

**ORDER FOR SUPPLIES OR SERVICES**

PAGE OF PAGES

1 15

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

1. DATE OF ORDER 09/01/2016		2. CONTRACT NO. (If any) NRC-HQ-25-14-E-0006		6. SHIP TO:			
3. ORDER NO. NRC-HQ-25-16-T-0001		4. REQUISITION/REFERENCE NO. NRO-16-0095		a. NAME OF CONSIGNEE US NUCLEAR REGULATORY COMMISSION-			
5. ISSUING OFFICE (Address correspondence to) US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-5E03 WASHINGTON DC 20555-0001				b. STREET ADDRESS MAIL PROCESSING CENTER 4930 BOILING BROOK PARKWAY			
d. CITY ROCKVILLE		e. STATE MD		c. CITY ROCKVILLE		d. STATE MD	e. ZIP CODE 20852
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			
c. STREET ADDRESS 11140 ROCKVILLE PIKE				REFERENCE YOUR:			
d. CITY ROCKVILLE				e. STATE MD		f. ZIP CODE 20852-3106	
9. ACCOUNTING AND APPROPRIATION DATA See Schedule				10. REQUISITIONING OFFICE OFFICE OF NEW REACTORS			
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) 12/31/2017		16. DISCOUNT TERMS 30
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)
	Task Order NRC-HQ-25-16-T-0001, entitled "Update to NRC Dose," under Enterprise-wide Contract Number NRC-HQ-25-14-E-0006. This Task Order is incrementally funded at \$160,000.00.  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 03-E17A		\$337,248.00				
c. CITY ROCKVILLE		d. STATE MD	e. ZIP CODE 20852-2738			

22. UNITED STATES OF AMERICA BY (Signature) 		23. NAME (Typed) SHARLENE M. MCCUBBIN TITLE: CONTRACTING/ORDERING OFFICER	
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TEMPLATE - ADMIN

SUNSI REVIEW COMPLETE

OCT 13 2016

ADMIN02

**ORDER FOR 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.

08/31/2016

NRC-HQ-25-14-E-0006

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>Period of Performance: Effective date of this order through December 31, 2017</p> <p>Task Order Ceiling: \$337,248.00 Total Obligated Amount: \$160,000.00</p> <p>Contracting Officer's Representative (COR) Name: Richard Clement Phone: 301-415-1988 Email: Richard.Clement@nrc.gov</p> <p>Contractor POC (Business) Name: Bill Arcieri Phone: 301-255-2275 Email: billa@islinc.com</p> <p><i>William Arcieri</i> 2016.09.01 10:33:43 -04'00' 9/1/2016 ISL Authorized Official Date</p> <p>Accounting Info: 2016-X0200-FEEBASED-25-25D005-17-4-151-1030-251A</p>					
TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H))					\$0.00	

**TASK ORDER NRC-HQ-25-16-T-0001 – Unrestricted EWC IDIQ for ISL**

**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
0001	Contractor to provide Technical Assistance in accordance with section C: DESCRIPTION/ SPECIFICATIONS/ STATEMENT OF WORK	[REDACTED]	[REDACTED]	\$337,248.00
	<b>Total</b>	[REDACTED]	[REDACTED]	\$337,248.00

**NRCB044 CONSIDERATION AND OBLIGATION—INDEFINITE-QUANTITY CONTRACT**

(a) The estimated total quantity of this contract for the products/services under this contract is **\$337,248.00** 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.

(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.

(End of Clause)

## **SECTION C – DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK FOR ISL UNRESTRICTED EWC TASK ORDER NRC-HQ-25-16-T-0001**

NRC Requisition Office: Office of New Reactors

Fee Recoverable: No

TAC Numbers: N/A

### **1. PROJECT TITLE**

Update to NRCDose

### **2. BACKGROUND**

NRCDose is an industry standard code system for evaluating routine radioactive effluents from nuclear power plants with a Microsoft (MS) Windows graphical user interface (GUI) that contains three separate U.S. Nuclear Regulatory Commission (NRC) FORTRAN codes (XOQDOQ, LADTAP II, and GASPAR II). NRCDose was developed by Chesapeake Nuclear Services, Inc. and is distributed to registered users through the Radiation Safety Information Computational Center (RSICC) in Oak Ridge, TN. NRCDose was last updated in 2012.

