

ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES

1

17

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

1. DATE OF ORDER		2. CONTRACT NO. (If any) NRC-HQ-25-14-E-0006		6. SHIP TO:	
3. ORDER NO. NRC-HQ-20-17-T-0001		4. REQUISITION/REFERENCE NO. NRR-17-0099		a. NAME OF CONSIGNEE Multiple Destinations	
5. ISSUING OFFICE (Address correspondence to) US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-5E03 WASHINGTON DC 20555-0001				b. STREET ADDRESS	
d. CITY ROCKVILLE		e. STATE MD	f. ZIP CODE 20852-3106	c. CITY	d. STATE
7. TO: WILLIAM ARCIERI		f. SHIP VIA			
a. NAME OF CONTRACTOR INFORMATION SYSTEMS LABORATORIES INC		8. TYPE OF ORDER			
b. COMPANY NAME		<input type="checkbox"/> a. PURCHASE		<input checked="" type="checkbox"/> b. DELIVERY	
c. STREET ADDRESS 11140 ROCKVILLE PIKE		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.	
d. CITY ROCKVILLE		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.			
9. ACCOUNTING AND APPROPRIATION DATA See Schedule		10. REQUISITIONING OFFICE OFF OF NUCLEAR REACTOR REGULATION			

11. BUSINESS CLASSIFICATION (Check appropriate box(es))					12. F.O.B. POINT
<input 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			
13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) Multiple		16. DISCOUNT TERMS
a. INSPECTION Destination	b. ACCEPTANCE Destination				

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)
	Technical Assistance EWC Task Order No. 10 (NRC-HQ-20-17-T-0001) titled "Safety Evaluation of the University of Missouri at Columbia Research Reactor Facility License Amendment Request to Produce Molybdenum-99, Part 1, In-Core Changes." Continued ...					

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	17(i) GRAND TOTAL
b. STREET ADDRESS (or P.O. Box)	ONE WHITE FLINT NORTH 11555 ROCKVILLE PIKE MAILSTOP O3-E17A				\$106,481.00	
c. CITY	d. STATE	e. ZIP CODE				
ROCKVILLE	MD	20852-2738				

22. UNITED STATES OF AMERICA BY (Signature)		06/02/2017	23. NAME (Typed) MARK THOMPSON TITLE: CONTRACTING/ORDERING OFFICER	
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TASK ORDER 10 – Unrestricted EWC IDIQ for ISL

SECTION B - SUPPLIES OR SERVICES AND PRICE/COSTS

B.1 PRICE/COST SCHEDULE

CLIN	Description	Est Cost	Fixed Fee	Total Cost Plus Fixed Fee
00001	Cost - Tasks 1 through 3, as described in Section C, below.	██████████		\$81,302.00
00002	Fee		██████████	
10001	Option Cost CLIN – Continuation of work defined in Tasks 1 through 3, as described in Section C, below. (This CLIN is Not Exercised on Task Order Award)	██████████		\$25,179.00
10002	Option Fee CLIN (This CLIN is Not Exercised on Task Order Award)		██████████	
Total		██████████	██████████	

NRCB044 CONSIDERATION AND OBLIGATION—INDEFINITE-QUANTITY CONTRACT

(a) The estimated total quantity of this contract for the products/services under this contract is **\$81,302.00**, of which the sum of ██████████ represents the estimated reimbursable costs, and of which ██████████ 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 **\$81,302.00**, of which the sum of ██████████ represents the estimated reimbursable costs, and of which ██████████ represents the fixed-fee.

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

(e) 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				
			85.00%	
CLIN	██████████	██████████	██████████	██████████
	██████████	██████████	██████████	██████████
	██████████	██████████	██████████	██████████
				1,010.40

(End of Clause)

SECTION C – DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK

NRC Requisition Office: NRR

Fee Recoverable: No

CAC Number(s): TBD

1.0 PROJECT TITLE AND DESCRIPTION

This project is titled: “Safety Evaluation of the University of Missouri at Columbia Research Reactor Facility License Amendment Request to Produce Molybdenum-99, Part 1, In-Core Changes.”

