

ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES

1

28

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

1. DATE OF ORDER 08/19/2019		2. CONTRACT NO. (If any) 31310018D0002		6. SHIP TO: a. NAME OF CONSIGNEE NUCLEAR REGULATORY COMMISSION	
3. ORDER NO. 31310019F0030		4. REQUISITION/REFERENCE NO. RES-19-0129		b. STREET ADDRESS NUCLEAR REGULATORY COMMISSION	
5. ISSUING OFFICE (Address correspondence to) US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-07B20M WASHINGTON DC 20555-0001				c. CITY WASHINGTON	
				d. STATE DC	e. ZIP CODE 20555-0001
7. TO: a. NAME OF CONTRACTOR SOUTHWEST RESEARCH INSTITUTE				f. SHIP VIA	
b. COMPANY NAME				8. TYPE OF ORDER	
c. STREET ADDRESS 6220 CULEBRA RD				<input type="checkbox"/> a. PURCHASE REFERENCE YOUR:	<input checked="" type="checkbox"/> b. DELIVERY
d. CITY SAN ANTONIO				e. STATE TX	f. ZIP CODE 782385166
9. ACCOUNTING AND APPROPRIATION DATA See Schedule				10. REQUISITIONING OFFICE OFF OF NUCLEAR REG RESEARCH	

11. BUSINESS CLASSIFICATION (Check appropriate box(es)) <input type="checkbox"/> a. SMALL <input checked="" type="checkbox"/> b. OTHER THAN SMALL <input type="checkbox"/> c. DISADVANTAGED <input type="checkbox"/> d. WOMEN-OWNED <input type="checkbox"/> e. HUBZone <input type="checkbox"/> f. SERVICE-DISABLED VETERAN-OWNED <input type="checkbox"/> g. WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOSB PROGRAM <input type="checkbox"/> h. EDWOSB				12. F.O.B. POINT	
13. PLACE OF a. INSPECTION Destination		14. GOVERNMENT B/L NO.		15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) 03/29/2020	
b. ACCEPTANCE Destination				16. DISCOUNT TERMS 30	

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	The Contractor shall provide services in accordance with the Statement of Work entitled, "Seismic Induced Liquefaction Model Development." Task Order Base and All Options: Continued ...					

18. SHIPPING POINT		19. GROSS SHIPPING WEIGHT		20. INVOICE NO.		17(h) TOTAL (Cont. pages)
21. MAIL INVOICE TO:						
a. NAME FISCAL ACCOUNTING PROGRAM						\$0.00
b. STREET ADDRESS (or P.O. Box) ADMIN TRAINING GROUP AVERY STREET A3-G BUREAU OF THE FISCAL SERVICE PO BOX 1328						\$1,417,624.00
c. CITY PARKERSBURG		d. STATE WV	e. ZIP CODE 26106-1328			17(i) GRAND TOTAL

22. UNITED STATES OF AMERICA BY (Signature) 08/19/2019		23. NAME (Typed) JENNIFER A. DUDEK TITLE: CONTRACTING/ORDERING OFFICER	
---	--	--	--

**ORDER FOR SUPPLIES OR SERVICES
SCHEDULE - CONTINUATION**

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

DATE OF ORDER 08/19/2019	CONTRACT NO. 31310018D0002	ORDER NO. 31310019F0030
-----------------------------	-------------------------------	----------------------------

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	\$1,417,624.00 Task Order Exercised Amount: XXXXXXXXXX Task Order Obligation Amount: \$121,535.00 Accounting Info: 2019-X0200-FEEBASED-60-60D001-60B106-1058-17 -6-161-255A-17-6-161-1058 Period of Performance: 08/19/2019 to 03/29/2020					

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

\$0.00

CONTRACTOR ACCEPTANCE OF TASK ORDER 31310019F0030

Acceptance of Task Order No. 31310019F0030 under contract No. 31310018D0002 should be made by having an official, authorized to bind your organization, execute two copies of this document in the space provided and return one copy to the Contracting Officer. You should retain the other copy for your records.

Accepted Task Order No. 31310019F0030 under Contract No. 31310018D0002:

Signature

Name

Title

Date

SECTION B - Supplies or Services/Prices5
 B.1 BRIEF DESCRIPTION OF WORK.....5
 B.2 CONSIDERATION AND OBLIGATION— TASK ORDERS (AUG 2011).....5
 B.3 PRICE/COST SCHEDULE.....6
SECTION C – Descriptions/Specifications/Statement of Work7
SECTION D - Packaging and Marking17
 D.1 BRANDING17
 D.2 PACKAGING AND MARKING17
SECTION E - Inspection and Acceptance18
 E.1 INSPECTION AND ACCEPTANCE BY THE NRC (SEP 2013)18
SECTION F - Deliveries or Performance19
 F.1 TASK/DELIVERY ORDER PERIOD OF PERFORMANCE (SEP 2013)19
 F.2 PLACE OF DELIVERY-REPORTS19
SECTION G - Contract Administration Data20
 G.1 CONTRACTING OFFICER’S REPRESENTATIVE AUTHORITY20
 G.2 2052.215-78 TRAVEL APPROVALS AND REIMBURSEMENT - ALTERNATE 1 (OCT 1999).....22
SECTION H - Special Contract Requirements23
 H.1 2052.209-72 CONTRACTOR ORGANIZATIONAL CONFLICTS OF INTEREST. (JAN 1993)23
 H.2 2052.215-70 KEY PERSONNEL. (JAN 1993).....25
SECTION J - List of Documents, Exhibits and Other Attachments28