NRCDose calculates atmospheric dispersion and deposition factors, and liquid and gaseous doses from radioactivity released in reactor effluents to the environment based on methods described in NRC Regulatory Guides (RGs) and NUREGs. NRCDose is used by applicants for demonstration of compliance with the applicable NRC regulations in 10 CFR Parts 20, 50, and 52, and by the NRC staff for evaluating the Applicants' license requests. Using the same code system improves the effectiveness and efficiency in NRC's licensing process since the same calculation method and input/output (I/O) files generated by Applicants can be used as part of the NRC staff's confirmatory analyses.

From new reactor licensing lessons learned and other considerations such as International Commission on Radiological Protection (ICRP) recommendations, the NRC staff has identified enhancements that should be addressed in the update to NRCDose. These enhancements do not involve significant changes to calculation models or the technical basis on acceptable methods described in NRC guidance, but will improve the accuracy, consistency, functionality, user interface, MS Windows compatibility, and acceptability of NRCDose calculated results for end users and new reactor application submittals.

### **3. OBJECTIVE(S)**

The objective of this task order is to obtain technical expertise from the contractor to assist the NRC staff in the update to NRCDose. The contractor will perform this work under the direction of the NRC COR, within the Radiation Protection and Accident Consequences Branch, Division of Division of Site Safety & Environmental Analysis in the NRC Office of New Reactors.

#### 4. STATEMENT OF WORK TASKS

As part of this task order the contractor will complete the following tasks:

##### **Task 1 Orientation/kick-off meeting.**

The contractor shall attend an orientation/kick-off meeting with the NRC staff to discuss specific tasks and information needed. NRC staff to provide new NRCDose version number, further guidance, and examples on specific tasks.

##### **Task 2 Review current NRCDose version to establish baseline to update NRCDose.**

The contractor shall provide an update to NRCDose version to establish baseline to update NRCDose for the following:

- 2.1 XOQDOQ depletion and deposition curve equations
- 2.2 GASPAR II drop down menu
- 2.3 Radionuclides in reactor effluents
- 2.4 User-modifiable and hardwired parameters and data tables

The details of Task 2 is provided in Section 4 of the Statement of Work entitled "Statement of Work Tasks".

##### **Task 3 Develop plan to update NRCDose considering review findings and further enhancements.**

The contractor shall develop a plan to update NRCDose considering review findings and further enhancements including, but not limited to: improving the GUI and format to more clearly present parameters, assumptions and results; improving the file structure for saving and retrieving I/O and print options; minor corrections in coding and easier method for user-defined parameters; adding radionuclides in reactor effluents; adding provision/capability for user-defined ICRP dose factors and site-related design parameters.

The details of Task 3 are provided in Section 4 of the Statement of Work entitled "Statement of Work Tasks".

##### **Task 4 Update NRCDose to include new Quick Start Guide, revised User's Guide, and new V&V Report**

- 1) The contractor shall provide NRCDose Beta Version with XOQDOQ, LADTAP II, and GASPAR II codes using approved plan to update NRCDose.
- 2) The contractor shall update the NRCDose User's Manual in draft and final versions.
- 3) The contractor shall develop an NRCDose Quick Start Guide in draft and final versions.
- 4) The contractor shall provide NRCDose V&V Report to document results are calculated correctly and input/output are displayed properly in draft and final versions.
- 5) The contractor shall provide NRCDose Final Version with XOQDOQ, LADTAP II, and GASPAR II codes using approved plan to update NRCDose.