The Statement of Work (SOW) for this Task Order falls within paragraph 3.2 – Licensing Support, of the Unrestricted part of NRC IDIQ Contract entitled Technical Assistance in Support of Agency Environmental and Reactor Programs.

1. BACKGROUND

The Nuclear Regulatory Commission (NRC) has the authority and responsibility to review and evaluate requests for licensing actions made by its licensees. The University of Missouri-Columbia (the licensee) operates a research reactor at its campus facility in Columbia, Missouri. The licensee plans to submit a license amendment (LA) application to amend the University of Missouri-Columbia Research Reactor (MURR) Technical Specifications (TSs) to support the production of Molybdenum (Mo)-99 for medical purposes.

The licensee proposes to install two special nuclear material (SNM) target assemblies into two adjacent sections of the graphite reflector region for irradiation, and a separate target and pool cooling heat exchanger to remove the anticipated heat load from the target assemblies. The technical review will consist of an evaluation of the proposed changes to the MURR facility in accordance with the guidance in NUREG-1537. Specifically, the technical review will evaluate the proposed changes, and will identify any new or different accident scenarios that are created, and if so, verify whether the potential consequences are within the limits in Title 10 of the *Code of Federal Regulations* (10 CFR). The technical review will also evaluate the adequacy of any proposed TSs and determine if any new TSs are needed to limit the potential consequences of any accident scenario. The technical review will also include confirmatory calculations and/or analyses to substantiate the licensee’s analyses and results for the radiological dose consequences of routine operation and accident scenarios as part of the LA request.

2. PROJECT DESCRIPTION AND OBJECTIVE(S)

The purpose of this task order is to acquire the technical assistance to perform a technical review of the MURR license amendment application to modify the facility to produce Mo-99. The contractor will perform a technical review and evaluation of the proposed changes in accordance with the guidance in NUREG-1537, and will document its review findings and conclusions in a safety evaluation (SE) input document. The contractor will be responsible to produce a safety evaluation (SE) input document that includes the applicable review

criteria of NUREG-1537, Chapters 1 through 15. The NRC staff will use the SE input document to form the basis for the NRC staff's safety evaluation to be issued with the LA approval.

Input to the SE input document will be jointly provided by both the contractor and NRC staff reviewers. The contractor will perform a technical review of the LA and provide the SE input for the proposed changes as provided in the guidance in Chapters 1 through 3, 6, and 8 through 13 of NUREG-1537. The NRC staff will perform a technical review and will provide the SE input for Chapters 4, 5, 7, 14, and 15, of NUREG-1537. The contractor will incorporate both its review information as well as the NRC staff's SE input into the SE input document. An outline of the SE input document and the review chapter responsibilities is provided in Attachment 1. The bulleted items provided in some of the NUREG-1537 Chapters are required review areas based on the NRC staff's understanding of the LA. These subsections may be modified by mutual agreement between the COR and contractor, depending upon the applicability of the proposed LA changes to the review guidance in NUREG-1537.

Specifically, the SE input document from the contractor must include the contractor's technical review and evaluation of the licensee's application of the proposed changes for Chapters 1 through 3, 6, 8 through 13, and also include confirmatory calculations used to substantiate the licensee's analyses of the radiological dose consequences of routine facility operation and accident scenarios, given the proposed facility changes.

The contractor shall develop and provide a comprehensive SE input. The comprehensive SE input shall include the contractor's SE input and input from the NRC staff reviewers for Chapters 4, 5, 7, 14, and 15.

After the task order is awarded, the NRC COR will provide the contractor with the licensee's license amendment application and all supporting documentation.

The contractor is required to prepare the draft SE input document based on its review and evaluation of the license amendment request. The draft SE input document shall state the applicable regulations or standards, discuss the applicant's method for satisfying the regulations or standards, provide an analysis of whether the applicant's method does indeed satisfy the regulations or standards, and conclusions of the acceptability of the applicant's proposals.

During the review, if the contractor identifies any review areas where the licensee's provided information is insufficient for the contractor to complete the review analysis, the contractor shall provide placeholders in the draft SE input document indicating the specific information which is needed, and notify the NRC COR.

