



Mission Support Alliance

The underground distribution system components should not need to be included in the scope, as they are run-to-failure components.

- b) The technical feasibility of serving the B5S4 loads, minus LIGO (Laser Interferometer Gravitational-Wave Observatory), with a distribution line from a neighboring utility including a lifecycle cost analysis.
 - c) De-energizing the entire distribution system at the beginning of D4 activities and requiring the D4 contractor to self-power using generators. Include analysis of lifecycle cost for turning B5S4 and the distribution system over to a public utility (i.e., City of Richland, Benton REA etc.)
 - d) Bypassing the B5S4 substation to a stand-alone substation, which would serve the remaining loads through D4 Activities.
- 2) Electrical distribution support for LIGO may be terminated with a three year advanced notice.
 - 3) B5S4 may be converted to a transmission line tap configuration.
 - 4) Assume D4 will commence in 2040 and conclude in 2045. Once D4 activities are complete, it is assumed there will be no need for power in the 400 Area.
 - 5) The 618-10 remediation site will no longer require power by the beginning of FY18.
 - 6) Owner monitoring and control of all transmission and distribution assets by the 251W substation Dispatch Station is required, and thus included in the life cycle cost.
 - 7) Voltage control at end point locations is limited to +/-5%.
 - 8) Assume existing loads, and demand load for each, will remain constant until D4 activities begin.

Once options have been developed, the subcontractor will then calculate the power available for D4 operations for each option, assuming the 400 Area is emptied of operational loads. For new distribution line options where additional capacity may be purchased as part of the capital investment, the subcontractor will show the cost/benefit of purchasing additional capacity.

4.0 SUBMITTALS

See the Appendix A Submittal Register for details related to submittal format, type, review cycles, etc.

- Engineering work plan



Mission Support Alliance

- Employee Job Task Analyses (EJTA), as appropriate
- Commercial-off-the-shelf Software documentation (if software other than Microsoft Office is used)
- Subcontractor personnel training qualifications/documentation
- Overall Schedule
- 30% Engineering Alternatives Analysis
- 90% Engineering Alternatives Analysis for final review.
- 100% Final Engineering Alternatives Analysis (with recommendations) signed and releasable into Hanford Document Management Control System.

Submittals shall be provided to MSA Document Control using the MSA Contractor Document Submittal form (A-6003-061)

Requests for Clarification/Information may be provided to MSA Document Control using Request for Clarification or Information form (A-6003-063)

5.0 ACCEPTANCE CRITERIA

Subcontract work products and services shall meet applicable standards as referenced in 6.1.7 of the Engineering Managed Task Services Blanket Master Agreement (BMA). Design documents (if required) submitted for acceptance by MSA shall be approved/stamped by the Subcontractor's Washington State licensed Professional Engineer (PE).

6.0 CONFIGURATION MANAGEMENT

6.1 Configuration Management Requirements

Design requirements listed below are only applicable if design media (drawings, specifications, etc.) are generated to support the Engineering Analysis.

6.1.1 Design Team Task Lead Expectations

A single point of contact shall be established to fulfill the role of Task Lead (e.g., the Subcontractor's project manager) for this task release.

6.1.2 Design Process

The Subcontractor shall develop design content (if required to support engineering analysis) in accordance with their internal, qualified engineering process.



Mission Support Alliance

6.1.3 Design Interfaces

Design interfaces, where present, shall be identified, documented, and controlled in a specification or on an MSA drawing and be uniquely identified.

6.1.4 Documentation

Work produced as part of this SOW and subsequent task releases shall be documented and meet the requirements and MSA Standards listed in Sections 6.1.4 and 6.1.7 of the BMA.

6.1.5 Design Reviews

Each design product (if required to support engineering analysis) shall be checked, reviewed and approved internally by the Subcontractor, as required by the BMA, prior to providing the design package to MSA for review, comment, and subsequent approval. The design review activities will be performed and documented in accordance with the requirements of the BMA section 6.1.5.

6.1.6 As-Built Process

There are no as-building requirements for this version of the Statement of Work.

6.1.7 Applicable Standards

MSA-specific Engineering Standards applicable to the work conducted under this BMA are listed here:

- MSC-STD-ENG-097, *MSC Engineering Design Codes, Standards and Site Specific Design Parameters*; and
- HNF-14660, *Offsite Vendor Instructions for Preparation and Control of Engineering Drawings*.

7.0 ESH& QA REQUIREMENTS

7.1.1 Environmental, Safety Health (ES&H) Requirements

The Subcontractor shall exercise a degree of care commensurate with the work and the associated hazards in accordance with section 7.1.1 of the BMA.

7.1.2 Quality Assurance (QA) Requirements

The Subcontractor shall have a Quality Assurance Program (QAP) and implementing procedures that utilizes a national or international voluntary consensus standard such as the American Society of Mechanical Engineers, NQA-1-2008, *Quality Assurance Requirements for Nuclear*



Mission Support Alliance

Facility Applications, or Equivalent, and implement the QAP sections as applicable to the work scope identified here in accordance with the BMA section 7.1.2.

This procurement is a General Service, Quality Level 3 procurement activity.

7.1.3 Subcontractor Quality Assurance Program

The Subcontractor's Quality Assurance Program shall be subject to the requirements of section 7.1.3 of the BMA.

7.1.4 Commercial Off the Shelf Software

The Subcontractor shall submit documentation for all engineering analysis/design, data analysis/reduction, and engineering/environmental modeling commercial-off-the-shelf (COTS) software¹ (application) used in the performance of work activities. The submitted documentation shall comply with the requirements of section 7.1.4 of the BMA.

