

SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS <i>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, & 30</i>				1. REQUISITION NUMBER RES-18-0362		PAGE OF 1 23	
2. CONTRACT NO.		3. AWARD/ EFFECTIVE DATE	4. ORDER NUMBER 31310018P0063		5. SOLICITATION NUMBER 31310018Q0103		6. SOLICITATION ISSUE DATE 08/13/2018
7. FOR SOLICITATION INFORMATION CALL		a. NAME RACHEL GLAROS			b. TELEPHONE NUMBER (No collect calls)		8. OFFER DUE DATE/LOCAL TIME ET
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 checked="" type="checkbox"/> SET ASIDE: 100.00 % FOR: <input checked="" type="checkbox"/> SMALL BUSINESS WOMEN-OWNED SMALL BUSINESS <input type="checkbox"/> HUBZONE SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM <input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS EDWOSB 8(A) NAICS: 611420 SIZE STANDARD: \$11.0			
11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input type="checkbox"/> SEE SCHEDULE		12. DISCOUNT TERMS 30		13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>		13b. RATING	
15. DELIVER TO NUCLEAR REGULATORY COMMISSION NUCLEAR REGULATORY COMMISSION WASHINGTON DC 20555-0001				16. ADMINISTERED BY US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-07B20M WASHINGTON DC 20555-0001			
17a. CONTRACTOR/ OFFEROR		CODE 841274306	FACILITY CODE	18a. PAYMENT WILL BE MADE BY		CODE NRCPAYMENTS	
FLO-2D SOFTWARE INC ATTN JIMMY OBRIEN PO BOX 66 NUTRIOSO AZ 859320066				FISCAL ACCOUNTING PROGRAM ADMIN TRAINING GROUP AVERY STREET A3-G BUREAU OF THE FISCAL SERVICE PO BOX 1328 PARKERSBURG WV 26106-1328			
TELEPHONE NO. 9283391935							
<input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER				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's (NRC) Office of Nuclear Regulatory Research (RES) has a requirement for the contractor to provide FLO-2D Software Training with License as set forth in the attached Statement of Work. Please see attached pages for specific details Accounting Info: 2018-X0200-FEEBASED-60-60D002-60B207-1014-11-6-182-251F-11-6-182-1014 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) \$16,113.26	
<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 checked="" 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"/> ARE <input type="checkbox"/> ARE NOT ATTACHED.	
<input checked="" type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN 1 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: REF. _____ 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) CAROLYN A. COOPER		31c. DATE SIGNED 08/28/2018	

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
	Period of Performance: 08/28/2018 to 01/31/2019				

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	37. CHECK NUMBER
<input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL			<input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	
38. S/R ACCOUNT NUMBER	39. S/R VOUCHER NUMBER	40. PAID BY		
41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT			42a. RECEIVED BY (<i>Print</i>)	
41b. SIGNATURE AND TITLE OF CERTIFY NG OFFICER		41c. DATE	42b. RECEIVED AT (<i>Location</i>)	
			42c. DATE REC'D (<i>YY/MM/DD</i>)	42d. TOTAL CONTAINERS

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SECTION B - Supplies or Services/Prices

B.1 BRIEF PROJECT TITLE AND WORK DESCRIPTION

(a) The title of this project is: FLO-2D Pro Training with License

(b) Summary work description: The objective of this acquisition is to procure hands-on training for NRC staff on the use of FLO-2D Pro software in order to provide the skills and knowledge to perform license reviews, other oversight activities, and support of the PFHA research program. The training materials will be based mainly on existing FLO-2D Pro training modules that have been adapted to NRC needs. Hands-on exercises with the FLO-2D Pro are required to supplement lectures during the training to provide practical experience for NRC Staff.

(End of Clause)

B.2 CONSIDERATION AND OBLIGATION-FIRM-FIXED-PRICE

The total amount of the Firm-Fixed-Price portion of this contract (training) is [REDACTED] and this amount is fully-funded.

(End of Clause)

B.3 CONSIDERATION AND OBLIGATION--COST REIMBURSEMENT – NO FEE

(a) The total estimated cost to the Government for travel under this contract is

[REDACTED] (NTE).

(b) The amount obligated by the Government with respect to this contract is **\$16,113.26**

(c) This is a fully-funded contract and FAR 52.232-20 – “Limitation of Cost” applies.

(End of Clause)

B.4 PRICE SCHEDULE

CLIN	Estimated Quantity	Unit	Unit Rate	Total
Develop/Modify Training Modules (Fixed-Price)	1	LOT	[REDACTED]	[REDACTED]
Deliver Training with 1-Year FLO-2D Pro Software License (Fixed-Price)	1	LOT	\$ [REDACTED]	[REDACTED]
*Travel	1	LOT	Not-To-Exceed	[REDACTED]

*The government will pay up to the rates specified in the Government Federal Travel Regulations (FTR) for travel destination. All travel must be approved in advance by the NRC COR. Hotel reservations, estimated cost for travel, rental car, and other expenses that may incurred in connection with tasks shall be made by the contractor, and will be reimbursed for actual allowable costs, with back-up documentation/receipts attached to the submitted invoices. NO PAYMENT WILL BE MADE WITHOUT BACKUP DOCUMENTATION/RECEIPTS