SECTION B - Supplies or Services/Prices

B.1 BRIEF DESCRIPTION OF WORK

(a) The title of this project is:

Seismic Induced Liquefaction Model Development

(b) Summary work description:

The objective of this acquisition is to obtain expert technical assistance services to develop the technical basis for updating regulatory guidance on the evaluation of liquefaction hazards. Updating this guidance is required to improve clarity, coherency, and reliability in liquefaction triggering evaluations. Specifically, the contractor shall add case histories to the database developed under task order NRC-HQ-60-16-T-0001, contract NRC-HQ-50-14-E-0001, perform studies that provide a basis to extend triggering models over a larger range of conditions than case histories alone allow, develop a probabilistic based liquefaction triggering model.

Because liquefaction models are subject to interpretation of available data, capturing the center, body, and range of new models should be considered in this project. The process of capturing the center, body, and range is described by the Senior Seismic Hazard Analysis Committee (SSHAC) process in NUREG/CR 6372 (Budnitz et al. 1997), NUREG-2117 (NRC 2012), and NUREG-2213 (NRC 2018).

B.2 CONSIDERATION AND OBLIGATION— TASK ORDERS (AUG 2011)

(a) The total ceiling of this contract for the products/services under this contract is [REDACTED]. The amount will increase upon exercise of Option Periods as shown in Section B.3.

(b) This order is subject to the minimum and maximum ordering requirements set forth in the contract.

(c) The amount presently obligated with respect to this order is **\$121,535.00** of which [REDACTED] represents costs and [REDACTED] represents fixed-fee. The obligated amount shall, at no time, exceed the order ceiling as specified in paragraph (a) above. When and if the amount(s) paid and payable to the Contractor hereunder shall equal the obligated amount, the Contractor shall not be obligated to continue performance of the work unless and until the Contracting Officer shall increase the amount obligated with respect to this order, in accordance with FAR Part 43 - Modifications. Any work undertaken by the Contractor in excess of the obligated amount specified above is done so at the Contractor's sole risk and may not be reimbursed by the Government.

(d) The Contractor shall comply with the provisions of FAR 52.232-22 - Limitation of Funds, for incrementally-funded delivery orders or task orders.

(e) In accordance with FAR 52.216-8 - Fixed Fee, it is the policy of the NRC to withhold payment of fee after payment of 85 percent of the fee has been paid in order to protect the Government's interest. The amount of fixed-fee withheld from the contractor will not exceed 15 percent of the total fee or \$100,000, whichever is less. Accordingly, the maximum amount of fixed-fee that may be held in reserve is [REDACTED].

B.3 PRICE/COST SCHEDULE

Total Estimated Cost and Fixed-Fee breakdown by CLIN is presented below.

CLIN	Description	Est Cost	Fixed Fee	Total Cost Plus Fixed Fee
00001	Estimated Cost - Base Period Date of Award - March 29, 2020	██████████	██████	██████████
00002	Fee - Base Period Date of Award - March 29, 2020	██████	██████████	██████████
10001	Option Period 1 March 30, 2020 - March 29, 2021	██████████	██████████	██████████
20001	Option Period 2 March 30, 2021 - March 29, 2022	██████████	██████████	██████████
30001	Option Period 3 March 30, 2022 - May 30, 2023	\$ ██████████	██████████	██████████
Total		\$ ██████████		\$1,417,624.00

Total Estimated Cost and Fixed-Fee breakdown by cost element per base and option period is presented below.

DESCRIPTION	Estimated Amount Base Period (Date of Award - March 29, 2020)	Estimated Amount Option Period 1 (March 30, 2020 - March 29, 2021)	Estimated Amount Option Period 2 (March 30, 2021 - March 29, 2022)	Estimated Amount Option Period 3 (March 30, 2022 - May 30, 2023)	Total Estimated Costs Inclusive of Option Periods
██████████	██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████	██████████
Total Estimated Costs and Fixed-Fee	██████████	██████████	██████████	██████████	\$1,417,624.00

SECTION C – Descriptions/Specifications/Statement of Work

TASK ORDER STATEMENT OF WORK

1. PROJECT TITLE

Seismic Induced Liquefaction Model Development

2. BACKGROUND

The U.S. Nuclear Regulatory Commission (NRC) has identified the need to update existing regulatory guidance on the methods used to evaluate seismic soil liquefaction (Regulatory Guide (RG) 1.198, “Procedures and Criteria for Assessing Seismic Soil Liquefaction at Nuclear Power Plant Sites”) and associated guidance found in the Standard Review Plan (NUREG-0800). The work performed under this task order will provide the technical basis for updates to these documents. This work may also inform updates to RG 3.11, “Design, Construction, and Inspection of Embankment Retention Systems at Uranium Recovery Facilities,” and RG 3.60, “Design of an Independent Spent Fuel Storage Installation (Dry Storage).”

