UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 11, 2018

The Honorable Fred Upton
Chairman, Subcommittee on Energy
Committee on Energy and Commerce
United States House of Representatives
Washington, DC 20515

Dear Chairman Upton:

The U.S. Nuclear Regulatory Commission appeared before the Committee on Energy and Commerce on March 20, 2018, at the hearing entitled, "Fiscal Year 2019 Nuclear Regulatory Commission Budget." From that hearing, you forwarded questions for the hearing record. The responses to those questions are enclosed.

If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

[redacted]

Eugene Dacus, Director
Office of Congressional Affairs

Enclosure:
As stated

cc: The Honorable Bobby L. Rush, Ranking Member
Subcommittee on Energy

UNITED STATES
NUCLEAR REGULATORY COMMISSION
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May 11, 2018

The Honorable John Shimkus
Chairman, Subcommittee on Environment
Committee on Energy and Commerce
United States House of Representatives
Washington, DC 20515

Dear Chairman Shimkus:

The U.S. Nuclear Regulatory Commission appeared before the Committee on Energy and Commerce on March 20, 2018, at the hearing entitled, "Fiscal Year 2019 Nuclear Regulatory Commission Budget." From that hearing, you forwarded questions for the hearing record. The responses to those questions are enclosed.

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Eugene Dacus, Director
Office of Congressional Affairs

Enclosure:
As stated

cc: The Honorable Paul Tonko, Ranking Member
Subcommittee on Environment

U.S. House of Representatives
Committee on Energy and Commerce Joint Hearing
"Fiscal Year 2019 Nuclear Regulatory Commission Budget"
March 20, 2018
Questions for the Record

The Honorable John Shimkus

1. **In an October 8th, 2017 letter regarding the Design Basis Assurance EQ program, the Nuclear Utility Group on Equipment Qualification expressed concern that the ongoing NRC inspections of nuclear power plant licensee Environmental Qualifications (EQ) programs "are simply inquiries into and challenges related to licensees' EQ program licensing bases. These are questions which present perspectives and challenges by NRC inspectors related to fundamental, generic methodologies which have long been accepted as appropriate qualification methodologies throughout the industry.**

   Thus the areas of concern addressed in the comments primarily related to the use of the inspections to "re-evaluate" a plant's EQ licensing basis and its implementation with respect to several technical topics. These re-evaluations appear distinct from the intent of the inspections to assess the maintenance of the EQ program in accordance with a plant's EQ licensing basis. In short, those challenges and questions are inappropriate for this inspection process."

   a) **What evidence is there that calls into question the sufficiency of the NRC-approved EQ licensing basis for each plant?**

ANSWER.

There is no evidence that calls into question the sufficiency of the NRC-approved EQ licensing basis for each plant. The inspections verify that each licensee has adequately continued to implement the electrical equipment EQ program in accordance with 10 CFR 50.49.

EQ components are important for ensuring plant safety, and must be able to perform their function at radiation, temperature, and moisture levels associated with accident conditions. The NRC has not performed systematic EQ inspections of this detailed nature since the 1980s when licensees documented their approach to meet the 10 CFR 50.49 EQ requirements. Therefore, in 2015 the NRC staff selected EQ as a focused review area as part of a revised engineering inspection program intended to focus the NRC's efforts on important, risk- and safety-significant areas.

b) Have any licensees performed any testing or analyses in response to NRC inquiries as part of these EQ inspections?

ANSWER

The NRC staff is not aware of any testing that was performed by licensees as part of EQ inspections. However, licensees have performed analyses to address operability of the equipment that is considered degraded or non-conforming and to address corrective actions for non-compliance with 10 CFR 50.49 requirements.

Inspections to date found that most licensees are implementing their EQ program adequately. To date, no findings identified as a result of the current EQ-focused engineering inspections have been contested by the industry. The NRC staff has identified several unresolved items, which are being evaluated by a panel of staff with regional, technical, procedural, and legal expertise, to ensure that backfits are not imposed through the inspection process. The safety significance of these unresolved items will be determined as part of the staff's evaluation.

c) Were any of these tests or analyses performed at the suggestion of NRC staff or management?

ANSWER

To our knowledge, no testing or analysis was performed by licensees at the request of the NRC inspectors, staff, or management.

d) Please provide the NRC resources, by fiscal year, that have been applied to the EQ inspection effort since its inception.

ANSWER

2016	Plant	Total Hours	Total Cost
Region 1	FitzPatrick	272	72963
Region 2	Browns Ferry	384	102845
	Saint Lucie	539	144318
Region 3	D.C. Cook	403	107937
	Dresden	377	100902
Region 4	Columbia Generating Station	1116	298954
	South Texas	248	66464

2017	Plant	Total Hours	Total Cost
Region 1	Ginna	577	152879
	Hope Creek	555	147141
	Millstone	595	157726
Region 2	Hatch	652	172586
	McGuire	737	195239
	Watts Bar	784	207628
Region 3	Fermi 2	680	180068
	LaSalle	572	151646
Region 4	Arkansas Nuclear	520	137728
	Cooper	404	107070
	Wolf Creek	352	93346

2018	Plant	Total Hours	Total Cost
Region 1	Limerick	459	120651
	Oyster Creek	383	100795
	Seabrook	431	113353
	Susquehanna	531	139653
Region 2	Robinson	571	150042
	Sequoyah	692	181996
	Summer	641	168583
	Vogtle	625	164441
Region 3	Braidwood	397	104543
	Monticello	519	136497
Region 4	Comanche	496	130448

(1) The inspection hours reported herein account for direct inspection hours, travel, inspection preparation, inspection documentation, and inspection-related communications with the licensee(s).

(2) The Inspection Procedure, 71111.21N Design Basis Assurance Inspection (Programs), was piloted at certain sites in 2016. The pilot concluded and in the following year the inspection went into effect for all operating reactor licensee sites. The EQ program inspections will be completed in 2019.

(3) Time spent on public meetings including preparation and summaries, inspection program development, and inspection program activities related specifically to these inspections is not tracked.

e) Please list all the findings that have resulted from the EQ inspection effort.

ANSWER

Plant Name	Finding
Hope Creek*	Green. The NRC identified a non-cited violation (NCV) of Technical Specification 3.6.5.1, for failure to maintain secondary containment integrity.
Millstone	Green. The NRC identified an NCV of Technical Specification 6.8.1.a, "Procedures," because Dominion did not implement procedures as required by Regulatory Guide (RG) 1.33, Revision 2, Appendix A.9, "Procedures for Performing Maintenance," to properly maintain the environmental qualification of safety-related auxiliary feedwater solenoid valves 2-FW-43AS and 2-FW-43BS.
Pilgrim**	Green. The NRC identified an NCV of Technical Specification 5.4.1, Procedures, because Entergy did not establish an appropriate preventative maintenance (PM) schedule for the safety relief valve solenoid three-way operated valve (solenoid).
Pilgrim**	Green. The NRC identified an NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, because Entergy did not correct a condition adverse to quality.
Pilgrim**	Green: The NRC identified an NCV of 10 CFR 50, Appendix B, Criterion III, Design Control, because Entergy did not verify, justify, and document the activation energy used to determine the thermal lifespan for main steam isolation valve (MSIV) position indicator switch assembly components.
Limerick	Green. The NRC identified an NCV of 10 CFR 50, Appendix B, Criterion III, Design Control, because Exelon's design control measures did not provide for verifying or checking the adequacy of design of the inboard high pressure coolant injection steam supply primary containment isolation valve from environmental effects.

