INTERAGENCY AGREEMENT

1 IAA NO	PAGE	OF
NRC-HQ-60-14-T-0002/M0005	1	2

2 ORDER NO	3 REQUISITION NO	4 SOLICITATION NO
	RES-15-0461	

5 EFFECTIVE DATE	6 AWARD DATE	7 PERIOD OF PERFORMANCE
08/21/2015	08/21/2015	03/17/2014 TO 02/28/2017

8 SERVICING AGENCY
OAK RIDGE NATIONAL LAB
ALC:
DUNS: 012075795 +4:
US DEPARTMENT OF ENERGY
OAK RIDGE NATIONAL LABORATORY SITE OFFICE
PO BOX 2001
OAK RIDGE TN 37831-6269

POC DEBORAH GARLAND CONTRACTING OFFICER
TELEPHONE NO 865-241-9556

9 DELIVER TO
MOURAD AISSA
US NUCLEAR REGULATORY COMMISSION
TWO WHITE FLINT NORTH
11545 ROCKVILLE PIKE
MAIL STOP T-10A36
ROCKVILLE MD 20852

10 REQUESTING AGENCY
ACQUISITION MANAGEMENT DIVISION
ALC: 3100001
DUNS: 040536809 +4:
US NUCLEAR REGULATORY COMMISSION
TWO WHITE FLINT NORTH
11545 ROCKVILLE PIKE
MAIL STOP T-5E3
ROCKVILLE MD 20852-2738
POC Carolyn A. Cooper
TELEPHONE NO 301-415-6734

11 INVOICE OFFICE
ASAP GRANT FUNDS REIMBURSEMENT SYS
US TREASURY

12 ISSUING OFFICE
US NRC - HQ
ACQUISITION MANAGEMENT DIVISION
MAIL STOP TWFN-5E03
WASHINGTON DC 20555-0001

13 LEGISLATIVE AUTHORITY
Energy Reorganization Act of 1974

14 PROJECT ID

15 PROJECT TITLE
SCALE NEUTRONICS UPDATES FOR REACTOR AND SPENT FUE

16 ACCOUNTING DATA
2015-X0200-FEEBASED-60-60D003-11-6-213-1045-252D $163,127.65

17 ITEM NO	18 SUPPLIES/SERVICES	19 QUANTITY	20 UNIT	21 UNIT PRICE	22 AMOUNT
	NRCHQ6014D0005/NRCHQ6014T0002 Master IAA: NRCHQ6014D0005 The purpose of this modification is to incorporate a within scope change to the statement of work as reflected in the attached statement of work (Attachment 1), thereby increasing the authorized ceiling amount in the agreement by $89,000.00, from $1,279,010.00 to $1,368,010.00; and increasing the amount obligated in the agreement by $202,596.65, from $862,000.00 to $1,064,596.65. Accordingly, the agreement is hereby modified: Continued ...				

23 PAYMENT PROVISIONS

24 TOTAL AMOUNT
$202,596.65

25a SIGNATURE OF GOVERNMENT REPRESENTATIVE (SERVICING)
Deborah Garland

25b NAME AND TITLE
Deborah L. Garland Contracting Officer

25c DATE
8/27/15

26a SIGNATURE OF GOVERNMENT REPRESENTATIVE (REQUESTING)
Carolyn A Cooper

26b CONTRACTING OFFICER
CAROLYN A. COOPER

26c DATE
8/21/2015

TEMPLATE - ADM001

SUNSI REVIEW COMPLETE

SEP 10 2015

ADM002

OFFICE OF NUCLEAR REGULATORY RESEARCH
DIVISION OF SYSTEMS ANALYSIS
STATEMENT OF WORK FOR DOE AGREEMENTS

NRC AGREEMENT NUMBER:	NRC-HQ-60-14-D-0005
NRC TASK ORDER NUMBER:	NRC-HQ-60-14-T-0002
MODIFICATION NUMBER:	M0005
PROJECT TITLE: SCALE NEUTRONICS UPDATES FOR REACTOR AND SPENT FUEL ANALYES	LABORATORY: ORNL SITE: Oak Ridge STATE: TN
NRC Contracting Officer's Representative (COR):	Mourad Aissa (301) 415-0380
PRINCIPAL INVESTIGATOR:	Steve Bowman (865) 574-5263
PROJECT DURATION:	03/01/2014 – 02/28/2017
ESTIMATED LEVEL OF EFFORT:	5680 staff-hours Task 1: 2400 staff-hours Task 2: 900 staff-hours Task 3: 1650 staff-hours Task 4: 330 staff-hours Task 5: 400 staff-hours *Task 6: 355 staff-hours*