R.G. 1.198 provides guidance to licensees on acceptable methods for evaluating seismic induced liquefaction that demonstrates compliance with 10 CFR Part 100.23 “Geologic and Seismic Siting Criteria.” Regulatory Guides that interface with RG 1.198 include RG 1.132 “Site Investigations for Foundations of Nuclear Power Plants,” RG 1.138 “Laboratory Investigations of Soils for Engineering Analysis and Design of Nuclear Power Plants,” and RG 1.208 “A Performance-Based Approach to Define the Site-Specific Earthquake Ground Motion.”

NRC staff have developed a plan to establish the technical basis for updating RG 1.198. This plan includes:

1. Developing a community database of liquefaction case histories;
2. Performing supporting studies to extend the applicability of the case history database; and
3. Developing probabilistic models that can be used for risk informed evaluations of liquefaction triggering.

As part of the NRC’s effort to establish the technical basis for updating RG 1.198, the Southwest Research Institute (SwRI), Center for Nuclear Waste Regulatory Analyses (CNWRA) has developed a publicly available case history database under task order NRC-HQ-60-16-T-0001, contract NRC-HQ-50-14-E-0001. This database contains objective information needed to develop predictive, probabilistic models for evaluating liquefaction triggering and associated consequences. The United States Bureau of Reclamation (USBR) also recognizes the need to develop new probabilistic models to evaluate liquefaction hazards and associated risk. The USBR and NRC are working on an inter-agency agreement to facilitate efficient use of government resources in developing predictive models that will be useful to both agencies.

3. SCOPE OF WORK

The task area that applies to this work is Seismic. The objective of this acquisition is to obtain expert technical assistance services to develop the technical basis for updating regulatory guidance on the evaluation of liquefaction hazards. Updating this guidance is required to improve clarity, coherency, and reliability in liquefaction triggering evaluations. Specifically, the contractor shall add case histories to the database developed under task order NRC-HQ-60-16-T-0001, contract NRC-HQ-50-14-E-0001, perform

studies that provide a basis to extend triggering models over a larger range of conditions than case histories alone allow, develop a probabilistic based liquefaction triggering model.

Because liquefaction models are subject to interpretation of available data, capturing the center, body, and range of new models should be considered in this project. The process of capturing the center, body, and range is described by the Senior Seismic Hazard Analysis Committee (SSHAC) process in NUREG/CR 6372 (Budnitz et al. 1997), NUREG-2117 (NRC 2012), and NUREG-2213 (NRC 2018).

4. SPECIFIC TASKS

Task 1: Kickoff Meeting (Base Year)

Attend a one-time kick-off meeting to discuss the scope of work, expectations, task order management, and performance requirements of the task order. The kick-off meeting shall be held within thirty (30) working days after award of the task order. Tele/video conferencing can be used to complete this task.

Deliverable:

Within three (3) working days after the meeting, the Contractor shall submit a written summary of the meeting that: (1) identifies meeting participants from the Contractor and NRC; (2) conveys minutes of the meeting that clearly describe the substance of the meeting, and (3) list and describe decisions about scheduling and actions.

Task 2: Liquefaction Case History Database (Base Year, Option Year 1, Option Year 2)

Under task order NRC-HQ-60-16-T-0001, contract NRC-HQ-50-14-E-0001, SwRI CNWRA developed a liquefaction case history database titled the Next Generation Liquefaction (NGL) Database. During database development, both legacy and new case histories were added to the database. Legacy case histories are defined as those case histories that were used to develop existing liquefaction triggering models (e.g. Cetin et al. 2004, Moss et al. 2006), and case histories obtained since then are considered new case histories. Under this task, additional case histories will be added to the database and review completed so that the database will be adequate for developing triggering models and updates and maintenance of the database will be performed based on database user input/feedback.

Task 2a: Add Case Histories to the NGL Database (Base Year)

The NGL database team shall add legacy and new case histories to the NGL database to support developing triggering models. A technical letter report shall be developed documenting the case histories that are in the database. The technical letter report shall include a table listing the case histories that are in the database and that have been reviewed for data quality and accuracy. The table shall differentiate case histories added to the database before and after award of this task order. In addition, the technical letter report shall provide a basis for why the database is sufficiently populated for model development.