Plant Name	Finding
Browns Ferry	Green. The NRC identified an NCV of 10CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to include vendor requirements for maintaining the environmental qualification of the MSIV limit switches in maintenance procedures.
St. Lucie*	Green. The NRC identified an NCV of Technical Specification 3.3.3.1 for failing to take the required actions after identifying a condition adverse to quality that affected the operability of the containment high range radiation monitors (RD-26-40 and RD-26-41).
St. Lucie	Green. The NRC identified three examples of an NCV of 10 CFR 50.49.e.(5), "Aging", for the licensee's failure to assure conformance with the qualification procedures and methods specified in IEEE 323-1974 "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations" as amended by Regulatory Guide (RG) 1.89 "Environmental Qualification of Certain Electric Equipment Important to Safety for Nuclear Power Plants."
St. Lucie	Green. The NRC identified an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to verify, justify, and document an activation energy used to determine the thermal lifespan of safety related cable insulation.
McGuire	Green. The NRC identified an NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to translate requirements necessary for maintaining the environmental qualification of the pressurizer power-operated relief valve (PORV) NAMCO EA-180 limit switches into maintenance procedures.
Watts Bar	Green. The NRC identified an NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to implement instructions to replace Namco limit switch gaskets as required to maintain environmental qualification.
Watts Bar	Green. The NRC identified an NCV of 10 CFR 50.49(j), for the licensee's failure to maintain a complete record of qualification for Brand-Rex cables under environmental qualification binder WBNEQ-CABL-050.
Summer*	Green. The NRC identified a Green finding and associated NCV of 10 CFR 50.49 (e)(5) when the licensee failed to justify the basis for the activation energy used for Valcor solenoid operated valve XVX06050A in accordance with RG 1.89 Section C.5.c.
Summer	Green. The NRC identified a Green finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," when the licensee failed to verify the adequacy of design for the seismic qualification of valve XVX06050A in accordance with IEEE 344-1971. The violation resulted from corrective actions for EQ related deficiencies.
Summer	Green. The NRC identified a Green finding and associated NCV of 10 CFR 50.49 (e)(4) when the licensee failed to verify that reactor building spray pump A could perform its function under the radiation conditions expected during an accident in accordance with Section 2.1(3)(a) of NUREG 588.

Plant Name	Finding
Robinson	Green. The NRC identified an NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to establish a qualified life for the motors covered by Environmental Qualification Documentation Package (EQDP)-0803 in accordance with their administrative procedure AD-EG-ALL-1612, "Environmental Qualification (EQ) Program".
Robinson	Green. The NRC identified an NCV of 10 CFR 50.49, "Environmental qualification of electric equipment important to safety for nuclear power plants," for the licensee's failure to correctly identify the maintenance required to maintain the core exit thermocouple reference junction box in a qualified state.
Robinson	Green. The NRC identified an NCV of 10 CFR 50.49, "Environmental qualification of electric equipment important to safety for nuclear power plants," for the licensee's failure to correctly determine the most severe composition of chemicals for containment spray for the purposes of environmental qualification of equipment in containment.
Sequoyah	Green The NRC identified an NCV of10 CFR 50.49(e)(5), "Aging," when the licensee failed to replace, refurbish, or demonstrate additional life for components that exceeded their qualified life.
Sequoyah	Green The NRC identified an NCV of 10 CFR 50.49(f), "Electrical Equipment Qualification," when the licensee failed to perform an adequate similarity analysis for the environmental qualification of their Reliance 75 horsepower reactor lower compartment cooling fan motors.
Vogtle	Green. The NRC identified an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for licensee's failure to verify drain holes were installed as assigned, following the licensee's evaluation of Information Notice 89-63, "Possible Submergence of Electrical Circuits Located Above the Flood Level Because of Water Intrusion and Lack of Drainage."
Fermi	Green. The NRC identified a Green finding and an associated NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to ensure that the protective devices installed in Motor Control Centers would not spuriously trip during design basis events.
Fermi	Green. The NRC identified a Green finding and an associated NCV of 10 CFR 50.49 (e) (1), "Environmental Qualification of Electrical Equipment Important to Safety for Nuclear Power Plants," for the licensee's failure to include the correct time-dependent temperature for EQ components in their EQ Program.
Fermi	Green. The NRC identified a Green finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for failure to translate Environmental Qualification Requirements into Maintenance Procedures.
LaSalle	Green. The NRC identified a Green finding and an associated NCV of 10 CFR 50.49, Paragraph (f)(4), for the licensee's failure to provide adequate analysis in combination with partial type test data to qualify an Environmental Qualification (EQ) component.

Plant Name	Finding
La Salle	Green. The NRC identified a Green finding and an associated NCV of 10 CFR 50.49, Paragraph (j), "Environmental Qualification of Electrical Equipment Important to Safety for Nuclear Power Plants," for the licensee's failure to have adequate justification for extending the service-life for grease used in the bearing for EQ motors installed in a harsh environment.
Wolf Creek*	Green. The NRC identified an NCV of 10 CFR 50.54(q)(2) for the licensee's failure to maintain the effectiveness of the emergency action level schemes by providing adequate preplanned methods and compensatory measures for the loss of the containment high range radiation monitors.
ANO	Green. The NRC identified an NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," for the licensee's failure to properly resolve the environmental conditions in Room 38 following a high energy line break.
Comanche Peak	Green. The NRC identified an NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to verify that normal operating room temperatures were at or below the temperature used in the qualified life calculations for the environmental qualification of components.
Comanche Peak	Green. The NRC identified an NCV with two examples of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to control activities affecting quality prescribed by documented procedures for components important to safety.
Comanche Peak	Green. The NRC identified an NCV of Technical Specification 5.4.1, "Procedures," for the licensee's failure to specify a schedule for the replacement of items related to the environmental qualification of components important to safety.

*These findings were identified during EQ inspections, but are not performance deficiencies associated with a licensee's failure to implement requirements of their approved EQ program.

**These findings were identified as a result of the EQ inspections. However, they were documented in a non-EQ inspection report.

The following unresolved items (URI) are being evaluated by the staff to determine whether they should be addressed through inspection or other NRC processes.

Plant Name	Unresolved Item (URI)
Hatch	Potential Failure to Adequately Justify the Activation Energies by Licensee
Hatch	Potential Failure to Adequately Justify the Activation Energies Determined by 10 CFR 50 Appendix B Vendors
Robinson	Crouse-Hinds Electric Penetration Assembly Qualification and Life Extension

Plant Name	Unresolved Item (URI)
Robinson	Questions Regarding EQDP-0401 Method Used to Determine Activation Energy and Responsibility for Verification
Robinson	Penetration F01 Submergence
Robinson	Justification of Activation Energy of ASCO Solenoid Coil Assemblies
Watts Bar	Potential Failure to Address Environmental Qualification of Brand-Rex Cables
Watts Bar	Potential Failure to Justify Qualification of O-Rings by Commercial Grade Dedication
Watts Bar	Potential Failure to Address Environmental Qualification of Barton Transmitters
Summer	Potential Unjustified Qualified Life for ASCO Valves.
Summer	Failure to Perform Radiation Dose Analysis required for Exposed Components
Summer	Unjustified Activation Energy for Barton Transmitters

2. **Over the last decade, licensee's annual fees for NRC fuel facilities have increased dramatically. In some cases, licensee fees have more than tripled and NRC's budget to manage these facilities continues to rise, while the number of fuel cycle licensees continues to decline. NRC staff's lack of transparency increases the challenges for licensees to determine what they are paying for.**

    a) **What steps is the NRC planning on taking to bring NRC fuel facility annual fees back in line with historic norms?**

    b) **What can the NRC do to provide all of its licensees a clearer picture of how the commission is calculating annual licensees' fees and how those fees are being used? For example, would NRC consider sharing its budget execution data for the purposes of comparing those planned activities with what was budgeted?**

ANSWER:

a. There has been a downward trend in the NRC's budget for fuel facilities in recent years, which is consistent with the decline in the number of fuel facility licensees. However, there are a number of factors that have caused the annual fee per licensee to increase, even if the fee class budget decreased. These factors include a decline in collections of fees for services, a decrease in the number of licensees in the fee class, and increased cost of salaries and benefits for staff, comprised of a more experienced workforce following rapid downsizing and limited new hires. Additionally, salaries and benefits increases reflect year-over-year growth in the agency's share of employee benefit costs.