SECTION C - Description/Specifications

C.1 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/browsefar>

52.204-13 SYSTEM FOR AWARD MANAGEMENT MAINTENANCE (OCT 2016)

52.204-18 COMMERCIAL AND GOVERNMENT ENTITY CODE MAINTENANCE. (JUL 2016)

52.204-19 INCORPORATION BY REFERENCE OF REPRESENTATIONS AND CERTIFICATIONS (DEC 2014)

52.212-4 CONTRACT TERMS AND CONDITIONS - COMMERCIAL ITEMS. (JAN 2017)

52.232-39 UNENFORCEABILITY OF UNAUTHORIZED OBLIGATIONS (JUN 2013)

52.232-40 PROVIDING ACCELERATED PAYMENTS TO SMALL BUSINESS SUBCONTRACTORS (DEC 2013)

C.2 52.212-5 CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS - COMMERCIAL ITEMS. (JUL 2018)

(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 items:

(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 (JUL 2018) (Section 1634 of Pub. L. 115-91).

(3) 52.209-10, Prohibition on Contracting with Inverted Domestic Corporations (NOV 2015).

(4) 52.233-3, Protest After Award (AUG 1996) (31 U.S.C. 3553).

(5) 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 items: (Contracting Officer check as appropriate.)

☐ (1) 52.203-6, Restrictions on Subcontractor Sales to the Government (SEP 2006), with Alternate I (OCT 1995) (41 U.S.C. 4704 and 10 U.S.C. 2402).

☐ (2) 52.203-13, Contractor Code of Business Ethics and Conduct (OCT 2015) (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 (OCT 2016) (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. (OCT 2015) (31 U.S.C. 6101 note).

☐ (9) 52.209-9, Updates of Publicly Available Information Regarding Responsibility Matters (JUL 2013) (41 U.S.C. 2313).

☐ (10) (Reserved)

☐ (11)(i) 52.219-3, Notice of HUBZone Set-Aside or Sole-Source Award (NOV 2011) (15 U.S.C. 657a).

☐ (ii) Alternate I (NOV 2011) of 52.219-3.

☐ (12)(i) 52.219-4, Notice of Price Evaluation Preference for HUBZone Small Business Concerns (OCT 2014) (if the offeror elects to waive the preference, it shall so indicate in its offer) (15 U.S.C. 657a).

☐ (ii) Alternate I (JAN 2011) of 52.219-4.

☐ (13) (Reserved)

☒ (14)(i) 52.219-6, Notice of Total Small Business Set-Aside (NOV 2011) (15 U.S.C. 644).

☐ (ii) Alternate I (NOV 2011).

- ☐ (iii) Alternate II (NOV 2011).
- ☐ (15)(i) 52.219-7, Notice of Partial Small Business Set-Aside (JUN 2003) (15 U.S.C. 644).
- ☐ (ii) Alternate I (OCT 1995) of 52.219-7.
- ☐ (iii) Alternate II (MAR 2004) of 52.219-7.
- ☐ (16) 52.219-8, Utilization of Small Business Concerns (NOV 2016) (15 U.S.C. 637(d)(2) and (3)).
- ☐ (17)(i) 52.219-9, Small Business Subcontracting Plan (JAN 2017) (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 (NOV 2016) of 52.219-9.
- ☐ (v) Alternate IV (NOV 2016) of 52.219-9.
- ☐ (18) 52.219-13, Notice of Set-Aside of Orders (NOV 2011) (15 U.S.C. 644(r)).
- ☐ (19) 52.219-14, Limitations on Subcontracting (JAN 2017) (15 U.S.C. 637(a)(14)).
- ☐ (20) 52.219-16, Liquidated Damages-Subcontracting Plan (JAN 1999) (15 U.S.C. 637(d)(4)(F)(i)).
- ☐ (21) 52.219-27, Notice of Service-Disabled Veteran-Owned Small Business Set-Aside (NOV 2011) (15 U.S.C. 657f).
- ☒ (22) 52.219-28, Post Award Small Business Program Rerepresentation (JUL 2013) (15 U.S.C. 632(a)(2)).
- ☐ (23) 52.219-29, Notice of Set-Aside for, or Sole Source Award to, Economically Disadvantaged Women-Owned Small Business Concerns (DEC 2015) (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 (DEC 2015) (15 U.S.C. 637(m)).
- ☒ (25) 52.222-3, Convict Labor (JUN 2003) (E.O. 11755).
- ☐ (26) 52.222-19, Child Labor-Cooperation with Authorities and Remedies (JAN 2018) (E.O. 13126).
- ☒ (27) 52.222-21, Prohibition of Segregated Facilities (APR 2015).

[X] (28) 52.222-26, Equal Opportunity (SEP 2016) (E.O. 11246).

[] (29) 52.222-35, Equal Opportunity for Veterans (OCT 2015) (38 U.S.C. 4212).

[X] (30) 52.222-36, Equal Opportunity for Workers with Disabilities (JUL 2014) (29 U.S.C. 793).

[] (31) 52.222-37, Employment Reports on Veterans (FEB 2016) (38 U.S.C. 4212).