Task 2b: Address Feedback from Modeling Teams (Option Year 1)

As part of Task 4, modelling teams will begin using the NGL database to develop a triggering model. The modeling team will provide feedback identifying problems or challenges experienced when using the database, missing data, or case histories that need to be added for model development. The NGL database team will develop and implement a plan for addressing feedback from the modeling team. A technical letter report shall be provided documenting the feedback from the modeling team and how the feedback was addressed.

Task 2c: Maintenance of the NGL Database (Option Year 2)

Acquisition of and documentation of data requires sufficient time and resources following a seismic event. Recent events such as the 2018 Anchorage Alaska earthquake or the 2018 Hokkaido, Japan

earthquake may produce data in the coming months that can be added to the NGL database. In addition, earthquakes that may occur after this task order initiates may produce valuable data that can be added to the database. This task provides the means of adding additional valuable data that becomes available after the task order is initiated. This new data must be added to the database early enough that the modeling team has sufficient time to include the new data in their model. A technical letter report shall be submitted to the NRC listing any new case histories that are added to the NGL database as part of Task 2c.

Deliverables:

- Within nine (9) months after award of the task order, a technical letter report on the database shall be submitted to the NRC as described in Task 2a.
- Within twelve (12) months of the option year 1 being exercised, a technical letter report shall be submitted to the NRC as described in Task 2b.
- Within six (6) months of the option year 2 being exercised, a technical letter report shall be submitted to the NRC as described in Task 2c if new case histories are added to the database.

Task 3: Establish Modeling Teams (Base Year)

A liquefaction triggering model will be developed under this task order. This task consists of developing a team which will evaluate and interpret case history data and develop a semi-empirical triggering model. Key members of the modeling team must have demonstrated experience in performing geotechnical post-earthquake reconnaissance, prior experience developing triggering or other semi-empirical liquefaction models using case histories, and demonstrated experience with the application of statistics and probability in developing predictive models from data.

Deliverable:

Within six (6) months after award of the task order, a technical letter report shall be submitted to the NRC that identifies the key members of each modeling team. The report shall document the qualifications of the key members and contain a statement of commitment from each key member to participate in model development.

Task 4: Develop Preliminary Model using NGL Database (Option Year 1)

A modeling team will use the NGL database to develop a triggering model. This model shall be a probabilistic model capable of being used in combination with a seismic hazard analysis to obtain the annual frequency of liquefaction triggering. The ground motion parameter used in the model for characterizing earthquake loading (e.g. cyclic stress ratio) must be a parameter that can be obtained from a typical seismic hazard analysis using established models for the western and eastern United States, such as peak ground acceleration or peak ground velocity.

The preliminary model shall be used in a set of analyses to evaluate model sensitivity to a typical range of parameters encountered in liquefaction evaluations for dam and nuclear power plant projects. The sensitivity analyses shall include developing seismic hazard curves (such as pga, deaggregated pga, peak ground velocity, etc) that are needed to perform a liquefaction hazard analysis for low, moderate and high seismicity sites in the eastern and western United States. The newly developed probabilistic model will be used to develop liquefaction triggering hazard curves. The purpose of the analyses with the preliminary model is to identify model parameters that contribute significantly to uncertainties in the liquefaction hazard assessment.

The modeling team will provide feedback to the NGL database development team identifying problems or challenges with using the database, data missing from the database, or the need to add specific case histories that are not already included in the database or have not been reviewed by the NGL database team. Feedback from the modeling team shall be documented in monthly letter status reports.

A technical letter report documenting development of the preliminary model, development of seismic hazard curves, and results of the sensitivity study shall be submitted to the NRC.

Deliverables:

- Feedback from modeling team on the NGL database will be documented in monthly letter status reports, as described in Task 4.
- Within twelve (12) months of the option year being exercised, a technical letter report shall be submitted to the NRC that provides an overview of the preliminary model, documents the development of the seismic hazard curves used for the sensitivity analyses, and documents the sensitivity analyses which have been performed, as described in Task 4.

Task 5: Evaluate the Effects of Confining Stress and Initial Shear Stress on Liquefaction Triggering (Option Year 1 and Option Year 2)

Liquefaction surface manifestations such as a sand boil, surface cracking typical of lateral spreading, or significant soil settlement around a building are generally required before subsurface investigations are performed which qualify a site as a case history in liquefaction databases. As a result, the depth of liquefied soil layers documented in the database is typically limited to the upper 10 to 12 m below the ground surface (see Boulanger et al. 2012).

In engineering practice, liquefaction triggering potential must be evaluated at depths greater than 10 to 12 m. Liquefaction models account for this condition by implementing a correction factor when effective overburden stresses exceed 100 kPa. Boulanger (2003) and Vaid et al. (2001) have studied the impacts of confining stress on liquefaction triggering. Vaid et al. (2001) demonstrated that the correction for confining stress is a function of the soil state (e.g. relative density and effective confining stress). Boulanger (2003a) also recognized the impact of soil state on liquefaction resistance and implemented a relative state parameter correction to account for the impact of increased confining stress in liquefaction evaluations. Probabilistic models developed by Cetin et al. (2004), Moss et al. (2006), Boulanger and Idriss (2012) are constrained by the case history database and may be biased at high confining stresses as well as have increased uncertainty.

