

ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES
1 16

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER 08/29/2016		2. CONTRACT NO. (If any) NRC-HQ-25-14-E-0001		6. SHIP TO: a. NAME OF CONSIGNEE US NUCLEAR REGULATORY COMMISSION-	
3. ORDER NO. NRC-HQ-25-16-T-0001		4. REQUISITION/REFERENCE NO. NRO-16-0060		b. STREET ADDRESS MAIL PROCESSING CENTER 4930 BOILING BROOK PARKWAY	
5. ISSUING OFFICE (Address correspondence to) US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-5E03 WASHINGTON DC 20555-0001		c. CITY ROCKVILLE		d. STATE MD	e. ZIP CODE 20852
7. TO: a. NAME OF CONTRACTOR NUMARK ASSOCIATES INC		f. SHIP VIA		8. TYPE OF ORDER <input type="checkbox"/> a. PURCHASE <input checked="" type="checkbox"/> b. DELIVERY	
b. COMPANY NAME		REFERENCE YOUR:		Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.	
c. STREET ADDRESS 1220 19TH ST NW STE 500		Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.			
d. CITY WASHINGTON	e. STATE DC	f. ZIP CODE 200362444			
9. ACCOUNTING AND APPROPRIATION DATA See Schedule		10. REQUISITIONING OFFICE OFFICE OF NEW REACTORS			
11. BUSINESS CLASSIFICATION (Check appropriate box(es)) <input checked="" type="checkbox"/> a. SMALL <input type="checkbox"/> b. OTHER THAN SMALL <input type="checkbox"/> c. DISADVANTAGED <input type="checkbox"/> d. WOMEN-OWNED <input type="checkbox"/> e. HUBZone <input type="checkbox"/> f. SERVICE-DISABLED VETERAN-OWNED <input type="checkbox"/> g. WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOSB PROGRAM <input type="checkbox"/> h. EDWOSB					12. F.O.B. POINT
13. PLACE OF a. INSPECTION Destination		b. ACCEPTANCE Destination		14. GOVERNMENT B/L NO.	
				15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) 09/06/2016	
				16. DISCOUNT TERMS	

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	Small Business IDIQ Task Order No. 7 titled Technical Review of NuScale LOCA Evaluation Model Topical Report under Enterprise Wide Contract No. NRC-HQ-25-14-E-0001. Contracting Officers Representative: Continued ...					

SEE BILLING INSTRUCTIONS ON REVERSE	18. SHIPPING POINT		19. GROSS SHIPPING WEIGHT		20. INVOICE NO.		17(h) TOTAL (Cont. pages)
	21. MAIL INVOICE TO:						
	a. NAME US NUCLEAR REGULATORY COMMISSION						\$0.00
	b. STREET ADDRESS (or P.O. Box) ONE WHITE FLINT NORTH 11555 ROCKVILLE PIKE MAILSTOP 03-E17A						
c. CITY ROCKVILLE			d. STATE MD	e. ZIP CODE 20852-2738		\$545,973.39	17(i) GRAND TOTAL

22. UNITED STATES OF AMERICA BY (Signature) 08/29/2016

23. NAME (Typed)
MARK THOMPSON
TITLE: CONTRACTING/ORDERING OFFICER

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OPTIONAL FORM 347 (Rev. 2/2012)
Prescribed by GSA/FAR 48 CFR 53.213(f)

TEMPLATE - ANNNNN

SUNSI REVIEW COMPLETE

NOV 18 2016

ADM002

ORDER: 3 SUPPLIES OR SERVICES
SCHEDULE - CONTINUATION

PAGE NO

2

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER

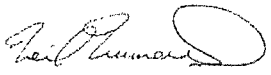
CONTRACT NO.

ORDER NO.