1. BACKGROUND

The Nuclear Regulatory Commission (NRC) has invested heavily in the development and maintenance of the Standardized Computer Analysis for Licensing Evaluation (SCALE), a robust, state-of-the-art nuclear analysis computer code system that ensures independent review of licensee submittals and accurate investigations of reactor and fuel phenomena important to nuclear safety. Expertise in neutronics for reactor analysis and for fresh and spent nuclear fuel criticality safety are essential to the NRC's mission.

The SCALE code has been regularly updated to incorporate the current knowledge in the area of neutronics and to provide an efficient code structure for ease of use and maintenance, resulting in the release of SCALE 6.1.

The development of nuclear analysis methods at Oak Ridge National Laboratory (ORNL) has been an on-going process and the work to be implemented in this Task Order builds upon the past developments incorporated in the SCALE code systems to support light water reactors (LWR) and non-LWR nuclear analysis, as well as spent fuel criticality safety analysis. For instance, the lattice physics capability that will further be expanded in this work was developed under job code number (JCN) Y6320. Under this job code, ORNL developed a general-purpose lattice-physics modeling capability in the form of a calculational sequence called TRITON.

TRITON incorporates a general two-dimensional neutron transport code based on an extended step characteristic formulation of the discrete ordinates method to remove the grid structure limitations of the traditional discrete ordinates methods. A complete lattice-physics capability is provided by combining the NEWT 2-D transport code or the KENO 3-D Monte Carlo code with the BONAMI/NITAWL/CENTRM models to perform resonance processing and the ORIGEN-S module to perform fuel depletion.

Prior work performed under JCN Y6846 supported the development of capabilities for safety analysis of the ACR-700 including sensitivity/uncertainty methods for assessment of the coolant void reactivity uncertainty and bias (Task 1), improvements in the SCALE lattice physics capabilities (Task 2), and the analysis of the needs for additional data for code validation (Tasks 3 and 4). Additional tasks were included to support advanced 2-D and 3-D lattice physics methods (task 7), TRITON/PARCS/TRACE assessments against operating reactor data (Task 10), higher order methods (Task 11), and stability benchmarks (Task 12).

Further enhancement to the SCALE lattice physics methods has been performed under JCN N6445, including: investigation of lattice modeling approaches for LWRs (Task 1); extending the validation against higher order methods (Task 2); and steady-state operating data (Task 3); development of improved TRITON capabilities (Task 4); and maintenance of SCALE lattice physics methods (Task 5). Recently, JCN V6182 developed SCALE/TRITON capabilities to provide faster execution times for nuclear fuel assembly lattice calculations, while preserving the accuracy of the cross section computing and collapsing processes. Code validations with BWR steady-state operation data were also performed.

The proposed work under V6449 Task Order #1 will be a continuation of the effort commenced under V6182 and will ensure that the NRC staff has access to a state-of-the-art reactor and spent fuel analyses in all areas of the neutronics field, including neutron cross section generation, lattice physics calculations, isotopic distribution predictions, and criticality safety analyses.

2. OBJECTIVE

The objective of the proposed Task Order is to develop nuclear analysis capabilities for new and existing reactors by providing and applying independent tools for nuclear analysis and associated validation assessment. The resulting tools and capabilities will support the NRC staff in audit analysis of steady-state and transient core neutronics, in-core power peaking, reactor stability and control, core monitoring, fuel burnup, radionuclide inventories for accident source terms, safe shutdown, decay heat power, radiation sources and attenuation, and nuclear criticality safety.

3. TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED

ORNL Laboratory shall commit the appropriate number of qualified personnel to the project. Team members such as Senior Scientists, Principal Engineers, Engineers, Computer Scientists and Engineers, etc. – or their equivalents – are to be available as needed for the completion of any tasks submitted. It is imperative that the staff involved with this project have knowledge of or easy access to the last three decades' worth of experimental and measured data that have been used in the benchmarking, validation, and development of SCALE models and capabilities.

The NRC reserves the right to approve the Project Manager and the individual personnel assigned to each task. The DOE Laboratory project manager shall be well experienced with SCALE, its application areas and the peculiarities that are inherent with the code system.