In sloping ground sites, sites with embankments and at level ground sites with structural loads imposed, an initial shear stress on a horizontal plane is typically present. This initial horizontal shear stress can affect the rate of pore pressure dissipation. Studies by Boulanger (2003b) and others have shown that pore pressures can be generated more quickly in very loose soils having an initial horizontal shear stress in comparison to soils with no initial horizontal shear stress present.

A focused study on the effects of confining stress and initial shear stress on liquefaction triggering is needed to assist model developers in the development of triggering models at high confining stresses (stresses up to 10 atm) and with initial shear stresses. This focused study will consist of reviewing and synthesizing previous published research and may include limited physical testing/modeling and numerical modeling.

Prior to performing any laboratory tests, physical modeling, or numerical modeling, a test/analysis plan shall be submitted to the NRC for review. Comments and technical direction on the plan will be provided by the NRC to the contractor within one month after receiving the test/modeling plan.

Deliverables:

- Within two months of the option being exercised, a test/analysis plan shall be submitted to the NRC for review prior to performing tests and analyses.

- Within twelve (12) months of the option year being exercised, a draft technical letter report shall be submitted synthesizing available publications and documenting results from any testing or modeling.
- Within two (2) months of receiving NRC comments on the draft report and after exercising option year 2, a final draft technical letter report shall be submitted.

Task 6: Preliminary Model Peer Review (Option Year 1)

External peer review shall be performed on the preliminary model to obtain feedback that can assist with final model development. If the NGL project has a concurrent modeling effort in progress, the contractor is encouraged to participate in collaborative meetings through NGL. Obtaining feedback on the preliminary model from the larger technical community through the NGL project is an acceptable method of peer review. Technical information exchange and feedback on the preliminary model through participating in NGL meetings shall be documented in a technical letter report. An alternative to participating in NGL meetings is to obtain peer review from a recognized external liquefaction expert. External peer review comments shall be reported to the NRC through a technical letter report. NRC staff shall be invited to participate in peer review meetings.

Deliverables:

- Two (2) months before the end of option year 1, a technical letter report shall be submitted to the NRC which summarizes the peer review. The report shall also include a plan for how the contractor plans to address peer review comments in final model development.

Task 7: Develop Final Triggering Model (Option Year 2 and Option Year 3)

The modeling team will refine their preliminary probabilistic model for liquefaction triggering with consideration of peer review comments and results from the focused study described in Task 5.. Similar to the preliminary model, the final model must use a loading parameter that is obtained from a typical seismic hazard analysis (such as peak ground acceleration or peak ground velocity). The sensitivity analyses performed under Task 4 shall be performed again using the final model.

In the process of developing the final model, the team should utilize information available in the literature and supplemental analyses to inform and/or constrain their models. Innovation in model development is encouraged.

Task 7a (Option Year 2):

Model development will be initiated early in Option Year 2. A technical letter report shall be developed to document the progress made on model development.

Task 7b (Option Year 3)

Model development will continue after exercising Option Year 3. A final report will document development of the models. The report shall include a description of assumptions made in developing the models, a description of supplemental models that are incorporated into the triggering model, and results from the sensitivity study.

Deliverables:

- A technical letter report as described under Task 7a shall be provided eleven (11) months after exercising Option Year 2 of the task order.
- A draft technical letter report that documents development of the final models as described under Task 7b shall be provided within nine (9) months of exercising Option Year 3 of the task order. The NRC shall provide comments on the report within one (1) month following receipt of the report and

the contractor shall provide a revised report within two (2) months of receiving comments from the NRC.

Task 8: Peer Review (Option Year 3)

Similar to task 6, the contractor shall obtain external peer review on the final triggering model. The peer review shall be performed at a stage that will allow for addressing peer review comments prior to model finalization. Peer review can include obtaining feedback from participation in the NGL project or through an external liquefaction expert.

Deliverable:

- Within six (6) months of exercising Option Year 3, a technical letter report shall be submitted to the NRC which summarizing the peer review. The report shall also include a plan for how the contractor plans to address peer review comments in final model development.

5. APPLICABLE DOCUMENTS AND STANDARDS

The following regulations and guidance are applicable to this task order and can be found at <http://www.nrc.gov/reading-rm/doc-collections>. If necessary, any references that are not available at this website will be provided to the contractor by the COR.

