

SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS <i>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, & 30</i>				1 REQUISITION NUMBER RES-22-0220		PAGE OF 1 49		
2. CONTRACT NO. 31310022C0036		3. AWARD/ EFFECTIVE DATE	4. ORDER NUMBER		5. SOLICITATION NUMBER 31310022R0037		6. SOLICITATION ISSUE DATE 07/11/2022	
7. FOR SOLICITATION INFORMATION CALL		a. NAME Margo Katzper			b. TELEPHONE NUMBER (No collect calls) 301-415-3364		8. OFFER DUE DATE/LOCAL TIME ED	
9. ISSUED BY US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-07B20M WASHINGTON DC 20555-0001				CODE NRCHQ	10. THIS ACQUISITION IS <input checked="" type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: % FOR: <input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS <input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM <input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB NAICS: 541690 <input type="checkbox"/> 8(A) SIZE STANDARD: \$16.5			
11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input type="checkbox"/> SEE SCHEDULE		12. DISCOUNT TERMS 30		<input type="checkbox"/> 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		13b. RATING		
15. DELIVER TO NUCLEAR REGULATORY COMMISSION 11555 ROCKVILLE PIKE ROCKVILLE MD 20852-2738				CODE NRCHQ	16. ADMINISTERED BY US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-07B20M WASHINGTON DC 20555-0001			
17a. CONTRACTOR/ OFFEROR		CODE JLXPM7NPVFF2	FACILITY CODE	18a. PAYMENT WILL BE MADE BY FISCAL ACCOUNTING PROGRAM ADMIN TRAINING GROUP AVERY STREET A3-G BUREAU OF THE FISCAL SERVICE PO BOX 1328 PARKERSBURG WV 26106-1328				CODE NRCPAYMENTS
BLUE WAVE CAPITAL AND CONSULTING LLC ATTN GINA PATTERMANN 233 GOLDENRAIN DRIVE UNIT 304 CELEBRATION FL 34747				TELEPHONE NO. 6302343141				
<input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER				<input type="checkbox"/> 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM				
19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES				21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
	The U.S. Nuclear Regulatory Commission (NRC) hereby issues this Contract for Autonomous Control - BWR MultiCycle. Accounting Info Continued ... <i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i>							
25. ACCOUNTING AND APPROPRIATION DATA See schedule						26. TOTAL AWARD AMOUNT (For Govt. Use Only) \$406,706.00		
<input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4, FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED.								
<input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4, FAR 52.212-5 IS ATTACHED. ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED.								
<input checked="" type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED.						<input type="checkbox"/> 29. AWARD OF CONTRACT: _____ OFFER DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:		
30a. SIGNATURE OF OFFEROR/CONTRACTOR				31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER) 				
30b. NAME AND TITLE OF SIGNER (Type or print)		30c. DATE SIGNED		31b. NAME OF CONTRACTING OFFICER (Type or print) Margo Katzper		31c. DATE SIGNED 09/21/2022		

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
	2022-X0200-FEEBASED-60-60D099-60B991-6001-11-6-156 -252A-11-6-156-6001 Period of Performance: 09/28/2022 to 07/27/2023				

32a. QUANTITY IN COLUMN 21 HAS BEEN

RECEIVED
 INSPECTED
 ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: _____

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	32c. DATE	32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE
--	-----------	---

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE
	32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER	34. VOUCHER NUMBER	35. AMOUNT VERIFIED CORRECT FOR	36. PAYMENT <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	37. CHECK NUMBER
-----------------	--------------------	---------------------------------	--	------------------

38. S/R ACCOUNT NUMBER	39. S/R VOUCHER NUMBER	40. PAID BY
------------------------	------------------------	-------------

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT 41b. SIGNATURE AND TITLE OF CERTIFY NG OFFICER	41c. DATE	42a. RECEIVED BY (<i>Print</i>)
		42b. RECEIVED AT (<i>Location</i>)
	42c. DATE REC'D (YY/MM/DD)	42d. TOTAL CONTAINERS

B - Continuation Pages	4
B.1 BRIEF PROJECT TITLE AND WORK DESCRIPTION.....	4
B.2 TYPE OF CONTRACT (JULY 2020).....	4
B.3 CONSIDERATION AND OBLIGATION-FIRM-FIXED-PRICE.....	4
B.4 PRICE/COST SCHEDULE.....	4
B.5 STATEMENT OF WORK	5
C - Contract Clauses	20
C.1 BRANDING	20
C.2 INSPECTION AND ACCEPTANCE BY THE NRC (SEP 2013)	20
C.3 PLACE OF DELIVERY-REPORTS.....	20
C.4 PERIOD OF PERFORMANCE ALTERNATE III	20
C.5 REGISTRATION IN FEDCONNECT® (MAY 2021)	20
C.6 ELECTRONIC PAYMENT (DEC 2017)	21
C.7 ANNUAL AND FINAL CONTRACTOR PERFORMANCE EVALUATIONS	21
C.8 COMPLIANCE WITH U.S. IMMIGRATION LAWS AND REGULATIONS	21
C.9 WHISTLEBLOWER PROTECTION FOR NRC CONTRACTOR AND SUBCONTRACTOR EMPLOYEES	22
C.10 USE OF AUTOMATED CLEARING HOUSE (ACH) ELECTRONIC PAYMENT/REMITTANCE ADDRESS	22
C.11 KEY PERSONNEL. (JAN 1993)	22
C.12 2052.209-72 CONTRACTOR ORGANIZATIONAL CONFLICTS OF INTEREST. (JAN 1993)	23
C.13 2052.215-71 CONTRACTING OFFICER REPRESENTATIVE AUTHORITY. (OCT 1999) - ALTERNATE II (OCT 1999)	26
C.17 52.204-21 BASIC SAFEGUARDING OF COVERED CONTRACTOR INFORMATION SYSTEMS. (NOV 2021)	27
C.18 52.212-4 CONTRACT TERMS AND CONDITIONS - COMMERCIAL PRODUCTS AND COMMERCIAL SERVICES. (NOV 2021).....	29
C.19 52.212-5 CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS - COMMERCIAL PRODUCTS AND COMMERCIAL SERVICES. (MAY 2022)	35
C.20 52.217-7 OPTION FOR INCREASED QUANTITY - SEPARATELY PRICED LINE ITEM. (MAR 1989)	43
C.21 52.217-8 OPTION TO EXTEND SERVICES. (NOV 1999).....	43
C.22 52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT. (MAR 2000)	43
C.23 52.227-14 RIGHTS IN DATA-GENERAL. (MAY 2014)	44
C.24 52.252-2 CLAUSES INCORPORATED BY REFERENCE. (FEB 1998).....	49

B - Continuation Pages**B.1 BRIEF PROJECT TITLE AND WORK DESCRIPTION**

(a) The title of this project is: Autonomous Control – BWR MultiCycle

(b) Summary work description: The objective of this acquisition is for the NRC staff to develop an advanced, automated BWR core design capability. The automated core design software tool will be able to approximate the engineering decisions that normally go into the BWR equilibrium cycle design. Autonomous Control Algorithms (ACAs) are well suited to applying artificial reasoning to make such decisions. The ACAs will be implemented as a software solution that will make decisions for core flow, control blade position, and bundle loading pattern, with the core flow and control blade position outputs being adjusted with exposure. These variables will over-write placeholders within template PARCS/PATHS decks in an iterative fashion, with candidate core design solutions being weighed against economic and safety criteria. This ACA-PARCS/PATHS combination will converge to an equilibrium cycle solution that will be representative of cumulative design and operator decisions throughout all of the previous cycles. This converged, equilibrium PARCS/PATHS core design will then be used by NRC staff to support the development of coupled neutronic/thermal-hydraulic nuclear power plant models for a set of transients for a set of power plants that are representative of the US operating fleet.

B.2 TYPE OF CONTRACT (JULY 2020)

The contract type for this award is Firm Fixed Priced.

B.3 CONSIDERATION AND OBLIGATION-FIRM-FIXED-PRICE

The total amount of the exercised Firm-Fixed-Price portion of this contract is \$156,706.00, and this amount is fully-funded.

The total amount of the Firm-Fixed-Price of this contract (Base and Optional Tasks) is \$406,706.00, and this amount is fully-funded.

B.4 PRICE/COST SCHEDULE

CLIN	Description	Unit	Unit Price
Base Task 3.1			
00001	Deliverable 1- Preliminary Report summarizing Research into Potential Approaches to autonomous control of BWR's	EA	██████████
00002	Deliverable 2- Briefing to NRC staff on Potential Approaches to ACA. Briefing and Briefing materials	EA	██████████
00003	Deliverable 3- Final Report detailing research into BWR autonomous control methods, primary recommended approach and a secondary back-up approach.	EA	██████████
Base Total			\$156,705.90

Optional Task 3.2			
10001	Deliverable 4- Draft Theory manual for the ACA	EA	██████████
10002	Deliverable 5- Draft Software Requirements Specification (SRS) for ACA Software	EA	██████████
10003	Deliverable 6-Draft Software design and implementation document (SDIS) for software	EA	██████████
Optional Task 3.2 Total			██████████
Optional Task 3.3			
20001	Deliverable 7- Beta Code Version Rev 0 with the corresponding ACA inputs and scripted PARCS/PATHS BWR input decks	EA	██████████
20002	Deliverable 8- Beta Code Version Rev 1 updated beta code version with the corresponding ACA inputs and scripted PARCS/PATHS BWR input decks for one cycle and Draft user manual.	EA	██████████
Optional Task 3.3 Total			██████████
Optional Task 3.4			
30001	3.4a- Deliverable 9- Hatch 1 demonstration core model H1C4 through equilibrium (H1C-A)	EA	██████████
30002	3.4b- Deliverable 10- Hatch 1 demonstration core model H1C-A+1 through equilibrium (H1C-B)	EA	██████████
Optional Task 3.4 Total			██████████
Optional Task 3.5			
40001	3.5a- Deliverable 11- Completion Report	EA	██████████
40002	3.5b- Deliverable 12-Finalization of Pre-code documentation(SRS, SDID),run scripts, test for problems and fix, code manuals, user and theory manuals)	EA	██████████
Optional Task 3.5 Total			██████████
Optional Tasks Total			\$250,000.00

Total Firm-Fixed-Price - Base and Optional Tasks (if all are exercised): \$406,705.90

B.5 STATEMENT OF WORK

1 BACKGROUND

In a work request to NRR, the Office of Nuclear Regulatory Research (RES) committed to developing TRACE/PARCS models for accident and transient analysis for a variety of light water reactor (LWR) plant types. As part of this effort, RES staff were tasked with developing

transient analysis models of boiling water reactors (BWRs), but the key component of this effort is that RES staff need to develop “representative” core designs for modern fuel types (with time-dependent rod patterns, time-dependent flow rate, and the end-of-cycle bundle shuffle sequence).

BWR cores are complex in that modern fuel cycles utilize a combination of burnable poisons, control blades, and flow control windows to control excess reactivity during cycle also to maintain power distributions within acceptable limits. BWR bundles are also loaded with fuel pellets with variations in enrichment and burnable poison loadings that aim to balance the reactivity changes with depletion. Additionally, there are competing goals of meeting desired cycle energy, maintaining safety margins, and minimizing duty related fuel failures. However, these BWR models to be developed are not associated with any specific licensing action. As such, the RES staff do not have access to licensee information that is generally used to develop the nuclear models of the BWR cores.

Consequently, RES staff developed a proposal to apply advanced decision-making methods to automated, generic BWR core design (i.e., with autonomous control algorithms). Autonomous control algorithms have been proposed to operate certain micro-reactor design concepts. In these applications various methods are used such that an autonomous control system will sense the conditions in the reactor and reactor coolant system, judge the adequacy of these measurement signals, evaluate the current state of the system, make decisions about actions, and implement actions to adjust the operation status. These autonomous control algorithms allow, in many ways, a controller to act as would a team of operators in a conventional plant. Autonomous control algorithms rely on the definition of an evaluation scheme to determine if an alternative state is preferable to the current state in terms of the figures of merit.

Variants of advanced decision-making algorithms (“autonomous control”) have been applied to nuclear power plant simulation, examples of which include nuclear power plant systems modelling, nuclear core loading scheme optimization, or fuel bundle design and optimization. Examples include Bayesian networks (dynamic probabilistic risk assessment – PRA) that have been applied to event-modelling; deep neural networks (DNNs) that have been used to assist in the design of fuel assemblies and cores; and simulated “annealing,” in which the sampling of core design choices is done from a temperature distribution.

What these methods all have in common is that they employ an algorithmic decision-making capability that makes trade-offs between design objectives that seek to optimize some aspect of the nuclear system or core design (economics, safety, etc.). These classes of algorithms have demonstrated some success in making the nuclear design-optimization problems more tractable.