4. SCOPE OF WORK

Task 1: Development and Maintenance of SCALE Lattice and Reactor Physics Capabilities

SCALE provides lattice physics and spent fuel characterization capabilities for a wide range of fuel designs through the TRITON calculational sequence. ORNL shall develop and implement improvements and extensions to TRITON and other SCALE modules to perform accurate lattice physics analysis, and minimize serial run-time inefficiencies. Maintenance and enhancements to the SCALE TRITON code sequences shall be performed under the SCALE QA program and configuration management plans. Programming errors, data errors, and calculational inconsistencies shall be identified and corrected as needed.

SCALE generates problem-dependent multigroup cross-section data for many calculational sequences, including TRITON, through a complex multistep approach that requires substantial computational resources due to a computationally inefficient legacy implementation. ORNL shall implement the recently developed XSProc module in TRITON and other SCALE multigroup sequences to provide substantial improved code execution times. ORNL shall also modernize the overall sequence flow of SCALE to retain data in memory and minimize disk I/O inefficiencies throughout the TRITON sequence. ORNL shall conduct rigorous testing on the modernized code and update the documentation accordingly. There are other additional capabilities that may need to be implemented. These include features such as on-the-fly energy collapse, automated Dancoff factor calculation, easy-to-use restart capability, gamma energy deposition, and thermo-mechanical effects. Prioritization and timeliness of these items should be discussed with the COR.

Deliverables:

- Letter reports containing detailed and comprehensive descriptions of updates to SCALE to support lattice and reactor physics (at the end of each FY)
- Software updates released in new versions of SCALE

Estimated completion date: 12/31/2016

Task 2: Automated ORIGEN Source Terms and Spent Fuel Storage Pool Analysis

Source terms and spent fuel storage pool decay heat load analyses for operating plants to provide data for MELCOR analyses require a large number of ORIGEN calculations and a significant amount of bookkeeping of quantities such as each assembly's operating history, spent fuel pool residence times, as-built heavy metal mass, and enrichment. Recent source term analysis for the Vogtle plant required setting up input files for over 2800 fuel assemblies from data extracted from a variety of formats. The recently developed ORIGAMI module in SCALE provides a simple input scheme for entering this data. However, for the aforementioned Vogtle analysis, scripting was still needed to create ~2800 ORIGAMI input files from operating and assembly data as well as performing the final processing of results.

In this task, ORNL shall develop a simple graphical user interface to perform the pre- and post-processing tasks in this type of analysis using two new utility codes. The pre-processing utility shall read assembly and operating data from a simple formatted text file and create the appropriate number of ORIGAMI cases to simulate the depletion and decay of all assemblies. The result will be binary concentrations files for each assembly with concentrations available at all time points in its life. The post-processing utility shall be able to read the output binary files and group assemblies by location (e.g. unit1 or pool1) as well as user-defined "groups" that could be defined explicitly or in terms of grouping parameters like discharge date ranges or burnup ranges. The post-processing utility shall automatically create plot files for the time-dependent responses in each defined group and store the ORIGEN data in a MELCOR-compatible file to import directly into MELCOR. ORNL shall ensure that both the pre- and post-processing utilities contain consistency checks and capability to convert between calendar dates (MM/DD/YYYY) and the time values stored in binary files.

Deliverables:

- Draft and Final letter report describing the ORIGAMI module
- Production version of ORIGAMI with user interface in next SCALE release

Estimated completion date: 12/31/2014

Task 3: SCALE Lattice Physics Verification & Validation

SCALE now supports two lattice physics capabilities: the TRITON sequence with conventional unit cell resonance self-shielding methods and the NEWT transport solver; and the Polaris sequence that employs the 2-D embedded self-shielding method (ESSM) and method-of-characteristics (MoC) transport solver. The TRITON sequence is a general-purpose capability that can be applied to a wide range of LWR and non-LWR fuel assembly designs, while the new Polaris sequence is targeted for production-level calculations of standard LWR assembly designs. ORNL shall rigorously verify and validate both of these sequences.