1. Regulatory Guide (RG) 1.198, "Procedures and Criteria for Assessing Seismic Soil Liquefaction at Nuclear Power Plant Sites," issued November 2003.
2. Regulatory Guide (RG) 3.11, "Design, Construction, and Inspection of Embankment Retention Systems at Uranium Recovery Facilities," issued November 2013.
3. Regulatory Guide (RG) 3.60, "Design of an Independent Spent Fuel Storage Installation (Dry Storage)," issued May 2014.
4. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Revision 5, issued July 2014
5. NUREG-2117, "Practical Implementation Guidelines for SSHAC Level 3 and 4 Hazard Studies," Revision 1, issued April 2012.
6. NUREG/CR-6372, "Recommendations for Probabilistic Seismic Hazard Analysis: Guidance on Uncertainty and Use of Experts," issued April 1997.
7. NUREG-2213, "Updated Implementation Guidelines for SSHAC Hazard Studies," issued October 2018.
8. Cetin, K.O., Seed, R.B., Der Kiureghian, A., Tokimatsu, K., Harder, L.F., Kayen, R.E. and Moss, R.E.S. (2004). "Standard Penetration Test-Based Probabilistic and Deterministic Assessment of Seismic Soil Liquefaction," ASCE, Journal of Geotechnical and Geoenvironmental Engineering, Vol. 130, No. 12, 1314-1340.
9. Moss, R.E.S, Seed, R.B., Kayen, R.E., Stewart, J.P., Der Kiureghian, A., Cetin, K.O. (2006). "CPT-Based Probabilistic and Deterministic Assessment of In Situ Seismic Soil Liquefaction Potential," ASCE, Journal of Geotechnical and Geoenvironmental Engineering, Vol. 132, No.8, 1032-1051.
10. Boulanger, R.W. (2003a). "High overburden stress effects in liquefaction analyses. ASCE, Journal of Geotechnical and Geoenvironmental Engineering, Vol. 129, No. 10, 1071-1082.
11. Boulanger, R.W. (2003b). "Relating K_α to a relative state parameter index. ASCE, Journal of Geotechnical and Geoenvironmental Engineering, Vol. 129, No. 10, 770-773.
12. Boulanger, R.W., and Idriss, I.M. (2012). "Probabilistic Standard Penetration Test-Based Liquefaction-Triggering Procedure," ASCE, Journal of Geotechnical and Geoenvironmental Engineering, Vol. 138, No. 10, 1185-1195.
13. Boulanger, R.W., Wilson, D.W., and Idriss, I.M. (2012). "Examination and Reevaluation of SPT-Based Liquefaction Triggering Case Histories," ASCE, Journal of Geotechnical and Geoenvironmental Engineering, Vol. 138, No. 8, 898-909.
14. NUREG-0650, "Preparing NUREG-series Publications," Revision 2

15. NUREG-1379, "NRC Editorial Style Guide," Revision 2
16. NUREG-0544, "NRC Collection of Abbreviations," Revision 4
17. The latest edition of the U.S. Government Printing Office Style Manual,
<https://www.gpo.gov/fdsys/pkg/GPO-STYLEMANUAL-2008/pdf/GPO-STYLEMANUAL-2008.pdf>
18. The NRC's plain language guidelines
<http://www.nrc.gov/public-involve/open/plain-writing/nrc-philosophy.html>
19. Management Directive 3.7, NUREG Series Publications

6. DELIVERABLES AND DELIVERY SCHEDULE

Project deliverables are listed in the table below. All deliverables shall be submitted to the COR.

Deliverable Schedule

Deliverable No.	Description and Acceptance Criteria (AC)	Quantity/Media	Date Completed
1	Kick-off Meeting Summary AC: Meeting Minutes are complete and contain required content	Electronic copy generated in MS Word	3 working days after completion of kick-off meeting
2	Liquefaction Case History Database Technical Letter Report (Task 2a) AC: Report contains required content	Electronic copy in a pdf format	11 months after task order award
3	Database Feedback Technical Letter Report (Task 2b) AC: Report contains required content	Electronic copy in a pdf format	6 months after exercising option year 1
4	Liquefaction Case History Database Maintenance Technical Letter Report (Task 2c) AC: Report contains required content	Electronic copy in a pdf format	6 months after exercising option year 2
5	Technical letter report on modeling teams (Task 3). AC: Report contains the required content and follows the required format	Electronic copy generated in MS Word	6 months after task order award
6	Technical letter report documenting preliminary liquefaction triggering model and sensitivity study (Task 4) AC: Report contains the required content and follows the required format	Electronic copy generated in MS Word	12 months after exercising Option Year 1
7	Test/analysis plan on evaluating the effect of confining stress on liquefaction triggering (Task 5) AC: Plan documents all proposed tests and analyses	Electronic copy generated in MS Word	2 months after exercising Option Year 1
8	Draft report on the effect of confining stress on liquefaction triggering (Task 5a) AC: Report contains the required content and follows the required format	Electronic copy generated in MS Word	12 months after exercising Option Year 1