Specific tasks are summarized in the table below along with the expected deliverables and approximate timetable:

Task	Task Description	Milestone/Deliverable	Due Date
1	<b>Orientation/kick-off meeting.</b> NRC staff and contractor to discuss specific tasks and information needed. NRC staff to provide new NRC Dose version number, further guidance, and examples on specific tasks.	N/A	TBD. Meeting will be held via teleconference, at NRC headquarters, or local contractor office at date/time scheduled by NRC COR, as soon as possible after task order award.
<b>2</b>	<b>Review current NRC Dose version to establish baseline to update NRC Dose.</b>		
2-1	<u>XOQDOQ depletion and deposition curve equations.</u> Confirm in NRC Dose version 2.3.20 whether the contained version of XOQDOQ code incorporates the equations that implement the corrected depletion and deposition curves provided in January 1977 Errata Notice attached to Revision 1 of RG 1.111 and issued for comment in July 1977 <u>or</u> whether the contained version of XOQDOQ code still incorporates the equations that implement the original depletion and deposition curves.	NRC COR will review findings submitted by contractor via email	Two (2) weeks after completion of Task 1.
2-2	<u>GASPAR II drop down menu.</u> Clarify the drop down menu item in GASPAR II, all related sub-menus, and coding designated "Meteorological Data," as this information appears to be dealing with estimated X/Q and D/Q dispersion and deposition parameters rather than meteorological data, as the current label implies.		
2-3	<u>Radionuclides in reactor effluents.</u> Identify radionuclides known in reactor effluents not included in RG 1.109. Also, identify any corrections and updates to radionuclides considering NUREG-0172, NUREG/CR-2384, and EMP-155.		
2-4	<u>User-modifiable and hardwired parameters and data tables.</u> Identify all user-modifiable parameters including radiological and non-radiological tabulated data and all parameters and tables hardwired in XOQDOQ, LADTAP II, and GASPAR II codes.		
<b>NOTE: Commencement of Task 3 requires authorization to proceed from NRC COR.</b>			
<b>3</b>	<b>Develop plan to update NRC Dose considering review findings and further enhancements.</b>		
3-1	<u>User-modifiable parameters and imported data.</u> Improve GUI for executing XOQDOQ, LADTAP II, and GASPAR II codes and include capability for user-modifiable parameters and imported radiological and non-radiological tabulated data.		

Task	Task Description	Milestone/Deliverable	Due Date
3-2	<u>XOQDOQ input files.</u> Improve how XOQDOQ input files are created, such as joint frequency distributions of wind speed, wind direction, and atmospheric stability.		
3-3	<u>XOQDOQ, LADTAP II, and GASPAP II I/O.</u> Improve I/O for XOQDOQ, LADTAP II, and GASPAP II codes to more clearly present parameters, assumptions, and results for application-ready submittals.		
3-4	<u>GASPAP II radionuclide information entry.</u> Increase limit on radionuclide information entry in GASPAP II to same limit as in LADTAP II.		
3-5	<u>GASPAP II NEPA analysis.</u> Remove wording on NEPA analysis in GASPAP II.		
3-6	<u>GASPAP II non-human biota dose model.</u> Include non-human biota dose model in GASPAP II for same surrogate species that is calculated in LADTAP II.		
3-7	<u>LADTAP II and GASPAP II aquatic or terrestrial species.</u> Include capability in LADTAP II and GASPAP II for user entry on necessary information for specific aquatic or terrestrial species (i.e., not one of the seven surrogate species) for site-specific, case-by-case situations.		
3-8	<u>NRCDose compatibility and execution.</u> Ensure full compatibility and execution of NRCDose with XOQDOQ, LADTAP II, and GASPAP II codes using MS Windows 7 and above, and MS Internet Explorer Version 7 and above; import and export results into MS Excel, HTML, or text files; and save all generated results as MS Word, MS Excel, HTML, or text files.	Proposed plan with task completion by e-mail to NRC COR.  Provide bi-weekly status reports by e-mail or phone call to NRC COR.	Two (2) weeks after completion of Task 2.  Bi-weekly status update.
<b>NOTE: Commencement of Task 4 requires authorization from the NRC COR to proceed</b>			
<b>4</b>	<b>Update NRCDose to include new Quick Start Guide, revised User's Guide, and new V&amp;V report.</b>		
4-1	<u>NRCDose Beta Version.</u> Provide NRCDose beta version with XOQDOQ, LADTAP II, and GASPAP II codes using approved plan to update NRCDose.	NRCDose Beta Version with XOQDOQ, LADTAP II, and GASPAP II code files submitted to NRC COR.  Provide bi-weekly status reports by e-mail or phone call to NRC COR.	Twenty (20) weeks after completion of Task 3 AND authorization to proceed from NRC COR.  Bi-weekly status update.

