

POLICY ISSUE
(Information)

April 22, 2016

SECY-16-0055

FOR: The Commissioners

FROM: Victor M. McCree
Executive Director for Operations

SUBJECT: CONSTRUCTION REACTOR OVERSIGHT PROCESS
SELF-ASSESSMENT FOR CALENDAR YEAR 2015

PURPOSE:

The purpose of this paper is to present the results of the U.S. Nuclear Regulatory Commission (NRC) staff's calendar year (CY) 2015 self-assessment of the Construction Reactor Oversight Process (cROP). This paper does not address any new commitments.

SUMMARY:

The results of the CY 2015 self-assessment show that the staff effectively applied the NRC's Principles of Good Regulation while implementing the cROP. The cROP met the agency's strategic goals of ensuring safety and security through objective, risk-informed, transparent, and predictable oversight. The staff will continue to evaluate the efficacy of the program and solicit input from internal and external stakeholders to further improve the cROP.

CONTACT: Thomas J. Kozak, NRO/DCIP
301-415-6892

BACKGROUND:

The staff conducted the CY 2015 cROP self-assessment in accordance with Inspection Manual Chapter (IMC) 2522, "Construction Reactor Oversight Process Self-Assessment Program," dated July 28, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14189A211). The staff has issued four previous cROP self-assessment Commission papers and has briefed the Commission annually on the results after the Agency Action Review Meeting. The Commission has provided the staff with direction in the form of a staff requirements memorandum (SRM) after these briefings. In its most recent SRM, "Staff Requirements—Briefing on Results of the Agency Action Review Meeting (AARM), 9:00 A.M., Thursday, May 21, 2015, [...]," dated June 01, 2015 (ADAMS Accession No. ML15152A411), the Commission did not identify any new cROP requirements for staff action.

The staff also discussed cROP effectiveness with the Commission during the strategic programmatic overview of the New Reactors Business Line (NRBL) on September 24, 2015. In the SRM for this briefing, "Staff Requirements Memorandum—Briefing on Strategic Programmatic Overview of the New Reactors Business Line, 10:00 A.M., Thursday, September 24, 2015 [...]," dated September 30, 2015 (ADAMS Accession No. ML15273A091), the Commission did not identify any new cROP requirements for staff action.

DISCUSSION:

To ensure that the cROP self-assessment for CY 2015 was comprehensive and robust, the staff conducted numerous activities and obtained data from many sources, including the cROP performance metrics described in IMC 2522, internal and external stakeholder feedback, and direction and insight supplied by the Commission in recent years. The staff analyzed the data to gauge cROP effectiveness and potential areas for improvement. The scope of the staff's self-assessment included cROP program area evaluations (construction inspection program, construction significance determination process (SDP), and construction assessment and enforcement programs), staff progress in resolving issues associated with inspections, tests, analyses, and acceptance criteria (ITAAC), construction experience program, independent evaluations, cROP communications, and cROP resources.

cROP Program Evaluations

Staff looked at program evaluations in the three key cROP areas: the construction inspection program, construction SDP, and construction assessment and enforcement programs.

Construction Inspection Program

During CY 2015, the staff continued to effectively implement the construction baseline inspection program and independently verify that the AP1000® licensees are constructing the four new reactors in accordance with the approved design. The staff met the two construction inspection program metrics as all inspection reports and all responses to technical assistance requests were issued within the timeliness goals. The staff ensured that inspection guidance for all phases of construction was available to the inspection staff. There are no outstanding procedure change requests that need resolution to support ongoing and planned inspections in CY 2016.

In January 2015, the NRC Region II staff formed a process review team (PRT) to identify cROP inefficiencies and make recommendations for improvement. The PRT conducted a comprehensive review to understand the challenges and inefficiencies in planning, scheduling, and documenting construction inspections. The PRT identified 11 recommendations to improve the efficiency and effectiveness of planning, scheduling, and documenting the results of construction inspections. The staff has implemented the PRT recommendations, which included the realignment of duties and responsibilities, position designation and description changes, and personnel moves. The PRT Conclusions and Recommendations and PRT Transition Map are available in ADAMS at Accession No. ML15188A398. The staff will continue to evaluate and improve the planning, scheduling, and documenting of construction inspections.