In fiscal year (FY) 2014, the fuel facilities fee class budget was $47.2 million. In FY 2018, by contrast, the proposed fee rule was based on a fuel facilities fee class budget of $35.1 million (a 25.6 percent change from FY 2014, but a slight increase from FY 2017). The final FY 2018 fee class budget is currently being developed based on the recently enacted appropriation.

The NRC remains mindful of the impact of its budget on the fees for licensees and continues to examine improvements and efficiencies that would allow additional reduction of the budget. In the fiscal year 2019 Congressional Budget Justification (CBJ), the requested budget for fuel facilities would continue the downward trend with a total budget of $38.3 million.

b. The NRC is committed to providing a fair, equitable, and transparent process for all of its decisions, including how fees are calculated each year. In an effort to

improve transparency, the NRC conducts public meetings on the fee rule and publishes work papers for both the proposed rule and final rule that show how the NRC calculated the annual fees for each fee category. The NRC has also provided additional information in the work papers in recent years and continues to explore ways to do so in the future. For example, the NRC plans to provide information in the FY 2018 final fee work papers that will show the estimated Part 170 collections to Part 171 collections as compared with the actual Part 170 collections to Part 171 collections completed for FY 2017.

As part of the CBJ, the NRC identifies the types of activities that are primarily recovered through annual fees. These activities include the fee class's share of corporate support, event response activities, rulemaking, research, mission support and supervisors, training, and travel. Additionally, the FY 2019 CBJ includes the FY 2017 budget execution data in all budget tables.

3. **One area where NRC plays an important role is in licensing facilities developing or providing advanced nuclear medicine innovations. For example, there is work underway by several companies to create a domestic supply for a certain medical isotope known as molybdenum-99 or Moly-99, which is critical for diagnostic imaging for 50,000 patients every day. As NRC is pursuing its reviews of isotope facilities, the international supply chain of Moly-99 we rely upon continues to be subject to disruption – which creates an urgent need to develop a domestic supply. So, unnecessary burdens and delays in regulatory approvals may impact not only the innovative companies but also the access to timely diagnostics in emergencies.**

    a) Is the Commission aware of this tension between timely licensing and patient needs?

ANSWER.

The Commission is aware of the critical diagnostic role of molybdenum-99 (Mo-99) in U.S. medical procedures and the impact supply disruptions of this isotope may have on patient needs and the corresponding importance of timely licensing actions on these facilities. The Commission is committed to leveraging experience and efficiencies to support the timely review of requested Mo-99 licensing actions, including outreach and communication through public meetings and guidance development.

b) How is the NRC working to streamline and make more efficient review and approvals for medical isotope and related nuclear medicine facilities, as well as the regulatory approach for NRC materials licensees?

ANSWER:

The NRC is working to streamline and make more efficient its review and licensing of utilization facilities; production facilities; and special nuclear, byproduct, and source material.

In 2016, the NRC issued a 10 CFR Part 50 construction permit to SHINE Medical Technologies, Inc. (SHINE) for the production of molybdenum-99 using 8 accelerator-driven subcritical operating assemblies and 1 production facility. Using the Interim Staff Guidance developed for aqueous homogeneous reactors and radioisotope production facilities, the NRC staff completed its review of SHINE's construction permit application in 22 months from the time of docketing — two months ahead of its 24-month goal. This review demonstrated the NRC staff's ability to effectively and efficiently review an application for a novel technology.

Additionally, the NRC recently issued a second medical isotope construction permit to Northwest Medical Isotopes, LLC (NWMI), allowing NWMI to build a production facility for the processing of low enriched uranium (LEU) targets irradiated at existing research reactors. The review of the NWMI construction permit application was achieved by applying lessons learned from the SHINE review. The NRC staff completed its safety evaluation report within 23 months from the docketing of the application.

Looking ahead, the NRC staff anticipates receiving operating license applications from SHINE and NWMI within the next year, coinciding with the beginning of construction of these facilities. While uncertainty in the timing of these actions creates potential budget and resource challenges, the NRC staff continues to prepare for upcoming applications and oversight activities to support licensee schedules. For example, in December 2015, the NRC staff published Inspection Manual Chapter 2550, establishing a construction inspection program for non-power production and utilization facilities designed to produce medical isotopes. One of the

primary objectives of this construction inspection program is to verify the effective implementation of a licensee's quality assurance program with respect to the design, procurement, and construction of the facility. Inspections will be commensurate with the risk of the facility, focusing on the most safety-significant structures, systems, and components.

The reviews of medical isotope facilities often require collaboration across offices within the NRC. Therefore, the staff has established a Molybdenum-99 working group to ensure that the necessary expertise is available to respond to incoming license requests and emergent technical questions. In addition to the medical isotope reviews conducted under 10 CFR Part 50, this inter-office engagement has allowed the NRC to issue medical isotope-related materials licenses out of our Region III office in Lisle, IL, and develop guidance for medical use applicants and licensees in the Office of Nuclear Material Safety and Safeguards. For example, the NRC has issued materials licenses to Niowave, Inc. in support of the production of small amounts of Mo-99 through the fission of LEU targets using superconducting linear accelerators. Additionally, NorthStar Medical Radioisotopes, LLC has developed a new Technetium-99m generator system specifically designed for use with low-specific activity Mo-99. In support of this new technology, in February 2018, the NRC staff issued 10 CFR Part 35 licensing guidance for medical use applicants and licensees that will use this new system.

Public meetings continue to serve as valuable forums for the NRC staff to engage with the public and applicants to promote efficient and effective licensing reviews. Public meetings have provided an opportunity for the NRC staff to clarify expectations, licensing processes, applicable regulations and guidance, and review timelines. Further, the NRC staff has reduced the expenditure of resources by arranging public meetings, when appropriate, to clarify requests for additional information, engage in technical discussions, and discuss future licensing actions. So far in 2018, the NRC staff has held two public meetings with medical isotope applicants.

Additional public meetings are expected later this year to discuss licensee preparations for construction and operating license application submittals.

Based on its experience with the initial licensing of medical isotope facilities, the NRC staff is also working to create a more responsive and efficient technology-inclusive regulatory framework to better accommodate current and future licensees. For example, the NRC staff has developed a proposed rule to streamline the license renewal process for certain non-power production and utilization facilities (NPUF), including medical isotope facilities, thereby reducing the burden on both licensees and the NRC staff. The proposed rule would (1) eliminate license terms; (2) require licensees to submit an updated final safety analysis report to the NRC every 5 years; and (3) provide an accident dose criterion of 1 rem total effective dose equivalent for NPUF licenses other than testing facilities. The final rule is expected to be published and fully implemented by 2020.

4. **Government Accountability Office (GAO) report GAO-18-318 titled "Additional Action Needed to Improve Process for Billing Licensees" identifies actions to improve NRC's billing processes and also identifies several challenges that NRC's licensees have experienced.**

    a) The GAO report explains that NRC is planning to implement a new validation process for its billing process by October 2018. What is the agency's progress on meeting the deadline?

ANSWER:

All work involving the development of processes and procedures, as well as defining roles and responsibilities, will be completed by October 2018. Staff training is expected to be completed by December 2018.

b.) When is the NRC planning to implement electronic billing and what is the agency doing to meet the deadline?

ANSWER:

The NRC will begin phased implementation of electronic billing (eBilling) in October 2019.

The eBilling Project Manager has developed an initial project plan that includes major milestones up to the point of selecting the e-billing tool/platform targeted for award by October 2018. A final schedule and budget for the project will be determined and incorporated into the project plan after the selection of the e-billing tool. The Office of the Chief Financial Officer senior management will provide oversight to ensure all business process changes are communicated top-down throughout the agency and incorporated into NRC's standard license fee billing processes.

The NRC has recently completed outreach to a sampling of licensees via the Nuclear Energy Institute (NEI) to understand the system functional requirements for an e-billing tool. Furthermore, the NRC held a public meeting on March 15, 2018 to discuss the new invoice structure and talk about the agency plans for e-billing. Due to the wide range of licensees that pay fees to the NRC (e.g. large corporations, small entities), the agency needs to design a solution that is flexible for the licensee population.