09/06/2016

NRC-HQ-25-14-E-0001

NRC-HQ-25-16-T-0001

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	<p>Shanlai Lu, email: Shanlai.Lu@nrc.gov, phone: 301-415-2869 Contractor POCs: Technical: Martin Bowling, email: mbowling@numarkassoc.com, phone: 202-466-2700. Business: Paul Edelstein, email: pedelstein@numarkassoc.com, phone: 202-466-2700.</p> <p> 8/25/16 Numark Authorized Official Date</p> <p>Accounting Info: 2016-X0200-FEEBASED-25-25D006-17-4-118-3010- 251B Period of Performance: 09/06/2016 to 12/31/2018</p>					

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H))

\$0.00

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PREVIOUS EDITION NOT USABLE

OPTIONAL FORM 348 (Rev. 4/2006)

Prescribed by GSA FAR (48 CFR) 53.213(f)

NUMARK EWC SMALL BUSINESS TASK ORDER 07

SECTION B - SUPPLIES OR SERVICES AND PRICE/COSTS

B.1 PRICE/COST SCHEDULE

CLIN	DESCRIPTION OF SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL COST PLUS FIXED FEE
00001	Contractor to provide Technical Assistance in accordance with section C: DESCRIPTION/SPECIFICATIONS/ STATEMENT OF WORK		\$0.00	
00002	Fee CLIN	\$0.00		
10001	<u>Option Cost CLIN</u> – Continuation of work defined in Tasks 1 through 5, as described in Section C 4, below. (This CLIN is Not Exercised on Task Order Award)		\$0.00	
10002	<u>Option Fee CLIN</u> (This CLIN is Not Exercised on Task Order Award)	\$0.00		
	TOTAL			\$545,973.39

NRCB044 CONSIDERATION AND OBLIGATION—INDEFINITE-QUANTITY CONTRACT

(a) The estimated total quantity of this contract for the products/services under this contract is [REDACTED] of which the sum of [REDACTED] represents the estimated reimbursable costs, and of which [REDACTED] represents fixed fee.

(b) The Contracting Officer will obligate funds on each task order issued.

(c) The amount currently obligated by the Government with respect to this contract is [REDACTED] of which the sum of [REDACTED] represents the estimated reimbursable costs, and of which [REDACTED] represents the fixed-fee (fixed-fee CLIN 00002 is now fully-funded).

(d) This is an incrementally-funded contract and FAR 52.232-22 – “Limitation of Funds” applies.

(e) A total estimated cost and fee, if any, will be negotiated for each task order and will be incorporated as a ceiling in the resultant task order. The Contractor shall comply with the provisions of FAR 52.232-20 - Limitation of Cost for fully-funded task orders and FAR 52.232-22 - Limitation of Funds for incrementally-funded task orders, issued hereunder.

FEE HOLDBACK TABLE			
CLIN	TOTAL FEE	MIT	(HOLD BACK)
00002			
10002			
TOTAL			

(End of Clause)

SECTION C – DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK

NRC Requisition Office: Office of New Reactors (NRO)

Fee Recoverable: YES

1. PROJECT TITLE

"Technical Review of NuScale LOCA Evaluation Model Topical Report."

This Statement of Work (SOW) for this Task Order falls within paragraph 3.6 (Technical Assistance in support of Topical Reports) of the Small Business Set-Aside part of NRC IDIQ Contract entitled Technical Assistance in Support of Agency Environmental and Reactor Programs.

2. BACKGROUND

In its letter to the U.S. Nuclear Regulatory Commission (NRC), dated January 28, 2016, NuScale Power, LLC (NuScale, or the Applicant) informed the NRC staff (Staff) the final plan to submit eight topical reports about NuScale design in the summer of 2016. As one of the eight reports, the Loss of Coolant Accident (LOCA) Evaluation Model (EM) topical report (TR) will be submitted in July 2016 for Staff to review. This TR describes the LOCA EM, LOCA methodology, and will describe the NRELAP5 code modifications specific to NuScale. The EM will be developed by the contractor, following the Evaluation Model Development and Assessment Process (EMDAP) of Regulatory Guide (RG) 1.203. The process of assessing and validating the NRELAP5 code for LOCA will be described by the staff, from the development of an independent phenomena identification and ranking table (PIRT) through code assessment and validation. The TR will describe the LOCA methodology and will include a sample calculation that shows the application of the LOCA methodology to the NuScale Plant Module and will demonstrate that analyses performed with the EM for the NuScale small modular reactor (SMR) satisfy the requirements of 10 CFR 50, Appendix K, "ECCS Evaluation Models".