9	Final report on the effect of confining stress on liquefaction triggering (Task 5b) AC: All comments from the COR are addressed	Electronic copy generated in MS Word	2 months after receiving COR comments on draft
10	Technical letter report documenting peer review of preliminary triggering model AC: Agenda contains required content	Electronic copy generated in MS Word	12 months after exercising Option Year 1
11	Technical Letter Report on Final Model Development Progress (Task 7a) AC: Report contains the required content and follows the required format.	Electronic copy generated in MS Word	12 months after exercising Option Year 2.
12	Draft final report on documenting final models and sensitivity study (Task 8b) AC: Report contains the required content and follows the required format.	Electronic copy generated in MS Word	9 months after exercising Option Year 3.
13	Final report on documenting final models and sensitivity study (Task 8b) AC: All comments from the COR are addressed.	Electronic copy generated in MS Word	2 months after receiving COR comments on draft
14	Technical Letter Report documenting peer review of final liquefaction triggering model (Task 8) AC: Report contains the required content and follows the required format.	Electronic copy generated in MS Word	2 months after Workshop
15	Monthly Letter Status Report (MLSR) per Section F.2 of the Base Contract AC: MLSR Is complete and contains all required information	Electronic copy in MS Word	20 th day of the following month

7. REQUIRED LABOR CATEGORIES (Except for Information Technology Services)

The Contractor shall provide individuals who have the required educational background and work experience to meet the objectives of the work specified in this task order. Specific qualifications for this work include the following:

Project Management: B.S. in science or engineering with at least 6 years of project management experience or M.S. in science or engineering with at least 4 years of project management experience. Experience with managing SSHAC or similar studies.

Senior Level Engineer/Scientist: Ph.D. in engineering or related discipline with at least 8 years of experience in performing SSHAC studies.

Senior Level Engineer: Ph.D. in civil engineering or related discipline with at least 10 years of geotechnical earthquake engineering experience which includes post-earthquake geotechnical reconnaissance and demonstrated expertise in liquefaction hazard and consequence evaluations. Demonstration of expertise in these areas shall include a record of peer reviewed publications. This expertise will likely be required from academic/university personnel.

Project Level Engineer: M.S. in civil engineering or related discipline with at least 2 years of geotechnical earthquake engineering experience (post graduate work toward a Ph.D. degree focusing on geotechnical earthquake engineering and other relevant seismic topics is acceptable experience), or a Ph.D. in civil engineering or related discipline with demonstrated experience in interpreting geotechnical field data for engineering analyses and using statistical methods to develop semi-empirical engineering models.

Administrative Support Staff: Experience in providing office support, such as word processing to generate technical reports.

8. GOVERNMENT-FURNISHED PROPERTY

The COR will provide the contractor a template for preparing NUREG/CR required under this task order.

9. PLACE OF PERFORMANCE

The work to be performed under this task order shall be performed at the Contractor's facility except for the travel described in Section 10 of this statement of work.

10. SPECIAL CONSIDERATIONS

TRAVEL

The contractor shall be authorized travel expenses consistent with the Federal Travel Regulation (FTR) and the limitation of funds for this the task order. All travel requires prior written approval from the COR.

The contractor is expected to travel to workshop meetings as part of the project work. In addition travel to other meetings may be required to facilitate project progress. Expected travel is listed as follows:

Base Year:

- Two 2-day project meetings at a location selected by the contractor (Travel for 3-persons)

Option Year 1:

- Four 2-day meetings, at location selected by contractor and approved by the COR for SwRI staff to collaborate with external expert on model development. (Travel for 1-person).
- Two 2-day project meetings at a location selected by the contractor (Travel for 2-persons)
- Two 2-day meetings for external peer review (Travel for 2-persons)

Option Year 2:

- Three 2-day project meetings at a location selected by the contractor and approved by the COR for SwRI staff to collaborate with external expert on model development. (Travel for 1-persons)
- One 2-day project meetings at a location selected by the contractor (Travel for 2-persons)

Option Year 3:

- Two 2-day project meetings at a location selected by the contractor and approved by the COR for SwRI staff to collaborate with external expert on model development. (Travel for 1-persons)
- One 2-day project meeting at a location selected by the contractor (Travel for 2-persons)
- Two 2-day meetings for external peer review (Travel for 2-persons)

At the discretion of the COR, meetings may be conducted at the contractor site, or via telephone or video conference.

SECURITY

This work will be UNCLASSIFIED. This task order does not involve the contractor to access, possess, store or generate Sensitive Unclassified Information (SUNSI).

KEY PERSONNEL

Refer to Section H.2 2052.215-70 KEY PERSONNEL (JAN 1993)

SECTION D - Packaging and Marking

D.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.

This work was supported by the U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Regulatory Research, under Contract number 31310018D0002/31310019F0030.

(End of Clause)

D.2 PACKAGING AND MARKING

(a) The Contractor shall package material for shipment to the NRC in such a manner that will ensure acceptance by common carrier and safe delivery at destination. Containers and closures shall comply with the Surface Transportation Board, Uniform Freight Classification Rules, or regulations of other carriers as applicable to the mode of transportation.