The NRC is considering piloting the e-billing solution with a select group of licensees to gather feedback and improve the design prior to the production roll-out of the final product. Additionally, the NRC is considering a phased e-billing implementation based on licensee readiness. The selection of the licensee population for the pilot and phased approach will take place later in project development. The NRC recognizes that frequent communication with the licensees on the progress of this effort is critical to the success of the project. Therefore, the

NRC will provide periodic project status updates using a variety of methods, such as periodic written communications and/or additional meetings.

5. **The last time the Commission testified before the Committee, the NRC was still in the process of updating Management Directive 4.8 relating to budget execution. This directive, issued in August 2016, has now been in place for a full budget development cycle and seeks to (among other items), establish a process for "managing changes to the use of resources during budget execution that are made to meet current year program objectives and achieve optimal performance."**
    a) **Please describe any changes to NRC's recent budget management formulation and execution process that were the specific result of the revised directive.**
    b) **What additional steps could be undertaken to further refine and improve this budget development process?**

ANSWER:

a) With regard to budget formulation, there is now increased emphasis on using historical execution data during the budget formulation process. To support this, the Office of the Chief Financial Officer produces an end-of-year analysis that compares the budget as formulated with the budget as executed. In addition, prior year actuals are included in the budget tables in the CBJ.

With regard to budget execution, there is now increased emphasis on monitoring and timely reporting of significant resource reallocations to the Commission. Significant resource reallocations are deltas of greater than $500,000 or 4 full-time equivalents (FTE) at the product level.

b) As part of the agency's commitment to continuous improvement, adjustments are made to the budget process (within the policy guidance and direction in Management Directive (MD) 4.7 "Budget Formulation") as needed to improve effectiveness, efficiency, and accountability. For example, to increase transparency for our external stakeholders, additional information has been added to the CBJ regarding how budgeted resources impact fees in each programmatic business line. Improving the transparency of the linkage between budget and fees will help external stakeholders better understand how the workload estimates and timelines they provide impact the budget and fees.

6. Government Accountability Office (GAO) report GAO-17-232 "Regulatory Fee-Setting Calculations Need Greater Transparency" identified a number of issues associated with NRC's process by which it conducts the statutorily-required fee recovery rulemaking. However, NRC staff considered options to improve portions of this process, including establishing a pilot program for flat fee structure for fuel facilities.

a. Please provide an update on the status of the flat fee pilot project and any lessons learned since the implementation of the flat fee pilot project.

b. Rate payers pay the bulk of NRC's costs. This includes an hourly rate that exceeds $260 per hour and an average annual cost over $180,000 per NRC staffer. Beyond the flat fee project, what other steps must NRC consider to bring additional discipline into the fee-setting process.

ANSWER:

a. The NRC is currently in the process of developing a pilot program for a flat fee structure for uranium recovery licensees. As part of that process, the NRC developed a new data reporting structure because the data recorded using the previous structure had insufficient granularity for purposes of this effort and may have resulted in flat fees that were too high or too low for the work delivered. The NRC trained staff on use of the new data reporting structure and in October 2017 deployed the new structure. Additionally, the NRC has conducted meetings with the Agreement States that have uranium recovery licensees to gather additional information on the fee structures implemented in the Agreement States and their development processes.

b. By November 2018, the NRC expects to have collected sufficient data using the new reporting structure to complete an analysis of the uranium recovery license work that would allow the development of recommendations to the Commission regarding a potential flat fee program. The NRC remains mindful of anticipated changes to the uranium recovery fee class that would follow if Wyoming becomes an Agreement State and would examine its potential impact as part of any recommendations regarding a flat fee structure.

The NRC identified 37 activities to enhance the fee-setting process, including improvements to the NRC's license-fee website, the NRC's outreach to licensees concerning regulatory activities, information provided with invoices, and information in the CBJ. The NRC also convened a steering committee comprised of NRC senior executives to provide leadership for implementing these improvements over several fiscal years. At this time, 100% of planned FY 2017 activities and 70% of FY 2018 activities have been completed. The remaining FY 2018 activities are on track to be completed by October 2018.

Completed activities include publicly communicating generic estimates or ranges of fees for various licensing actions, adding information to the CBJ to clarify how the budget impacts fees, adding additional billing detail on the invoice, and developing a new internal report to streamline the development of the fee schedule. The NRC also enhanced its website to make more information available to the public regarding the proposed fee rule, including providing the supporting work papers that the agency used to develop the proposed fee rule amounts.

The NRC continues to look for improvements in its fee-setting process that would increase the transparency and predictability of licensee fees. Improvements under evaluation include examining fee categories to ensure that licensees are grouped into the correct fee classes, improving visibility on contract costs associated with licensing actions, improving billing to reduce potential errors that might affect the determination of annual fees in future years, and examining small entity size standards.

The agency is currently reviewing future planned activities in an effort to support enhanced equitability and further acceleration of planned fee transformation activities.

7. **In GAO's 2017 report on NRC's planned changes to its budget structure and justification (GAO-17-294), GAO reported that NRC completed making changes to its budget structure in fiscal year 2017, which involved eliminating the Office Support business lines and returning mission support activities back to the mission programs. To what extent have these changes improved transparency or lowered overhead costs?**

ANSWER:

After the elimination of the Office Support business lines in FY 2017, the NRC added a new product line of Mission Support and Supervisors within each business line chapter starting with the FY 2018 CBJ. This allows the CBJ to provide a transparent view of mission support activities attributed to each business line. The addition of this product line was not intended to lower overhead costs, but rather was implemented to assign the associated resources to the specific programmatic business lines they support. Additionally, the change improved transparency by enhancing consistency between the NRC budget and annual fee rule.

8. **The NRC's statutory mandate is to provide "reasonable assurance" of adequate protection of public health and safety. Commissioner Burns has described the concept as follows:**

   "[Reasonable assurance] is not absolute assurance of protection or an expectation of 100% risk free. Why is this important when it comes to understanding how to be a regulator? Well, every decision that the regulator makes must be viewed through this lens. An essential function of the NRC is to determine how much risk is acceptable when establishing its regulatory requirements."

   a. How does the NRC ensure that its statutory mandate to protect with "reasonable assurance" is interpreted appropriately and consistently throughout NRC Headquarters and the Regions?

ANSWER:

The NRC ensures that its statutory mandate to protect with "reasonable assurance" is achieved through risk-informed decisionmaking, in which risk insights are used to establish requirements that better focus attention on issues commensurate with their importance to health and safety. By evaluating risk and using risk information together with other factors, such as defense-in-

depth, the NRC establishes regulatory requirements that are sufficiently protective of health and safety notwithstanding some amount of risk that has been deemed acceptable. Generally, a licensee's compliance with NRC regulations and the provisions of its license is considered sufficient to demonstrate reasonable assurance of adequate protection.

Importantly, the NRC's internal process for developing regulations ensures that our licensees and other external stakeholders also have sufficient opportunity to provide input on proposed NRC regulations interpreting the NRC's statutory mandate. In addition to the standard public comment period on the text of a proposed rule, the NRC frequently holds public meetings and, for its significant proposed rules, publishes draft regulatory bases for public comment. Through these opportunities our licensees and other external stakeholders can provide feedback for the NRC's consideration as to whether standards being proposed by the agency are reasonable and sufficiently risk-informed before they go into effect. The NRC as a matter of practice also provides opportunities for external stakeholder input on non-binding interpretations of NRC regulations, such as guidance documents or generic communications, beyond what is required by law, by routinely publishing drafts of such documents for public comment and/or holding public meetings on these guidance documents. The NRC's public website on risk-informed activities includes a number of specific examples of ongoing licensing initiatives, projects, and activities being undertaken by the NRC staff, with an emphasis on a greater use of risk information in the areas of reactor safety, materials safety, and waste management: https://www.nrc.gov/about-nrc/regulatory/risk-informed/rpp.html.