10 CFR Part 50.46 and Part 50, Appendix K, establish the regulatory requirements regarding Light Water Reactor (LWR) Emergency Core Cooling System (ECCS) performance during the postulated loss of coolant accident. Standard Review Plan (SRP) (NUREG-0800) is prepared

for the guidance of Staff reviewers in the Office of New Reactors (NRO) in performing safety reviews of new reactor designs. SRP 15.6.5 provides the detailed guidance for Staff to review the ECCS performance during the LOCA transient following the regulation. In addition, RG 1.203 provides guidance about the EMDAP. During this TR review, the staff of Reactor Systems, Nuclear Performance & Code Review Branch (SRSB) will conduct review of NuScale specific PIRT development, LOCA testing, NRELAP5 code development and modification, EM model development and validation, the sample calculation and its applicability to NuScale.

3. PROJECT DESCRIPTION AND OBJECTIVE(S)

The objective of this task order is to obtain technical expertise from the contractor in determining the adequacy of the NuScale LOCA EM topical report.

The Contractor must provide all resources necessary to accomplish the tasks and provide deliverables described in this SOW. These tasks are divided into the following five tasks:

- 1) **Perform Familiarity and acceptance review of the Topical Report**
- 2) **Review Topical Report for completeness, regulatory correctness and overall technical adequacy in four evaluation areas**
- 3) **Prepare for and Participate in NRC on-site audit.**
- 4) **Provide RAI Response Review and Develop Technical Evaluation Report**
- 5) **Provide Support for NRC Meetings and Finalize the Draft TER based on NRC comments.**

4. STATEMENT OF WORK TASKS

Task 1. Perform Familiarity and acceptance review of the Topical Report

Contractor shall participate in an initial kick-off meeting hosted by the NRC COR, for the purpose of discussing the Task Order SOW and schedule with NRC COR. The initial kick-off meeting will be via teleconference and will be initiated by the NRC COR

After the initial kick-off meeting, the contractor shall familiarize itself with the NuScale design and participate in an on-site workshop to interact with the Applicant, to be scheduled by the COR after task order award (See Section 11, below).

After completing initial familiarization with the NuScale reactor design and the LOCA testing and analysis, the contractor will perform the acceptance review of the TR. The contractor will evaluate as to whether or not the overall approach proposed by the Applicant follows regulatory guidance, and also as to whether or not the information provided in the TR is sufficient for Staff to make a regulatory finding. Based on this evaluation, the contractor will prepare a letter report documenting its findings, the plan to review, and, recommendations for Staff to consider in its decision regarding whether or not the TR can be accepted for review in its current condition.

Completion date: See Deliverable Table in Section C 6.

Task 2. Review Topical Report for completeness, regulatory correctness and overall technical adequacy in four evaluation areas

After the staff accepts the TR for review, contractors shall further evaluate the TR in four areas, which correspond to sub-tasks under Task 2:

- 1) **Review the LOCA Testing,**
- 2) **Review the Design Specific PIRT and Phenomenology**
- 3) **Review the NRELAP5 computer code development, Qualification and Validation**
- 4) **Review the Evaluation Model Development and Sample Application**

It is up to Contractor to determine the sequence of the areas of review.

Task 2.1 Review the LOCA Testing.

The contractor shall review the relevant NuScale LOCA testing performed, using the scaled test facility to establish the phenomenology and the benchmark data base. The review must cover the relevant scaling analysis and its applications in support of staff review by Office of Regulatory Research, testing apparatus set up and testing procedures, testing results and their implications to NuScale reactor design and analysis. The review may require one or two on-site audit or inspection visits, subject to approval by NRC Staff. The deliverables for this subtask will be RAIs and the TER on testing.

Completion date: See Deliverable Table in Section C 6.

Task 2.2 Review the Design Specific PIRT and Phenomenology.

The contractor shall review the possible phenomenology of this new reactor design based on testing, system analysis and the PIRT provided by the Applicant. Based on the list of potential phenomenon identified, the contractor shall review the proposed PIRT and evaluate its adequacy. The contractor must then prepare a PIRT/Phenomenology TER with potential RAIs, which will become part of the final TER.