For the placeholders, the contractor is required to identify the applicable acceptance criteria in NUREG-1537 or the regulations in 10 CFR associated with the required information, in order to establish a basis to support a written request for additional information (RAI). If applicable, the COR may request the contractor to provide a draft of the RAI to the NRC COR, who will provide the RAI to the licensee. The contractor shall perform a review of the licensee's RAI responses and provide the NRC COR with a written response indicating whether the RAI responses are acceptable for the contractor to complete its review. If the contractor determines that an RAI response is insufficient for its review, the contractor shall provide a specific written description of the deficiencies to the NRC COR, who will address

the issue with the licensee.

All information requested in the RAIs shall be necessary for the contractor to complete its review, and all RAI responses from the licensee shall be documented in the SE input document.

The contractor shall perform confirmatory calculations of the licensee's radiological dose consequences for both normal operation and postulated accident conditions provided in the LA. If the contractor is unable to validate assumptions provided by the licensee's RAI response, for use in the confirmatory calculations, the COR will provide the contractor guidance as to when to use engineering judgement or conservative assumptions in lieu of the applicant's information if the applicant's information is found to be incorrect.

All communication directed to the licensee by the contractor must be conducted through the NRC COR. If communication is conducted through a site visit (in-person) or telephone conference, the contractor shall conduct the communication in a professional manner. The contractor shall not indicate preferences for the analytical methods used by the licensee. The contractor may reference accepted guidance found in NRC Regulatory Guides, NUREGs or NRC staff-endorsed ANSI/ANS documents, as applicable.

The contractor shall provide a draft SE input document to the NRC COR for review (Task 1). The draft SE input document may have placeholders for RAI responses which are pending from the licensee, as discussed above.

The NRC does not anticipate that a site visit will be necessary for the contractor to complete this work. However, if during the review, the COR and contractor mutually agree that a site visit would be advantageous to more expeditiously review the technical information; a site visit will be arranged by the COR. Travel funding has been designated for one site visit to MURR. However, the NRC anticipates that the majority of the contractor's review will be performed in-office from documents provided by the NRC COR. As the NRC COR determines necessary, telephone conference calls may be conducted between the contractor, licensee, and the NRC COR. If the contractor believes conference calls or other communications with the licensee are necessary, the contractor shall notify the COR. The contractor shall not contact the licensee directly.

The NRC COR will provide feedback to the contractor on the draft SE input document, and mutually resolve any outstanding issues. After resolution of any outstanding issues from the licensee's RAI responses, the NRC COR will perform a final acceptance review of the draft SE document, and the contractor shall provide a final SE input document as a task order deliverable (Task 2).

TASK ORDER Contract Line Item Number STRUCTURE

The Basic contract line item number (CLIN) for this Task Order will encompass all of the tasks outlined below. The Option CLIN for this Task Order will be for the continuation of all of the tasks outlined below, to be exercised via task order modification, at the discretion of the task order COR.

3. STATEMENT OF WORK TASKS

The contractor shall perform the tasks below in accordance with the estimated completion schedule. The specific dates for these deliverables will be agreed-upon between the NRC COR and the contractor after task award and prior to start of work.

- a. Task 1: Develop Draft SE Input Document and Requests for Additional Information (RAI)** – After task order award, the COR will arrange to conduct a kick-off meeting with the contractor. The kick-off meeting will be used to discuss the review of the licensee's application. In addition, the COR will provide the contractor with the licensee's application, discuss the review schedule, the SOW deliverables, the process for developing any RAIs, the need for a site visit, and any unique requirements associated with the review task.

The contractor shall review the information provided by the NRC COR contained in the licensee's application to amend the TSs to produce Mo-99. The contractor shall use the regulations in 10 CFR 20, 10 CFR 50, or other applicable regulations, and, the guidance in NUREG-1537, as applicable, to evaluate the acceptability of the licensee's proposed amendment.

The draft SE input document will be jointly developed by both the contractor and NRC staff.