[] (32) 52.222-40, Notification of Employee Rights Under the National Labor Relations Act (DEC 2010) (E.O. 13496).

[X] (33)(i) 52.222-50, Combating Trafficking in Persons (MAR 2015) (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).

[] (34) 52.222-54, Employment Eligibility Verification (OCT 2015). (E. O. 12989). (Not applicable to the acquisition of commercially available off-the-shelf items or certain other types of commercial items as prescribed in 22.1803.)

[] (35)(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.)

[](36) 52.223-11, Ozone-Depleting Substances and High Global Warming Potential Hydrofluorocarbons (JUN 2016) (E.O. 13693).

[](37) 52.223-12, Maintenance, Service, Repair, or Disposal of Refrigeration Equipment and Air Conditioners (JUN 2016) (E.O. 13693).

[] (38)(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.

[] (39)(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.

[] (40) 52.223-15, Energy Efficiency in Energy-Consuming Products (DEC 2007) (42 U.S.C. 8259b).

☐ (41)(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.

☒ (42) 52.223-18, Encouraging Contractor Policies to Ban Text Messaging While Driving (AUG 2011)

☐ (43) 52.223-20, Aerosols (JUN 2016) (E.O. 13693).

☐ (44) 52.223-21, Foams (JUN 2016) (E.O. 13693).

☐ (45)(i) 52.224-3, Privacy Training (JAN 2017) (5 U.S.C. 552a).

☐ (ii) Alternate I (JAN 2017) of 52.224-3.

☐ (46) 52.225-1, Buy American-Supplies (MAY 2014) (41 U.S.C. chapter 83).

☐ (47)(i) 52.225-3, Buy American-Free Trade Agreements-Israeli Trade Act (MAY 2014) (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 (MAY 2014) of 52.225-3.

☐ (iii) Alternate II (MAY 2014) of 52.225-3.

☐ (iv) Alternate III (MAY 2014) of 52.225-3.

☐ (48) 52.225-5, Trade Agreements (OCT 2016) (19 U.S.C. 2501, *et seq.*, 19 U.S.C. 3301 note).

☒ (49) 52.225-13, Restrictions on Certain Foreign Purchases (JUN 2008) (E.O.'s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).

☐ (50) 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).

☐ (51) 52.226-4, Notice of Disaster or Emergency Area Set-Aside (NOV 2007) (42 U.S.C. 5150).

☐ (52) 52.226-5, Restrictions on Subcontracting Outside Disaster or Emergency Area (NOV 2007) (42 U.S.C. 5150).

☐ (53) 52.232-29, Terms for Financing of Purchases of Commercial Items (FEB 2002) (41 U.S.C. 4505, 10 U.S.C. 2307(f)).

☐ (54) 52.232-30, Installment Payments for Commercial Items (JAN 2017) (41 U.S.C. 4505, 10 U.S.C. 2307(f)).

☒ (55) 52.232-33, Payment by Electronic Funds Transfer-System for Award Management (JUL 2013) (31 U.S.C. 3332).

☐ (56) 52.232-34, Payment by Electronic Funds Transfer - Other than System for Award Management (JUL 2013) (31 U.S.C. 3332).

☐ (57) 52.232-36, Payment by Third Party (MAY 2014) (31 U.S.C. 3332).

☐ (58) 52.242-5, Payments to Small Business Subcontractors (JAN 2017)(15 U.S.C. 637(d)(12)).

☐ (59)(i) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (FEB 2006) (46 U.S.C. Appx. 1241(b) and 10 U.S.C. 2631).

☐ (ii) Alternate I (APR 2003) 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 items: (Contracting Officer check as appropriate.)

☐ (1) 52.222-17, Nondisplacement of Qualified Workers (MAY 2014) (E.O. 13495).

☐ (2) 52.222-41, Service Contract Labor Standards (MAY 2014) (41 U.S.C. chapter 67).

☐ (3) 52.222-42, Statement of Equivalent Rates for Federal Hires (MAY 2014) (29 U.S.C. 206 and 41 U.S.C. chapter 67).

☐ (4) 52.222-43, Fair Labor Standards Act and Service Contract Labor Standards-Price Adjustment (Multiple Year and Option Contracts) (MAY 2014) (29 U.S.C. 206 and 41 U.S.C. chapter 67).

☐ (5) 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).

☐ (6) 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).

☐ (7) 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).

☐ (8) 52.222-55, Minimum Wages Under Executive Order 13658 (DEC 2015).

[] (9) 52.222-62, Paid Sick Leave Under Executive Order 13706 (JAN 2017) (E.O. 13706).

[] (10) 52.226-6, Promoting Excess Food Donation to Nonprofit Organizations (MAY 2014) (42 U.S.C. 1792).

[] (11) 52.237-11, Accepting and Dispensing of \$1 Coin (SEP 2008) (31 U.S.C. 5112(p)(1)).

(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, 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 items. 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 (OCT 2015) (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 (JUL 2018) (Section 1634 of Pub. L. 115-91).