Completion date: See Deliverable Table in Section C 6.

Task 2.3 Review the NRELAP5 computer code development, Qualification and Validation.

The contractor shall perform a review of NRELAP5 computer code and its specific features developed for the NuScale application. The contractor shall review the new computer models or numerical algorithms incorporated into the code for the NuScale application in detail regarding the model development, validation and the applicability ranges. The contractor shall review the base version of RELAP3D computer code used to develop the NRELAP5 in order to confirm that the code models, numerical algorithms and base data structures are acceptable for the NuScale LOCA application. The contractor shall communicate with the NRC COR and inform the COR immediately of any issues identified during the evaluation. In the event that the contractor identifies any issues, the contractor shall draft RAIs and recommendations to be delivered to the COR, for the Staff to proceed with its review. As part of this task the contractor shall provide the COR with a draft report, which is to be inserted into the final TER by NRC Staff.

Completion date: See Deliverable Table in Section C 6.

Task 2.4 Review the Evaluation Model Development and Sample Application.

The contractor shall review the actual NuScale design and its evaluation model development, including, but not limited to the following: geometric calculation of each NRELAP5 node; material property; nodalization; all the control module inputs; ECCS components; containment model and boundary conditions. The contractor shall review the application of the evaluation model to the LOCA transient for its proper simulation of the event and the system responses. The contractor shall evaluate the sample calculation against the regulatory requirements based on 10 CFR Part 50.46, and Part 50 Appendix K. The contractor shall develop a report about EM model development and the sample application. The report will become the basis for the final TER created by NRC Staff.

Completion date: See Deliverable Table in Section C 6.

Task 3. Prepare for and Participate in NRC on-site audit.

The contractor shall prepare power point presentations and participate in an NRC on-site audit or inspection, when directed by the COR. The NRC estimates that the audit will likely be approximately five (5) days in length, to be determined and scheduled by the COR after task order award. To the extent that the contractor identifies issues on Tasks 1 and 2, the contractor shall discuss these issues with NRC COR prior to the on-site visit. In addition, the contractor shall review supporting documentation provided by the Applicant prior to the on-site visit. This information shall be provided by the COR to the contractor.

During the audit, the contractor shall review on-site documents. The contractor shall also interact with NRC staff and NuScale technical staff to resolve issues and identify additional supporting materials needed to issue official RAIs and update the draft TER. At the end of the audit, the contractor shall prepare the draft audit report and deliver it to the COR, for the staff to finalize.

Completion date: See Deliverable Table in Section C 6.

Task 4. Provide RAI Response Review and Develop Technical Evaluation Report.

Using the deliverables from Task 2, the contractor shall further review the submitted RAI responses and issue supplemental RAIs to reach issue resolution. Then, the contractor shall incorporate all RAI responses into the draft TER. The contractor shall develop a TER template at the end of the third week after the official starting date of the RAI Response Review. After Task 2 is completed, the contractor shall issue the first revision of the TER. Based on NRC staff comments provided by the COR and the resolution/closure of issues of all RAIs, as provided to the contractor via the COR, the contractor shall finalize the TER and submit the deliverable to the COR.

Completion date: See Deliverable Table in Section C 6.

Task 5. Provide Support for NRC Meetings and Finalize the Draft TER based on NRC comments.

The contractor shall provide support to the COR by developing draft presentations to the Advisory Committee on Reactor Safeguards (ACRS). These presentations will be reviewed and approved by the NRC COR before presentation to the ACRS. The contractor shall also

participate in the ACRS meeting and, at the direction of the COR, shall assist the NRC staff in addressing ACRS comments and questions.

Using Task 4 deliverables, the contractor shall submit the final TER draft to the COR, with open items based on ACRS and Staff comments. NRC COR will revise the final draft TER and provide comments to the contractor. The contractor shall provide final TER to the COR, with NRC comments incorporated into the document.

Completion date: See Deliverable Table in Section C 6.