The NRC staff ensures that its statutory mandate is interpreted consistently across the agency through its internal framework for the development of regulations and licensee guidance, as well as its internal policies and procedures (e.g., Inspection Manuals, Standard Review Plans, Management Directives, Enforcement Policy) that implement NRC regulations and inform its

oversight responsibilities, such as licensing, inspection, enforcement, and events assessment. NRC staff, both at headquarters and in the regions, use these policies and procedures in the daily course of performing the NRC's mission. This guidance must be consistent with NRC regulations and Commission policy. NRC management ensures that these internal procedures, as well as individual decisions guided by the application of these procedures, undergo sufficient review prior to issuance. However, the ultimate responsibility for determining whether reasonable assurance is achieved in the NRC's policy, rulemaking, and licensing decisions rests with the Commission.

b. How does NRC management ensure that the NRC is not regulating to an "absolute assurance" standard?

ANSWER:

NRC management is involved in the development and issuance of regulations with an emphasis on risk-informed decisionmaking, as described in the answer above, as well as in the agency's day-to-day regulatory activities implementing these regulations. The NRC's decisionmaking process is open and transparent, allowing both agency management and the Commission to consider licensee and other stakeholder input on whether a given agency decision is sufficiently risk-informed or provides reasonable assurance before the decision goes into effect.

However, since ultimate responsibility for determining whether reasonable assurance is achieved in the NRC's policy, rulemaking, and licensing decisions rests with the Commission, it is incumbent upon NRC management to identify new or novel circumstances that must be raised with the Commission and to maintain sufficient oversight of licensing actions to be able to identify when staff may be inappropriately redefining adequate protection or attempting to achieve absolute assurance.

The Commission has clearly articulated to NRC management its interest in the agency's capabilities and progress in risk-informed decisionmaking and recently directed the NRC staff to provide periodic updates on its efforts in this area. Most recently, in November 2017, the Executive Director for Operations provided an information paper to the Commission identifying challenges and proposing strategies for increasing the agency's capabilities to use risk information in its decisionmaking (SECY-17-0112, available at https://www.nrc.gov/docs/ML1727/ML17270A192.pdf). These efforts will continue to ensure the NRC is providing reasonable assurance of adequate protection of public health and safety rather than attempting to regulate to an "absolute assurance" standard.

c. Are you aware of any situations in which the NRC staff was potentially regulating to an "absolute assurance" standard? If so, what corrective actions were taken?

ANSWER.

Although there have been no attempts to regulate to an "absolute assurance" standard, on occasion, the staff makes policy proposals for Commission consideration that the Commission ultimately decides are beyond what is needed to provide reasonable assurance of adequate protection. For example, in 2017, the Commission disapproved the staff's request to establish an Interim Enforcement Policy for the purpose of exercising enforcement discretion for purported noncompliance with NRC requirements and nonconformance with design criteria during the pendency of licensee implementation of actions to address an open phase condition (OPC). Instead, the Commission directed the staff to verify that licensees have appropriately implemented the voluntary industry initiative on potential open phase conditions.

9. **In the Government Accountability Office (GAO) report GAO-17-294, "Changes Planned to Budget Structure and Justification," GAO noted NRC developed a system to alert responsible offices to update their guidance as guidance expiration dates approach. What is the current status of NRC's process to regularly update its directives to ensure that guidance does not become out of date?**

ANSWER:

On October 1, 2017, the NRC implemented changes to improve the effectiveness of the agency's MD process. The process changes include creating an 8-year maximum lifecycle for MDs. A centralized group within NRC oversees this process and provides a listing of MDs, along with revision status information, on the NRC internal Web site and tracks the currency of the MD catalogue through an agency-wide performance indicator. Finally, the group initiates the kickoff meeting for each MD approaching expiration to ensure that the revision is initiated on schedule.

10. **Compared to the FY 2018 annualized continuing resolution, the NRC's FY 2019 budget request increased by nearly $60M, even though it reflects a decrease of 149 FTE. The increase has been attributed to several factors, including an additional $47.7M for Yucca Mountain and $10M for advanced reactors.**
    Even taking into consideration the additional $47.7M for Yucca Mountain and $10M for advanced reactors, this still leaves the FY 2019 approximately $30M over the FY 2018 budget considering the decrease of 149 FTE. Please explain what constitutes this $30M increase.

a. Does the Commission believe this budget request is consistent with the spirit of Project Aim, which sought to "right-size" the agency and make it more efficient and agile?

ANSWER:

Although workload and FTE levels are decreasing, the decreases in workload and staffing are offset by the increasing cost of salaries and benefits (S&B). The S&B rate increase includes a government-wide increase in FY 2018 as well as a locality adjustment. Additional increases include the rise in the cost of health and retirement benefits. The implementation of Project Aim resulted in improvements in efficiency, effectiveness, and agility included in the FY 2019 budget request. We continue to refine our processes to make them more efficient, in the spirit of Project Aim, so that we keep increases to a minimum.

b. To what extent does the NRC review its budget request against its actual expenditures to ensure that its subsequent year budget request is as realistic and accurate as possible?

ANSWER:

The NRC's Office of the Chief Financial Officer produces an end-of-year analysis that compares the budget as formulated with the budget as executed. Historical execution data are provided to decision-makers for both FTE utilization and contract obligations in order to inform budget requests for future years. Beginning in the NRC's FY 2018 Congressional Budget Justification, the NRC has included a column displaying prior year actual obligations for each business line. In addition, during the year of execution, the NRC conducts quarterly performance discussions with all senior managers where workload and financial performance are discussed and assessed.

c. Similarly, does the NRC staff routinely review the fees charged for inspections against the estimated charges set forth in the inspection

procedures? If not, wouldn't doing so help identify any trends that would assist the NRC in budgeting with the most fidelity and transparency?

ANSWER:

The NRC reviews fees charged for inspections against the estimates set forth in the inspection procedures biennially, analyzes for trends, and determines whether the estimates or resources need to be adjusted. This information aids the NRC in developing the appropriate budget to meet its requirements and provides licensees improved transparency regarding projected costs for an inspection.

11. **The NRC budget includes $47.7 million and 124 FTE to restart the Yucca Mountain licensing proceeding. If Congress does not fund the Yucca Mountain proceeding, will NRC's FY 2019 budget request be adjusted downward to reflect the decreased planned workload.**

ANSWER:

If the enacted FY 2019 appropriation does not include funding for Yucca Mountain, the NRC will adjust accordingly.

12. **NRC's budget proposal for Fiscal Year 2019 lists a staffing goal of 3,184 FTE, excluding the Office of Inspector General. According to NRC's documentation, this is a reduction of 149 staff from FY 2018 levels of 3,333. The Commission's recent monthly report to Senate Environment and Public Works Chairman Barrasso reported a total staff of 3,240 in FY 2017 and staffing projections of 3,090 for the end of FY 2018.**

The numbers reported in the Senate EPW committee are starkly divergent from what is in the budget proposal. During the hearing, Commissioner Baran said the NRC ended the last fiscal year with 3200 FTE and Chairman Svinicki said current staffing is slightly over 3,000.

a. What is the agency's current staffing level?

b. Please describe the specific process that resulted in the FY 2018 FTE level in the Congressional Budget Justification to be listed as 3,333.

c. When did the agency last have 3,333 FTE in the organization?

ANSWER;

a. The NRC has 3,001.4 FTE on board as of 3/31/2018, not including the Office of the Inspector General. FTE on board is calculated by dividing the total scheduled hours for all staff for the pay period by 80 hours.

b. The FY 2018 Annualized CR FTE amount of 3,333 is equal to the FY 2017 enacted amount of FTE, excluding the Office of the Inspector General.

c. The NRC had 3,353.9 FTE on board as of 9/17/2016, not including the Office of Inspector General.

