

## SEAS Task Order Statement of Work (SOW)

Date: August 21, 2020

Task Name: Systems Engineering Support for SCA<sub>N</sub> Program

Task No. 94 / Mod: 8

Task Monitor (TM): Eric Poole/Code 599

Contract number: NNG15CR66C

Contract SOW Reference: Sustaining Engineering Services

### Task Modification Change Log

Mod	Date	Change(s) in this SOW	Comment
0	8/17/2018	SOW Initiation	Task Period: September 1, 2018 - August 31, 2019.
1	3/7/2019	Administrative	
2	6/04/2018	The purpose for this task modification is to add MBSE support.	Task Period: July 1, 2019 - June 30, 2020
3	7/1/2019	Administrative	
4	7/2/2019	The purpose for this task modification is to provide SE documentation review and coordination.	Task Period: July 15, 2019 – June 30, 2020
5	3/2/2020	The purpose for this task modification is to add security requirements for the purposes of attending classified technical discussions and training	There is no change to the period of performance
6	5/11/2020	Administrative	
7	5/14/2020	The purpose for this task modification is to extend the task period and add training requirements.	Task Period: July 1, 2020 – October 14, 2020
8	8/21/2020	The purpose for this task modification is to extend the task period	Task Period: October 14, 2020 – April 14, 2021

### 1.0 Scope:

#### 1.1 Task Background/Overview: Mission and Instrument Systems Engineering Support:

This task provides experienced Mission and Instrument Systems Engineering support to Code 450 projects. Included in this effort is senior systems engineering support for missions, instrument flight projects and mission operations. The task is for support covering numerous system engineering efforts.

#### Modification 2

This task provides experienced Systems Engineering support with specialized focus on Model-Based Systems Engineering support to Code 599 activities. Included in this effort is senior systems engineering support for missions, instrument flight projects and mission operations, with experience in model-based systems engineering. The task is for support covering numerous system engineering efforts.

Support is needed through POP for ESC Division/450 studies across SCA<sub>N</sub> and the HEOMD umbrella.

Provide systems engineering as necessary for trade studies, technical consultation and guidance.

#### Modification 4

Code 450 Exploration and Space Communications (ESC) is involved in the development, review and comment to many technical and programmatic documents throughout the year. Many of the documents are directly SCA<sub>N</sub> related and some peripherally related. Some are Code 450 or SCA<sub>N</sub> generated, and many come from outside organizations and require Code 450 assessment, review, and coordination among the many elements of the organization. This task provides engineering support to the Code 450 organization responsibility for technical and programmatic documentation development, review, and coordination, including those documents requiring external ESC coordination or to those documents generated outside of ESC.

#### Modification 5

This task modification is to add security requirements for the purpose of attending classified technical discussions and contractor training.

### **1.2 Skillset/Knowledge required from the contractor:**

The contractor shall provide senior mission systems engineering expertise with at least 20 years of hands on experience with in-house GSFC missions. Hands on experience with generating requirements for complex science missions, extensive experience with in-house architectures and designs, including redundant architectures, senior level experience with failure modes and risk analyses are required.

#### Modification 2

The contractor shall provide senior model-based systems engineering expertise with at least 10 years of hands on experience with in-house GSFC missions, hands on experience with modeling and generating requirements for complex science missions, experience with in-house architectures and designs, including redundant architectures, modeling of complex ground and space systems are required. Experience with MagicDraw tool set is desired.

This work shall be performed on-site at the Goddard Space Flight Center (GSFC).

#### Modification 4

The contractor shall provide a Systems Engineer with 15 or more years of experience with knowledge of the NASA organizational structure and roles and responsibilities, as well as the NASA documentation standards and review practices. Must have technical documentation generation and review experience and NASA standards experience to ensure responsiveness to documentation affecting SCA<sub>N</sub> and keeping compliant with NASA standards and practices.

#### Modification 7

This task modification is to add training requirements for the purposes of attending training that will maintain currency in knowledge of Systems Engineering practices, and address any new areas of detailed knowledge required for understanding of SCA<sub>N</sub> network systems.