The contractor has two main responsibilities for the development of the draft SE input document:

- 1) The contractor is responsible to develop the entire draft SE input document following the guidance in NUREG-1537, for Chapters 1 through 15; and
- 2) The contractor is responsible for the technical review of the LA, and supplemental information, and to provide the basis for the draft SE input document, following the guidance provided in NUREG-1537, for Chapters 1 through 3, 6, and 8 through 13.

The NRC staff will perform the technical review and provide the input for Chapters 4, 5, 7, 14, and 15, of NUREG-1537, to the contractor who will then incorporate the NRC staff's input into the SE input document. The NRC information which is not provided to the contractor by the COR prior to the issuance of the draft SE input document will not be required to be included in the draft, but may be included in the final SE input document.

An outline of the draft SE input document, following the guidance in NUREG-1537, delineates the contractor's and NRC staff's responsibilities, and is provided in Attachment 1.

The contractor shall perform independent confirmatory calculations of the licensee's dose estimates as provided in the amendment request or RAI responses. If the contractor's review of the licensee's application identifies any areas where the application information is insufficient to complete the review analysis, the contractor shall

indicate the information needed in the draft SE document with a placeholder, and communicate the information needed to the NRC COR. The contractor will be required to indicate the specific guidance in NUREG-1537 or regulations in 10 CFR, to support the request for additional information (RAI). The contractor may be requested to provide a draft of the RAI to the NRC COR, who will submit the RAI to the licensee. If the COR submits RAIs to the licensee, the contractor shall perform a review of the licensee's responses and provide a written assessment to the NRC COR to indicate whether the responses are acceptable to complete the review. If the contractor finds any RAI responses to be unacceptable to complete the review, the contractor will include, in the written assessment, a description of the deficiencies to the NRC COR.

The draft SE input document shall state the applicable regulations or standards, discuss the licensee's method for satisfying the regulations or standards, provide an analysis as to whether or not the licensee's method satisfies the applicable regulations or standards, and contain conclusions about the licensee's proposal.

The contractor shall provide the draft SE input document to the COR as a Word file, and shall follow the guidance in NUREG-1379, "NRC Editorial Style Guide," Rev. 2. The Word file shall not contain any hidden text or linked fields, as these may not be compatible with the NRC Word version in use.

The draft SER input document submitted to the COR shall be technically correct, with no spelling or grammatical errors.

- b. Task 2: Provide Final SE Input Document** - The NRC COR will review the draft SE input document and provide comments back to the contractor. The contractor shall review and evaluate the NRC staff's comments to the draft SE input document and provide a resolution satisfactorily to the NRC COR. Following resolution of all COR comments, the contractor shall provide the final SE input document to the NRC COR. The final SE input document shall include Chapters 1 through 14 of NUREG-1537, as applicable, as supplemented by the NRC staff input for those chapters identified in Attachment 1.

The contractor shall provide the final SE input document to the COR as a Word file, and following the guidance in NUREG-1379, "NRC Editorial Style Guide," Rev. 2. The Word file shall not contain any hidden text or linked fields as these may not be compatible with the NRC Word version in use. The contractor shall deliver the final SE input document on time, the final SE shall be technically acceptable, without spelling or grammatical errors, and in the specified format. The final SE input document shall be reviewed by the contractor's technical editor.

- c. Task 3: Related Support** - If requested by the COR, the contractor shall provide technical support to the NRC staff following delivery of the final SE input document. This technical support may, for example, consist of tasks such as: responding to questions on the final deliverable; attending meetings with NRC Management, or any hearings, to discuss the results of the license amendment; and, assisting NRC staff in resolution of outstanding issues arising from these meetings.

The scope of the related support activity and amount of hours to be used shall be agreed upon between the contractor's PM and the NRC COR before starting the activity. The NRC COR will confirm the request, assistance due date, and estimated level of effort for the specific activity by e-mail to the contractor with a copy to the NRC Contracting Officer (CO).

4. APPLICABLE DOCUMENTS AND STANDARDS

The NRC COR will provide the documents related to the MURR license amendment request at the kick-off meeting or commencement of the task order. Some of the licensee's information is considered PROPRIETARY and should be handled in accordance with the appropriate NRC guidance. Other documents needed are publicly available on the NRC Website. ANSI/ANS standards include the ANSI/ANS-15 series applicable to research and test reactors, which the contractor will have to procure on their own. The NRC COR cannot provide those, due to copyright restrictions. The NRC COR will provide the necessary information in an electronic format, or if the contractor requests, it can be provided in paper form.