7.1.5 Quality Assurance and Engineering Oversight

Subcontractor activities are subject to QA and Engineering oversight by the Buyer's quality assurance or engineering representative at the Subcontractor's facility or the Subcontractor lower-tier's service provider(s) in accordance with section 7.1.5 of the BMA.

8.0 PERSONNEL REQUIREMENTS

8.1.1 Training

All personnel performing work on this task shall have the necessary training for access to the Hanford site and systems in accordance with section 8.1.1 of the BMA. The training required to support this work effort is listed below.

000001	HGET – Computer-Based Training (CBT)
110001	MSA General Employee Training (MGET) - CBT
N/A	Document Management Control System Overview

8.1.2 Qualifications

Subcontractor personnel performing engineering services shall have appropriate training, experience, qualification and/or certification(s) to perform the work required by this task in accordance with section 8.1.2 of the BMA.

¹ COTS software refers to an existing application which will be implemented on a standard operating system without the need for modification of its executable/object code.



Mission Support Alliance

8.2 Security and Badging Requirements

Subcontractor employees will be required to submit to vehicle searches and not personally carry or transport prohibited articles.

8.3 Work Location/Potential Access Requirements

Work locations and work shifts shall be in accordance with the BMA.

9.0 MEETINGS

There are no additional meetings or progress reporting with this task release beyond those already established in the BMA SOW.

10.0 DELIVERABLES AND PERFORMANCE SCHEDULE REQUIREMENTS

10.1 Deliverables

All deliverables associated with this task release have been identified in Appendix A of this task release.

10.2 Schedule

Start Date: Within 2 Seller work days of award

Milestone #1: Approval of submittals 1-6 (SD + 56 calendar day)

Milestone #2: Approval of submittal 7 (SD + 91 calendar day)

Completion Date: Within 105 days of Start Date

11.0 SPECIAL REQUIREMENTS

11.1 Communication with Hanford Site Regulatory Agencies

Under no circumstances shall the subcontractor interact directly with regulatory agencies prior to notifying and obtaining the concurrence of the Contract Specialist and the Buyer's Technical Representative.



APPENDIX A SUBMITTAL REGISTER

Submittal Register Definitions

1. Numerical submittal sequence number: Example: 1, 2, 3, 4 (or organized by topics and project assigned coding structure).
2. Number of Copies and electronic and/or hard copy: Example: E (Electronic only), 6 (Six Hard Copies), or Hard, 1: E, 1 (One Hard Copy, and Electronic).
3. Format: Describes the type of submittal required:

DWG	An AutoCAD drawing using the Hanford standard formatting (See HNF-14660 , <i>Off-Site Subcontractor Directions for the Preparation and Control of Engineering Drawings</i>).
MFC	Microsoft Format Compatible application (Word, Excel, Access, PowerPoint)
P3	A Primavera Project Planner schedule
GEN	General or Open Format/Media
PDF	Adobe Acrobat (Portable Document Format)

4. Submittal Type:

APW = Approval Required Prior to Work (Buyer must approve the Subcontractor's submittal prior to the Subcontractor being authorized to proceed with any activity/work associated with the submittal).

AP = Approval Required (Buyer must approve the Subcontractor's submittal, however, work associated with the submittal may proceed prior to Buyer approval).

FIO = For Information Only (the submittal is not subject to review and/or approval).

5. **Vendor Information: Mark Yes if document(s) are VI, otherwise leave blank.**

6. Description / Document Title: Title or general description of the document.

7. Submittal Date: Actual date or number of Calendar Days before or after a milestone that a submittal is due from the Subcontractor: Example: June 1, 2005 or CD + 60 [60 days after Conceptual Design Complete]

A Date of Award



Mission Support Alliance

CD	Conceptual Design Complete
PD	Preliminary Design Complete
FD	Final Design Complete
M	Mobilization
SC	Start of Construction
SD	Start Date
EC	End of Construction

8. Buyer Review Time (Work Days): Example: 3 Days
9. Subcontract Reference: Cross reference to the Subcontract requirement that defines this submittal: Example: SOW 3.1.2.
10. Reviewers: List of reviewers for each submittal. Listing is not provided on SOW copy provided for proposals



Mission Support Alliance

Submittal Register:

The Subcontractor shall meet the required schedule and provide the documents specified in accordance with the following submittals.

Subcontract Number and Name:						Revision:			
1. No.	2. No. of Copies* (See End Note)	3. Format	4. Type	5. Vendor Information – Mark Yes if VI, Otherwise Leave Blank	6. Description / Document Title	7. Submittal Date (Calendar Days)	8. Buyer Review Time (Work Days)	9. Subcontract Paragraph or Requirement Reference	10. Reviewers
1	1	MFC or PDF	APW		Engineering Work Plan	SD+7	4	6.1.5 of BMA	
2	1	MFC or PDF	APW		Employee Job Task Analyses (EJTA), as appropriate, or a document that supports why no EJTA is needed.	SD+7	2	7.1.1 of BMA	
3	1	MFC or PDF	FIO		Commercial-off-the-shelf Software documentation (if COTS other than Microsoft Office is used)	SD+7	2	7.1.4 of BMA	
4	1	MFC or PDF	APW		Subcontractor personnel training qualifications/documentation	SD+7	4	8.1.2 of BMA	
5	1	MFC or PDF	AP		Overall Schedule	SD+7	4	4.0 of this task	
6	1	MFC or PDF	APW		30% Engineering Alternatives Analysis	SD+42	8	Section 4 of this task	
7	1	MFC or PDF	APW		90% Engineering Analysis with recommendations	SD+77	8	4.0 of this Release	
8	1	MFC or PDF	APW		Final 100% Engineering Analysis	SD+105	8	Section 4 of this task	



Mission Support Alliance

***For electronic submittals, the number of hard copies can be negotiated with the Contract Specialist and approved by the BTR**