In this task ORNL shall assemble a comprehensive set of benchmarks to be modeled with both TRITON and Polaris, as well as continuous energy (CE) KENO for reference calculations, leveraging previously developed models from the SCALE/VALID criticality safety benchmark suite as well as existing TRITON and Polaris models, where applicable. ORNL should use several sources to assemble the benchmark set, including LWR fuel and other critical benchmarks from the International Handbook of Evaluated Criticality Safety Benchmark Experiments (ICSBEP) and the International Reactor Physics Experiments (IRPhE), ORNL-acquired spent fuel assay data, proprietary Cofrentes BWR lattice design data previously acquired by the NRC, and any additional benchmarks specified by the COR. ORNL shall include in the benchmark set a wide range of LWR fuel designs, system conditions, and material compositions (including UO_2 and MOX fuels). ORNL shall ensure that calculated and/or experimental values are determined for documented measured data (e.g., k-effective, reactivity coefficients, pin powers, and spent fuel isotopics). ORNL shall also include additional data, such as few-group homogenized cross-sections and multigroup reaction rates, in the code-to-code comparisons.

This task shall be performed in three phases:

1. In the first phase ORNL shall develop a comprehensive set of TRITON, Polaris, and CE-KENO models for benchmarking 2D LWR pin and lattice configurations. The benchmark set shall cover a wide range of LWR fuel designs, system conditions, and material compositions (including UO2 and MOX fuels). Comparisons should be made between k-effective, pin power distributions, reactivity coefficients, few-group homogenized cross sections, and multigroup nuclide-dependent reaction rates. This set of models will be used to quantify the accuracy of the models with respect to the reference CE Monte Carlo method (CE-KENO).

2. In the second phase of this task ORNL shall validate CE-KENO for reactor physics calculations with measured data. There are several experiments from the IRPhE and ICSBEP handbooks that can be simulated with CE-KENO. This set of CE-KENO simulations will enhance CE-KENO code and library development, provide a baseline for reporting calculation fidelity, and provide a level of confidence in the accuracy of the lattice physics benchmark set from phase one. Moreover, there are several experimental benchmarks that can be directly modeled with TRITON and Polaris. This second phase can be performed independently of the first phase, and should consist of selecting appropriate reactor physics experiments and developing the CE-KENO models, leveraging previously developed models from the SCALE/VALID criticality safety benchmark suite as well as TRITON and Polaris models, where applicable).

3. In the third phase of this task ORNL shall validate Polaris for burned fuel by comparison with spent fuel measured assay data. ORNL shall use the validation cases that were recently used with SCALE 6.1 and which consist of 120 PWR and 30 BWR spent fuel cases. These models shall be simulated with Polaris and TRITON using the new SCALE 6.2 improved cross-section libraries for reactor analysis.

ORNL shall document in a NUREG/CR report the benchmark models and calculational comparisons and shall add the validation models to the SCALE/VALID suite. ORNL shall also integrate a subset of the established models into the SCALE regression test suite to automatically quantify the impact of SCALE code and library changes in the future.

Deliverables:

- Letter reports describing the work progress
- NUREG/CR describing the comprehensive SCALE lattice physics verification and validation

Estimated completion date: 8/31/2016

Task 4: SCALE Training for NRC Staff

The purpose of this task is to provide NRC staff with training in the use of SCALE in the evaluation of license applications and resolution of regulatory issues. Training should be provided at NRC headquarters. Focus of the training could be lattice physics using Polaris and/or TRITON or other applications such as ORIGEN/ORIGAMI spent fuel depletion, Sampler stochastic uncertainty analysis, KENO criticality safety, or TSUNAMI sensitivity/uncertainty analysis.

Deliverables: One SCALE training course for NRC staff per year.

Estimated completion date: 10/31/2016

Task 5: Technical Assistance

Technical support and on-call assistance in the operation of the SCALE system shall be provided to NRC staff identified by the NRC COR. ORNL shall prepare monthly letter status reports, interface with NRC staff, and perform the necessary administrative functions in support of this work.

Deliverables:

- Monthly letter status reports (as directed by COR)
- Letter reports on special projects (as directed by COR)

Estimated completion date: 12/31/2016

Task 6: SCALE/TRITON Acceleration

TRITON sequences will be accelerated through improved utilization of data management and communication between modules through in-memory transfers. This will apply to the following sequences: T-XSEC, T-XSDRN, T-DEPL-1D, T-NEWT, T-DEPL, T5-DEPL, and T6-DEPL.

This task supports the modernization of TRITON, especially with the integration of the XSProc module into modernized TRITON sequences for multigroup analysis. The already completed modernization of ORIGEN provides an opportunity to extend these efforts and implement modern ORIGEN interfaces into the updated TRITON sequences. This task will integrate modern ORIGEN into TRITON sequences for 1D, 2D and 3D depletion analyses.

The results of the acceleration for a variety of test cases will be documented in a letter report and the software will be released in SCALE 6.2.