5. DELIVERABLES AND DELIVERY SCHEDULE/REPORTING REQUIREMENTS

The contractor shall provide to the NRC COR the deliverables stated in the table below, both in hard copy and electronic format unless directed by the COR. The electronic format shall be provided using a Microsoft-based product, (e.g., Outlook, Word, Excel, PowerPoint) unless the COR and the contractor specifically agree in writing on another format. All deliverables shall be in the format of draft version, revision version with redline/strikeout with a change-control appendix, and a revised version which can be the final version. The contractor shall maintain appropriate revision control in an electronic format.

For each "final" deliverable (e.g., preliminary, draft, or final) that accomplishes a specific portion of a subtask activity, the contractor shall provide an electronic copy to the COR. The contractor shall explicitly state in its submittal that the product provided is the deliverable for Task/Subtask XX, as further described below.

The schedule for deliverables shall be contained in the approved Project Plan for the task order effort, which is included as a deliverable in the table below.

The contractor shall develop, maintain, and control data, files, information, and deliverables pursuant to this task order. The contractor shall provide copies of the independent confirmatory calculations or analysis to the COR, upon request.

Deliverable Schedule

Deliverable	Description	Quantity	Completion Date
1.	draft SE input	- 1 hard copy - 1 electronic Word file copy.	Three months after commencement of the MURR license amendment review.
2.	final SE input	- 1 hard copy - 1 electronic Word file copy.	Four weeks after contractor's receipt of the final NRC comments
3.	Related Support	As applicable.	As requested by COR
4.	Monthly Letter Status Report		15 th of each month

The contractor shall submit the above deliverables to the task order CO and 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. When mutually-agreed upon between the contractor and the COR, the contractor may submit preliminary or partial drafts to help 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.

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 task order Contracting Officer (CO) and shall be coordinated with the task order COR. The COR may issue TDs for the purpose of making adjustments or clarifications to the timing and performance of the tasks/sub-tasks (if applicable) and/or the milestone schedule/delivery schedule of the documents within this task order.

In the event that the contractor believes that a TD issued against this task order has 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.

6. LEVEL OF EFFORT

The level of effort (LOE) for the review of the MURR license amendment is estimated to be 400 hours, apportioned among the tasks as shown below. This LOE excludes the LOE included in the Option CLIN. The LOE for this task order takes into consideration the contractor’s knowledge gained through previous experience with research and test reactor (RTR) license amendment and/or license renewal reviews; and familiarity with the NRC’s RTR license renewal review process. The estimated LOE shown above includes the level of effort needed to support the meetings and travel specified in this SOW.

Level of Effort Table

BASIC CLIN Labor Category	Estimated Labor Hours
BASIC CLIN - TOTAL ESTIMATED LOE	400
OPTION CLIN	150
BASIC & OPTION CLINS - TOTAL ESTIMATED LOE	550

7. GOVERNMENT-FURNISHED PROPERTY

No government-furnished property is expected to perform this task order.

8. PERIOD OF PERFORMANCE

See **NRCF030A PERIOD OF PERFORMANCE ALTERNATE I**, below.

9. PLACE OF PERFORMANCE

The work will be performed at the contractor’s site.

10. SPECIAL CONSIDERATIONS

The contractor may need to make trips to the licensee’s site or NRC HQ to support any related questions, meetings, or hearings that may result from the LRA review. This support is outlined in Task 3, Related Support.

TRAVEL/MEETINGS

- **Trip purpose and associated task:** The purpose of this travel would be to answer questions posed by NRC management, conduct a site visit, or attend a meeting or hearing on the on the LA review of the MURR facility.
- **Frequency:** Three trips.
- **Destination:** NRC HQ office complex or MURR site in Columbia, Missouri.
- **Number of Staff:** Up to three (3) contractor's staff.
- **Number of Days:** Up to three (3) days.

All travel requires prior written approval from the COR.

\$12,000 is estimated for this travel.