The NRC seeks an automated method to generate a BWR equilibrium cycle (an equilibrium cycle is a theoretical concept used to evaluate the implications from operating a plant in a “typical” or “representative” manner with a given fuel design over a long time). By applying these methods to the solution of a BWR “representative” core design, advancing the development of an automated core and cycle design methodology using these same methods of evaluating conditions and making decisions to simulate the cycle depletion and core reloading for BWRs, the RES staff will have a capability to produce “representative” core designs.

2 OBJECTIVE

The objective of this acquisition is for the NRC staff to develop an advanced, automated BWR core design capability. The automated core design software tool will be able to approximate the engineering decisions that normally go into the BWR equilibrium cycle design. Autonomous Control Algorithms (ACAs) are well suited to applying artificial reasoning to make such decisions. The ACAs will be implemented as a software solution that will make decisions for core flow, control blade position, and bundle loading pattern, with the core flow and control blade position outputs being adjusted with exposure. These variables will over-write placeholders within template PARCS/PATHS decks in an iterative fashion, with candidate core design solutions being weighed against economic and safety criteria. This ACA-PARCS/PATHS combination will converge to an equilibrium cycle solution that will be representative of cumulative design and operator decisions throughout all of the previous cycles. This converged, equilibrium PARCS/PATHS core design will then be used by NRC staff to support the development of coupled neutronic/thermal-hydraulic nuclear power plant models for a set of transients for a set of power plants that are representative of the US operating fleet.

3 SCOPE OF WORK/TASKS

The contractor shall provide all resources necessary (personnel, equipment and material) to accomplish the tasks and deliverables described in this Statement of Work (SOW).

BASE TASK

3.1 Base Task - Feasibility of Applying Autonomous Control Algorithms (ACA) to Design BWR Cores and Cycles

The contractor shall evaluate autonomous decision-making methods for application to BWR core and cycle design that would be used to down-select candidate core states.

As part of this feasibility step, the contractor shall research a spectrum of methods that would be combined into a methodology for quickly calculating and categorizing core states. That is, the methodology would combine a series of PARCS/PATHS core calculation and set of selection criteria with an Autonomous Control Algorithm (ACA) method for quickly deciding upon and screening these calculated core states according to this set of criteria. The contractor shall propose an ACA that can be any combination of higher order or lower order decision making or sorting methods (e.g., Bayesian, neural networks, response surfaces, machine learning, rules based artificial intelligence, or even heuristic rules).

As part of this study, the contractor shall evaluate the feasibility of exploring multiple competing design objectives and shall develop a list of design objectives to consider. The ACA shall be able to sort candidate core states according to this contractor proposed set of weighted design objectives, in serial or co-current combination. At a minimum, the algorithm shall be able to sort candidate core states according to both power distribution and cycle energy (End of Cycle [EOC] reactivity) limits.

Candidate design objectives to consider (but not to the exclusion of contractor developed design metrics) include:

Economic constraints

- Fuel utilization
- Reducing complexity of operations (maximizing the use of recirculation pump flow control over control rod movement to control reactivity, for example)
- Fuel batch strategy to accommodate fuel design changes

Safety constraints

- Maximum Linear Heat Generation Rate (MLHGR)
- Maximum Average Planar Linear Heat Generation Rate (MAPLHGR)
- Minimum Critical Power Ratio (MCPR)
- Shutdown Margin (SDM)

If the contractor chooses MLHGR, MAPLHGR, and MCPR as selection criteria for the ACA, then the ACA shall also include a definition of prototypical limits for these criteria (e.g., are not tied to the considered fuel designs).

The proposed methodology can also make approximations to the more detailed core models with surrogate or simplified candidate core models; that is, methods could be employed to approximate perturbed designed core states at an exposure point, control rod bank position, and core flow rate. The contractor is free to make assumptions and approximations during the core sorting according to combinations of core criteria (e.g., first sorting a core via safety constraints and then via economic constraints, for example), and can also supplement the surrogate core calculations with explicit core calculations or any other combinations performing the safety constraint checks after so many exposure points).

BASE TASK DELIVERABLES

See Section 5: List of Deliverables

OPTIONAL TASK (inclusive of Task 3.2-3.5)

Task 3.2 - Categorization of Core States

The contractor shall develop/apply the proposed ACA method (from Base Task 3.1) to down-select candidate core states from a matrix of possible core states according to the proposed requirements and goals. This may involve using surrogate models or response surfaces as appropriate for the screening of possible core states and then using the proposed method(s) from Task 3.1 (Bayesian methods, machine learning, and/or artificial intelligence, etc.) to sort candidate core states according to criteria. These methods will form the backbone of the artificial reasoning element in the overall algorithm.

The ACA method shall be designed with an iterative approach in mind such that it could be used to step through the cycle exposure and arrive at a history of control rod patterns, flow rates, and bundle shuffle sequences.

The contractor shall develop a Draft Theory Manual (Deliverable #4) that will explain the theoretical basis for the ACA. The Draft Theory Manual shall detail the underlying assumptions and approach of the ACA (e.g., how the ACA controller will make design decisions) and how this capability will interface with the PARCS/PATHS plant decks.

The Draft Software Requirements Specification (SRS) for ACA software document (Deliverable #5) (per the guidance in NUREG-1737) shall outline the inputs and needs of the ACA decision capability.

The Draft Software Design and Implementation Document (SDID) (per the guidance in NUREG-1737 (Reference 1) (Deliverable #6) will describe how the ACA decision-making capability will be developed, and how this capability will interface with the final PARCS/PATHS plant decks.

The Draft SDID shall indicate how the algorithm will be coded and structured into a software package, and also indicate the proposed scripting language, high-level compiled language, or engineering software package (Python, Perl, Bash, Fortran, Octave, Maxima/Common-Lisp, etc.). The proposed computer language, script, or engineering software package to be used in the ACA shall be open source, and shall also be subject to the approval of the COR.

Task 3.3 - BWR Autonomous Control Categorization – Prototype Step

The contractor shall implement the ACA method from Base Task 3.1 and Optional Task 3.2 into a prototype that interfaces the ACA control schema with PARCS/PATHS. The prototype shall demonstrate the basic feasibility of the interface to control operational parameters and the fuel reloading sequences through the following calculated minimum inputs: fuel location map; core mass flow; and control rod sequence pattern with exposure. The ACA prototype shall be capable of overlaying these inputs into template PARCS/PATHS BWR decks, according to the desired matrix of constraining criteria (economic, safety, and operational criteria).

The contractor will be free to select these prototype models from the NRC-supplied PARCS/PATHS test suite or directly from the NRC-supplied Hatch Unit 1 (References 2, and 3) or Peach Bottom Unit 2 (Ref. 4) PARCS/PATHS models, or from a contractor choice of any other simplified representations of a BWR core.

The preliminary version of the ACA shall be able to approximate one BWR cycle with at least one of the core-design features (choice of core flow, fuel loading pattern, or control rod sequence) determined by the ACA, and edited into the template PARCS/PATHS decks (e.g, with the other criteria being assumed with engineering judgement or supplied with existing models or other sources). The software shall also print edits of the convergence space of the selected constraints of the ACA (as proposed in Base Task 3.1) (Deliverable #7).

The beta ACA shall be upgraded to approximate the other two core design features (the other two interfacing values that aren't approximated with Rev0) and edited into the template PARCS/PATHS decks, and the contractor shall also print the convergence space of the selected ACA constraints (as proposed in Base Task 3.1) (Deliverable #8).

Task 3.4 – BWR Autonomous Control Demonstration

Starting with the first three cycles of the legacy Hatch Unit 1 BWR core design (H1C1 through H1C3; General Electric Type 4; Wet Containment, Mark I, 560 fuel assemblies), documented in References 2 and 3, the contractor shall extend the proof of concept ACA demonstration to the design of two additive equilibrium cycle searches that ultimately converge on an equilibrium cycle with modern fuel. To the extent that ACA ultimately relies on Machine Learning or another algorithm that relies on core design examples, Hatch Unit 1 Cycles 1-3 models are available as training datasets, and models of Peach Bottom Unit 2 Cycles 1-2 (General Electric Type 4; Mark I; 764 fuel assemblies) (Ref. 4) are available as well.

Subtask 3.4a – Hatch Unit 1 GE-7X7/GE-8X8 Cycle 4 Through Equilibrium (H1C-A)

Starting with the H1C3 core, the contractor shall apply the ACA algorithm to an equilibrium cycle search (cycles H1C4 through H1C-A) in which the GE8X8 neutronic fuel types replace GE7X7 fuel types with each fuel shuffle (fuel transition). The equilibrium Cycle H1C-A shall contain only GE8X8 fuel.

The contractor shall deliver the ACA-designed PARCS/PATHS models describing the

equilibrium cycle search from H1C4 through H1C-A (with the increase in GE8X8 fuel and decrease in GE7X7 fuel), with the ACA designed shuffle maps between cycles and with the corresponding ACA input parameters and calculated outputs (Deliverable #9).

Subtask 3.4b – Hatch Unit 1 GE-8X8 Equilibrium (H1C-A+1) through GE14/GNF2 Equilibrium (H1C-B)

Starting with a fuel shuffle from the Optional Subtask 3.4a, ACA-designed equilibrium core of GE8X8 fuel (H1C-A), the contractor shall apply the ACA algorithm to an equilibrium cycle search (Cycles H1C-A+1 through H1C-B) in which the GE8X8 fuel is replaced by the ORNL-stylized 5 wt% GE14/GNF2 mechanical/nuclear design (Ref. 5) with each fuel shuffle (fuel transition). The equilibrium cycle H1C-B shall contain only 5 wt% GE14/GNF2 fuel.

The contractor shall deliver the ACA-designed PARCS/PATHS models describing the equilibrium cycle search from H1C-A+1 through H1C-B (with the increase in the 5 wt% GE14/GNF2 fuel and decrease in GE8X8 fuel), with the ACA designed shuffle maps between cycles and with the corresponding ACA input parameters and calculated outputs (Deliverable #10).

Task 3.5 – Finalization of Reports, Supporting Documentation, Scripts, Test Problems, and Completion Report Development

Subtask 3.5a – Completion Report

The contractor shall prepare a Completion Report (CR) that summarizes the entire effort. Specifically, the report shall summarize what has already been drafted in the Theory, SRS, SDID, and User manuals, and shall also include discussion of demonstration calculation results (e.g., plots of keff, radial/axial power shapes, and calculated ranking criteria) for the simplified BWR core and for the two Hatch Unit 1 cycle problems (cycles H1C4 through H1C-B) (Deliverable #11).

Subtask 3.5b – Final Bundled Effort

The contractor shall amend all previous products, including pre-code documentation (finalize the Theory, SRS, SDID, and User Manuals). The contractor shall also supply an annotated ACA script (or commented code), test problems, and any other run scripts with respect to the BWR core and cycle design tool (Deliverable #12).