## **2.0 Statement of Work:**

- Support needed through POP for ESC Division/450 studies across SCA<sub>N</sub> and HEOMD umbrella.

- Provide senior systems engineering as necessary for trade studies, technical consultation and guidance.

Modification 2

- This task provides experienced Model-Based Systems Engineering support to Code 599 activities. Included in this effort is senior systems engineering support for missions, instrument flight projects and mission operations, with experience in model-based systems engineering. The task is for support covering numerous system engineering efforts.
- The contractor shall provide support needed through POP for ESC Division/450 studies across SCaN and HEOMD umbrella.
- The contractor shall also provide model-based systems engineering as necessary for trade studies, technical consultation and guidance.

Modification 4

- The contractor shall keep track of all documents coming to 450 for review and comment and manage the review and comment consolidation and submittal activities.
- Work with SCaN Configuration Management Office but will have responsibility for assessing when document reviews are due, who the reviews will be coming from, consolidating and de-conflicting 450 comments, and overall making sure that 450 is responsive to their review responsibilities.
- Provide monthly document tracking metrics to include documents in review, required and expected completion dates, and forecasting the documents in the near-term review pipeline so that ESC may manage the documentation workload and review and coordination expectations.

Modification 5

- A minimum of a SECRET clearance with a COMSEC endorsement, that covers the engineering activities associated with the design, development, fabrication, test, and operation of government approved COMSEC equipment.

Modification 7

- Attend training annually.

**3.0 Deliverables and Milestones:**

At this time, the deliverables and milestones are to provide senior experienced support to the projects, as needed and as described in the subtasks. No specific reports or due dates have been identified at the task level.

Modification 2

The contractor shall deliver the items specified below:

<u>Ref#</u>	<u>Deliverables</u>	<u>Due Date</u>
1	Status Reports	Monthly
2	Performance Reports	Monthly
3	End-of-task Report	End of task

*NOTE: Deliverables shall include source code, executable and all related documents, if applicable.*

Modification 4

The contractor shall deliver the items specified below:

<u>Ref#</u>	<u>Deliverables</u>	<u>Due Date</u>
1	Status Reports	Monthly
2	Performance Reports	Monthly
3	Document review and coordination status tracking report	Monthly
4	End-of-task Report	End of task

*NOTE: Deliverables shall include source code, executable and all related documents, if applicable.*

**4.0 ODC/Materials:**

The ODC/Materials anticipated on this task will include those expenses necessary to conduct the systems engineering and requirements related work, including moving expenses.

Modification 2

There are no ODC materials required for the performance of this task.

Modification 4

There are no ODC materials required for the performance of this task.

Modification 7

Tuition and related training expenses will be on the order of \$2,000 per year.

**5.0 Travel**

Travel as indicated by project needs, with at least 1 trip for 1 person to Glenn Research Center (GRC) for 2 days and 1 trip to Jet Propulsion Lab (JPL) for 3 days.

Modification 2

Non-local travel may be required for this task. Travel costs are priced and reimbursed based on the approved Federal Travel Regulations. All travel is to be pre-approved by the Project, as applicable.

<u>Trip No.</u>	<u>Purpose</u>	<u>ST</u>	<u>Origin</u>	<u>Destination</u>	<u>Days / Trip</u>	<u>No. Travelers</u>
1	Model-Based Engineering Support	1	Greenbelt, MD	Glenn Research Center, OH	2	1
2	Model-Based Engineering Support	1	Greenbelt, MD	Plano, TX	4	1

Modification 4

Non-local travel is not required for this task.

**6.0 Applicable Documents:**

Due to the work under this task being focused on engineering support, there are no applicable documents to identify.

**7.0 Period of Performance:**

The Period of Performance for this task is September 1, 2018 through August 31, 2019.

Modification 2

The Period of Performance for this task modification is July 1, 2019 through June 30, 2020.

Modification 4

The Period of Performance for this task modification is July 15, 2019 through June 30, 2020.

Modification 5

No change to the period of performance

Modification 7

The Period of Performance for this task modification is July 1, 2020 through October 14, 2020.

Modification 8

The Period of Performance for this task modification is October 15, 2020 through April 14, 2021.