(iv) 52.219-8, Utilization of Small Business Concerns (NOV 2016) (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 \$700,000 (\$1.5 million for construction of any public facility), the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(v) 52.222-17, Nondisplacement of Qualified Workers (MAY 2014) (E.O. 13495). Flow down required in accordance with paragraph (l) of FAR clause 52.222-17.

(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 (OCT 2015) (38 U.S.C. 4212).

(ix) 52.222-36, Equal Opportunity for Workers with Disabilities (JUL 2014) (29 U.S.C. 793).

(x) 52.222-37, Employment Reports on Veterans (FEB 2016) (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 (MAY 2014) (41 U.S.C. chapter 67).

(xiii) [] (A) 52.222-50, Combating Trafficking in Persons (MAR 2015) (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 (OCT 2015) (E.O. 12989).

(xvii) 52.222-55, Minimum Wages Under Executive Order 13658 (DEC 2015).

(xviii) 52.222-62 Paid Sick Leave Under Executive Order 13706 (JAN 2017) (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 (MAY 2014) (42 U.S.C. 1792). Flow down required in accordance with paragraph (e) of FAR clause 52.226-6.

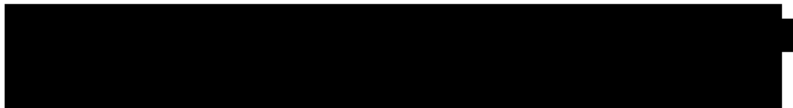
(xxii) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (FEB 2006) (46 U.S.C. Appx. 1241(b) and 10 U.S.C. 2631). Flow down required in accordance with paragraph (d) of FAR clause 52.247-64.

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

(End of clause)

C.3 2052.215-70 KEY PERSONNEL. (JAN 1993)

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



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)

C.4 CONTRACTING OFFICER'S REPRESENTATIVE AUTHORITY

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

Contracting Officer's Representative:

Name: [REDACTED]

Address:

[REDACTED]

Telephone Number: [REDACTED]

Email Address: [REDACTED]

Alternate Contracting Officer's Representative:

Name: [REDACTED]

Address:

[REDACTED]

Telephone Number: [REDACTED]

Email Address: [REDACTED]

(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.

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

(d) All technical directions must be issued in writing by the COR 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.

(e) 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.

(f) 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.

(g) 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.

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

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

**C.5 2052.215-78 TRAVEL APPROVALS AND REIMBURSEMENT (OCT 1999) -
ALTERNATE I (OCT 1999)**

(a) Total expenditure for travel may not exceed [REDACTED] without the prior approval of the contracting officer.

(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.

(End of Clause)

C.6 COMPLIANCE WITH SECTION 508 OF THE REHABILITATION ACT OF 1973, AS AMENDED (SEP 2013)

In 1998, Congress amended the Rehabilitation Act of 1973 (29 U.S.C. §794d) as amended by the Workforce Investment Act of 1998 (P.L. 105 - 220), August 7, 1998 to require Federal agencies to make their electronic and information technology (EIT) accessible to people with disabilities. Inaccessible technology interferes with an ability to obtain and use information quickly and easily. Section 508 was enacted to eliminate barriers in information technology, open new opportunities for people with disabilities, and encourage development of technologies that will help achieve these goals. The law applies to all Federal agencies when they develop, procure, maintain, or use electronic and information technology. Under Section 508 (29 U.S.C. §794d), agencies must give disabled employees and members of the public access to information that is comparable to access available to others.

Specifically, Section 508 of that Act requires that when Federal agencies develop, procure, maintain, or use EIT, Federal employees with disabilities have access to and use of information and data that is comparable to the access and use by Federal employees who are not individuals with disabilities, unless an undue burden would be imposed on the agency. (36 C.F.R. §1194 implements Section 508 of the Rehabilitation Act of 1973, as amended, and is viewable at: <http://www.access-board.gov/sec508/standards.htm>)

Exceptions.

All EIT that the government acquires by purchase or by lease/rental under this contract must meet the applicable accessibility standards at 36 C.F.R. Part 1194, unless one or more of the following exceptions at FAR 39.204 applies to this acquisition (applicable if checked):

- ☐ The EIT is for a national security system.
- ☐ The EIT is acquired by a contractor incidental to a contract.
- ☐ The EIT is located in spaces frequented only by service personnel for maintenance, repair or occasional monitoring of equipment.
- ☐ Compliance with the applicable 36 C.F.R. Part 1194 provisions would impose an undue burden on the agency.

Applicable Standards.

The following accessibility standards from 36 C.F.R. Part 1194 have been determined to be applicable to this contract/order. See www.section508.gov for more information:

- ☒ 1194.21 Software applications and operating systems.
- ☐ 1194.22 Web-based intranet and internet information and applications. 16 rules.
- ☐ 1194.23 Telecommunications products.
- ☐ 1194.24 Video and multimedia products.

- [] 1194.25 Self contained, closed products.
- [] 1194.26 Desktop and portable computers.
- [] 1194.31 Functional performance criteria.
- [] 1194.41 Information, documentation, and support.

Note: Under the Exceptions paragraph, the Contracting Officer should check the boxes for any exceptions that apply. If no exceptions apply, then the Contracting Officer should, under the Applicable Standards paragraph, check the boxes that indicate which of the standards apply. See FAR Subpart 39.2 and www.section508.gov for additional guidance.