The Honorable Tim Walberg

QUESTION 1: **I have a question regarding interactions between FEMA and NRC in the regulatory process. Chairman Svinicki, NRC staff is analyzing the requirements for both decommissioned plant sites as well as advanced nuclear technologies. These requirements are based on the risk profile of those respective plants conducted by your staff. I have heard concerns that recently FEMA's REPP program has sought to expand its role and reflect qualitative concerns, which goes beyond the more disciplined and predictable, quantitative approach reflected in NRC's approach.**

a) Chairman Svinicki, will you please describe NRC's regulatory jurisdiction and process for offsite emergency preparedness?

b) Would you request a meeting with FEMA to resolve any potential jurisdictional issues that have recently been raised between the REPP program and NRC staff?

c) Lastly, would you please keep the Committee staff and my office informed of ongoing discussions on the issue?

ANSWER.

a) The Atomic Energy Act of 1954, as amended[1], and Title II of the Energy Reorganization Act of 1974, as amended[2], establish the NRC's regulatory authorities. Both of these laws provide broad regulatory powers to the Commission, and grant the Commission singular authority for making licensing decisions regarding the overall adequacy of emergency preparedness for a nuclear power plant site. This authority includes making

[1] 42 U.S.C. §§ 2011-2297h (2012)
[2] 42 U.S.C. §§ 5801-5891 (2012)

a final determination whether an emergency planning zone that extends beyond the site boundary is necessary and, if necessary, the appropriate size of the emergency planning zone to adequately protect public health and safety.

Respective agency authorities regarding nuclear power plant emergency plans are cited in 10 CFR §50.47(a)(2), which states:

> The NRC will base its finding [that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency] on a review of the Federal Emergency Management Agency (FEMA) findings and determinations as to whether State and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented, and on the NRC assessment as to whether the applicant's onsite emergency plans are adequate and whether there is reasonable assurance that they can be implemented. A FEMA finding will primarily be based on a review of the plans. Any other information already available to FEMA may be considered in assessing whether there is reasonable assurance that the plans can be implemented. In any NRC licensing proceeding, a FEMA finding will constitute a rebuttable presumption on questions of adequacy and implementation capability.

In addition, the “Memorandum of Understanding [MOU] Between the Department of Homeland Security/Federal Emergency Management Agency and Nuclear Regulatory Commission Regarding Radiological Response, Planning and Preparedness” establishes the framework in which the NRC and FEMA cooperate on all aspects of radiological emergency response, planning, and preparedness. These aspects include: findings and determinations on the continued adequacy of offsite plans and

preparedness for an operating nuclear power plant site or a nuclear power plant site undergoing decommissioning; determinations whether there is a significant impediment to the development of offsite emergency plans by State and local authorities for proposed emergency preparedness licensing actions for new power reactor early site permit and combined license applications; and the development of radiological preparedness-focused information and education programs.

The process for NRC evaluation of a major deficiency identified by FEMA in offsite plans and preparedness, in which the NRC finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, is addressed in 10 CFR 50.54(s)(2). While the NRC will continue to base its finding of reasonable assurance on a review of FEMA findings and determinations, 10 CFR 50.54(s)(3) specifically states that "Nothing in this paragraph shall be construed as limiting the authority of the Commission to take action under any other regulation or authority of the Commission or at any time other than that specified in this paragraph."

b) A meeting between NRC Chairman Svinicki and FEMA Administrator Long is scheduled to occur next month. Additionally, the NRC staff and FEMA staff have held numerous meetings to discuss the issues that have been raised regarding the REPP program. In addition, NRC senior managers have met with FEMA senior managers to discuss these issues.

c) The NRC will ensure the Committee and your office are kept informed of ongoing discussions on this issue.

The Honorable G. K. Butterfield

QUESTION 1. **Chairman Svinicki, the NRC plays an underappreciated though very important role in overseeing the use of nuclear materials in medical products. I understand that the commission recently announced it would be proposing a rule updating the export licensing provisions pertaining to a compound called deuterium, which is essentially heavy water. Several biopharmaceutical manufacturers have incorporated very low levels of this compound into products they are testing in clinical trials due to its favorable impact on metabolism. Can you commit that you will take the unique aspects of clinical trials and the pharmaceutical supply chain into consideration during the development and implementation of this rulemaking as it relates to medical products?**

ANSWER.

Under current NRC regulations in 10 CFR § 110, the NRC licenses exports of deuterium both for nuclear end use, including as a moderator/coolant in certain nuclear reactors, and for non-nuclear end uses in a variety of medical, pharmaceutical, biomedical research activities and fiber optic technologies.

Recently, the number of applications for specific licenses to export deuterium for non-nuclear end uses has increased, prompting the NRC staff to consider a rulemaking to amend 10 CFR Part 110 regulations governing such exports. In particular, the NRC staff is currently working with the Executive Branch to assess revisions to the regulatory controls for exports of deuterium for non-nuclear end uses to make them more efficient and effective. As the NRC works through this process, we will consider input from all stakeholders, including input that may address the

unique aspects of regulating these medical products, and ensure that our regulations continue to protect public health and safety and the U.S. common defense and security.

Attachment 2 – Member Requests for the Record

The Honorable Greg Walden

1. **What is the NRC's forecasted total cost to complete the NuScale design review, and are you aware if NRC's currently performing with respect to the forecasted budget?**

ANSWER:

The NRC does not provide forecasted total costs for completing its reviews. However, the NRC does budget based on how many staff FTE it expects it will take to complete each review by fiscal year. For the NuScale design certification application review, there were 23.8 FTE included in the FY 2017 enacted budget, 33.0 FTE included in FY 2018 enacted budget, and 36.2 FTE proposed in the FY 2019 budget request. For FY 2017, the NRC expended 27.4 FTE and for FY 2018 Quarters 1 and 2, we have expended 24.7 FTE. As of January 2018, the NRC had billed a total of $16,643,723 to NuScale for its review since the application was submitted.

The NRC staff is on schedule to complete its technical review of the NuScale application in 42 months, with issuance of the final safety evaluation report planned for September 2020. In April 2018, the staff achieved its first major milestone, the completion of Phase 1 of the review, on schedule. Phase 1 represented a focused, dedicated, and high level of staff effort, which helped to identify several key technical issues early in the review. The NRC staff will continue working to resolve these issues in a timely manner during Phase 2 of the review. The Phase 2 milestone is scheduled to be completed in FY 2019.

The Honorable Tony Cardenas

1. **How is the department doing when it comes to recruiting today's technical folks that the department needs to fill the positions that would be ongoing?**

ANSWER:

Through its Strategic Workforce Planning efforts, the NRC is working to better identify our current and future workforce needs to ensure that we are hiring the right number of people with the right skills to support the mission in both the short- and long-term. Although the NRC's recruiting efforts have been limited due to declining workload, we continue to be successful in attracting highly skilled expertise for gaps in critical skills necessary to support the mission. Additionally, we are focused on maintaining a pipeline of individuals to fill our future workforce needs through summer internships and entry-level hiring and we continue to attend a small number of campus recruiting events, with a focus on very strong engineering programs, including Minority Serving Institutions (MSIs).

The NRC's proposed outreach schedule and planned participation in recruitment events for calendar year 2018 reflects a mix of schools and technical organizations, with a focus on engineering/science programs and diversity. These schools and organizations have a history of providing the NRC with a highly qualified and diverse applicant pool, which includes under-represented minorities, women, veterans, and disabled individuals. The schools are a mix of MSI's and recipients of grants under the NRC's Integrated University Program (IUP). Through the IUP, the NRC provides grants to academic institutions to support education in nuclear science and engineering, in part to develop a workforce capable of supporting the design, construction, operation, and regulation of nuclear facilities and the safe handling of nuclear materials. Individuals who received support through the IUP may be hired non-competitively by the NRC.

2. **Chairman if we could get a report from the commission on how local communities can enlist in making sure that young, talented folks can apply these kinds of programs. For example, the campuses that you are already involved in or the campuses that you would like to be involved in.**

ANSWER.