Technical Directions

The COR may issue Technical Directions (TDs) from time to time throughout the duration of the task order. These TDs must be within scope of the task order SOW and shall not constitute new assignments of work or changes of such a nature as to constitute a change to the task order cost or period of performance. Any modifications to the scope of work, cost or period of performance of this task order must be issued by the Contractor Officer (CO) and will be coordinated with the COR. The COR may issue TDs for the purpose of making adjustments or clarifications to the timing and performance of the tasks and/or the delivery schedule of the documents within this task order.

In the event that the contractor believes that any of these TDs do have an impact in terms of changing the scope, cost or period of performance of the task order, the contractor shall immediately inform the task order CO and request appropriate guidance prior to taking action on the TD in question.

5. APPLICABLE DOCUMENTS AND STANDARDS

Key regulatory requirements are specified in Title 10 of the Code of Federal Regulations, Part 50 – "Domestic Licensing of Production and Utilization Facilities". In particular, 10 CFR Part 50.46 and Part 50 Appendix K, shall be followed for review and evaluation. Detailed review guidance is provided in Chapter 15 sections of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition - Transient and Accident Analysis" The principal purpose of the SRP is to assure the quality and uniformity of staff safety reviews, with support in Regulatory Guide 1.203, "Transient and Accident Analysis Methods."

The above regulatory requirements and review guidance are available on the NRC's public website at www.nrc.gov.

6. DELIVERABLES AND DELIVERY SCHEDULE/REPORTING REQUIREMENTS

The contractor may elect to provide the deliverables under this task order to the COR via e-mail. For Tasks 2, 4 and 5, the contractor shall provide the deliverable in both Microsoft WORD and Adobe Acrobat formats. The contractor shall provide presentation slides for Task 5 to the COR in Microsoft PowerPoint format.

<u>TASK</u>	<u>DELIVERABLE</u>	<u>DELIVERY DATE</u>
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Task 1. Familiarization & Acceptance Review	Acceptance Review Letter	20 business days after start of this review task, or as directed by COR
Task 2.1. LOCA Testing	RAIs & Testing TER	60 business days after start of the review, or as directed by COR
Task 2.2. PIRT & Phenomenology	RAIs & PIRT & Phenomenology TER	60 business days after start of the review, or as directed by COR
Task 2.3. NRELAP5	RAIs & Draft Report/TER & Recommendations	100 business days after start of this review task, or as directed by COR
Task 2.4. EM Development	Report on EM Model Development / TER	200 business days after start of this review task, or as directed by COR
Task 3. NRC Audit	PP Presentation, RAIs, Update TER, draft Audit Report	10 business days after completion of the on-site audit
Task 4. RAIs Response Review & Develop TER	TER Template, Final TER	21 days after start of the review, or as directed by COR 200 business days after start of this review task, or as directed by COR
Task 5. Support Meetings	Develop PP Presentations, Address ACRS Comments	Prior to Meetings (at COR direction), 20 business days after ACRS Meeting

Acceptance Criteria for Deliverables: The above deliverables shall be submitted to the task order COR unless otherwise directed by the COR or the CO. The contractor must provide all deliverables except the Monthly Letter Status Reports (MLSR) as draft products. The COR will review all draft deliverables (and coordinate any internal NRC staff review, if needed) and provide comments back to the contractor. The contractor shall revise the draft deliverable based on the comments provided by the COR and then deliver a revised version of the deliverable, which will then be considered the Final Version, once accepted by the COR. When mutually-agreed upon between the contractor and the COR, the contractor may submit preliminary or partial drafts to the COR, for the purpose of helping to gauge the contractor's understanding of the particular work requirement. More than one round of drafts may be needed if the contractor does not successfully incorporate the COR's comments on the previous draft.