OPTIONAL TASK DELIVERABLES

See Section 5: List of Deliverables

REFERENCES

1. NUREG-1737 "Software Quality Assurance Procedures for NRC Thermal Hydraulic Codes," U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, <https://www.nrc.gov/docs/ML0101/ML010170081.pdf>
2. EPRI NP-562, "Core Design and Operating Data for Cycle 1 of Hatch 1," January 1979. (<https://www.osti.gov/biblio/6472796-core-design-operating-data-cycle-hatch>)
3. EPRI NP-2106, "Core Design and Operating Data for Cycles 2 and 3 of Hatch 1," February 1984. (<https://www.osti.gov/biblio/5160422-core-design-operating-data-cycles-hatch>)
4. EPRI NP-563, Project 1020-1: "Core Design and Operating Data for Cycles 1 and 2 of Peach Bottom 2", June 1978. (<https://www.osti.gov/biblio/6561294-core-design-operating-data-cycles-peach-bottom>)
5. "Isotopic and Fuel Lattice Parameter Trends in Extended Enrichment and Higher Burnup

LWR Fuel Vol. II: BWR Fuel,” ORNL/TM-2020/1835, ADAMS No.: ML21088A354
<https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML21088A354>)

4 **ESTIMATED LABOR CATEGORIES, and KEY PERSONNEL**

Labor Categories, Requirements and Key Personnel. Personnel working under this contact/order shall meet the minimum requirements for experience and education, as follows:

Labor Category	Position Minimum Requirements	Key Personnel* (yes or no)
Principal Nuclear Engineer	<p>Completion of graduate level courses in nuclear engineering (to include numerical methods, neutronic methods, reactor physics, and thermal-hydraulics)</p> <p>Knowledge of the application of nuclear analysis methods to reactor core simulation</p> <p>Knowledge of one of several paradigms of simulated computer decision making such as machine learning, dynamic risk assessment, neural networks, simulated annealing, or surrogate methods such as perturbation theory</p> <p>Knowledge of a type of computer programming language or simulation package: examples include compiled computer languages (Fortran or C), scripting languages (Perl, Bash, or Python), or higher-level engineering software packages (Octave, MATLAB, Mathematica, Maxima/Common-Lisp, Mathcad, Maple, or Jupyter).</p>	yes
Nuclear Engineer (Qualifications and Key Personnel Designation are for each person filling this position).	<p>Completion of graduate level courses in nuclear engineering (to include numerical methods, neutronic methods, reactor physics, and thermal-hydraulics)</p> <p>Experience with the application of nuclear analysis methods to reactor core simulation</p> <p>Knowledge of fuel performance, steady-state core thermal hydraulics, and reactor physics, such that the engineer can infer fuel licensing limits as applied to core analysis</p> <p>Knowledge of fuel re-load schemes and nuclear fuel management</p> <p>Experience in performing fuel-cycle, core simulation calculations with a nodal diffusion core simulator (examples include PARCS/PATHS, SIMULATE, ANC, PANACEA, or other comparable academic or industry code)</p>	yes

	<p>Experience with applying one of several paradigms of simulated computer decision making such as machine learning, dynamic risk assessment, neural networks, simulated annealing, or surrogate methods such as perturbation theory to nuclear core or power plant simulation.</p> <p>Experience with applying a type of computer programming language or simulation package to nuclear core or power plant simulation: examples include compiled computer languages (Fortran or C), scripting languages (Perl, Bash, or Python), or higher-level engineering computer language (Octave, MATLAB, Mathematica, Maxima/Common-Lisp, Mathcad, Maple, or Jupyter).</p>	
--	---	--

*See NRCAR 2052.215-70, "Key Personnel"

5 LIST OF DELIVERABLES

Deliverable number:	Section #	Deliverable	Due Date	Format	Submit to:
BASE TASK DELIVERABLES					
1	Task 3.1	Preliminary Report Summarizing Research into Potential Approaches to BWR Autonomous Control Algorithm (ACA) Methods	6 months after award	MS Word document	CO/COR
2	Task 3.1	Briefing to NRC staff on Potential Approaches to ACA. Briefing and briefing materials.	8 months after award	MS Teams Briefing and accompanying presentation materials.p0	CO/COR
3	Task 3.1	Final Report Detailing Research into BWR Autonomous Control Methods, a	10 months after award	MS Word document	CO/COR

		Primary Recommended Approach and a Secondary Back-up Approach.			
OPTIONAL TASK DELIVERABLES					
4	Task 3.2	Draft Theory Manual for the Proposed ACA Method	2 months after Optional Task exercised	MS Word document	CO/COR
5	Task 3.2	Draft Software Requirements Specification (SRS) for ACA software	4 months after Optional Task exercised	MS Word document	CO/COR
6	Task 3.2	Draft Software Design and Implementation Document (SDID) for Software	6 months after Optional Task exercised	MS Word document	CO/COR
7	Task 3.3	Beta Code Version – Rev0, with the corresponding ACA inputs, and scripted PARCS/PATHS BWR input deck for one cycle.	10 months after Optional Task exercised	Tarball or SecureZIP Archive --includes source code files and scripts	CO/COR
8	Task 3.3	Beta Code Version – Rev1 (Updated beta code version, with the corresponding ACA inputs, and scripted PARCS/PATHS BWR input deck for one cycle, and Draft User's Manual.	13 months after Optional Task exercised	Tarball or SecureZIP Archive -- includes source code files and scripts	CO/COR
9	Task 3.4a	Hatch Unit 1 Demonstration Core Model –	16 months after Optional Task exercised	Tarball or SecureZIP Archive -- includes	CO/COR

		H1C4 through Equilibrium (H1C-A)		ACA calculated input decks and accompanying run scripts if developed	
10	Task 3.4b	Hatch Unit 1 Demonstration Core Model – Equilibrium (H1C-A+1) through Equilibrium (H1C-B)	19 months after Optional Task exercised	Tarball or SecureZIP Archive -- includes ACA calculated input decks and accompanying run scripts if developed	CO/COR
11	Task 3.5a	Completion Report	22 months after Optional Task exercised	MS Word document	CO/COR
12	Task 3.5b	Finalization of pre-code documentation (SRS, SDID), run scripts, test problems, code manuals (user and theory manuals)	25 months after Optional Task exercised	Tarball or SecureZIP-- Includes MS Word document(s); source code; input decks; run scripts (if developed)	CO/COR

6 GOVERNMENT FURNISHED PROPERTY/INFORMATION

The following will be provided by the COR after award as needed:

GFP Item	Quantity
PARCS/PATHS distribution	1
PARCS/PATHS code support	Continuous
PMAXS Cross Section libraries ORNL-designed GE14/GNF2 mechanical/nuclear design	1 library of data representing the core
PARCS/PATHS input decks, along with supporting PMAXS libraries, of Cycles 1-3 of Hatch Unit 1, based upon EPRI NP-562 and EPRI NP-2106	1 set of models
PARCS/PATHS input decks, along with supporting PMAXS libraries, of Cycles 1 and 2 of Peach Bottom Unit 2, based upon EPRI NP-563, Project 1020-1	1 set of models
NUREG-1737 "Software Quality Assurance Procedures for NRC Thermal Hydraulic Codes"	1 document

7 PLACE OF PERFORMANCE

The work to be performed under this contract shall be primarily performed at the contractor's site.

8 RELEASE OF PUBLICATIONS

Any documents generated by the contractor under this contract/order shall not be released for publication or dissemination without CO and COR prior written approval.

9 DATA RIGHTS

"COPYRIGHT OF CODES – SPECIAL NUCLEAR PURPOSE LICENSE" FAR Clause 52.227-14

10 SECTION 508 – INFORMATION AND COMMUNICATION TECHNOLOGY ASSESSIBILITY**10.1 Introduction**

In December 2000, the Architectural and Transportation Barriers Compliance Board (Access Board) pursuant to Section 508(2)(A) of the Rehabilitation Act Amendments of 1998, established electronic and information technology (EIT) accessibility standards for the federal government.

The Standards for Section 508 of the Rehabilitation Act (codified at 36 CFR § 1194) were revised by the Access Board, published on January 18, 2017 and minor corrections were made on January 22, 2018, effective March 23, 2018.

The revised 508 standards have replaced the term EIT with ICT (Information and Communication Technology). ICT is information technology (as defined in [40 U.S.C. 11101\(6\)](#)) and other equipment, systems, technologies, or processes, for which the principal function is the creation, manipulation, storage, display, receipt, or transmission of electronic data and information, as well as any associated content. Examples of ICT include, but are not limited to: Computers and peripheral equipment; information kiosks and transaction machines; telecommunications equipment; customer premises equipment; multifunction office machines; software; applications; Web sites; videos; and, electronic documents.

The text of the Standards for Section 508 of the Rehabilitation Act can be found in 36 CFR § 1194.1 and in Appendices A, C and D to Part 1194 (<https://www.ecfr.gov/current/title-36/chapter-XI/part-1194?toc=1>).

10.2 General Requirements

To help the NRC comply with Section 508 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794d) (Section 508), the Contractor shall ensure that its deliverables (both products and services) within the scope of this contract/order are

1. in conformance with, and
2. support the requirements of the Standards for Section 508 of the Rehabilitation Act, as set forth in 36 CFR § 1194.1 and in Appendices A, C and D to Part 1194.

10.3 Applicable Provisions of the Standards for Section 508 of the Rehabilitation Act

The following is an outline of the standards that identifies what provisions are always applicable and which ones may be applicable.

Applicable to the Contract/Order?	Provision of 36 CFR Part 1194
Yes	1) Revised 508 Standards
Yes	a) Appendix A to Part 1194 – Section 508 of the Rehabilitation Act: Application and Scoping Requirements
Yes	i) 508 Chapter 1: Application and Administration - sets forth general application and administration provisions
Yes	ii) 508 Chapter 2: Scoping Requirements - containing scoping requirements (which, in turn, prescribe which ICT – and, in some cases, how many – must comply with the technical specifications)
Yes (as adjusted in the Exceptions section below)	(1) E202 General Exceptions
Maybe (see the Other section below)	(2) E203.2 User Needs
Yes (as adjusted in the Accessibility of Electronic Content section below)	(3) E205 Electronic Content
See below	b) Appendix C to Part 1194 – Functional Performance Criteria and Technical Requirements
Maybe	i) Chapter 3: Functional Performance Criteria – applies to ICT where required by 508 Chapter 2 (Scoping Requirements) and where otherwise referenced in any other chapter of the Revised 508 Standards
No	ii) Chapter 4: Hardware
Yes	iii) Chapter 5: Software
Yes	iv) Chapter 6: Support Documentation and Services (applicable to, but not limited to, help desks, call centers, training services, and automated self-service technical support)
Maybe	v) Chapter 7: Referenced Standards - the standards referenced here apply to ICT where required by Section 508 Chapter 2 (Scoping Requirements) and where referenced in any other chapter of the Revised 508 Standards
No (see the Legacy ICT section below)	2) Appendix D to Part 1194 – Electronic and Information Technology Accessibility Standards as Originally Published on December 21, 2000

Refer to 508 Chapter 2 (Scoping Requirements) first to confirm what provisions in Appendix C apply in a particular case.

10.4 Exceptions to the Standards

10.4.1 Legacy ICT

Unless a deliverable of this contract/order is identified in this contract/order as Legacy ICT, use by the Contractor of the *Legacy ICT* general exception (section E202.2 of 36 CFR § 1194) shall only be permitted on a case-by-case basis for applicable legacy ICT and with advance written approval from the COR.

10.4.2 National Security Systems

Based on the definition at [40 U.S.C. 11103\(a\)](#), the *National Security Systems* general exception (section E202.3 of 36 CFR § 1194) **is not** applicable to this contract/order.

10.4.3 Incidental ICT

ICT acquired by the Contractor incidental to this contract/order shall not be required to conform to the revised 508 standards.

Note: This only applies when the Contractor is procuring the ICT, only the Contractor personnel will access or use the ICT, and ownership of the ICT will remain with the Contractor upon completion of the contract/order.

10.4.4 ICT Functions Located in Maintenance or Monitoring Spaces

The Contractor shall confirm with the COR that an ICT deliverable of this contract/order will be located in maintenance or monitoring spaces before assuming that the *ICT Functions Located in Maintenance or Monitoring Spaces* general exception (section E202.5 of 36 CFR § 1194) applies.

Note that this exception does not apply to features of the ICT (such as Web interfaces) that can be accessed remotely, outside the maintenance or monitoring space where the ICT is located.

10.4.5 Undue Burden

The *Undue Burden* general exception (section E202.6 of 36 CFR § 1194) is not expected to be applicable to work performed by the Contractor. If there are questions about potential application of this exception please discuss with the CO.

10.4.6 Fundamental Alteration or Best Meets

If the Contractor wishes to use the *Fundamental Alteration* (section E202.6 of 36 CFR § 1194) or *Best Meets* (section E202.7 of 36 CFR § 1194) general exceptions the Contractor shall do the following:

1. provide the COR with information necessary to support the agency's documentation requirements, as identified in sections E202.6.2 and E202.7.1 of 36 CFR § 1194, respectively
2. request and obtain written approval from the COR for development and/or use, as applicable to the scope of the contract/order, of an alternative means for providing individuals with disabilities access to and use of the information and data, as specified in sections E202.6.3 and E202.7.2 of 36 CFR § 1194, respectively.

10.5 Additional Accessibility Requirements

10.5.1 Notification Due to Impact from NRC Policies, Procedures, Tools and/or ICT Infrastructure

If and when 1) the Contractor is dependent upon NRC policies, procedures, tools and/or ICT infrastructure for standards-conformant delivery of any of the products or services under this acquisition, and 2) the Contractor is aware that conformance of products or services will be negatively impacted by capability gaps in NRC policies, procedures, tools and/or ICT infrastructure, the Contractor shall inform the COR so that the NRC can both be aware and take corrective action.

10.5.2 Accessibility of Electronic Content

For electronic content (as defined in section E103 of 36 CFR § 1194) deliverables of this contract/order:

1. If a deliverable is either *Public Facing* or *Agency Official Communication* (as defined in sections E103 and E205.3 of 36 CFR § 1194, respectively) and therefore required to be conformant with section E205.4 of 36 CFR § 1194 then

1. The NRC may choose, for its own reasons, to take responsibility for the final conformance of the deliverable or its class of deliverables by explicitly identifying the deliverable or class of deliverables through one of the following means:

- i. Identified in this contract/order, or
- ii. Identified in writing to the Contractor by the COR, with a copy

to the CO.