(End of Clause)

C.7 AWARD NOTIFICATION AND COMMITMENT OF PUBLIC FUNDS

(a) All offerors will receive preaward and postaward notices in accordance with FAR 15.503.

(b) It is also brought to your attention that the contracting officer is the only individual who can legally obligate funds or commit the NRC to the expenditure of public funds in connection with this procurement. This means that unless provided in a contract document or specifically authorized by the contracting officer, NRC technical personnel may not issue contract modifications, give formal contractual commitments, or otherwise bind, commit, or obligate the NRC contractually. Informal unauthorized commitments, which do not obligate the NRC and do not entitle the contractor to payment, may include:

- (1) Encouraging a potential contractor to incur costs prior to receiving a contract;
- (2) Requesting or requiring a contractor to make changes under a contract without formal contract modifications;
- (3) Encouraging a contractor to incur costs under a cost-reimbursable contract in excess of those costs contractually allowable; and
- (4) Committing the Government to a course of action with regard to a potential contract, contract change, claim, or dispute.

(End of Clause)

C.8 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.

(End of Clause)

C.9 GREEN PURCHASING (SEP 2015)

(a) In furtherance of the sustainable acquisition goals of Executive Order (EO) 13693, "Planning for Federal Sustainability in the Next Decade," products and services provided under this contract/order shall be energy efficient (EnergyStar® or Federal Energy Management Program - FEMP-designated products), water efficient, biobased, environmentally preferable (excluding EPEAT®-registered products), non-ozone depleting, contain recycled content, or are non- or low toxic alternatives or hazardous constituents (e.g., non-VOC paint), where such products and services meet agency performance requirements. See: Executive Order (EO) 13693, "Planning for Federal Sustainability in the Next Decade."

(b) The NRC and contractor may negotiate during the contract term to permit the substitution or addition of designated recycled content products (i.e., Comprehensive Procurement Guidelines - CPG), EPEAT®-registered products, EnergyStar®- and FEMP designated energy efficient products and appliances, USDA designated biobased products (Biopreferred® program), environmentally preferable products, WaterSense and other water efficient products, products containing non- or lower-ozone depleting substances (i.e., SNAP), and products containing non- or low-toxic or hazardous constituents (e.g., non-VOC paint), when such products and services are readily available at a competitive cost and satisfy the NRC's performance needs.

(c) The contractor shall flow down this clause into all subcontracts and other agreements that relate to performance of this contract/order.

(End of Clause)

C.10 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.

(End of Clause)

C.11 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.

(End of Clause)

C.12 REGISTRATION IN FEDCONNECT® (JULY 2014)

The Nuclear Regulatory Commission (NRC) uses Compusearch Software Systems' 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. Therefore, in order to do business with the NRC, vendors and contractors must register to use FedConnect® at <https://www.fedconnect.net/FedConnect>. The individual registering in FedConnect® must have authority to bind the vendor/contractor. There is no charge for using FedConnect®. Assistance with FedConnect® is provided by Compusearch Software Systems, not the NRC. FedConnect® contact and assistance information is provided on the FedConnect® web site at <https://www.fedconnect.net/FedConnect>

(End of Clause)

C.13 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.

(End of Clause)

C.14 PERIOD OF PERFORMANCE

This contract shall commence on August 28, 2018 and will expire on January 31, 2019.

(End of Clause)

C.15 PLACE OF DELIVERY-REPORTS

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

██████████ COR

██████████ Alternate COR

(End of Clause)

C.16 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 Statement of Work - Section C.5

(End of Clause)

C.17 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 **31318100P0063**.

(End of Clause)

C.18 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: N/A.

(End of Clause)

SECTION D - List of Documents, Exhibits and Other Attachments

D.1 List of Documents, Exhibits, and Other Attachments

Attachment Number	Title	Date
1	Statement of Work	08/03/2018
2	IPP Billing Instructions for Fixed-Price Contracts	07/05/2017
3	IPP Billing Instructions for Cost-Reimbursement Type Contracts	03/21/2018

STATEMENT OF WORK (SOW) FOR SIMPLIFIED ACQUISITIONS OR TASK ORDERS

1 Background

The U.S. Nuclear Regulatory Commission (NRC) has developed regulations regarding the siting and design of nuclear power plants (NPPs) aimed at providing safety from various natural hazards, including flooding. Design criteria for NPPs with respect to natural hazards are provided in the appropriate sections of 10 CFR Part 50, and Part 52. 10CFR Part 100 addresses siting criteria. NRC staff perform reviews of license applications and license amendment requests which often contain hydrologic and hydraulic analyses of watersheds and river systems.

Furthermore, NRC's Office of Nuclear Regulatory Research (RES) is currently implementing a Probabilistic Flood Hazard Assessment (PFHA) Research program to better risk-inform flood hazard assessment activities. The tools and guidance developed in the PFHA research will support and enhance NRC's capacity to perform thorough and efficient reviews of license applications and license amendment requests. They will also support risk-informed significance determination of inspection findings, unusual events and other oversight activities. RES also seeks to develop NRC's capacity to train licensing and oversight staff on the use of both internally developed and externally developed software tools useful for flood hazard analysis.