7. REQUIRED LABOR CATEGORIES/ ESTIMATED LEVEL OF EFFORT

Labor categories/Level of effort table

Labor Category	Minimum Qualification Requirement	CLINS 00001 & 00002 (BASIC PERIOD)	CLINS 10001 & 10002 OPTION PERIOD
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Project Manager	See Note 1		
Subject Matter Expert	See Notes 2 - 5		
Senior Technical Reviewer	See Note 5		
Total			
		2158	540
Total (Basic + Option CLINs)	2698		

Note 1: Project Manager must have the following technical qualifications: Project Management:

- **Education:** Minimum education standard: Bachelor's Degree
- **Experience:** Minimum 10 years managing projects of similar nature and complexity; good management practices (GMPs), schedules, communication, quality control and budget management

Note 2: At least one SME must have the following technical qualifications:

- **Education:** Minimum education standard: Bachelor's Degree in engineering or Science
- **Experience:** Minimum of 10 years
 - Demonstrated experience using RELAP5 codes for LOCA analyses and performing realistic PWR transient analysis using RELAP5 code,
 - Demonstrated experience with RELAP5 computer code application to Light Water Reactor application:
 - Demonstrated experience with NRC regulations pertaining to light water reactor ECCS performance during LOCA
- **Experience:** Minimum 5 years
 - Demonstrated experience of performing LOCA containment analysis with the knowledge of LWR containment thermal-hydraulics phenomenon, natural circulation, convection and condensation

Note 3: At least one SME must have the following technical qualifications:

- **Education:** Minimum education standard: Bachelor's Degree in engineering or Science
- **Experience:** Minimum 10 years
 - Demonstrated experience in RELAP5 code development and maintenance experience associated with the code internal numerical schemes, physical models, coding structures and input manuals

Note 4: At least one SME must have the following technical qualifications:

- **Education:** Minimum education standard: Bachelor's Degree in engineering or Science
- **Experience:** Minimum 10 years
 - Demonstrated experience with Code Scalability, Applicability, and Uncertainty (CSAU) methodology. Thermal-hydraulic testing and analysis

- Demonstrated experience of code review based on CSAU methodology with the knowledge of realistic LOCA evaluation methodology, LWR thermal-hydraulics, testing and analysis.

Note 5. All SMEs and STRs must have the following technical qualification:

- **Education:** Minimum education standard: Bachelor's Degree in engineering or Science
- **Experience:** Minimum 5 years
 - Demonstrated experience with Regulatory analysis and review experience
 - Demonstrated experience applying 10CFR Part 50.46, Appendix K EM, NUREG-0800, Regulatory Guide 1.206, SRP Chapter 15 and associated NRC Guidance to PWR safety system
 - Demonstrated experience with LWR system, LWR LOCA PIRT development and LOCA responses
 - Demonstrated experience analyzing LWR system response during normal operation or LOCA transient.
 - Demonstrated experience with the development of requests for additional information (RAI)
 - Demonstrated experience and familiarity with development of technical evaluation reports (TER)

8. GOVERNMENT-FURNISHED PROPERTY

None

9. PERIOD OF PERFORMANCE

See **NRCF030A PERIOD OF PERFORMANCE ALTERNATE I**

10. PLACE OF PERFORMANCE

All work shall be performed at the contractor's site, with the exception of:

- Task 1, which must be performed at the applicant's U.S. office in Corvallis, Oregon,
- Task 2.2, which must be performed at the Applicant's U. S. office in Corvallis, Oregon, and
- Task 5, which will be held at NRC's Rockville, Maryland Headquarters.

11. SPECIAL CONSIDERATIONS

TRAVEL/MEETINGS

The Contractor will coordinate all travel in advance with the COR.

- Task 1:** One, 4-person, 5-day meeting at NuScale site, Corvallis, OR
- Task 2.2:** One, 4-person, 5 day audit at NuScale site, Corvallis, OR
- Task 5:** One, 4-person, 2-day meeting at the NRC's Rockville, Maryland headquarters

Contractor will be authorized travel expenses consistent with the substantive provisions of the Federal Travel Regulation (FTR) and the limitation of funds specified in this

contract/order. All travel requires written Government approval from the CO, unless otherwise delegated to the COR.

Travel will be reimbursed in accordance with FAR 31.205-46, "Travel costs" and the General Services Administration's Federal Travel Regulations at:

<http://www.gsa.gov/portal/content/104790>

SECURITY

Work on this task order will involve the handling of documents that contain proprietary information. The contractor shall safeguard documents containing proprietary information against unauthorized disclosure. After completion of work, the contractor must either destroy the documents or return them to the NRC. If the contractor elects to destroy the documentation, the contractor shall confirm this via e-mail to the COR with a copy to the CO and include the date and manner in which the documents were destroyed.