Construction Significance Determination Process

During CY 2015, the staff continued to effectively implement the construction significance determination process in support of the cROP goals to be objective, predictable, understandable, and open. The staff met the two construction significance determination process metrics. A review of inspection findings determined that the documentation for all findings contained adequate detail to enable an independent auditor to reach the same significance color characterization and there were no appeals to any of the findings' significance determination. In 2015, no revisions were carried out for the construction significance determination process, and the construction significance determination process has no pending updates. The staff will continue to monitor the significance determination process implementation and consider improvements as necessary.

Construction Performance Assessment and Enforcement Programs

During CY 2015, the staff continued to effectively implement the construction assessment program, and ensured that the NRC and licensees took appropriate actions to address performance issues commensurate with their safety significance. The staff met the four construction assessment program metrics. There were no deviations from the Construction Action Matrix, all assessment program timeliness goals were met, and construction inspections were conducted in a timely manner. All inspection findings were of very low safety significance (Green) and all four units under construction remained in the licensee response column of the Construction Action Matrix.

The Reactor Oversight Process (ROP) Independent Assessment Report of 2013 (ADAMS Accession No. ML14035A571) included a recommendation to review the criteria for transition to Column 3 of the Action Matrix against the original ROP program goals to ensure that the significance of White inspection findings is not being overemphasized and to ensure that agency resources used to process White inspection findings are commensurate with findings that, by definition, are of low-to-moderate safety significance. In SECY-15-0108, "Recommendation to Revise the Definition of Degraded Cornerstone as Used in the Reactor Oversight Process," dated August 28, 2015 (ADAMS Accession No. ML15076A066), the staff recommended changing the definition of a degraded cornerstone from two White inputs to three White inputs in the same cornerstone. The staff also informed the Commissioners in SECY-15-0108 that, if approved, the staff planned to incorporate this recommendation into the Construction Action Matrix. The Commission approved the staff recommendation in the SRM to SECY-15-0108 (ADAMS Accession No. ML15335A559). In CY 2016, the staff plans to revise the Construction

Action Matrix definition of a degraded cornerstone accordingly in a revision to IMC 2505, "Periodic Assessment of Construction Inspection Program Results."

The ROP Independent Assessment Report of 2013 also included a recommendation that the staff perform an analysis to determine whether the use of the substantive cross-cutting issue (SCCI) process provided regulatory value in terms of assessing licensee safety performance. The report also suggested that the staff consider replacing the use of SCCIs with a process that uses the Nuclear Safety Culture Common Language traits and attributes in a graded regulatory response. A working group was formed to evaluate the effectiveness of the SCCI process that the staff has applied to the ROP and cROP, and to develop recommendations to replace or revise the process. The working group made several recommendations to revise the SCCI process (ADAMS Accession No. ML14309A612). The recommendations included: (1) changing the threshold for a cross-cutting theme, (2) creating a new cross-cutting theme at the cross-cutting area level, (3) eliminating the subjective questions to determine if an SCCI existed, and (4) changing the name of SCCIs to cross-cutting issues (CCIs). In 2016, the staff will incorporate recommendations from the SCCI working group into the cROP through a revision to IMC 2505.

Enforcement Guidance Memorandum (EGM) 11-006, "Enforcement Actions Related to the Construction Reactor Oversight Process," dated December 21, 2011 (ADAMS Accession No. ML11354A092), authorizes the staff to disposition construction enforcement actions in a similar manner to its practice for operating reactors. The staff has incorporated EGM-11-006 guidance into a proposed revision to the Enforcement Policy. In SECY-15-0163, "Proposed Revisions to the U.S. Nuclear Regulatory Commission Enforcement Policy," dated December 13, 2015 (ADAMS Accession No. ML15229A093), the staff requested Commission approval of the proposed Enforcement Policy revisions.

Staff Progress in Resolving Issues Associated with ITAAC

During CY 2015, the staff continued to effectively implement and refine the processes and guidance developed for ITAAC closure. Through CY 2015, Southern Nuclear Operating Company had submitted a total of 37 ITAAC closure notifications (ICNs) for Vogtle, Units 3 and 4. South Carolina Electric and Gas Company had submitted a total of 35 ICNs for V.C. Summer, Units 2 and 3. A significant increase in the number of ICN submittals from each new plant site is expected in 2016 as construction progresses. The staff met the ITAAC closure metric as there were no ICNs verified as complete and then reopened by the staff. No adjustments to the closure process or the existing resources are required to improve the effectiveness of the ITAAC closure review program.