Task	Task Description	Milestone/Deliverable	Due Date
4-2	<u>Draft NRC Dose Quick Start Guide.</u> Develop draft NRC Dose Quick Start Guide, which shall include information on files in NRC Dose, how to install, how to run, and how to view output.	Draft NRC Dose Quick Start Guide submitted in MS Word and Adobe Acrobat format to NRC COR.  Provide bi-weekly status reports by e-mail or phone call to NRC COR.	Twenty (20) weeks after completion of Task 3 AND authorization to proceed from NRC COR.  Bi-weekly status update.
4-3	<u>Draft NRC Dose User's Guide.</u> Provide draft revised NRC Dose User's Guide, which shall describe all code corrections, as well as technical and editorial changes in update to NRC Dose.	Draft NRC Dose User's Guide submitted in MS Word and Adobe Acrobat format to NRC COR.  Provide bi-weekly status reports by e-mail or phone call to NRC COR.	Four (4) weeks after completion of Tasks 4-1 and 4-2 (NRC Dose Beta Version and draft NRC Dose Quick Start Guide submitted to NRC COR).  Bi-weekly status update.
4-4	<u>Draft NRC Dose V&amp;V Report.</u> Provide draft NRC Dose V&V Report to document results are calculated correctly and input/output are displayed properly.	Draft NRC Dose V&V Report submitted in MS Word and Adobe Acrobat format to NRC COR.  Provide bi-weekly status reports by e-mail or phone call to NRC COR.	Eight (8) weeks after completion of Tasks 4-1 and 4-2 (NRC Dose Beta Version and draft NRC Dose Quick Start Guide submitted to NRC COR).  Bi-weekly status update.
4-5	<u>NRC Dose Final Version.</u> Issue NRC Dose Final Version with XOQDOQ, LADTAP II, and GASPAP II codes, which shall incorporate NRC COR comments.	Final NRC Dose Version, with XOQDOQ, LADTAP II, and GASPAP II code files submitted to NRC COR.  Provide bi-weekly status reports by e-mail or phone call to NRC COR.	Four (4) weeks after receipt of NRC COR comments on NRC Dose Beta Version with XOQDOQ, LADTAP II, and GASPAP II codes prepared under Task 4-1.  Bi-weekly status update.

Task	Task Description	Milestone/Deliverable	Due Date
4-6	<u>Final NRC Dose Quick Start Guide.</u> Issue final NRC Dose Quick Start Guide, which incorporates NRC COR comments.	Final NRC Dose Quick Start Guide, submitted in MS Word and Adobe Acrobat format to NRC COR.  Provide bi-weekly status reports by e-mail or phone call to NRC COR.	Four (4) weeks after receipt of NRC COR comments on draft NRC Dose Quick Start Guide prepared under Task 4-2.  Bi-weekly status update.
4-7	<u>Final NRC Dose User's Guide.</u> Issue final revised NRC Dose User's Guide which incorporates NRC COR comments.	Final NRC Dose User's Guide, submitted in MS Word and Adobe Acrobat format to NRC COR.  Provide bi-weekly status reports by e-mail or phone call to NRC COR.	Four (4) weeks after receipt of NRC comments on draft NRC User's Guide prepared under Task 4-3.  Bi-weekly status update.
4-8	<u>Final NRC Dose V&amp;V Report.</u> Issue final NRC Dose V&V Report which incorporates NRC COR comments.	Final NRC Dose V&V Report, submitted in MS Word and Adobe Acrobat format to NRC COR.  Provide bi-weekly status reports by e-mail or phone call to NRC COR.	Four (4) weeks after receipt of NRC comments on draft NRC Dose V&V Report prepared under Task 4-4.  Bi-weekly status update.
5	Monthly Letter Status Report	Electronic copy and in accordance with Section F.3 of the base contract	20 <sup>th</sup> of the following month