KEY PERSONNEL

See **2052.215-70 KEY PERSONNEL. (JAN 1993)**

CONFLICT OF INTEREST

The contractor must disclose any potential organizational conflict of interest (including by subcontractors), considering current work, planned work and past work for non-NRC entities, (i) in the same technical area, or (ii) on the same or similar matter, as the NRC project scope of work. Non-NRC entities include, but are not limited to, NRC licensees; vendors, industry groups or research institutes that represent or are substantially comprised of nuclear utilities. In addition, disclosures shall also be provided for any concurrent and contemplated work for NuScale or its contractors. Each disclosure for NRC review shall include a copy of an official scope of work/purchase order, the dollar value of the work, and the period of performance. It is understood that NRC shall make all determinations concerning OCOI.

LICENSE FEE RECOVERY

All work under this task order is license fee recoverable.

DATA RIGHTS

The NRC shall have unlimited rights to and ownership of all deliverables provided under this contract/order, including reports, recommendations, briefings, work plans and all other deliverables. All documents and materials, to include the source codes of any software, produced under this contract/order are the property of the Government with all rights and privileges of ownership/copyright belonging exclusively to the Government. These documents and materials may not be used or sold by the contractor without written authorization from the CO. All materials supplied to the Government shall be the sole property of the Government and may not be used for any other purpose. This right does not abrogate any other Government rights. The definition of "unlimited rights" is contained in Federal Acquisition Regulation (FAR) 27.401, "Definitions." FAR clause at FAR 52.227-14, "Rights in Data-General," is hereby incorporated by reference and made a part of this contract/order.

SECTION F - Deliveries or Performance

NRCF030A PERIOD OF PERFORMANCE ALTERNATE I

The total period of performance for this project is as follows. The work on this task order is organized into the following four (4) CLINs:

The Basic Period - Cost (CLIN 00001) is to begin September 6, 2016 and will expire on December 31, 2018.

The Basic Period - Fee (CLIN 00001) is to begin September 6, 2016 and will expire on December 31, 2018.

Option - Cost (CLIN 10001) will begin on January 1, 2019 and will expire on December 31, 2019.

Option - Fee (CLIN 10002) will begin on January 1, 2019 and will expire on December 31, 2019.

(See FAR 52.216-18 - Ordering)
(End of Clause)

Note: The NRC and contractor may opt to exercise Option CLINs 10001 and 10002 earlier than the time stated above, via an executed bilateral option exercise modification.

SECTION H - Special Contract Requirements

2052.215-70 KEY PERSONNEL. (JAN 1993)

(a) The following individuals are considered to be essential to the successful performance of the work hereunder:

Title	Name
Subject Matter Expert	Bert Dunn
Subject Matter Expert	Donald Rowe
Subject Matter Expert	Liliane Schor
Subject Matter Expert	Charles Solbrig

*The contractor agrees that personnel may not be removed from the contract work or replaced without compliance with paragraphs (b) and (c) of this section.

(b) If one or more of the key personnel, for whatever reason, becomes, or is expected to become, unavailable for work under this contract for a continuous period exceeding 30 work days, or is expected to devote substantially less effort to the work than indicated in the proposal

or initially anticipated, the contractor shall immediately notify the contracting officer and shall, subject to the concurrence of the contracting officer, promptly replace the personnel with personnel of at least substantially equal ability and qualifications.

(c) Each request for approval of substitutions must be in writing and contain a detailed explanation of the circumstances necessitating the proposed substitutions. The request must also contain a complete resume for the proposed substitute and other information requested or needed by the contracting officer to evaluate the proposed substitution. The contracting officer and the project officer shall evaluate the contractor's request and the contracting officer shall promptly notify the contractor of his or her decision in writing.