1. Otherwise, the NRC may still have a requirement that the deliverable be conformant with section E205.4 of 36 CFR § 1194, but only if the deliverable is explicitly identified in this contract/order as having that requirement.

10.5.3 Other

It is desirable that the Contractor address the applicable provisions of the Revised 508 Standards throughout product and service lifecycles rather than only performing a conformance check toward the end of a process.

If and when the Contractor provides custom ICT development services pursuant to this acquisition, the Contractor shall ensure the ICT products and services fully support the applicable provisions of the Revised 508 Standards prior to delivery and before final acceptance.

If and when the Contractor provides installation, configuration or integration services for ICT products (equipment and/or software) pursuant to this acquisition, the Contractor shall not install, configure or integrate the ICT equipment and software in a way that reduces the level of conformance with the applicable provisions of the Revised 508 Standards.

If and when the scope of this contract/order includes work by the Contractor to collect, directly from NRC employees or the Public, requirements for the procurement, development, maintenance or use of ICT the Contractor shall identify the needs of users with disabilities in conformance to section E203.2.

10.6 ICT Accessibility Deliverables

The Contractor shall provide the following ICT accessibility deliverables, when within the scope of this contract/order.

10.6.1 Accessibility Conformance Report (ACR)

This report shall be submitted for ICT products, systems or application deliverables. A written ACR shall be based on the Voluntary Product Accessibility Template (VPAT®), as specified at <https://www.itic.org/policy/accessibility/vpat> or provide equivalent information. This report has the purpose to document the state of conformance to the Revised 508 Standards for the subject product, system or application.

10.6.2 Supplemental Accessibility Report (SAR)

This report shall be submitted for ICT products, systems or application deliverables that have been custom developed or integrated by the Contractor to meet contract/order requirements. A

written SAR shall contain:

- a) Description of evaluation methods used to produce the ACR, to demonstrate due diligence in supporting conformance claims;
- b) Information on core functions that can't be used by persons with disabilities; and,
- c) Information on how to configure and install the ICT item to support accessibility

10.6.3 ICT Support Documentation

This documentation shall be submitted for ICT products, systems or application deliverables. The support documentation shall include:

- a) Documentation of features that help achieve accessibility and compatibility with assistive technology for persons with disabilities (as required by section 602 of 36 CFR § 1194);
- b) For authoring tools that generate content (documents, reports, videos, multimedia, web content, etc.): Information on how the tool enables the creation of accessible electronic content that conforms to the Revised 508 Standards (see section 504 of 36 CFR § 1194), including the range of accessible user interface elements the tool can create;
- c) For platform software (as defined in section E103.4 of 36 CFR § 1194) and software tools that are provided by a platform developer: Documentation on the set of accessibility services that support applications running on the platform to interoperate with assistive technology, as required by section 502.3 of 36 CFR § 1194.

10.6.4 ICT Support Documentation (Alternate Formats)

Upon request, alternate formats for non-electronic support documentation shall be provided (as required by section 602.4 of 36 CFR § 1194).

10.6.5 Electronic Content Accessibility Checklist

N/A

10.6.6 Communication to ICT Users

When the Contractor is providing ICT support services (including, but not limited to help desks, call centers, training services, and automated self-service technical support), any communication to ICT users shall accommodate the communication needs of individuals with disabilities (see section 603.3 of 36 CFR § 1194) and include information on accessibility and compatibility features (see 603.2 of 36 CFR § 1194).

11 APPLICABLE PUBLICATIONS (Current Editions)

The contractor shall comply with the following applicable regulations, publications, manuals, and local policies and procedures:

1. NUREG-1737
2. MD 3.9

C - Contract Clauses

C.1 BRANDING

The Contractor is required to use the statement below in any publications, presentations, articles, products, or materials funded under this contract/order, to the extent practical, in order to provide NRC with recognition for its involvement in and contribution to the project. If the work performed is funded entirely with NRC funds, then the contractor must acknowledge that information in its documentation/presentation.

Work Supported by the U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Regulatory Research, under Contract/order number 31310022C0036.

C.2 INSPECTION AND ACCEPTANCE BY THE NRC (SEP 2013)

Inspection and acceptance of the deliverable items to be furnished hereunder shall be made by the NRC Contracting Officer's Representative (COR) at the destination, accordance with FAR 52.247-34 - F.o.b. Destination.

Contract Deliverables: See Section B.5.5 List of Deliverables.

C.3 PLACE OF DELIVERY-REPORTS

The items to be furnished hereunder shall be delivered, with all charges paid by the Contractor, to:

Electronic Copies to:

- a. NO ALTERNATE COR Contracting Officer's Representative (COR)
- b. Margo Katzper, Contracting Officer (CO)

C.4 PERIOD OF PERFORMANCE ALTERNATE III

This contract shall commence on 09/28/2022 and will expire on 07/27/2023.

Base: 9/28/2022 - 7/27/2023

Optional Tasks Period(s): 7/28/2023 - 09/28/2026.

The term of this contract may be extended at the option of the Government for an additional period not to exceed six months.

C.5 REGISTRATION IN FEDCONNECT® (MAY 2021)

The Nuclear Regulatory Commission (NRC) uses Unison Software Inc.'s secure and auditable two-way web portal, FedConnect®, to communicate with vendors and contractors. FedConnect® provides bi-directional communication between the vendor/contractor and the NRC throughout pre-award, award, and post-award acquisition phases. Vendors/contractors shall use FedConnect for the submission of responses to solicitations, acknowledgment of receipt of award and modification documents; and may be required to submit monthly letter status reports and other deliverables through FedConnect as well. Please see Section C of this award for details regarding submission of deliverables.

Therefore, in order to do business with the NRC, vendors and contractors shall register to use FedConnect at <https://www.fedconnect.net/FedConnect>. The individual registering in FedConnect shall have authority to bind the vendor/contractor. There is no charge for using FedConnect. Assistance with FedConnect is provided by Unison, not the NRC. FedConnect contact and assistance information is provided on the FedConnect web site.

C.6 ELECTRONIC PAYMENT (DEC 2017)

The Debt Collection Improvement Act of 1996 requires that all payments except IRS tax refunds be made by Electronic Funds Transfer. Payment shall be made in accordance with FAR 52.232-33, entitled "Payment by Electronic Funds Transfer-System for Award Management."

To receive payment, the contractor shall prepare invoices in accordance with NRC's Billing Instructions. Claims shall be submitted through the Invoice Processing Platform (IPP) (<https://www.ipp.gov/>). Back up documentation shall be included as required by the NRC's Billing Instructions.

C.7 ANNUAL AND FINAL CONTRACTOR PERFORMANCE EVALUATIONS

Annual and final evaluations of contractor performance under this contract will be prepared in accordance with FAR Subpart 42.15, "Contractor Performance Information," normally at or near the time the contractor is notified of the NRC's intent to exercise the contract option. If the multi-year contract does not have option years, then an annual evaluation will be prepared annually. Final evaluations of contractor performance will be prepared at the expiration of the contract during the contract closeout process.

The Contracting Officer will transmit the NRC Contracting Officer's Representative's (COR) annual and final contractor performance evaluations to the contractor's Project Manager, unless otherwise instructed by the contractor. The contractor will be permitted thirty days to review the document and submit comments, rebutting statements, or additional information.

Where a contractor concurs with, or takes no exception to an annual performance evaluation, the Contracting Officer will consider such evaluation final and releasable for source selection purposes. Disagreements between the parties regarding a performance evaluation will be referred to an individual one level above the Contracting Officer, whose decision will be final.

The Contracting Officer will send a copy of the completed evaluation report, marked "Source Selection Information", to the contractor's Project Manager for their records as soon as practicable after it has been finalized. The completed evaluation report also will be used as a tool to improve communications between the NRC and the contractor and to improve contract performance.

The completed annual performance evaluation will be used to support future award decisions in accordance with FAR 42.1502 and 42.1503. During the period the information is being used to provide source selection information, the completed annual performance evaluation will be released to only two parties - the Federal government personnel performing the source selection evaluation and the contractor under evaluation if the contractor does not have a copy of the report already.

C.8 COMPLIANCE WITH U.S. IMMIGRATION LAWS AND REGULATIONS

NRC contractors are responsible to ensure that their alien personnel are not in violation of United States immigration laws and regulations, including employment authorization documents and visa requirements. Each alien employee of the Contractor must be lawfully admitted for permanent residence as evidenced by Permanent Resident Form I-551 (Green Card), or must present other evidence from the U.S. Department of Homeland Security/U.S. Citizenship and Immigration Services that employment will not affect his/her immigration status. The U.S. Citizenship and Immigration Services provides information to contractors to help them understand the employment eligibility verification process for non-US citizens. This information can be found on their website, <http://www.uscis.gov/portal/site/uscis>.

The NRC reserves the right to deny or withdraw Contractor use or access to NRC facilities or its equipment/services, and/or take any number of contract administrative actions (e.g., disallow costs, terminate for cause) should the Contractor violate the Contractor's responsibility under this clause.

C.9 WHISTLEBLOWER PROTECTION FOR NRC CONTRACTOR AND SUBCONTRACTOR EMPLOYEES

(a) The U.S. Nuclear Regulatory Commission (NRC) contractor and its subcontractor are subject to the Whistleblower Employee Protection public law provisions as codified at 42 U.S.C. 5851. NRC contractor(s) and subcontractor(s) shall comply with the requirements of this Whistleblower Employee Protection law, and the implementing regulations of the NRC and the Department of Labor (DOL). See, for example, DOL Procedures on Handling Complaints at 29 C.F.R. Part 24 concerning the employer obligations, prohibited acts, DOL procedures and the requirement for prominent posting of notice of Employee Rights at Appendix A to Part 24 entitled: "Your Rights Under the Energy Reorganization Act".

(b) Under this Whistleblower Employee Protection law, as implemented by regulations, NRC contractor and subcontractor employees are protected from discharge, reprisal, threats, intimidation, coercion, blacklisting or other employment discrimination practices with respect to compensation, terms, conditions or privileges of their employment because the contractor or subcontractor employee(s) has provided notice to the employer, refused to engage in unlawful practices, assisted in proceedings or testified on activities concerning alleged violations of the Atomic Energy Act of 1954 (as amended) and the Energy Reorganization Act of 1974 (as amended).

(c) The contractor shall insert this or the substance of this clause in any subcontracts involving work performed under this contract.

C.10 USE OF AUTOMATED CLEARING HOUSE (ACH) ELECTRONIC PAYMENT/REMITTANCE ADDRESS

The Debt Collection Improvement Act of 1996 requires that all Federal payments except IRS tax refunds be made by Electronic Funds Transfer. It is the policy of the Nuclear Regulatory Commission to pay government vendors by the Automated Clearing House (ACH) electronic funds transfer payment system. Item 15C of the Standard Form 33 may be disregarded.

C.11 KEY PERSONNEL. (JAN 1993)

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

[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.

C.12 2052.209-72 CONTRACTOR ORGANIZATIONAL CONFLICTS OF INTEREST. (JAN 1993)

(a) Purpose. The primary purpose of this clause is to aid in ensuring that the contractor:

(1) Is not placed in a conflicting role because of current or planned interests (financial, contractual, organizational, or otherwise) which relate to the work under this contract; and

(2) Does not obtain an unfair competitive advantage over other parties by virtue of its performance of this contract.

(b) Scope. The restrictions described apply to performance or participation by the contractor, as defined in 48 CFR 2009.570-2 in the activities covered by this clause.

(c) Work for others.

(1) Notwithstanding any other provision of this contract, during the term of this contract, the contractor agrees to forego entering into consulting or other contractual arrangements with any firm or organization the result of which may give rise to a conflict of interest with respect to the work being performed under this contract. The contractor shall ensure that all employees under this contract abide by the provision of this clause. If the contractor has reason to believe, with

respect to itself or any employee, that any proposed consultant or other contractual arrangement with any firm or organization may involve a potential conflict of interest, the contractor shall obtain the written approval of the contracting officer before the execution of such contractual arrangement.

(2) The contractor may not represent, assist, or otherwise support an NRC licensee or applicant undergoing an NRC audit, inspection, or review where the activities that are the subject of the audit, inspection, or review are the same as or substantially similar to the services within the scope of this contract (or task order as appropriate) except where the NRC licensee or applicant requires the contractor's support to explain or defend the contractor's prior work for the utility or other entity which NRC questions.

(3) When the contractor performs work for the NRC under this contract at any NRC licensee or applicant site, the contractor shall neither solicit nor perform work in the same or similar technical area for that licensee or applicant organization for a period commencing with the award of the task order or beginning of work on the site (if not a task order contract) and ending one year after completion of all work under the associated task order, or last time at the site (if not a task order contract).

(4) When the contractor performs work for the NRC under this contract at any NRC licensee or applicant site,

(i) The contractor may not solicit work at that site for that licensee or applicant during the period of performance of the task order or the contract, as appropriate.