Our current recruitment efforts for internships and entry level positions are focused on individuals with the technical expertise needed to sustain the mission of the agency. To support our hiring goals, the NRC utilizes its established University Champions (UC) Program, in addition to focusing outreach efforts on MSIs, schools that have received funding under the NRC's IUP, and professional organizations that focus on helping veterans and individuals with disabilities find jobs. Through the UC program, NRC managers and senior staff volunteer to serve as emissaries of the NRC and act as liaisons with faculty and other university staff to promote awareness of the student and employment opportunities available at the NRC. Currently we have 56 UC's affiliated with 37 schools and one professional organization.

For calendar year 2018, the proposed list of outreach and recruitment events is as follows:

School/Professional Organization	Justification for participation
Alcorn State University	IUP recipient; MSI; Health Physics & Radiological Health Science
Drexel University	Civil, Chemical, Electrical, Materials Science & Mechanical Engineering
Texas Southern University	IUP; MSI; Health & Radiation Physics
Oregon State University	IUP; Nuclear Engineering & Radiation Health Physics
Texas A&M University	IUP; Nuclear, Mechanical, Chemical, Materials and Radiological Health Engineering, Health Physics and Geosciences; University Champion.
Purdue University Industrial Roundtable & Nuclear Engineering Opportunity Night (NEON) fairs	IUP; Nuclear, Materials, Civil, and Computer Engineering, Construction Engineering & Management, Geology, Geophysics, Radiological Health and Health Physics; University Champion
South Carolina State University	IUP; MSI; Nuclear Engineering; University Champion
University of Puerto Rico-Mayaguez	IUP; High Hispanic Enrollment; Chemical, Mechanical, Civil and Electrical Engineering; University Champion.
University of Michigan's Nuclear Engineering & Radiological Sciences (NERS) fair	IUP; Nuclear, Mechanical, Civil, Chemical, Environmental, Electrical, Computer and Materials Engineering, Radiological Sciences and Engineering Physics; University Champion
Society of Women Engineers (SWE)	Women Engineers - Encompasses Student and Professional components
EOP Careers & the disABLED STEM	People with disabilities - Encompasses Student and Professional components
Service Academy Career Conference (SACC) -2 fairs	Veterans and University Champion

The Honorable Richard Hudson

1. **Can you provide updated request for additional information (RAI) tracking information to the committee?**

Yes. Please see the enclosed table and the reports now being provided to the Committee each month.

Office of Nuclear Reactor Regulation

(a) Month/Year	(b) Number of RAIs Issued	(c) Number of RAIs Issued Prior to the Preparation of a Draft Safety Evaluation with Open Items	(d) Number of RAIs Issued in an Additional Round, Subsequent to Previous RAIs in Specific Technical Area or by a Technical Branch	(f) The Percentage of RAI Responses Provided by Licensees within 30 Days or the Date Mutually Agreed Upon	(g) The Number of RAIs prepared by NRC staff	(h) The Number of RAI Responses Reviewed by NRC Staff	(i) 12 Month Rolling Average, Number of RAIs Issued by Each Office
Nov 2017	217	Note 1	1	99%	217 Note 2	152	Note 3
Dec 2017	154	Note 1	4	100%	154 Note 2	162	Note 3
Jan 2018	205	Note 1	1	83%	205 Note 2	168	Note 3
Feb 2018	60	Note 1	2	94%	60 Note 2	138	Note 3
March 2018	81	Note 1	21	98%	81 Note 2	65	Note 3

Note 1: The database systems do not have readily available information that distinguishes between item (b) and (c). Accurately compiling the number of RAI questions issued prior to preparation of a draft safety evaluation with open items would require extensive manual document searches and analysis to cover the significant volume of project reviews. The count of RAIs is presented collectively under Item (b).

Note 2: The NRC employs contractors to supplement the staff in selected critical skill areas; however, all RAIs identified by contractors are evaluated by NRC staff to verify that they are necessary to support a regulatory finding. If the RAIs are necessary, they are formally prepared and issued by NRC staff. The NRC does not track the number of draft RAIs prepared by contractors. In addition, the NRC staff is responsible for making the final determination on the acceptability of all RAI responses.

Note 3: A 12-month rolling average will not be available until November 2018.

Office of New Reactors

Project Name	Number of RAIs Issued in November 2017	Number of RAIs Issued Prior to Preparation of a Draft SER with Open Items in November 2017	Number of RAIs Issued in an Additional Round, Subsequent to Previous RAIs, in Specific Technical Area or by Technical Branch in November 2017 (Note 1)	Percentage of RAIs Responses Provided by the Applicant/Licensee within 30 Days or the Date Mutually Agreed Upon in November 2017	Number of RAIs Prepared or Responses Reviewed by Contractors in November 2017 (Note 2)	Number of RAIs Prepared or Responses Reviewed by NRC Staff in November 2017 (Note 2)	12-Month Rolling Average (Note 3)
APR1400 Design Certification (DC)	0	0	N/A	N/A	0	0	N/A
Advanced Boiling Water Reactor (ABWR) DC Renewal (General Electric Hitachi (GEH))	0	0	N/A	N/A	0	0	N/A
Clinch River Early Site Permit (ESP)	5	0	N/A	N/A	0	5	N/A
NuScale Small Modular Reactor (SMR) DC	37	37	N/A	72%	0	37	N/A
NuScale Topical Reports	5	0	N/A	100%	0	5	N/A
Vogtle LARs	6	4	N/A	100%	0	6	N/A

Project Name	Number of RAIs Issued in December 2017	Number of RAIs Issued Prior to Preparation of a Draft SER with Open Items in December 2017	Number of RAIs Issued in an Additional Round, Subsequent to Previous RAIs, in Specific Technical Area or by Technical Branch in December 2017 (Note 1)	Percentage of RAIs Responses Provided by the Applicant/Licensee within 30 Days or the Date Mutually Agreed Upon in December 2017	Number of RAIs Prepared or Responses Reviewed by Contractors in December 2017 (Note 2)	Number of RAIs Prepared or Responses Reviewed by NRC Staff in December 2017 (Note 2)	12-Month Rolling Average (Note 3)
APR1400 Design Certification (DC)	1	0	N/A	100%	0	8	N/A
Advanced Boiling Water Reactor (ABWR) DC Renewal (General Electric Hitachi (GEH))	0	0	N/A	N/A	0	0	N/A
Clinch River Early Site Permit (ESP)	3	0	N/A	N/A	0	3	N/A
NuScale Small Modular Reactor (SMR) DC	62	62	N/A	83%	0	62	N/A
NuScale Topical Reports	7	0	N/A	100%	0	7	N/A
Vogtle LARs	3	3	N/A	0	0	3	N/A

Project Name	Number of RAIs Issued in January 2018	Number of RAIs Issued Prior to Preparation of a Draft SER with Open Items in January 2018	Number of RAIs Issued in an Additional Round, Subsequent to Previous RAIs, in Specific Technical Area or by Technical Branch in January 2018 (Note 1)	Percentage of RAIs Responses Provided by the Applicant/Licensee within 30 Days or the Date Mutually Agreed Upon in January 2018	Number of RAIs Prepared or Responses Reviewed by Contractors in January 2018 (Note 2)	Number of RAIs Prepared or Responses Reviewed by NRC Staff in January 2018 (Note 2)	12-Month Rolling Average (Note 3)
APR1400 Design Certification (DC)	0	0	N/A	0%	0	0	N/A
U.S. Advanced Pressurized Water Reactor (US-APWR) DC	1	0	N/A	N/A	0	1	N/A
Advanced Boiling Water Reactor (ABWR) DC Renewal (General Electric Hitachi (GEH))	0	0	N/A	N/A	0	0	N/A
Clinch River Early Site Permit (ESP)	0	0	N/A	N/A	0	0	N/A
NuScale Small Modular Reactor (SMR) DC	76	76	N/A	39%	0	76	N/A
NuScale Topical Reports	2	2	N/A	46%	0	2	N/A
Vogtle LARs	11	11	N/A	100%	0	11	N/A