(d) If the contracting officer determines that suitable and timely replacement of key personnel who have been reassigned, terminated, or have otherwise become unavailable for the contract work is not reasonably forthcoming, or that the resultant reduction of productive effort would be so substantial as to impair the successful completion of the contract or the service order, the contract may be terminated by the contracting officer for default or for the convenience of the Government, as appropriate. If the contracting officer finds the contractor at fault for the condition, the contract price or fixed fee may be equitably adjusted downward to compensate the Government for any resultant delay, loss, or damage.

(End of Clause)

2052.215-71 PROJECT OFFICER AUTHORITY. (OCT 1999)

(a) The contracting officer's authorized representative hereinafter referred to as the project officer for this contract is:

Name: Shanlai Lu,
Address: US NRC
Office of Nuclear Regulatory Research
MS TWFN 9F41
Washington DC 20555
Telephone Number: 301-415-2869
Email: shanlai.lu@nrc.gov

The alternate contracting officer's representative is:

Name: Raymond Skarda
Address: US NRC
Office of Nuclear Regulatory Research
TWFN 10 D58
Washington DC 20555
Telephone Number: 301-415-2168
Email: Raymond.Skarda@nrc.gov

(b) Performance of the work under this contract is subject to the technical direction of the NRC project officer. The term technical direction is defined to include the following:

(1) Technical direction to the contractor which shifts work emphasis between areas of work or tasks, authorizes travel which was unanticipated in the Schedule (i.e., travel not contemplated in the Statement of Work or changes to specific travel identified in the Statement of Work), fills in

details, or otherwise serves to accomplish the contractual statement of work.

(2) Provide advice and guidance to the contractor in the preparation of drawings, specifications, or technical portions of the work description.

(3) Review and, where required by the contract, approve technical reports, drawings, specifications, and technical information to be delivered by the contractor to the Government under the contract.

(c) Technical direction must be within the general statement of work stated in the contract. The project officer does not have the authority to and may not issue any technical direction which:

(1) Constitutes an assignment of work outside the general scope of the contract.

(2) Constitutes a change as defined in the "Changes" clause of this contract.

(3) In any way causes an increase or decrease in the total estimated contract cost, the fixed fee, if any, or the time required for contract performance.

(4) Changes any of the expressed terms, conditions, or specifications of the contract.

(5) Terminates the contract, settles any claim or dispute arising under the contract, or issues any unilateral directive whatever.

(d) All technical directions must be issued in writing by the project officer or must be confirmed by the project officer in writing within ten (10) working days after verbal issuance. A copy of the written direction must be furnished to the contracting officer. A copy of NRC Form 445, Request for Approval of Official Foreign Travel, which has received final approval from the NRC must be furnished to the contracting officer.

(e) The contractor shall proceed promptly with the performance of technical directions duly issued by the project officer in the manner prescribed by this clause and within the project officer's authority under the provisions of this clause.

(f) If, in the opinion of the contractor, any instruction or direction issued by the project officer is within one of the categories defined in paragraph (c) of this section, the contractor may not proceed but shall notify the contracting officer in writing within five (5) working days after the receipt of any instruction or direction and shall request that contracting officer to modify the contract accordingly. Upon receiving the notification from the contractor, the contracting officer shall issue an appropriate contract modification or advise the contractor in writing that, in the contracting officer's opinion, the technical direction is within the scope of this article and does not constitute a change under the "Changes" clause.

(g) Any unauthorized commitment or direction issued by the project officer may result in an unnecessary delay in the contractor's performance and may even result in the contractor expending funds for unallowable costs under the contract.

(h) A failure of the parties to agree upon the nature of the instruction or direction or upon the contract action to be taken with respect to the instruction or direction is subject to 52.233-1 - Disputes.

(i) In addition to providing technical direction as defined in paragraph (b) of the section, the project officer shall:

(1) Monitor the contractor's technical progress, including surveillance and assessment of performance, and recommend to the contracting officer changes in requirements.

(2) Assist the contractor in the resolution of technical problems encountered during performance.

(3) Review all costs requested for reimbursement by the contractor and submit to the contracting officer recommendations for approval, disapproval, or suspension of payment for supplies and services required under this contract.

(End of Clause)

SECTION J - List of Documents, Exhibits and Other Attachments

Attachments:

1. Monthly Letter Status Report Template