(ii) The contractor may not perform work at that site for that licensee or applicant during the period of performance of the task order or the contract, as appropriate, and for one year thereafter.

(iii) Notwithstanding the foregoing, the contracting officer may authorize the contractor to solicit or perform this type of work (except work in the same or similar technical area) if the contracting officer determines that the situation will not pose a potential for technical bias or unfair competitive advantage.

(d) Disclosure after award.

(1) The contractor warrants that to the best of its knowledge and belief, and except as otherwise set forth in this contract, that it does not have any organizational conflicts of interest as defined in 48 CFR 2009.570-2.

(2) The contractor agrees that if, after award, it discovers organizational conflicts of interest with respect to this contract, it shall make an immediate and full disclosure in writing to the contracting officer. This statement must include a description of the action which the contractor has taken or proposes to take to avoid or mitigate such conflicts. The NRC may, however, terminate the contract if termination is in the best interest of the Government.

(3) It is recognized that the scope of work of a task-order-type contract necessarily encompasses a broad spectrum of activities. Consequently, if this is a task-order-type contract, the contractor agrees that it will disclose all proposed new work involving NRC licensees or applicants which comes within the scope of work of the underlying contract. Further, if this contract involves work at a licensee or applicant site, the contractor agrees to exercise diligence to discover and disclose any new work at that licensee or applicant site. This disclosure must be made before the submission of a bid or proposal to the utility or other regulated entity and must be received by the NRC at least 15 days before the proposed award date in any event, unless a written justification demonstrating urgency and due diligence to discover and disclose is provided by the contractor and approved by the contracting officer. The disclosure must include the statement of work, the dollar value of the proposed contract, and any other documents that are needed to fully describe the proposed work for the regulated utility or other regulated entity. NRC may deny approval of the disclosed work only when the NRC has issued a task order which includes the technical area and, if site-specific, the site, or has plans to issue a task order which includes the technical area and, if site-specific, the site, or when the work violates paragraphs (c)(2), (c)(3) or (c)(4) of this section.

(e) Access to and use of information.

(1) If, in the performance of this contract, the contractor obtains access to information, such as NRC plans, policies, reports, studies, financial plans, internal data protected by the Privacy Act of 1974 (5 U.S.C. Section 552a (1988)), or the Freedom of Information Act (5 U.S.C. Section 552 (1986)), the contractor agrees not to:

(i) Use this information for any private purpose until the information has been released to the public;

(ii) Compete for work for the Commission based on the information for a period of six months after either the completion of this contract or the release of the information to the public, whichever is first;

(iii) Submit an unsolicited proposal to the Government based on the information until one year after the release of the information to the public; or

(iv) Release the information without prior written approval by the contracting officer unless the information has previously been released to the public by the NRC.

(2) In addition, the contractor agrees that, to the extent it receives or is given access to proprietary data, data protected by the Privacy Act of 1974 (5 U.S.C. Section 552a (1988)), or the Freedom of Information Act (5 U.S.C. Section 552 (1986)), or other confidential or privileged technical, business, or financial information under this contract, the contractor shall treat the information in accordance with restrictions placed on use of the information.

(3) Subject to patent and security provisions of this contract, the contractor shall have the right to use technical data it produces under this contract for private purposes provided that all requirements of this contract have been met.

(f) Subcontracts. Except as provided in 48 CFR 2009.570-2, the contractor shall include this clause, including this paragraph, in subcontracts of any tier. The terms contract, contractor, and contracting officer, must be appropriately modified to preserve the Government's rights.

(g) Remedies. For breach of any of the above restrictions, or for intentional nondisclosure or misrepresentation of any relevant interest required to be disclosed concerning this contract or for such erroneous representations that necessarily imply bad faith, the Government may terminate the contract for default, disqualify the contractor from subsequent contractual efforts, and pursue other remedies permitted by law or this contract.

(h) Waiver. A request for waiver under this clause must be directed in writing to the contracting officer in accordance with the procedures outlined in 48 CFR 2009.570-9.

(i) Follow-on effort. The contractor shall be ineligible to participate in NRC contracts, subcontracts, or proposals therefor (solicited or unsolicited) which stem directly from the contractor's performance of work under this contract. Furthermore, unless so directed in writing by the contracting officer, the contractor may not perform any technical consulting or management support services work or evaluation activities under this contract on any of its products or services or the products or services of another firm if the contractor has been substantially involved in the development or marketing of the products or services.

(1) If the contractor under this contract, prepares a complete or essentially complete statement of work or specifications, the contractor is not eligible to perform or participate in the initial contractual effort which is based on the statement of work or specifications. The contractor may not incorporate its products or services in the statement of work or specifications unless so directed in writing by the contracting officer, in which case the restrictions in this paragraph do not apply.

(2) Nothing in this paragraph precludes the contractor from offering or selling its standard commercial items to the Government.

(End of Clause)

C.13 2052.215-71 CONTRACTING OFFICER REPRESENTATIVE AUTHORITY. (OCT 1999) - ALTERNATE II (OCT 1999)

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

NATHANAEL H. HUDSON
Nathanael.Hudson@nrc.gov

(b) The COR shall:

(1) Monitor contractor performance and recommend changes in requirements to the contracting officer.

(2) Inspect and accept products/services provided under the contract.

(3) Review all contractor invoices/vouchers requesting payment for products/services provided under the contract and make recommendations for approval, disapproval, or suspension.

(c) The COR may not make changes to the express terms and conditions of this contract.

*To be incorporated into any resultant contract

(End of Clause)

FAR Clauses Incorporated By Reference

C.14 52.204-4 PRINTED OR COPIED DOUBLE-SIDED ON POSTCONSUMER FIBER CONTENT PAPER. (MAY 2011)

C.15 52.204-13 SYSTEM FOR AWARD MANAGEMENT MAINTENANCE. (OCT 2018)

C.16 52.204-18 COMMERCIAL AND GOVERNMENT ENTITY CODE MAINTENANCE. (AUG 2020)

FAR Clauses Incorporated By Full Text

C.17 52.204-21 BASIC SAFEGUARDING OF COVERED CONTRACTOR INFORMATION SYSTEMS. (NOV 2021)

(a) *Definitions.* As used in this clause-

Covered contractor information system means an information system that is owned or operated by a contractor that processes, stores, or transmits Federal contract information.

Federal contract information means information, not intended for public release, that is provided by or generated for the Government under a contract to develop or deliver a product or service to the Government, but not including information provided by the Government to the public (such as on public Web sites) or simple transactional information, such as necessary to process payments.

Information means any communication or representation of knowledge such as facts, data, or opinions, in any medium or form, including textual, numerical, graphic, cartographic, narrative, or audiovisual (Committee on National Security Systems Instruction (CNSSI) 4009).

Information system means a discrete set of information resources organized for the collection, processing, maintenance, use, sharing, dissemination, or disposition of information (44 U.S.C. 3502).

Safeguarding means measures or controls that are prescribed to protect information systems.

(b) *Safeguarding requirements and procedures.* (1) The Contractor shall apply the following basic safeguarding requirements and procedures to protect covered contractor information systems. Requirements and procedures for basic safeguarding of covered contractor information systems shall include, at a minimum, the following security controls:

- (i) Limit information system access to authorized users, processes acting on behalf of authorized users, or devices (including other information systems).
- (ii) Limit information system access to the types of transactions and functions that authorized users are permitted to execute.
- (iii) Verify and control/limit connections to and use of external information systems.
- (iv) Control information posted or processed on publicly accessible information systems.
- (v) Identify information system users, processes acting on behalf of users, or devices.
- (vi) Authenticate (or verify) the identities of those users, processes, or devices, as a prerequisite to allowing access to organizational information systems.
- (vii) Sanitize or destroy information system media containing Federal Contract Information before disposal or release for reuse.
- (viii) Limit physical access to organizational information systems, equipment, and the respective operating environments to authorized individuals.
- (ix) Escort visitors and monitor visitor activity; maintain audit logs of physical access; and control and manage physical access devices.
- (x) Monitor, control, and protect organizational communications (i.e., information transmitted or received by organizational information systems) at the external boundaries and key internal boundaries of the information systems.
- (xi) Implement subnetworks for publicly accessible system components that are physically or logically separated from internal networks.
- (xii) Identify, report, and correct information and information system flaws in a timely manner.

(xiii) Provide protection from malicious code at appropriate locations within organizational information systems.

(xiv) Update malicious code protection mechanisms when new releases are available.

(xv) Perform periodic scans of the information system and real-time scans of files from external sources as files are downloaded, opened, or executed.

(2) *Other requirements.* This clause does not relieve the Contractor of any other specific safeguarding requirements specified by Federal agencies and departments relating to covered contractor information systems generally or other Federal safeguarding requirements for controlled unclassified information (CUI) as established by Executive Order 13556.

(c) *Subcontracts.* The Contractor shall include the substance of this clause, including this paragraph (c), in subcontracts under this contract (including subcontracts for the acquisition of commercial products or commercial services, other than commercially available off-the-shelf items), in which the subcontractor may have Federal contract information residing in or transiting through its information system.

(End of clause)

C.18 52.212-4 CONTRACT TERMS AND CONDITIONS - COMMERCIAL PRODUCTS AND COMMERCIAL SERVICES. (NOV 2021)

(a) *Inspection/Acceptance.* The Contractor shall only tender for acceptance those items that conform to the requirements of this contract. The Government reserves the right to inspect or test any supplies or services that have been tendered for acceptance. The Government may require repair or replacement of nonconforming supplies or reperformance of nonconforming services at no increase in contract price. If repair/replacement or reperformance will not correct the defects or is not possible, the Government may seek an equitable price reduction or adequate consideration for acceptance of nonconforming supplies or services. The Government must exercise its postacceptance rights (1) within a reasonable time after the defect was discovered or should have been discovered; and (2) before any substantial change occurs in the condition of the item, unless the change is due to the defect in the item.

(b) *Assignment.* The Contractor or its assignee may assign its rights to receive payment due as a result of performance of this contract to a bank, trust company, or other financing institution, including any Federal lending agency in accordance with the Assignment of Claims Act (31 U.S.C. 3727). However, when a third party makes payment (e.g., use of the Governmentwide commercial purchase card), the Contractor may not assign its rights to receive payment under this contract.

(c) *Changes.* Changes in the terms and conditions of this contract may be made only by written agreement of the parties.

(d) *Disputes.* This contract is subject to 41 U.S.C. chapter 71, Contract Disputes. Failure of the parties to this contract to reach agreement on any request for equitable

adjustment, claim, appeal or action arising under or relating to this contract shall be a dispute to be resolved in accordance with the clause at Federal Acquisition Regulation (FAR) 52.233-1, Disputes, which is incorporated herein by reference. The Contractor shall proceed diligently with performance of this contract, pending final resolution of any dispute arising under the contract.

(e) *Definitions.* The clause at FAR 52.202-1, Definitions, is incorporated herein by reference.

(f) *Excusable delays.* The Contractor shall be liable for default unless nonperformance is caused by an occurrence beyond the reasonable control of the Contractor and without its fault or negligence such as, acts of God or the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, unusually severe weather, and delays of common carriers. The Contractor shall notify the Contracting Officer in writing as soon as it is reasonably possible after the commencement of any excusable delay, setting forth the full particulars in connection therewith, shall remedy such occurrence with all reasonable dispatch, and shall promptly give written notice to the Contracting Officer of the cessation of such occurrence.

(g) *Invoice.* (1) The Contractor shall submit an original invoice and three copies (or electronic invoice, if authorized) to the address designated in the contract to receive invoices. An invoice must include-

- (i) Name and address of the Contractor;
- (ii) Invoice date and number;
- (iii) Contract number, line item number and, if applicable, the order number;
- (iv) Description, quantity, unit of measure, unit price and extended price of the items delivered;
- (v) Shipping number and date of shipment, including the bill of lading number and weight of shipment if shipped on Government bill of lading;
- (vi) Terms of any discount for prompt payment offered;
- (vii) Name and address of official to whom payment is to be sent;
- (viii) Name, title, and phone number of person to notify in event of defective invoice; and
- (ix) Taxpayer Identification Number (TIN). The Contractor shall include its TIN on the invoice only if required elsewhere in this contract.
- (x) Electronic funds transfer (EFT) banking information.
 - (A) The Contractor shall include EFT banking information on the invoice only if required elsewhere in this contract.

(B) If EFT banking information is not required to be on the invoice, in order for the invoice to be a proper invoice, the Contractor shall have submitted correct EFT banking information in accordance with the applicable solicitation provision, contract clause (e.g., 52.232-33, Payment by Electronic Funds Transfer-System for Award Management, or 52.232-34, Payment by Electronic Funds Transfer-Other Than System for Award Management), or applicable agency procedures.