## 5. APPLICABLE DOCUMENTS AND STANDARDS

Key NRC regulations and guidance and other documents that are relevant and important to the contractor's understanding of this task order are listed below. NRC regulations and guidance are available on the NRC's public website at [www.nrc.gov](http://www.nrc.gov). NRC Dose is available through the RSICC's website at <https://rsicc.ornl.gov/>. ICRP recommendations are available through the ICRP's website at <http://www.icrp.org/>.

### NRC Regulations

- Title 10 of the Code of Federal Regulations (10 CFR), Part 50—"Domestic Licensing of Production and Utilization Facilities."
- 10 CFR Part 52—"Licenses, Certifications, and Approvals for Nuclear Power Plants."
- 10 CFR Part 20—"Standards for Protection Against Radiation."

### NRC Guidance

- RG 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power, Rev. 2," June 2009. (ADAMS Accession No. ML091170109)
- RG 1.110, "Cost-Benefit Analysis for Radwaste Systems for Light-Water-Cooled Nuclear Power Reactors, Rev. 1," October 2013. (ADAMS Accession No. ML13241A052)
- RG 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors, Rev. 1," July 1977. (ADAMS Accession No. ML003740354)
- RG 1.112, "Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Light-Water-Cooled Nuclear Power Reactors, Rev. 1," March 2007. (ADAMS Accession No. ML070320241)
- RG 1.113, "Estimating Aquatic Dispersion of Effluents from Accidental and Routine Reactor Releases for the Purpose of Implementing Appendix I, Rev. 1," April 1977. (ADAMS Accession No. ML003740390)
- RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," June 2007. (ADAMS Accession No. ML070720184)
- RG 4.15, "Quality Assurance for Radiological Monitoring Programs (Inception through Normal Operations to License Termination) - Effluent Streams and the Environment, Rev. 2," July 2007. (ADAMS Accession No. ML071790506)
- NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants: A Guidance Manual for Users of Standard Technical Specifications," October 1978. (ADAMS Accession No. ML091050057)
- NUREG-0172, "Age-Specific Radiation Dose Commitment Factors for a One-Year Intake," November 1977. (ADAMS Accession No. ML14083A242)
- NUREG-0543, "Methods for Demonstrating LWR Compliance With the EPA Uranium Fuel Cycle Standard (40 CFR Part 190)," February 1980. (ADAMS Accession No. ML081360410)
- NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," March 2007. (ADAMS Accession No. ML070660036)
- NUREG-0016, "Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Boiling Water Reactors (BWR-CODE)," January 1979. (Available through RSICC at <https://rsicc.ornl.gov/>)
- NUREG-0017, "Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Pressurized Water Reactors (PWR-CODE)," April 1985. (Available through RSICC at <https://rsicc.ornl.gov/>)
- NUREG/CR-1276, "User's Manual for LADTAP II - A Computer Program for Calculating Radiation Exposure to Man from Routine Releases of Nuclear Reactor Liquid Effluents," May 1980. (Available through RSICC at <https://rsicc.ornl.gov/>)
- NUREG-1301, "Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls for Pressurized Water Reactors," April 1991. (ADAMS Accession No. ML091050061)