Project Name	Number of RAIs Issued in February 2018	Number of RAIs Issued Prior to Preparation of a Draft SER with Open Items in February 2018	Number of RAIs Issued in an Additional Round, Subsequent to Previous RAIs, in Specific Technical Area or by Technical Branch in February 2018 (Note 1)	Percentage of RAIs Responses Provided by the Applicant/Licensee within 30 Days or the Date Mutually Agreed Upon in February 2018	Number of RAIs Prepared or Responses Reviewed by Contractors in February 2018 (Note 2)	Number of RAIs Prepared or Responses Reviewed by NRC Staff in February 2018 (Note 2)	12-Month Rolling Average (Note 3)
APR1400 Design Certification (DC)	0	0	N/A	0%	0	9	N/A
U.S. Advanced Pressurized Water Reactor (US-APWR) DC	0	0	N/A	100%	0	1	N/A
Advanced Boiling Water Reactor (ABWR) DC Renewal (General Electric Hitachi (GEH))	0	0	N/A	N/A	0	0	N/A
Clinch River Early Site Permit (ESP)	0	0	N/A	100%	0	3	N/A
NuScale Small Modular Reactor (SMR) DC	28	28	N/A	62%	0	28	N/A
NuScale Topical Reports	4	4	N/A	50%	0	4	N/A
Vogtle LARs	4	4	N/A	100%	0	4	N/A

	Number of RAIs Issued in March 2018	Number of RAIs Issued Prior to Preparation of a Draft SER with Open Items in March 2018	Number of RAIs Issued in an Additional Round, Subsequent to Previous RAIs, in Specific Technical Area or by Technical Branch in March 2018 (Note 1)	Percentage of RAIs Responses Provided by the Applicant/Licensee within 30 Days or the Date Mutually Agreed Upon in March 2018	Number of RAIs Prepared or Responses Reviewed by Contractors in March 2018 (Note 2)	Number of RAIs Prepared or Responses Reviewed by NRC Staff in March 2018 (Note 2)	12-Month Rolling Average (Note 3)
APR1400 Design Certification (DC)	1	0	N/A	0%	0	7	N/A
U.S. Advanced Pressurized Water Reactor (US-APWR) DC	1	0	N/A	N/A	0	1	N/A
Advanced Boiling Water Reactor (ABWR) DC Renewal (General Electric Hitachi (GEH))	0	0	N/A	N/A	0	0	N/A
Clinch River Early Site Permit (ESP)	8	8	N/A	80%	0	13	N/A
NuScale Small Modular Reactor (SMR) DC	73	73	N/A	91%	0	110	N/A
NuScale Topical Reports	4	4	N/A	100%	0	8	N/A
Vogtle LARs	2	2	N/A	100%	0	7	N/A

Note 1: NRO does not currently have an electronic system to track how many RAIs are issued in an additional round as a subsequent RAI to a previous RAI issued. To develop this capability within the current electronic system used to track RAIs would be labor and resource intensive.

Note 2: The NRC employs contractors to supplement the staff in selected critical skill areas; however, all RAIs identified by contractors are evaluated by NRC staff to verify that they are necessary to support a regulatory finding. If the RAIs are necessary, they are formally prepared and issued by NRC staff. The NRC does not track the number of draft RAIs prepared by contractors. In addition, the NRC staff is responsible for making the final determination on the acceptability of all RAI responses.

Note 3: A 12-month rolling average will not be available until November 2018.

2. **Do managers in the Offices of Nuclear Reactor Regulation [NRR] and New Reactors [NRO] review additional rounds of RAIs, as GAO reported was the agency's intent?**

ANSWER.

Yes. Prior to sending a second (and any subsequent) round of RAIs in a specific technical area, senior management (e.g., Division Director) approval is required. The NRC does not explicitly track Division Director reviews, however, oversight is expected to be captured through their concurrence when transmitting the RAIs. Further, Office Directors are notified of high-priority issues identified in reviews that would require additional rounds of RAIs.

To ensure that the staff continues to apply discipline and management oversight to the RAI process, mandatory RAI refresher training for applicable NRR, NRO, and Office of Nuclear Security and Incident Response staff and branch chiefs has recently been completed, with about 300 staff and supervisors attending the training. Additionally, periodic quality reviews are conducted to assess progress on recommendations and adherence to the guidance.

The Honorable Jeff Duncan

1. **You have asked for an increase in the budget and the new reactors office has significantly reduced workload, claims a 13 percent reduction in staffing, and you ask for an increase of $4 million in funding. How do you explain that contradiction?**

ANSWER:

The FY 2019 budget request for the New Reactors Business Line shows an increase of approximately $4 million over the FY 2018 Annualized CR amount. Although workload and FTE levels are decreasing, the decreases in workload and staffing are offset by the increasing cost of salaries and benefits (S&B) and additional resources requested for advanced reactor regulatory infrastructure activities. The S&B rate increase includes an across-the-board increase in FY 2018 as well as a locality adjustment. Additional increases include health and retirement benefits. The FY 2019 budget request also includes an increase in resources of $5 million to support activities related to the development of the regulatory infrastructure for advanced nuclear reactor technologies.

The Honorable Bill Johnson: Question for Commissioner Burns

1. **Under your leadership as Chairman, CRGR was directed to update its charter and revise its review procedures. Has CRGR issued its revised charter and if so what are the principal updates to the document?**

ANSWER:

The CRGR charter is currently under revision to clarify the responsibilities and functions of the Committee. The revised charter is scheduled for completion by June 29, 2018. Based on recent Commission and Executive Director for Operations tasking, the CRGR charter is being expanded to include plant-specific reviews in addition to generic backfitting reviews. Additionally, the revised charter will reflect the CRGR expanded involvement in reviewing rulemakings for the agency. To this effect, the revised CRGR charter will include an appendix that provides guidance to the staff on when to engage the CRGR on rulemakings. Consistent with recent legal evaluation of the agency's backfitting framework by the Office of the General Counsel, the revised CRGR charter will also reflect enhanced rigor in the execution of the compliance exception to the requirement to perform a backfit analysis for backfitting actions. The revised charter will also reflect enhanced openness in CRGR operations through inclusion of an option for external stakeholder participation to inform CRGR deliberations via public meetings.

The Honorable Adam Kinzinger

1. **Can you explain in more detail where there's an increase in corporate support costs? Chairman Svinicki also said there would be more information provided on Corporate Support costs.**

ANSWER:

When compared to the FY 2018 Enacted budget, the FY 2019 Corporate Support Business Line budget provides an increase of $3.2 million, but with a decrease of 8.0 FTE. While the FY 2019 President's Budget includes a decrease in FTE, savings from those reductions are offset by rising costs for salaries and benefits of the existing staff, comprised of a more experienced workforce following downsizing and limited new hires. Additionally, salaries and benefits increases reflect year-over-year growth in the agency's share of employee benefit costs for the remaining 609 FTE.

The Honorable Doris O. Matsui

1. **Can you outline some of the differences between the facilities, Holtec in New Mexico and Waste Control Specialists in Texas, envisioned by the two applications?**

ANSWER

Both applications request authorization to construct and operate a Consolidated Interim Storage Facility for spent nuclear fuel and both applications propose to incrementally expand the capacity of the facilities in phases through later license amendments. Some of the differences between the facilities, among others, include the size of the facilities and the types of storage systems. In the initial submittals, the Holtec application seeks authorization to store 8,680 Metric Tons of Uranium (MTUs), whereas the WCS application requests authorization to store 5,000 MTUs. The Holtec application plans for a maximum capacity of 100,000 MTUs whereas the WCS application references a maximum of 40,000 MTU. In these initial applications, Holtec seeks to store the material in its HI-STORM UMAX Canister Storage System and place them largely below-grade in a vertical orientation. The WCS application utilizes storage systems from two different vendors, NAC International and Orano (formerly Areva), and plans to use both horizontal and vertical configurations. Storage systems employed by Holtec, NAC, and Orano have all previously received licenses from the NRC. Both applications have been accepted for review by the NRC, however, a review of the WCS application is currently suspended at the applicant's request.