Deliverables:

- ***Letter Report***
- ***Software release in SCALE-6.2***

Estimated completion date: 12/15/2015

5. PERIOD OF PERFORMANCE

The period of performance this agreement shall commence on March 17, 2014 and end on February 28, 2017.

6. DELIVERABLES/SCHEDULES AND/OR MILESTONES

Task #	Deliverables (*months* after project start)			Additional Comments (if any)
	Draft	Intermediate (if applicable)	Final	
1	n/a		33	See task list in Section 4 above for details
2	4		9	See task list in Section 4 above for details
3	n/a		29	See task list in Section 4 above for details
4	n/a		31	See task list in Section 4 above for details
5	n/a		33	See task list in Section 4 above for details
6	***n/a***		***21***	***See task list in Section 4 above for details***

7. REPORTING REQUIREMENTS

Required deliverables are outlined in the "DELIVERABLES/SCHEDULES AND/OR MILESTONES" sections above. All letter reports shall be reviewed by a first-level supervisor prior to submittal. All deliverables shall be submitted electronically, via email, to the NRC project manager.

8. MONTHLY LETTER STATUS REPORTS

In accordance with Section 4 of the attached Standard Terms and Conditions for DOE Work, a Monthly Letter Status Report (MLSR) is to be submitted to the NRC Project Manager, Mourad Aissa, by the 20th of the month following the month to be reported with copies provided to:

RESDSAMLSR.Resource@nrc.gov
ContractsPOT.Resource@nrc.gov
Mourad.Aissa@nrc.gov
Don.Algama@nrc.gov
Nathanael.Hudson@nrc.gov
Peter.Yarsky@nrc.gov

The MLSR will identify the title of the project, the job code, the Principal Investigator, the period of performance, the reporting period, summarize each month's technical progress, list monthly spending, total spending to date, and the remaining funds and will contain information as directed in NRC Management Directive 11.7, Exhibit 7 (dated March 2, 2007). Any administrative or technical difficulties which may affect the schedule or costs of the project shall be immediately brought to the attention of the NRC project manager.

9. MEETINGS AND TRAVEL

To meet the objectives of this project, it is anticipated that domestic travel will involve up to three one person-trips each year of the project for 1) project review meetings at NRC headquarters and 2) conferences and technical meetings approved by the NRC Project Manager. Any other travel will be contingent on the approval of the NRC Project Manager.

Foreign travel may be appropriate. Request for approval of official foreign travel of individuals conducting business on this project shall be submitted to NRC for approval via NRC Form 445.

10. NRC-FURNISHED MATERIAL

No NRC-furnished material is required.

11. RESEARCH QUALITY

The quality of NRC research programs are assessed each year by the Advisory Committee on Reactor Safeguards. Within the context of their reviews of RES programs, the definition of quality research is based upon several major characteristics:

Results meet the objectives (75% of overall score)
- Justification of major assumptions (12%)
- Soundness of technical approach and results (52%)
- Uncertainties and sensitivities addressed (11%)

Documentation of research results and methods is adequate (25% of overall score)
- Clarity of presentation (16%)
- Identification of major assumptions (9%)

It is the responsibility of the DOE Laboratory to ensure that these quality criteria are adequately addressed throughout the course of the research that is performed. The NRC COR(s) will review all research products with these criteria in mind.

12. NEW STANDARDS FOR DOE LABORATORIES WHO PREPARE NUREG-SERIES MANUSCRIPTS

The U.S. Nuclear Regulatory Commission (NRC) began to capture most of its official records electronically on January 1, 2000. The NRC will capture each final NUREG-series publication in its native application. Therefore, please submit your final manuscript that has been approved by your NRC COR in both electronic and camera-ready copy.

The final manuscript shall be of archival quality and comply with the requirements of NRC Management Directive 3.7 "NUREG-Series Publications." The document shall be technically edited consistent with NUREG–1379, Rev. 2 (May 2009) "NRC Editorial Style Guide." The goals of the "NRC Editorial Style Guide" are readability and consistency for all agency documents.

All format guidance, as specified in NUREG-0650, "Preparing NUREG-Series Publications," Rev. 2 (January 1999), will remain the same with one exception. You will no longer be required to include the NUREG-series designator on the bottom of each page of the manuscript. The NRC will assign this designator when we send the camera-ready copy to the printer and will place the designator on the cover, title page, and spine. The designator for each report will no longer be assigned when the decision to prepare a publication is made. The NRC's Publishing Services Branch will inform the NRC COR for the publication of the assigned designator when the final manuscript is sent to the printer.