(C) EFT banking information is not required if the Government waived the requirement to pay by EFT.

(2) Invoices will be handled in accordance with the Prompt Payment Act (31 U.S.C. 3903) and Office of Management and Budget (OMB) prompt payment regulations at 5 CFR part 1315.

(h) *Patent indemnity.* The Contractor shall indemnify the Government and its officers, employees and agents against liability, including costs, for actual or alleged direct or contributory infringement of, or inducement to infringe, any United States or foreign patent, trademark or copyright, arising out of the performance of this contract, provided the Contractor is reasonably notified of such claims and proceedings.

(i) *Payment-* (1) *Items accepted.* Payment shall be made for items accepted by the Government that have been delivered to the delivery destinations set forth in this contract.

(2) *Prompt payment.* The Government will make payment in accordance with the Prompt Payment Act (31 U.S.C. 3903) and prompt payment regulations at 5 CFR part 1315.

(3) *Electronic Funds Transfer (EFT).* If the Government makes payment by EFT, see 52.212-5(b) for the appropriate EFT clause.

(4) *Discount.* In connection with any discount offered for early payment, time shall be computed from the date of the invoice. For the purpose of computing the discount earned, payment shall be considered to have been made on the date which appears on the payment check or the specified payment date if an electronic funds transfer payment is made.

(5) *Overpayments.* If the Contractor becomes aware of a duplicate contract financing or invoice payment or that the Government has otherwise overpaid on a contract financing or invoice payment, the Contractor shall-

(i) Remit the overpayment amount to the payment office cited in the contract along with a description of the overpayment including the-

(A) Circumstances of the overpayment (e.g., duplicate payment, erroneous payment, liquidation errors, date(s) of overpayment);

(B) Affected contract number and delivery order number, if applicable;

(C) Affected line item or subline item, if applicable; and

(D) Contractor point of contact.

(ii) Provide a copy of the remittance and supporting documentation to the Contracting Officer.

(6) *Interest.* (i) All amounts that become payable by the Contractor to the Government under this contract shall bear simple interest from the date due until paid unless paid within 30 days of becoming due. The interest rate shall be the interest rate established by the Secretary of the Treasury as provided in 41 U.S.C. 7109, which is applicable to the period in which the amount becomes due, as provided in (i)(6)(v) of this clause, and then at the rate applicable for each six-month period as fixed by the Secretary until the amount is paid.

(ii) The Government may issue a demand for payment to the Contractor upon finding a debt is due under the contract.

(iii) *Final decisions.* The Contracting Officer will issue a final decision as required by 33.211 if-

(A) The Contracting Officer and the Contractor are unable to reach agreement on the existence or amount of a debt within 30 days;

(B) The Contractor fails to liquidate a debt previously demanded by the Contracting Officer within the timeline specified in the demand for payment unless the amounts were not repaid because the Contractor has requested an installment payment agreement; or

(C) The Contractor requests a deferment of collection on a debt previously demanded by the Contracting Officer (see 32.607-2).

(iv) If a demand for payment was previously issued for the debt, the demand for payment included in the final decision shall identify the same due date as the original demand for payment.

(v) Amounts shall be due at the earliest of the following dates:

(A) The date fixed under this contract.

(B) The date of the first written demand for payment, including any demand for payment resulting from a default termination.

(vi) The interest charge shall be computed for the actual number of calendar days involved beginning on the due date and ending on-

(A) The date on which the designated office receives payment from the Contractor;

(B) The date of issuance of a Government check to the Contractor from which an amount otherwise payable has been withheld as a credit against the contract debt; or

(C) The date on which an amount withheld and applied to the contract debt would otherwise have become payable to the Contractor.

(vii) The interest charge made under this clause may be reduced under the procedures prescribed in FAR 32.608-2 in effect on the date of this contract.

(j) *Risk of loss.* Unless the contract specifically provides otherwise, risk of loss or damage to the supplies provided under this contract shall remain with the Contractor until, and shall pass to the Government upon:

(1) Delivery of the supplies to a carrier, if transportation is f.o.b. origin; or

(2) Delivery of the supplies to the Government at the destination specified in the contract, if transportation is f.o.b. destination.

(k) *Taxes.* The contract price includes all applicable Federal, State, and local taxes and duties.

(l) *Termination for the Government's convenience.* The Government reserves the right to terminate this contract, or any part hereof, for its sole convenience. In the event of such termination, the Contractor shall immediately stop all work hereunder and shall immediately cause any and all of its suppliers and subcontractors to cease work. Subject to the terms of this contract, the Contractor shall be paid a percentage of the contract price reflecting the percentage of the work performed prior to the notice of termination, plus reasonable charges the Contractor can demonstrate to the satisfaction of the Government using its standard record keeping system, have resulted from the termination. The Contractor shall not be required to comply with the cost accounting standards or contract cost principles for this purpose. This paragraph does not give the Government any right to audit the Contractor's records. The Contractor shall not be paid for any work performed or costs incurred which reasonably could have been avoided.

(m) *Termination for cause.* The Government may terminate this contract, or any part hereof, for cause in the event of any default by the Contractor, or if the Contractor fails to comply with any contract terms and conditions, or fails to provide the Government, upon request, with adequate assurances of future performance. In the event of termination for cause, the Government shall not be liable to the Contractor for any amount for supplies or services not accepted, and the Contractor shall be liable to the Government for any and all rights and remedies provided by law. If it is determined that the Government improperly terminated this contract for default, such termination shall be deemed a termination for convenience.

(n) *Title.* Unless specified elsewhere in this contract, title to items furnished under this contract shall pass to the Government upon acceptance, regardless of when or where the Government takes physical possession.

(o) *Warranty*. The Contractor warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose described in this contract.

(p) *Limitation of liability*. Except as otherwise provided by an express warranty, the Contractor will not be liable to the Government for consequential damages resulting from any defect or deficiencies in accepted items.

(q) *Other compliances*. The Contractor shall comply with all applicable Federal, State and local laws, executive orders, rules and regulations applicable to its performance under this contract.

(r) *Compliance with laws unique to Government contracts*. The Contractor agrees to comply with 31 U.S.C. 1352 relating to limitations on the use of appropriated funds to influence certain Federal contracts; 18 U.S.C. 431 relating to officials not to benefit; 40 U.S.C. chapter 37, Contract Work Hours and Safety Standards; 41 U.S.C. chapter 87, Kickbacks; 41 U.S.C. 4712 and 10 U.S.C. 2409 relating to whistleblower protections; 49 U.S.C. 40118, Fly American; and 41 U.S.C. chapter 21 relating to procurement integrity.

(s) *Order of precedence*. Any inconsistencies in this solicitation or contract shall be resolved by giving precedence in the following order: (1) the schedule of supplies/services; (2) The Assignments, Disputes, Payments, Invoice, Other Compliances, Compliance with Laws Unique to Government Contracts, and Unauthorized Obligations paragraphs of this clause; (3) the clause at 52.212-5; (4) addenda to this solicitation or contract, including any license agreements for computer software; (5) solicitation provisions if this is a solicitation; (6) other paragraphs of this clause; (7) the Standard Form 1449; (8) other documents, exhibits, and attachments; and (9) the specification.

(t) Removed and reserved.

(u) *Unauthorized Obligations*. (1) Except as stated in paragraph (u)(2) of this clause, when any supply or service acquired under this contract is subject to any End User License Agreement (EULA), Terms of Service (TOS), or similar legal instrument or agreement, that includes any clause requiring the Government to indemnify the Contractor or any person or entity for damages, costs, fees, or any other loss or liability that would create an Anti-Deficiency Act violation (31 U.S.C. 1341), the following shall govern:

(i) Any such clause is unenforceable against the Government.

(ii) Neither the Government nor any Government authorized end user shall be deemed to have agreed to such clause by virtue of it appearing in the EULA, TOS, or similar legal instrument or agreement. If the EULA, TOS, or similar legal instrument or agreement is invoked through an "I agree" click box or other comparable mechanism (e.g., "click-wrap" or "browse-wrap" agreements), execution does not bind the Government or any Government authorized end user to such clause.

(iii) Any such clause is deemed to be stricken from the EULA, TOS, or similar legal instrument or agreement.

(2) Paragraph (u)(1) of this clause does not apply to indemnification by the Government that is expressly authorized by statute and specifically authorized under applicable agency regulations and procedures.

(v) *Incorporation by reference.* The Contractor's representations and certifications, including those completed electronically via the System for Award Management (SAM), are incorporated by reference into the contract.

(End of clause)

C.19 52.212-5 CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS - COMMERCIAL PRODUCTS AND COMMERCIAL SERVICES. (MAY 2022)

(a) The Contractor shall comply with the following Federal Acquisition Regulation (FAR) clauses, which are incorporated in this contract by reference, to implement provisions of law or Executive orders applicable to acquisitions of commercial products and commercial services:

(1) 52.203-19, Prohibition on Requiring Certain Internal Confidentiality Agreements or Statements (JAN 2017) (section 743 of Division E, Title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) and its successor provisions in subsequent appropriations acts (and as extended in continuing resolutions)).

(2) 52.204-23, Prohibition on Contracting for Hardware, Software, and Services Developed or Provided by Kaspersky Lab and Other Covered Entities (NOV 2021) (Section 1634 of Pub. L. 115-91).

(3) 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment. (NOV 2021) (Section 889(a)(1)(A) of Pub. L. 115-232).

(4) 52.209-10, Prohibition on Contracting with Inverted Domestic Corporations (NOV 2015).

(5) 52.233-3, Protest After Award (AUG 1996) (31 U.S.C. 3553).

(6) 52.233-4, Applicable Law for Breach of Contract Claim (OCT 2004) (Public Laws 108-77 and 108-78 (19 U.S.C. 3805 note)).

(b) The Contractor shall comply with the FAR clauses in this paragraph (b) that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial products and commercial services: *(Contracting Officer check as appropriate.)*

(1) 52.203-6, Restrictions on Subcontractor Sales to the Government (JUN 2020), with *Alternate I* (NOV 2021) (41 U.S.C. 4704 and 10 U.S.C. 2402).

(2) 52.203-13, Contractor Code of Business Ethics and Conduct (NOV 2021) (41 U.S.C. 3509).

(3) 52.203-15, Whistleblower Protections under the American Recovery and Reinvestment Act of 2009 (JUN 2010) (Section 1553 of Pub. L. 111-5). (Applies to contracts funded by the American Recovery and Reinvestment Act of 2009.)

(4) 52.204-10, Reporting Executive Compensation and First-Tier Subcontract Awards (JUN 2020) (Pub. L. 109-282) (31 U.S.C. 6101 note).

(5) (Reserved)

(6) 52.204-14, Service Contract Reporting Requirements (OCT 2016) (Pub. L. 111-117, section 743 of Div. C).

(7) 52.204-15, Service Contract Reporting Requirements for Indefinite-Delivery Contracts (OCT 2016) (Pub. L. 111-117, section 743 of Div. C).

(8) 52.209-6, Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment. (NOV 2021) (31 U.S.C. 6101 note).

(9) 52.209-9, Updates of Publicly Available Information Regarding Responsibility Matters (OCT 2018) (41 U.S.C. 2313).

(10) (Reserved)

(11) 52.219-3, Notice of HUBZone Set-Aside or Sole Source Award (SEP 2021) (15 U.S.C. 657a).

(12) 52.219-4, Notice of Price Evaluation Preference for HUBZone Small Business Concerns (SEP 2021) (if the offeror elects to waive the preference, it shall so indicate in its offer) (15 U.S.C. 657a).

(13) (Reserved)

(14)(i) 52.219-6, Notice of Total Small Business Set-Aside (NOV 2020) (15 U.S.C. 644).

(ii) Alternate I (MAR 2020) of 52.219-6.

(15)(i) 52.219-7, Notice of Partial Small Business Set-Aside (NOV 2020) (15 U.S.C. 644).

(ii) Alternate I (MAR 2020) of 52.219-7.

(16) 52.219-8, Utilization of Small Business Concerns (OCT 2018) (15 U.S.C. 637(d)(2) and (3)).

(17)(i) 52.219-9, Small Business Subcontracting Plan (NOV 2021) (15 U.S.C. 637(d)(4)).

(ii) Alternate I (NOV 2016) of 52.219-9.

(iii) Alternate II (NOV 2016) of 52.219-9.

(iv) Alternate III (JUN 2020) of 52.219-9.

(v) Alternate IV (SEP 2021) of 52.219-9.

(18)(i) 52.219-13, Notice of Set-Aside of Orders (MAR 2020) (15 U.S.C. 644(r)).

(ii) Alternate I (MAR 2020) of 52.219-13.

(19) 52.219-14, Limitations on Subcontracting (SEP 2021) (15 U.S.C. 657s).