- NUREG-1302, "Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls for Boiling Water Reactors," April 1991. (ADAMS Accession No. ML091050059)
- NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Environmental Standard Review Plan (with Supplement 1 for Operating Reactor License Renewal)," June 2013. (ADAMS Accession No. ML12335A667)
- NUREG/CR-2384, "Age-specific Inhalation Radiation Dose Commitment Factors for Selected Radionuclides," August 1982.
- NUREG/CR-2919, "XOQDOQ: Computer Program for the Meteorological Evaluation of Routine Effluent Releases at Nuclear Power Stations," September 1982. (Available through RSICC at <https://rsicc.ornl.gov/>)
- NUREG/CR-4013, "LADTAP II, "Technical Reference and User Guide," April 1986. (Available through RSICC at <https://rsicc.ornl.gov/>)
- NUREG/CR-4653, "GASPAR II - Technical Reference and User Guide," March 1987. (Available through RSICC at <https://rsicc.ornl.gov/>)
- NRC Dose 2.3.20: "Code System for Evaluating Routine Radioactive Effluents from Nuclear Power Plants with Windows Interface," August 2012. (Available through RSICC at <https://rsicc.ornl.gov/>)

#### Other Documents

- Report No. EMP-155, "Review and Expansion of USNRC Regulatory Guide 1.109 Models for Computing Dose Conversion Factors," February 1983, F.W. Boone, and J.M. Palms.
- ICRP Publication 2 (ICRP-2), "Permissible Dose for Internal Radiation," 1959.
- ICRP Publication 26 (ICRP-26), "Recommendations of the ICRP," 1977.
- ICRP Publication 30 (ICRP-30), "Limits for Intakes of Radionuclides by Workers," 1979-1988.
- ICRP Publication 72 (ICRP-72), "Age-dependent Doses to the Members of the Public from Intake of Radionuclides - Part 5 Compilation of Ingestion and Inhalation Coefficients," 1995.
- ICRP Publication 103 (ICRP-103), "The 2007 Recommendations of the International Commission on Radiological Protection," 2007.

## **6. DELIVERABLES AND DELIVERY SCHEDULE/REPORTING REQUIREMENTS**

All items to be delivered or milestones to be achieved are identified in **4. STATEMENT OF WORK TASKS**. The deliverables shall be submitted to the NRC COR. Unless otherwise directed by the NRC CO or COR, the contractor must provide all deliverables except the Monthly Letter Status Reports as draft products. The NRC 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 NRC 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 NRC 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 NRC COR's comments on the previous draft deliverables. The contractor shall develop (as necessary), maintain, and control data, files, information, and deliverables pursuant to this task order.

**7. GOVERNMENT-FURNISHED PROPERTY**

N/A

**8. PERIOD OF PERFORMANCE**

The period of performance for this task order is as stated below, in SECTION F - Deliveries or Performance NRCF030A PERIOD OF PERFORMANCE ALTERNATE I.

**9. PLACE OF PERFORMANCE**

All work shall be performed at the contractor's site.

**10. SPECIAL CONSIDERATIONS**

**TRAVEL/MEETINGS**

Any contractor travel (if needed) for Task 1 will require written approval from the NRC COR.

**SECURITY**

Work on this task order will not involve the handling of proprietary information.

**11. DATA RIGHTS**

The NRC shall have unlimited rights to and ownership of all deliverables provided under this contract/order, including the updated GUI and NRC codes, 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 NRC 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.

**12. LICENSE FEE RECOVERY**

Work under this task order is not license fee recoverable.

**SECTION F - Deliveries or Performance**

**NRCF030A PERIOD OF PERFORMANCE ALTERNATE I**

This order shall commence on Effective date of this task order and will expire on December 31, 2017. (See FAR 52.216-18 - Ordering).

(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:

Senior Tech Reviewer	J. Stewart Bland
Senior Tech Reviewer	Duane DeMore
Tech Reviewer	Val Malafeew

\*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: Richard Clement  
Address: US NRC  
NRO/DSEA/RPAC  
MS: TWFN 7F27  
Washington DC 20555  
Telephone Number: 301-415-1988  
Email: Richard.Clement@nrc.gov

The alternate contracting officer's representative is:

Name: Dayna Dority  
Address: US NRC  
NRO/PMDA/BSMB  
MS: TWFN 6D2  
Washington DC 20555  
Telephone Number: 301-415-7810  
Email: Dayna.Dority@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
2. Billing Instructions