FLO-2D Software, INC has developed the FLO-2D software package that can simulate urban flooding on a two-dimensional (2D) grid, including storm-water drainage systems. This model has been used by nuclear power plant (NPP) licensees to estimate on-site flooding in submittals to NRC. A thorough understanding of the FLO-2D software package features and underlying methods is needed by NRC staff to conduct a review of submitted model applications. Therefore, the training needs to be tailored to NRC's need to perform thorough, but efficient reviews of flood hazard analysis submittals. This will support and enhance NRC staff's capacity to perform reviews of license applications, license amendment requests and operating reactor licensing and oversight actions. The training will also support NRC staff involved in developing the NRC's PFHA tools and guidance.

2 Objective

The objective of this acquisition is to procure hands-on training for NRC staff on the use of FLO-2D Pro software in order to provide the skills and knowledge to perform license reviews, other oversight activities, and support of the PFHA research program. The training materials will be based mainly on existing FLO-2D Pro training modules that have been adapted to NRC needs. Hands-on exercises with the FLO-2D Pro are required to supplement lectures during the training to provide practical experience for NRC Staff.

3 Scope of Work

The contractor shall provide all resources necessary to accomplish the tasks and deliverables described in this Statement of Work (SOW) to include:

Task 1: Develop/Modify Training Modules

The contractor shall develop or modify existing FLO-2D Pro training for a 4-day NRC-specific training course which fulfills the goals to train attendees to:

- Develop and build a model from input to output, with a main focus on simulating local intense precipitation floods at NPP-like conditions (e.g. PMP-scale rainfall intensity, dense irregular buildings, streets, roof drains, surface storage and drainage, embankments and barriers);
- Assess and understand the methods used to create a model so an existing model can be reviewed including:
 - Instruction in model assumptions and theoretical basis sufficient to interpret model results;
 - Key values (e.g. Froude Number), water budget, errors, etc. to check for agreement with model assumptions; and
 - How to estimate uncertainties and important parameters; and
- Provide practical experience to support lectures through workshops (e.g. exercises, tutorials, examples, checklist to review the model).

The contractor shall participate in a kick-off meeting with the Contracting Officer's Representative (COR) and other NRC staff to clarify expectations, discuss training requirements, and resolve any questions. Development and modification of course topics and workshops shall be approved by the COR. Order and length of time for each topic must be approved by the COR prior to the training. Topics include those in Attachment 1 and 2 example agendas and modifications and examples to meet NRC needs are detailed in Attachment 3. Lectures and workshops may be expanded beyond attached examples, if the 4 day course length provides time. The contractor shall prepare a draft training outline/agenda and final training outline/agenda, incorporating NRC comments.

Deliverable: Training Course Outline/Agenda

Task 2: Conduct Training

The contractor shall conduct training to a class of 20-30 participants for 4 days at the NRC Headquarters in Rockville, MD. The training is expected to be held the week of September 17, 2018. The training shall include hands-on workshops (e.g. exercises, tutorials or examples) to supplement lectures and provide practical experience for trainees.

The government will provide training space and appropriate computers and install software for attendees. A board or easel and LCD projector will be available for the contractor to use at the training space. Access to the web is limited and may not be available during training and no USB or any other hardware can normally be connected to NRC computers.

Software and license files to be utilized during the training shall be delivered to the COR NLT one week prior to the course to allow sufficient time for it to be installed and used on government training computers. NRC will be permitted to use the FLO-2D Pro software for one-year in accordance with the standard commercial terms and conditions.

Training materials shall be provided by the contractor in digital form, including solutions to any exercises NLT one week prior to the course. Attendees must be allowed to keep all materials for future reference.

NRC will collect course feedback after completion of training. A copy of student comments and feedback can be provided to the contractor, if available and requested by the contractor.

The contractor shall not collect or take any information, such as names and personnel information about attendees or any other NRC documents shared during training without prior written permission from the COR.

Each attendee shall be provided a certification of course completion

Deliverables: 1-year long office software license and training materials.

4. Personnel and Qualification Requirements

NRC expects that two course instructors will be required who will be designated as key personnel. The proposed course instructors must have experience in training FLO-2D and familiarity with the software capabilities and limitations. The lead instructor must have experience or education in the hydrology or hydraulics. Such education can be represented by a bachelor's degree or higher in civil engineering, water resources, hydrology, or other similar areas or a Professional Engineer License. Experience can include 3 or more years working in hydrology or hydrodynamics, authorship of peer-reviewed publications. The second instructor may meet the qualifications listed for the lead instructor, or have experience or education in an area relevant to FLO-2D, such as coding for two-dimensional modeling or mapping in a hydrology context.

5. Deliverables and Delivery Schedule

Task or Section	Deliverable	Due Date	Submit to
1	Draft Training Course Outline/Agenda	3 weeks prior to start of training	COR
	Final Training Course Outline/Agenda	One week prior to start of training	
2	Training materials and FLO-2D Pro software license	One week prior to start of training	COR

6. Place of Performance

Development/modification of the modules and other planning for the training will occur at the contractor's facility. Meetings for development/modification of modules with the COR are expected to be conducted remotely. The training will be delivered at NRC Headquarters in Rockville, MD.