For the electronic manuscript, the DOE Laboratory shall prepare the text in Microsoft Word, and use any of the following file types for charts, spreadsheets, and the like.

File Types to be Used for NUREG-Series Publications	
File Type	File Extension
Microsoft®Word®	.doc
Microsoft® PowerPoint®	.ppt
Microsoft®Excel	.xls
Microsoft®Access	.mdb
Portable Document Format	.pdf

This list is subject to change if new software packages come into common use at NRC or by our licensees or other stakeholders that participate in the electronic submission process. If a portion of your manuscript is from another source and you cannot obtain an acceptable electronic file type for this portion (e.g., an appendix from an old publication), the NRC can, if necessary, create a tagged image file format (file extension.tif) for that portion of your report. Note that you should continue to submit original photographs, which will be scanned, since digitized photographs do not print well.

If you choose to publish a compact disk (CD) of your publication, place on the CD copies of the manuscript in both (1) a portable document format (PDF); (2) a Microsoft Word file format, and (3) an Adobe Acrobat Reader, or, alternatively, print instructions for obtaining a free copy of Adobe Acrobat Reader on the back cover insert of the jewel box.

13. SUBCONTRACTING/CONSULTANT INFORMATION

Describe any technical support effort that is proposed to be performed by a subcontractor or consultant. Identify the level of effort, by task, of any proposed subcontractor or consultant and provide an explanation of the need for subcontracting that portion of the effort. Note that "pass through" contracting is not allowed under the requirements of the DOE/NRC Memorandum of Understanding. For the purposes of this effort, a "pass through" contract is generally defined as subcontracting 50 percent or more of the technical effort. For any subcontract or consultant effort, describe the following:

- the necessity of subcontracting,
- the tasks and subtasks the subcontractor or consultant will perform,
- the level of effort proposed for the subcontract effort,
- the status and expected time frame for selection, and

- the method of selection of the subcontractor or consultant.

14. INFORMATION TECHNOLOGY (IT) RESOURCES:

When IT resources are proposed by a DOE Laboratory that are not specifically identified in the Statement of Work, the need for and cost of those resources must be justified. Exhibit 8 of MD 11.7 can be used to help determine justification. Proposed IT resources should be those required to accomplish the work, but which are not available from within the laboratory's inventory of IT resources. Common office automation equipment and software, i.e., personal computers, word processing and spreadsheet software, and printers, should not routinely be proposed as they should normally be provided as part of the laboratory's information processing infrastructure. Whenever IT resources are proposed, justification is necessary for the NRC to be able to evaluate the requirements and to approve their acquisition.

In addition to the total cost of IT resources to be reported on the NRC Form 189, the following justification is to be included in the proposal:

1. IT Resource Requirements. List as line items each IT resource (hardware, e.g., laptop computer, engineering workstation; software - by product name; and services, e.g., computer time, database services) proposed for acquisition and estimate the cost of each item by fiscal year. Funding should be indicated for the year in which the IT resources are needed. Provide totals for all items for each fiscal year which match the costs listed on the line labeled IT RESOURCES on the NRC Form 189. Any IT acquisition shall conform to the acquisition and reporting requirements identified in NRC Management Directive 11.7, Part 9.

2. Justification. For each required IT resource with an acquisition cost of $500 or more, or group of resources, e.g., a system, provide specifications or the specific make/model, and other acquisition and reporting requirements identified in NRC Management Directive 11.7, Part 9. Briefly discuss how the IT resources will be used, including information about workload to be processed, required capacities, throughput, transfer rates, compatibility and expandability requirements, or any other information that supports the need to acquire the specific resources being proposed.

15. NRC Contracting Officers Representative's (COR)

Technical direction as defined in Section 1 of the Standard Terms and Conditions will be provided by the COR, Mourad Aissa, who can be reached at:

PRIMARY COR:

Mourad Aissa
Phone: (301) 251-7511
Fax: (301) 251-7425
Email: Mourad.Aissa@nrc.gov

ALTERNATE COR:

Don Algama
Phone: (301) 251-7940
Fax: (301) 251-7425
Email: Don.Algama@nrc.gov

Express mail should be sent to:

U. S. Nuclear Regulatory Commission
Mail Stop: CSB 03A07M
11545 Rockville Pike
Rockville, MD 20852-2738