The staff and industry are participating in a pilot exercise that focuses on the review of Uncompleted ITAAC Notifications (UINs) that are voluntarily submitted by licensees earlier than required by Title 10 of the Code of Federal Regulations (10 CFR) 52.99(c)(3). As part of the pilot, the staff will evaluate the potential benefits and costs of the voluntary early submittal of UINs. Potential benefits include (1) a reduction to the NRC staff's review time during the expected surge of ICNs late in construction and (2) earlier availability of information to the public on licensee ITAAC closure plans. These earlier submittals could also allow the NRC to identify potential ITAAC closure issues earlier in the construction process. Potential costs include those from (1) additional overall NRC staff UIN review times and (2) development of required infrastructure to process, track, and adequately document the status of the UINs. The UIN pilot

project began in September 2015 and is expected to be completed by the end of CY 2016. The pilot results will be evaluated to determine whether the staff should review early UIN submittals to facilitate the verification reviews of ICNs.

The NRC staff submitted SECY-13-0033, "Allowing Interim Operation under Title 10 of the *Code of Federal Regulations* Section 52.103," to the Commission on April 4, 2013 (ADAMS Accession No. ML12289A928), and the associated SRM was issued on July 19, 2013 (ADAMS Accession No. ML13200A115). SECY informed the Commission of issues associated with interim operation while ITAAC hearings were pending. In the SRM, the Commission approved the staff's recommendation that the Commission delegate the 10 CFR 52.103(g) finding to the staff. Since the issuance of SECY-13-0033 and the associated SRM, the NRC staff, the Office of the General Counsel, and the Office of Commission Appellate Adjudication have formed an ITAAC Hearing Procedures Working Group which developed procedures and templates for use in the hearing process. In April 2014, the draft procedures were published in the *Federal Register* for public comment. Public meetings were held in May and September of 2014 to discuss issues related to the procedures, and final comments were collected in October 2014. The staff transmitted the draft procedures to the Commission in SECY-15-0010, "Final Procedures for Hearings on Conformance with the Acceptance Criteria in Combined Licenses," dated January 20, 2015 (ADAMS Accession No. ML14343A747). In the associated SRM issued on April 1, 2016 (ADAMS Accession No. ML16092A099), the Commission approved finalizing the ITAAC hearing process procedures.

The NRC staff continues to develop an Office of New Reactors (NRO) office instruction on the staff's determination process to support 10 CFR 52.103. This instruction will provide guidance on the review of the licensee's ITAAC completion to support the staff in making the finding in accordance with 10 CFR 52.103(g) that all acceptance criteria are met. In addition, the instruction will provide guidance on the staff's conclusion on the 10 CFR 52.103(g) finding for interim operation under 10 CFR 52.103(c). The staff is also developing a template for a Commission paper that will be submitted to inform the Commission that the staff is ready to make the 10 CFR 52.103(g) finding. The staff is coordinating the development of the office instruction with the progress on the ITAAC hearing procedures to ensure full compatibility.

Construction Experience Program

During 2015, the Office of Nuclear Reactor Regulation (NRR) Operating Experience (OpE) staff and the NRO Construction Experience (ConE) staff continued to collect, evaluate, and communicate OpE and ConE information. The NRO ConE staff reviewed and evaluated operational events and new reactor construction issues for applicability to domestic reactor designs, the new reactor licensing process, and the vendor and construction inspection programs.

In 2015, the ConE staff published and supported the issuance of three information notices on topics related to important-to-safety components, snubber lubricant degradation, and fatigue in branch connection welds. The ConE staff published two regulatory issue summaries on topics related to oversight of counterfeit, fraudulent, and suspect items, and licensing applications for reactor coolant pressure boundary components. The ConE staff also coordinated with the NRR OpE staff to address operating experience issues for resolution on topics related to the installation of unqualified relays, willful misconduct while performing nuclear safety-related

construction activities at Watts Bar Nuclear Plant Unit 2, and original construction deficiencies that contributed to safety injection line flaws at McGuire Nuclear Station.