7. Contractor Travel

Two instructors shall make one trip to NRC Headquarters in Rockville, MD to conduct the 4-day training.

All travel requires approval from the COR.

8. Security Requirements

Upon arrival at NRC Headquarters to participate in the training, contractor personnel are required to check-in at the security desk to obtain a visitor's badge and to meet NRC escort. Contractor must be escorted at all times while in an NRC Building, unless directed otherwise by the COR.

9. Attachments

Attachment 1: Recommended Course Topics: Example Agenda 1

Attachment 2: Recommended Course Topics: Example Agenda 2

Attachment 3: Course specific details for modification and development

Attachment 1: Recommended Course Topics: Example Agenda Date 1

FLO-2D Pro Model Urban Flooding Training Class

This training class is designed for hydraulic and hydrologic engineers and floodplain managers.
Primarily 'hands-on' computer session times are highlighted in blue.

Agenda

Day 1

Getting Started and Hydrology

- | | |
|----------------------|---|
| 8:00 – 8:15 | Check-in, introductions and review agenda. |
| 8:15 – 8:45 | Overview of the FLO-2D Pro modeling system. . |
| 8:45 – 9:15 | Grid Developer System GDS - getting started. |
| 9:15 – 10:00 | Lesson 1. Using the GDS to import and edit terrain elevation data, filter elevation point data, establish a grid system, work with aerial images, setup hydrographs and run the FLO-2D model. |
| 10:00 – 10:15 | Break |
| 10:15 – 11:00 | Discussion of routing algorithms and stability criteria. |
| 11:00 – 11:15 | Introduction to Lesson 2. |
| 11:15 – 12:00 | Lesson 2. Floodplain attributes; edit model components and layer attributes using shape files. |
| 12:00 – 1:00 | Lunch |
| 1:00 – 2:00 | Hydrology, volume conservation, flood hydrology, and unconfined flooding; Rainfall and inflow hydrograph. Using Green Ampt and Horton infiltration and impervious areas. Simulation NEXRAD spatially variable rainfall. Building runoff and downspout simulation. |
| 2:00 – 3:00 | Lesson 7. Enter and edit rainfall and infiltration data and run a rainfall – runoff model. |
| 3:00 – 3:15 | Break |
| 3:15 – 4:00 | Review FLO-2D *.DAT and *.OUT files; Introduction to urban modeling. |
| 4:00 – 5:00 | Lesson 6. Mapping. |

Day 2

Channel Flood Routing, Hydraulic Structures and Levees

- 8:00 – 8:45** Channel flood routing overview. Channel/floodplain flow exchange.
- 8:45 – 9:00** Overview of GDS river channel tools. Introduction to Lessons 3, 5 and 8.
- 9:00 – 10:00** Lessons 3, 5 and 8. Using GDS to create a simple rectangular channel; Interpolating the channel cross sections and slope and editing the bank elements in PROFILES and GDS.
- 10:00 – 10:15** **Break**
- 10:15 – 11:00** Using hydraulic structures: weirs, bridges and culverts for rivers and floodplains. Generalized culvert equations for inlet and outlet control.
- 11:00 – 12:00** Lesson 9. Using the GDS to create various hydraulic structures.
- 12:00 – 1:00** **Lunch**
- 1:00 – 1:30** Modeling walls, levees, berms and embankments.
- 1:30 – 2:15** Lesson 10. Create walls and levees using the GDS.
- 2:15 – 3:00** Storm drain modeling – surface water/storm drain exchange.
- 3:00 – 3:15** **Break**
- 3:15 – 4:00** Storm drain details, data input and results.
- 4:00 – 5:00** Creating a simplified storm drain system.

Day 3

Troubleshooting, Advanced Urban Modeling, Optimization and Review

- 8:00 – 8:45** Spatially variable limiting Froude numbers and automated n-value adjustment.
- 8:45 – 9:15** Troubleshooting: Tools and methods for finding data input errors.
- 9:15 – 10:00** Troubleshoot a project on your own.
- 10:00 – 10:15** **Break**
- 10:15 – 11:15** Urban modeling overview. LID tool.
- 11:15 – 12:00** Hands on Session. Review of an urban modeling project with walls, buildings, drainage channels, culverts, low impact design and a basic storm drain system.
- 12:00 – 1:00** **Lunch**
- 1:00 – 2:00** Model Optimization - Is the flood simulation running ok? Solving common problems; Volume conservation, numerical surging, sticky grid elements.
- 2:00 – 3:00** Project Review. How to review a FLO-2D model submittal?
- 3:00 – 3:15** **Break**
- 3:15 – 5:00** Hands-on session: Create a project from start to finish.

Attachment 2: Recommended Course Topics: Example Agenda 2

FLO-2D IMTA Training Class

This training class is designed for hydraulic and hydrologic engineers and floodplain managers.
Primarily 'hands-on' computer session times are highlighted in blue.