(20) 52.219-16, Liquidated Damages-Subcontracting Plan (SEP 2021) (15 U.S.C. 637(d)(4)(F)(i)).

(21) 52.219-27, Notice of Service-Disabled Veteran-Owned Small Business Set-Aside (SEP 2021) (15 U.S.C. 657f).

(22)(i) 52.219-28, Post-Award Small Business Program Rerepresentation (SEP 2021) (15 U.S.C. 632(a)(2)).

(ii) Alternate I (MAR 2020) of 52.219-28.

(23) 52.219-29, Notice of Set-Aside for, or Sole Source Award to, Economically Disadvantaged Women-Owned Small Business (EDWOSB) Concerns (SEP 2021) (15 U.S.C. 637(m)).

(24) 52.219-30, Notice of Set-Aside for, or Sole Source Award to, Women-Owned Small Business Concerns Eligible Under the Women-Owned Small Business Program (SEP 2021) (15 U.S.C. 637(m)).

(25) 52.219-32, Orders Issued Directly Under Small Business Reserves (MAR 2020) (15 U.S.C. 644(r)).

(26) 52.219-33, Nonmanufacturer Rule (SEP 2021) (15 U.S.C. 657s).

(27) 52.222-3, Convict Labor (JUN 2003) (E.O. 11755).

(28) 52.222-19, Child Labor-Cooperation with Authorities and Remedies (JAN 2022) (E.O. 13126).

(29) 52.222-21, Prohibition of Segregated Facilities (APR 2015).

(30)(i) 52.222-26, Equal Opportunity (SEP 2016) (E.O. 11246).

(ii) Alternate I (FEB 1999) of 52.222-26.

(31)(i) 52.222-35, Equal Opportunity for Veterans (JUN 2020) (38 U.S.C. 4212).

(ii) Alternate I (JUL 2014) of 52.222-35.

(32)(i) 52.222-36, Equal Opportunity for Workers with Disabilities (JUN 2020) (29 U.S.C. 793).

(ii) Alternate I (JUL 2014) of 52.222-36.

(33) 52.222-37, Employment Reports on Veterans (JUN 2020) (38 U.S.C. 4212).

(34) 52.222-40, Notification of Employee Rights Under the National Labor Relations Act (DEC 2010) (E.O. 13496).

(35)(i) 52.222-50, Combating Trafficking in Persons (NOV 2021) (22 U.S.C. chapter 78 and E.O. 13627).

(ii) *Alternate I* (MAR 2015) of 52.222-50 (22 U.S.C. chapter 78 and E.O. 13627).

(36) 52.222-54, Employment Eligibility Verification (MAY 2022). (E. O. 12989). (Not applicable to the acquisition of commercially available off-the-shelf items or certain other types of commercial products or commercial services as prescribed in FAR 22.1803.)

(37)(i) 52.223-9, Estimate of Percentage of Recovered Material Content for EPA-Designated Items (MAY 2008) (42 U.S.C. 6962(c)(3)(A)(ii)). (Not applicable to the acquisition of commercially available off-the-shelf items.)

(ii) Alternate I (MAY 2008) of 52.223-9 (42 U.S.C. 6962(i)(2)(C)). (Not applicable to the acquisition of commercially available off-the-shelf items.)

(38) 52.223-11, Ozone-Depleting Substances and High Global Warming Potential Hydrofluorocarbons (JUN 2016) (E.O. 13693).

(39) 52.223-12, Maintenance, Service, Repair, or Disposal of Refrigeration Equipment and Air Conditioners (JUN 2016) (E.O. 13693).

(40)(i) 52.223-13, Acquisition of EPEAT®-Registered Imaging Equipment (JUN 2014) (E.O.s 13423 and 13514).

(ii) Alternate I (OCT 2015) of 52.223-13.

(41)(i) 52.223-14, Acquisition of EPEAT®-Registered Televisions (JUN 2014) (E.O.s 13423 and 13514).

(ii) Alternate I (JUN 2014) of 52.223-14.

(42) 52.223-15, Energy Efficiency in Energy-Consuming Products (MAY 2020) (42 U.S.C. 8259b).

(43)(i) 52.223-16, Acquisition of EPEAT®-Registered Personal Computer Products (OCT 2015) (E.O.s 13423 and 13514).

(ii) Alternate I (JUN 2014) of 52.223-16.

- [X] (44) 52.223-18, Encouraging Contractor Policies to Ban Text Messaging While Driving (JUN 2020) (E.O. 13513).
- [] (45) 52.223-20, Aerosols (JUN 2016) (E.O. 13693).
- [] (46) 52.223-21, Foams (JUN 2016) (E.O. 13693).
- [] (47)(i) 52.224-3, Privacy Training (JAN 2017) (5 U.S.C. 552a).
- [] (ii) Alternate I (JAN 2017) of 52.224-3.
- [] (48) 52.225-1, Buy American-Supplies (NOV 2021) (41 U.S.C. chapter 83).
- [] (49)(i) 52.225-3, Buy American-Free Trade Agreements-Israeli Trade Act (NOV 2021) (41 U.S.C. chapter 83, 19 U.S.C. 3301 note, 19 U.S.C. 2112 note, 19 U.S.C. 3805 note, 19 U.S.C. 4001 note, Pub. L. 103-182, 108-77, 108-78, 108-286, 108-302, 109-53, 109-169, 109-283, 110-138, 112-41, 112-42, and 112-43).
- [] (ii) Alternate I (JAN 2021) of 52.225-3.
- [] (iii) Alternate II (JAN 2021) of 52.225-3.
- [] (iv) Alternate III (JAN 2021) of 52.225-3.
- [] (50) 52.225-5, Trade Agreements (OCT 2019) (19 U.S.C. 2501, *et seq.*, 19 U.S.C. 3301 note).
- [X] (51) 52.225-13, Restrictions on Certain Foreign Purchases (FEB 2021) (E.O.'s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).
- [] (52) 52.225-26, Contractors Performing Private Security Functions Outside the United States (OCT 2016) (Section 862, as amended, of the National Defense Authorization Act for Fiscal Year 2008; 10 U.S.C. 2302 Note).
- [] (53) 52.226-4, Notice of Disaster or Emergency Area Set-Aside (NOV 2007) (42 U.S.C. 5150).
- [] (54) 52.226-5, Restrictions on Subcontracting Outside Disaster or Emergency Area (NOV 2007) (42 U.S.C. 5150).
- [X] (55) 52.229-12, Tax on Certain Foreign Procurements (FEB 2021).
- [X] (56) 52.232-29, Terms for Financing of Purchases of Commercial Products and Commercial Services (NOV 2021) (41 U.S.C. 4505, 10 U.S.C. 2307(f)).
- [] (57) 52.232-30, Installment Payments for Commercial Products and Commercial Services (NOV 2021) (41 U.S.C. 4505, 10 U.S.C. 2307(f)).
- [X] (58) 52.232-33, Payment by Electronic Funds Transfer-System for Award Management (OCT 2018) (31 U.S.C. 3332).

(59) 52.232-34, Payment by Electronic Funds Transfer - Other than System for Award Management (JUL 2013) (31 U.S.C. 3332).

(60) 52.232-36, Payment by Third Party (MAY 2014) (31 U.S.C. 3332).

(61) 52.239-1, Privacy or Security Safeguards (AUG 1996) (5 U.S.C. 552a).

(62) 52.242-5, Payments to Small Business Subcontractors (JAN 2017)(15 U.S.C. 637(d)(13)).

(63)(i) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (NOV 2021) (46 U.S.C. 55305 and 10 U.S.C. 2631).

(ii) Alternate I (APR 2003) of 52.247-64.

(iii) Alternate II (NOV 2021) of 52.247-64.

(c) The Contractor shall comply with the FAR clauses in this paragraph (c), applicable to commercial services, that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial products and commercial services: *(Contracting Officer check as appropriate.)*

(1) 52.222-41, Service Contract Labor Standards (AUG 2018) (41 U.S.C. chapter 67).

(2) 52.222-42, Statement of Equivalent Rates for Federal Hires (MAY 2014) (29 U.S.C. 206 and 41 U.S.C. chapter 67).

(3) 52.222-43, Fair Labor Standards Act and Service Contract Labor Standards-Price Adjustment (Multiple Year and Option Contracts) (AUG 2018) (29 U.S.C. 206 and 41 U.S.C. chapter 67).

(4) 52.222-44, Fair Labor Standards Act and Service Contract Labor Standards-Price Adjustment (MAY 2014) (29 U.S.C. 206 and 41 U.S.C. chapter 67).

(5) 52.222-51, Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment-Requirements (MAY 2014) (41 U.S.C. chapter 67).

(6) 52.222-53, Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services-Requirements (MAY 2014) (41 U.S.C. chapter 67).

(7) 52.222-55, Minimum Wages for Contractor Workers Under Executive Order 14026 (JAN 2022).

(8) 52.222-62, Paid Sick Leave Under Executive Order 13706 (JAN 2022) (E.O. 13706).

[] (9) 52.226-6, Promoting Excess Food Donation to Nonprofit Organizations (JUN 2020) (42 U.S.C. 1792).

(d) *Comptroller General Examination of Record*. The Contractor shall comply with the provisions of this paragraph (d) if this contract was awarded using other than sealed bid, is in excess of the simplified acquisition threshold, as defined in FAR 2.101, on the date of award of this contract, and does not contain the clause at 52.215-2, Audit and Records - Negotiation.

(1) The Comptroller General of the United States, or an authorized representative of the Comptroller General, shall have access to and right to examine any of the Contractor's directly pertinent records involving transactions related to this contract.

(2) The Contractor shall make available at its offices at all reasonable times the records, materials, and other evidence for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in FAR Subpart 4.7, Contractor Records Retention, of the other clauses of this contract. If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement. Records relating to appeals under the disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available until such appeals, litigation, or claims are finally resolved.

(3) As used in this clause, records include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of form. This does not require the Contractor to create or maintain any record that the Contractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e)(1) Notwithstanding the requirements of the clauses in paragraphs (a), (b), (c), and (d) of this clause, the Contractor is not required to flow down any FAR clause, other than those in this paragraph (e)(1) of this paragraph in a subcontract for commercial products or commercial services. Unless otherwise indicated below, the extent of the flow down shall be as required by the clause-

(i) 52.203-13, Contractor Code of Business Ethics and Conduct (NOV 2021) (41 U.S.C. 3509).

(ii) 52.203-19, Prohibition on Requiring Certain Internal Confidentiality Agreements or Statements (JAN 2017) (section 743 of Division E, Title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) and its successor provisions in subsequent appropriations acts (and as extended in continuing resolutions)).

(iii) 52.204-23, Prohibition on Contracting for Hardware, Software, and Services Developed or Provided by Kaspersky Lab and Other Covered Entities (NOV 2021) (Section 1634 of Pub. L. 115-91).

(iv) 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment. (NOV 2021) (Section 889(a)(1)(A) of Pub. L. 115-232).

(v) 52.219-8, Utilization of Small Business Concerns (OCT 2018) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds the applicable threshold specified in FAR 19.702(a) on the date of subcontract award, the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(vi) 52.222-21, Prohibition of Segregated Facilities (APR 2015).

(vii) 52.222-26, Equal Opportunity (SEP 2016) (E.O. 11246).

(viii) 52.222-35, Equal Opportunity for Veterans (JUN 2020) (38 U.S.C. 4212).

(ix) 52.222-36, Equal Opportunity for Workers with Disabilities (JUN 2020) (29 U.S.C. 793).

(x) 52.222-37, Employment Reports on Veterans (JUN 2020) (38 U.S.C. 4212).

(xi) 52.222-40, Notification of Employee Rights Under the National Labor Relations Act (DEC 2010) (E.O. 13496). Flow down required in accordance with paragraph (f) of FAR clause 52.222-40.

(xii) 52.222-41, Service Contract Labor Standards (AUG 2018) (41 U.S.C. chapter 67).

(xiii) [X] (A) 52.222-50, Combating Trafficking in Persons (NOV 2021) (22 U.S.C. chapter 78 and E.O. 13627).

[] (B) Alternate I (MAR 2015) of 52.222-50 (22 U.S.C. chapter 78 and E.O. 13627).

(xiv) 52.222-51, Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment-Requirements (MAY 2014) (41 U.S.C. chapter 67).

(xv) 52.222-53, Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services-Requirements (MAY 2014) (41 U.S.C. chapter 67).

(xvi) 52.222-54, Employment Eligibility Verification (MAY 2022) (E. O. 12989).

(xvii) 52.222-55, Minimum Wages for Contractor Workers Under Executive Order 14026 (JAN 2022).

(xviii) 52.222-62 Paid Sick Leave Under Executive Order 13706 (JAN 2022) (E.O. 13706).