In 2015, the ConE staff continued to support the agency's international partnerships by exchanging information and lessons learned within the Nuclear Energy Agency's (NEA) international construction experience exchange database (ConEx) and in associated NEA reports. In 2015, the ConE staff shared two construction-related issues identified through NRC inspections and licensee event reporting programs in the United States, including the failure to implement appropriate procedures for drilling into concrete and deviations from pipe support coating requirements at the AP1000® units. The ConE staff also conducted a peer review of two international ConEx submittals, including the mis-installation of containment vertical tendon sheaths at Olkiluoto, Unit 3 and the design mismatch of control room display windows of the plant monitoring and alarm system at Shinwolsung, Unit 2. In 2014, the staff had identified 20 issues for the ConEx database through a review of events occurring in previous years. In 2016, the staff will continue to evaluate events as they occur and will also continue to evaluate past events that occurred at operating reactor sites to determine if they are also applicable to reactors under construction.

Independent Evaluations

In addition to the previously discussed evaluations that were conducted by the staff in the key cROP program areas, the Office of the Inspector General (OIG) completed an independent audit of the cROP and documented its results in OIG 15-A-14, "Audit of NRC's Construction Reactor Oversight Process (cROP)," dated June 16, 2015 (ADAMS Accession No. ML15167A491). The OIG audit report included two recommendations to improve cROP efficiency. The staff took actions to address the two recommendations and OIG status memorandum, "Status of Recommendations: Audit of NRC's Construction Reactor Oversight Process (cROP) (OIG-15-A-14)," dated March 7, 2016 (ADAMS Accession No. ML16067A193), listed all recommendations as closed.

The OIG also completed an audit of the staff's ITAAC process and made 10 recommendations in OIG-12-A-16, "Audit of NRC's Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Process," dated July 12, 2012 (ADAMS Accession No. ML12194A434). The staff took actions to address the 10 recommendations, and OIG status memorandum, "Status of Recommendations: Audit of NRC's Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Process (OIG-12-A-16)," dated September 23, 2015 (ADAMS Accession No. ML15266A055), listed all recommendations as closed. The staff is actively implementing actions recommended in the OIG audit. For example, the staff developed a comprehensive, web-based training course on the ITAAC process and has delivered this training to technical staff and managers. Also, the staff issued Office Instruction NRO-COM-108, "NRO Construction Inspection Interfaces with Region II" to enhance communication and coordination between staff from NRC headquarters and Region II. Regional and headquarters construction inspection staff regularly interface at weekly meetings and other programmatic briefings to discuss and to resolve issues as they arise.

cROP Communications

The staff continued to provide external stakeholders with several methods to access cROP information and to offer feedback. The annual public end-of-cycle performance assessment

meetings were conducted near Vogtle, Units 3 and 4, and V. C. Summer, Units 2 and 3. Although the meetings were lightly attended, the staff responded to several questions from members of the public. The cROP public web page includes a readily accessible feedback link that allows stakeholders to offer direct feedback to the staff by selecting a link that generates an e-mail to the cROP team. The staff held three public meetings to discuss the construction inspection program, the implementation of ITAAC lessons learned, and other related topics. Members of the public, industry representatives, and other external stakeholders routinely participate in these public meetings. In addition, senior managers from Region II and NRO visited the two construction sites quarterly, during which time topics of mutual interest were discussed with senior licensee and other consortium management.

In October 2015, staff participated in a bilateral exchange with representatives of China's National Nuclear Safety Administration (NNSA) regarding China's reactor commissioning program. The NNSA supplied status updates on China's reactor commissioning program, challenges encountered, and discussed a possible joint inspection protocol. Discussions with the NNSA focused on future inspection exchanges and the initial test program that is underway at the AP1000® units in China. The NRC delegation toured the Haiyang AP1000® construction site. As part of the NRC's continued cooperation with the NNSA, the NRC sent two Region II inspectors to Sanmen to observe commissioning activities during the summer of 2015. In addition, NNSA sent a representative to observe NRC activities for 6 months, which was divided between NRC headquarters vendor inspection branches and Region II construction inspection branches. The next interaction with NNSA is planned for September 2016 in China.

cROP Resources

Resources for cROP activities are budgeted under the NRBL. At the end of CY 2015, 44 full-time equivalents (FTEs) assigned to Region II were qualified construction inspectors. Four more employees were undergoing construction inspector qualifications (two cross-training, two initial qualifications). Construction resident inspector (CRI) staffing is largely based on the amount and type of safety-related activities occurring on site. During CY 2015, the NRC assigned one senior CRI and three CRIs to Vogtle, Units 3 and 4, and also to V. C. Summer, Units 2 and 3. Additional inspectors were dispatched to the sites on a temporary basis to perform specialty inspections.