Agenda

Day 1

Getting Started and Hydrology

- | | |
|----------------------|--|
| 8:00 – 8:15 | Check-in, introductions and review agenda. |
| 8:15 – 9:00 | Overview of the FLO-2D Pro modeling system. New features and enhancements. Grid Developer System GDS - getting started. |
| 9:00 – 10:00 | Lesson 1. Using the GDS to import and edit terrain elevation data, filter elevation point data, establish a grid system, work with aerial images, setup hydrographs and run the FLO-2D model. |
| 10:00 – 10:15 | Break |
| 10:15 – 11:15 | Discussion of routing algorithms and stability criteria. |
| 11:15 – 12:00 | Lesson 2. Floodplain attributes; edit model components and layer attributes using shape files. |
| 12:00 – 1:00 | Lunch |
| 1:00 – 2:00 | Hydrology, volume conservation, flood hydrology, and unconfined flooding; Rainfall and inflow hydrograph. Infiltration and simulation of realtime spatially variable rainfall. Building runoff and downspout simulation. |
| 2:00 – 3:00 | Lesson 3. Enter/edit rainfall and infiltration data. Run a rainfall – runoff model. |
| 3:00 – 3:15 | Break |
| 3:15 – 4:00 | Review data files and introduction to urban modeling. |
| 4:00 – 5:00 | QGIS Plug-in Tool. Overview and Getting Started |

Day 2

Channel Flood Routing, Hydraulic Structures and Levees

- 8:00 – 9:00** Channel flood routing overview. Channel/floodplain flow exchange. Overview of GDS drainage channel tools. Introduction to Lessons 3 and 5.
- 9:00 – 9:15** **Break**
- 9:15 – 10:45** Lessons 4. Using GDS to create a simple rectangular channel; Interpolating the channel cross sections and slope and editing the bank elements in PROFILES and GDS. Working with channel cross sections.
- 10:45 – 11:30** Using hydraulic structures: weirs, bridges and culverts for rivers and floodplains. Generalized culvert equations for inlet and outlet control. .
- 11:30 – 1:30** **Lunch IMTA Hydraulics Lab Tour**
- 1:30 – 3:00** Storm drain modeling – surface water/storm drain exchange.
- 3:00 – 3:15** **Break**
- 3:15 – 4:00** Storm drain details, data input and results.
- 4:00 – 5:00** Lesson 5. Create a simplified storm drain system.

Day 3

Sediment Transport and Mudflow

- 8:00 – 9:15** Sediment transport.
- 9:15 – 10:00** Lesson 6. Sediment transport data input and example project.
- 10:00 – 10:15** **Break**
- 10:15 – 11:15** Levees and Prescribed Dam Breach.
- 11:15 – 12:00** Lesson 7. Project with walls and levees and levee/dam breach.
- 12:00 – 1:00** **Lunch**
- 1:00 – 1:30** Mapping: Create high resolution flood inundation maps.
- 1:30 – 2:00** Lesson 8. Display flood depths, velocities and hazard maps.
- 2:00 – 3:00** Mud and debris flows: Hyperconcentrated sediment flows.
- 3:00 – 3:15** **Break**
- 3:15 – 5:00** Lesson 9. Mudflow in an urban area.

Day 4

Troubleshooting, Project Optimization and Work on a Project

- 8:00 – 9:00** Limiting Froude Number, Numerical Stability and n-value adjustment
- 9:00 – 10:00** Lesson 10. Urban model project development.
- 10:00 – 10:15** **Break**
- 10:15 – 11:00** Troubleshooting, tools and methods for finding data errors.
- 11:15 – 12:00** Lesson 11. Troubleshoot a project.
- 12:00 – 1:00** **Lunch**
- 1:00 – 2:00** Project model optimization and review.
- 2:00 – 3:00** Lesson 12. Create a project start to finish.
- 3:00 – 3:15** **Break**
- 3:15 – 5:00** Lesson 12 cont. Create a detailed urban project from start to finish. Project includes grid, elevation, buildings, roughness, drainage channels, hydraulic structures, walls, streets and storm drain.

Attachment 3: Course Specific Details for Modification and Development

The following list provides a description of the course topics to be broadened and reduced as well as potential examples to develop:

1. Broadening of particular course topics
 - a. Modeling roof drains and theory behind the model's method
 - b. Handling area and width reduction factors on a roof if flow is only in one direction
 - c. Methods for modeling unusual building shapes and barriers (e.g., levee, road, fence, vehicle barriers systems, etc.)
 - d. Methods to assess if the grid is appropriate around the time when grid development topic is addressed
 - e. Sediment transport topic to incorporate embankment dam failure and deposition around structures
 - f. Integrating input or output spatial data in pre-/post-processors and GIS software in addition to QGIS
2. Reduction of particulate course topics
 - a. Reduce mud and debris flow topic
 - b. Reduce groundwater topic to a single session or incorporate as part of another session
3. Development of Examples. Examples can be based off of work conducted by the contractor or developed with the COR agreement.
 - a. Example of embankment dam failure and erosion/sediment results as in Item 1.e above
 - b. Example of a site that is similar to NPP as opposed to traditional urban flood model (e.g. WWTP, industrial site). Such a site would ideally include irregular shaped buildings, paved areas, etc.