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 information, the contractor shall confirm this in an 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) below.

LICENSE FEE RECOVERY

The work specified in this SOW is not 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 prior 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

This order (Base plus Option CLINS) shall commence on June 5, 2017 and will expire on June 4, 2019. (See FAR 52.216-18 - Ordering).

Base Period (CLINS 00001 & 00002): June 5, 2017 through June 4, 2019.
Option Period (CLINS 10001 & 10002): June 5, 2018 through June 4, 2019.

(End of Clause)

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:

Position	Name
[REDACTED]	[REDACTED]

*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:

NRC COR: Geoffrey Wertz
NRC Address: 11545 Rockville Pike
Rockville, MD 20852
Mail stop code: OWFN 12D20
Work telephone: 301-415-0893
Email address: Geoffrey.wertz@nrc.gov.

The alternate contracting officer's representative is:

NRC Alternate COR: Linh Tran
NRC Address: 11545 Rockville Pike
Rockville, MD 20852
Mail stop code: OWFN 12 D 20,
Work telephone: 301-415-4103
Email address: linh.tran@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. Attachment 1

MURR GA Target Irradiation License Amendment Review

NUREG-1537 Outline and Responsibilities

Chapter	Description	Review Organization
1	The Facility Description	Contractor
2	Site Characteristics	Contractor
3	Design of Structures, Systems and Components	Contractor
	• Description of Target	Contractor
	• Core Location	Contractor
	• Target Installation/Removal/Storage	Contractor
4	Reactor Description	RES
	• Target Assembly Neutronic Design	RES
	- Criticality Control	RES
	- Target Assembly K-effectives	RES
	• Target Assembly Thermal-Hydraulic Design	RES
	- Target Assembly Power Level	RES
	- Target Assembly Heat Generation	RES
	- Target Assembly-Core Power Distribution/Peaking Factors	RES
	- Target Assembly-Core DNBR/CHF	RES
	• Target Assembly Effects on Core	RES
	- Neutron Coupling	RES
	- Materials	RES
5	Reactor Coolant Systems	RES
	• Target Auxiliary Cooling System	RES
	- Forced Flow Mode	RES
	- Natural Convection Flow	RES
	- Scram settings	RES
	- Material Compatibility	RES
6	Engineered Safety Features	Contractor
7	Instrumentation and Controls	NRC
	• Target Assembly Instrumentation	NRC
	- Monitoring System	NRC
	- Control System	NRC
	- Safety System (Trips)	NRC
	• Other Instrumentation Changes	NRC
8	Electrical Power Systems	Contractor

9	Auxiliary Systems	Contractor
	• Target Assembly Storage	Contractor
	• Target Handling/Loading/Removal	Contractor
	• SNM Possession Limits	Contractor
	• Modifications to Support Systems	Contractor
	• Security	NRC
10	Experimental Facilities and Utilization	Contractor
11	Radiation Protection Program and Waste Management	Contractor
	• Target Cooling System Radiation	Contractor
	• Target Storage/Disposal	Contractor
12	Conduct of Operations	Contractor
	• Operator Training Requirements	Contractor
	• Pre-operational Testing	Contractor
	• Initial Operation	Contractor
13	Accident Analysis	Contractor
	• Review of SAR Accidents	Contractor
	- Flow Blockage	Contractor
	- Insertion of Excess Reactivity	Contractor
	- Loss of Primary Coolant	Contractor
	- Loss of Primary Coolant Flow	Contractor
	- Loss of Target Flow	Contractor
	- Loss of Electrical Power	Contractor
	- Loss of Secondary Cooling	Contractor
	- Mishandling or Malfunction of Target Assembly	Contractor
	- Experimental Malfunction	Contractor
	- External Events	Contractor
	• Effects of other experiments	Contractor
	- Reactivity	Contractor
	- Heat Load	Contractor
	• Target Rod MHA	Contractor
	• Positive Reactivity Accident	Contractor
14	Technical Specifications	NRC
	• LSSS	NRC
	- Natural Convection	NRC
	- Forced Flow	NRC
15	Financial Considerations	NRC

2. Monthly Letter Status Report Template