(b) On the front of the package, the Contractor shall clearly identify the contract number under which the product is being provided.

(c) Additional packaging and/or marking requirements are as follows: Not Applicable.

(End of Clause)

SECTION E - Inspection and Acceptance

E.1 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, in accordance with FAR 52.247-34 - F.o.b. Destination.

(End of Clause)

SECTION F - Deliveries or Performance

F.1 TASK/DELIVERY ORDER PERIOD OF PERFORMANCE (SEP 2013)

This task order shall commence on **Date of Award** and will expire on **March 29, 2020**. The term of this task order may be extended at the option of the Government for additional Option Periods. If exercised, Section I.8 Clause 52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT. (MAR 2000) is applicable.

Base Period: **Date of Award through March 29, 2020**

Option Period(s):

Option Period One: **March 30, 2020 through March 29, 2021**

Option Period Two: **March 30, 2021 through March 29, 2022**

Option Period Three: **March 30, 2022 through May 30, 2023**

(End of Clause)

F.2 PLACE OF DELIVERY-REPORTS

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

a. Contracting Officer Representative:

Refer to Section G.1 CONTRACTING OFFICER'S REPRESENTATIVE AUTHORITY

b. Contracting Officer (CO) (1 electronic copy):

(End of Clause)

SECTION G - Contract Administration Data

G.1 CONTRACTING OFFICER'S REPRESENTATIVE AUTHORITY

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

Name: Thomas Weaver
Address: U.S. Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Washington, DC 20555
Mail Stop: TWFN 10A36
Phone: 301-415-2383
E-mail: Thomas.Weaver@nrc.gov

NRC Alternate COR:

Name: Scott Stovall
Address: U.S. Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Washington, DC 20555
Mail Stop: TWFN 10A36
Phone: 301-415-2405
E-mail: Scott.Stovall@nrc.gov

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(j) In addition to providing technical direction as defined in paragraph (b) of the section, the COR shall:

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

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

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

(End of Clause)

G.2 2052.215-78 TRAVEL APPROVALS AND REIMBURSEMENT - ALTERNATE 1 (OCT 1999)

(a) Total expenditure for travel may not exceed **\$46,014.00 (including all Option Periods as shown below)** without the prior approval of the contracting officer.

Contract Period	Amount
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
Total Travel for All Periods	\$46,014.00

(b) All foreign travel must be approved in advance by the NRC on NRC Form 445, Request for Approval of Official Foreign Travel, and must be in compliance with FAR 52.247-63 Preference for U.S. Flag Air Carriers. The contractor shall submit NRC Form 445 to the NRC no later than 30 days prior to the commencement of travel.

(c) The contractor will be reimbursed only for travel costs incurred that are directly related to this contract and are allowable subject to the limitations prescribed in FAR 31.205-46.

(d) It is the responsibility of the contractor to notify the contracting officer in accordance with the FAR Limitations of Cost clause of this contract when, at any time, the contractor learns that travel expenses will cause the contractor to exceed the travel ceiling amount identified in paragraph (a) of this clause.

(e) Reasonable travel costs for research and related activities performed at State and nonprofit institutions, in accordance with Section 12 of Pub. L. 100-679, must be charged in accordance with the contractor's institutional policy to the degree that the limitations of Office of Management and Budget (OMB) guidance are not exceeded. Applicable guidance documents include OMB Circular A-87, Cost Principles for State and Local Governments; OMB Circular A-122, Cost Principles for Nonprofit Organizations; and OMB Circular A-21, Cost Principles for Educational Institutions.

SECTION H - Special Contract Requirements

H.1 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.


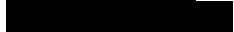
(1) If the contractor under this contract, prepares a complete or essentially complete statement of work or specifications, the contractor is not eligible to perform or participate in the initial contractual effort which is based on the statement of work or specifications. The contractor may not incorporate 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)

H.2 2052.215-70 KEY PERSONNEL. (JAN 1993)

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

, Program Manager
, Senior Level Engineer.

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

(b) If one or more of the key personnel, for whatever reason, becomes, or is expected to become, unavailable for work under this contract for a continuous period exceeding 30 work days, or is expected to devote substantially less effort to the work than indicated in the proposal or initially anticipated, the contractor shall immediately notify the contracting officer and shall, subject to the concurrence of the contracting officer, promptly replace the personnel with personnel of at least substantially equal ability and qualifications.

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

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

(End of Clause)

H.3 ANNUAL AND FINAL CONTRACTOR PERFORMANCE EVALUATIONS

Annual and final evaluations of contractor performance for this task order 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. 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

31310018D0002 31310019F0030

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.

(End of Clause)

SECTION J - List of Documents, Exhibits and Other Attachments

The following attachments were provided under the Base Contract and are applicable to this task order:

- Template Contractor Spending Plan
- Monthly Letter Status Report Instructions for Contracts and Orders
- Billing Instructions Cost Reimbursement Type Contracts
- Organizational Conflicts of Interest