(xix)(A) 52.224-3, Privacy Training (JAN 2017) (5 U.S.C. 552a).

(B) Alternate I (JAN 2017) of 52.224-3.

(xx) 52.225-26, Contractors Performing Private Security Functions Outside the United States (OCT 2016) (Section 862, as amended, of the National Defense Authorization Act for Fiscal Year 2008; 10 U.S.C. 2302 Note).

(xxi) 52.226-6, Promoting Excess Food Donation to Nonprofit Organizations (JUN 2020) (42 U.S.C. 1792). Flow down required in accordance with paragraph (e) of FAR clause 52.226-6.

(xxii) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (NOV 2021) (46 U.S.C. 55305 and 10 U.S.C. 2631). Flow down required in accordance with paragraph (d) of FAR clause 52.247-64.

(2) While not required, the Contractor may include in its subcontracts for commercial products and commercial services a minimal number of additional clauses necessary to satisfy its contractual obligations.

(End of clause)

C.20 52.217-7 OPTION FOR INCREASED QUANTITY - SEPARATELY PRICED LINE ITEM. (MAR 1989)

The Government may require the delivery of the numbered line item, identified in the Schedule as an option item, in the quantity and at the price stated in the Schedule. The Contracting Officer may exercise the option by written notice to the Contractor within 30 days of expected start time and/or contract expiration. Delivery of added items shall continue at the same rate that like items are called for under the contract, unless the parties otherwise agree.

(End of clause)

C.21 52.217-8 OPTION TO EXTEND SERVICES. (NOV 1999)

The Government may require continued performance of any services within the limits and at the rates specified in the contract. These rates may be adjusted only as a result of revisions to prevailing labor rates provided by the Secretary of Labor. The option provision may be exercised more than once, but the total extension of performance hereunder shall not exceed 6 months. The Contracting Officer may exercise the option by written notice to the Contractor within 15 days of contract expiration.

(End of clause)

C.22 52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT. (MAR 2000)

(a) The Government may extend the term of this contract by written notice to the Contractor within 5; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 15 days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed 54 months.

(End of clause)

C.23 52.227-14 RIGHTS IN DATA-GENERAL. (MAY 2014)

(a) *Definitions.* As used in this clause-

Computer database or *database* means a collection of recorded information in a form capable of, and for the purpose of, being stored in, processed, and operated on by a computer. The term does not include computer software.

Computer software- (1) Means (i) Computer programs that comprise a series of instructions, rules, routines, or statements, regardless of the media in which recorded, that allow or cause a computer to perform a specific operation or series of operations; and

(ii) Recorded information comprising source code listings, design details, algorithms, processes, flow charts, formulas, and related material that would enable the computer program to be produced, created, or compiled.

(2) Does not include computer databases or computer software documentation.

Computer software documentation means owner's manuals, user's manuals, installation instructions, operating instructions, and other similar items, regardless of storage medium, that explain the capabilities of the computer software or provide instructions for using the software.

Data means recorded information, regardless of form or the media on which it may be recorded. The term includes technical data and computer software. The term does not include information incidental to contract administration, such as financial, administrative, cost or pricing, or management information.

Form, fit, and function data means data relating to items, components, or processes that are sufficient to enable physical and functional interchangeability, and data identifying source, size, configuration, mating and attachment characteristics, functional characteristics, and performance requirements. For computer software it means data identifying source, functional characteristics, and performance requirements but specifically excludes the source code, algorithms, processes, formulas, and flow charts of the software.

Limited rights means the rights of the Government in limited rights data as set forth in the Limited Rights Notice of paragraph (g)(3) if included in this clause.

Limited rights data means data, other than computer software, that embody trade secrets or are commercial or financial and confidential or privileged, to the extent that such data pertain to items, components, or processes developed at private expense, including minor modifications.

Restricted computer software means computer software developed at private expense and that is a trade secret, is commercial or financial and confidential or privileged, or is copyrighted computer software, including minor modifications of the computer software.

Restricted rights, as used in this clause, means the rights of the Government in restricted computer software, as set forth in a Restricted Rights Notice of paragraph (g) if included in this clause, or as otherwise may be provided in a collateral agreement incorporated in and made part of this contract, including minor modifications of such computer software.

Technical data, means recorded information (regardless of the form or method of the recording) of a scientific or technical nature (including computer databases and computer software documentation). This term does not include computer software or financial, administrative, cost or pricing, or management data or other information incidental to contract administration. The term includes recorded information of a scientific or technical nature that is included in computer databases. (See 41 U.S.C. 116).

Unlimited rights means the rights of the Government to use, disclose, reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, in any manner and for any purpose, and to have or permit others to do so.

(b) *Allocation of rights.* (1) Except as provided in paragraph (c) of this clause, the Government shall have unlimited rights in-

- (i) Data first produced in the performance of this contract;
- (ii) Form, fit, and function data delivered under this contract;
- (iii) Data delivered under this contract (except for restricted computer software) that constitute manuals or instructional and training material for installation, operation, or routine maintenance and repair of items, components, or processes delivered or furnished for use under this contract; and
- (iv) All other data delivered under this contract unless provided otherwise for limited rights data or restricted computer software in accordance with paragraph (g) of this clause.

(2) The Contractor shall have the right to-

- (i) Assert copyright in data first produced in the performance of this contract to the extent provided in paragraph (c)(1) of this clause;

(ii) Use, release to others, reproduce, distribute, or publish any data first produced or specifically used by the Contractor in the performance of this contract, unless provided otherwise in paragraph (d) of this clause;

(iii) Substantiate the use of, add, or correct limited rights, restricted rights, or copyright notices and to take other appropriate action, in accordance with paragraphs (e) and (f) of this clause; and

(iv) Protect from unauthorized disclosure and use those data that are limited rights data or restricted computer software to the extent provided in paragraph (g) of this clause.

(c) *Copyright-* (1) Data first produced in the performance of this contract. (i) Unless provided otherwise in paragraph (d) of this clause, the Contractor may, without prior approval of the Contracting Officer, assert copyright in scientific and technical articles based on or containing data first produced in the performance of this contract and published in academic, technical or professional journals, symposia proceedings, or similar works. The prior, express written permission of the Contracting Officer is required to assert copyright in all other data first produced in the performance of this contract.

(ii) When authorized to assert copyright to the data, the Contractor shall affix the applicable copyright notices of 17 U.S.C. 401 or 402, and an acknowledgment of Government sponsorship (including contract number).

(iii) For data other than computer software, the Contractor grants to the Government, and others acting on its behalf, a paid-up, nonexclusive, irrevocable, worldwide license in such copyrighted data to reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly by or on behalf of the Government. For computer software, the Contractor grants to the Government, and others acting on its behalf, a paid-up, nonexclusive, irrevocable, worldwide license in such copyrighted computer software to reproduce, prepare derivative works, and perform publicly and display publicly (but not to distribute copies to the public) by or on behalf of the Government.

(2) Data not first produced in the performance of this contract. The Contractor shall not, without the prior written permission of the Contracting Officer, incorporate in data delivered under this contract any data not first produced in the performance of this contract unless the Contractor-

(i) Identifies the data; and

(ii) Grants to the Government, or acquires on its behalf, a license of the same scope as set forth in paragraph (c)(1) of this clause or, if such data are restricted computer software, the Government shall acquire a copyright license as set forth in paragraph (g)(4) of this clause (if included in this contract) or as otherwise provided in a collateral agreement incorporated in or made part of this contract.

(3) Removal of copyright notices. The Government will not remove any authorized copyright notices placed on data pursuant to this paragraph (c), and will include such notices on all reproductions of the data.

(d) *Release, publication, and use of data.* The Contractor shall have the right to use, release to others, reproduce, distribute, or publish any data first produced or specifically used by the Contractor in the performance of this contract, except-

(1) As prohibited by Federal law or regulation (e.g., export control or national security laws or regulations);

(2) As expressly set forth in this contract; or

(3) If the Contractor receives or is given access to data necessary for the performance of this contract that contain restrictive markings, the Contractor shall treat the data in accordance with such markings unless specifically authorized otherwise in writing by the Contracting Officer.

(e) *Unauthorized marking of data.* (1) Notwithstanding any other provisions of this contract concerning inspection or acceptance, if any data delivered under this contract are marked with the notices specified in paragraph (g)(3) or (g) (4) if included in this clause, and use of the notices is not authorized by this clause, or if the data bears any other restrictive or limiting markings not authorized by this contract, the Contracting Officer may at any time either return the data to the Contractor, or cancel or ignore the markings. However, pursuant to 41 U.S.C. 4703, the following procedures shall apply prior to canceling or ignoring the markings.

(i) The Contracting Officer will make written inquiry to the Contractor affording the Contractor 60 days from receipt of the inquiry to provide written justification to substantiate the propriety of the markings;

(ii) If the Contractor fails to respond or fails to provide written justification to substantiate the propriety of the markings within the 60-day period (or a longer time approved in writing by the Contracting Officer for good cause shown), the Government shall have the right to cancel or ignore the markings at any time after said period and the data will no longer be made subject to any disclosure prohibitions.

(iii) If the Contractor provides written justification to substantiate the propriety of the markings within the period set in paragraph (e)(1)(i) of this clause, the Contracting Officer will consider such written justification and determine whether or not the markings are to be cancelled or ignored. If the Contracting Officer determines that the markings are authorized, the Contractor will be so notified in writing. If the Contracting Officer determines, with concurrence of the head of the contracting activity, that the markings are not authorized, the Contracting Officer will furnish the Contractor a written determination, which determination will become the final agency decision regarding the appropriateness of the markings unless the Contractor files suit in a court of competent jurisdiction within 90 days of receipt of the Contracting Officer's decision. The Government

will continue to abide by the markings under this paragraph (e)(1)(iii) until final resolution of the matter either by the Contracting Officer's determination becoming final (in which instance the Government will thereafter have the right to cancel or ignore the markings at any time and the data will no longer be made subject to any disclosure prohibitions), or by final disposition of the matter by court decision if suit is filed.

(2) The time limits in the procedures set forth in paragraph (e)(1) of this clause may be modified in accordance with agency regulations implementing the Freedom of Information Act (5 U.S.C. 552) if necessary to respond to a request thereunder.

(3) Except to the extent the Government's action occurs as the result of final disposition of the matter by a court of competent jurisdiction, the Contractor is not precluded by paragraph (e) of the clause from bringing a claim, in accordance with the Disputes clause of this contract, that may arise as the result of the Government removing or ignoring authorized markings on data delivered under this contract.

(f) *Omitted or incorrect markings.* (1) Data delivered to the Government without any restrictive markings shall be deemed to have been furnished with unlimited rights. The Government is not liable for the disclosure, use, or reproduction of such data.

(2) If the unmarked data has not been disclosed without restriction outside the Government, the Contractor may request, within 6 months (or a longer time approved by the Contracting Officer in writing for good cause shown) after delivery of the data, permission to have authorized notices placed on the data at the Contractor's expense. The Contracting Officer may agree to do so if the Contractor-

- (i) Identifies the data to which the omitted notice is to be applied;
- (ii) Demonstrates that the omission of the notice was inadvertent;
- (iii) Establishes that the proposed notice is authorized; and
- (iv) Acknowledges that the Government has no liability for the disclosure, use, or reproduction of any data made prior to the addition of the notice or resulting from the omission of the notice.

(3) If data has been marked with an incorrect notice, the Contracting Officer may-

- (i) Permit correction of the notice at the Contractor's expense if the Contractor identifies the data and demonstrates that the correct notice is authorized; or
- (ii) Correct any incorrect notices.

(g) *Protection of limited rights data and restricted computer software.* (1) The Contractor may withhold from delivery qualifying limited rights data or restricted computer software

that are not data identified in paragraphs (b)(1)(i), (ii), and (iii) of this clause. As a condition to this withholding, the Contractor shall-

(i) Identify the data being withheld; and

(ii) Furnish form, fit, and function data instead.

(2) Limited rights data that are formatted as a computer database for delivery to the Government shall be treated as limited rights data and not restricted computer software.

(3) (Reserved)

(h) *Subcontracting*. The Contractor shall obtain from its subcontractors all data and rights therein necessary to fulfill the Contractor's obligations to the Government under this contract. If a subcontractor refuses to accept terms affording the Government those rights, the Contractor shall promptly notify the Contracting Officer of the refusal and shall not proceed with the subcontract award without authorization in writing from the Contracting Officer.

(i) *Relationship to patents or other rights*. Nothing contained in this clause shall imply a license to the Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Government.

(End of clause)

C.24 52.252-2 CLAUSES INCORPORATED BY REFERENCE. (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es): <https://www.acquisition.gov/browse/index/far>

<https://www.nrc.gov/about-nrc/contracting/48cfr-ch20.htm>

(End of clause)