The staff originally estimated that the direct inspection effort will be 35,000 hours per unit over the course of the construction project. Through CY 2015, actual construction inspection hours expended at Vogtle, Unit 3, and V. C. Summer, Unit 2, slightly exceed the original direct inspection effort estimate when prorated over the expected construction duration for these units. This is primarily due to inspections needed to review licensee corrective actions for design control and module receipt inspection performance deficiencies, and the need to inspect issues with construction that lead to license amendment requests. Therefore, it is likely that the original direct inspection estimate will be exceeded at Vogtle, Unit 3, and V. C. Summer, Unit 2. However, corrective actions implemented by the licensees have for the most part been effective in preventing similar performance deficiencies from occurring at Vogtle, Unit 4, and V. C. Summer, Unit 3. Therefore, the staff anticipates that direct inspection effort will meet or be less than the 35,000 hour estimate at Vogtle, Unit 4, and V. C. Summer, Unit 3. The staff has determined that the original estimate of 35,000 direct inspection hours is reasonably accurate and no changes to the estimate are planned based on field experience to date. The staff will continue to closely monitor direct inspection resource expenditures.

The staff routinely reviews NRBL resource allocations during the Planning, Budgeting, and Performance Management (PBPM) process. With the completion of construction activities and issuance of an operating license for Watts Bar Nuclear Plant, Unit 2, and efficiencies identified for the new reactor construction inspection program through internal reviews, there has been a reduction in FTEs allocated to the NRBL for construction inspection in the fiscal year (FY) 2016 budget. Further FTE reductions were included in the formulation of the FY 2017 budget proposal. The staff will continue to right-size NRBL allocated resources through the PBPM in future years. Detailed resources for the cROP are provided in the enclosure to this paper.

CONCLUSION:

The self-assessment results for CY 2015 show that the cROP provided effective oversight by meeting program goals and achieving intended outcomes. The cROP was objective, risk-informed, transparent, and predictable. The cROP also ensured openness and effectiveness in support of the agency's mission and its strategic goals of safety and security. During CY 2015, the staff continued to find opportunities to strengthen program effectiveness and implementation. The staff recognizes the value of continuous improvement and will continue to consider stakeholder feedback in its efforts to apply lessons-learned and improve various aspects of the cROP. The staff will continue to monitor and to right-size NRBL allocated resources through the PBPM.

COORDINATION:

This paper has been coordinated with the Office of the General Counsel, which has no legal objection. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

/RA/

Victor M. McCree
Executive Director
for Operations

Enclosure: As stated

The staff routinely reviews NRBL resource allocations during the Planning, Budgeting, and Performance Management (PBPM) process. With the completion of construction activities and issuance of an operating license for Watts Bar Nuclear Plant, Unit 2, and efficiencies identified for the new reactor construction inspection program through internal reviews, there has been a reduction in FTEs allocated to the NRBL for construction inspection in the fiscal year (FY) 2016 budget. Further FTE reductions were included in the formulation of the FY 2017 budget proposal. The staff will continue to right-size NRBL allocated resources through the PBPM in future years. Detailed resources for the cROP are provided in the enclosure to this paper.

CONCLUSION:

The self-assessment results for CY 2015 show that the cROP provided effective oversight by meeting program goals and achieving intended outcomes. The cROP was objective, risk-informed, transparent, and predictable. The cROP also ensured openness and effectiveness in support of the agency's mission and its strategic goals of safety and security. During CY 2015, the staff continued to find opportunities to strengthen program effectiveness and implementation. The staff recognizes the value of continuous improvement and will continue to consider stakeholder feedback in its efforts to apply lessons-learned and improve various aspects of the cROP. The staff will continue to monitor and to right-size NRBL allocated resources through the PBPM.

COORDINATION:

This paper has been coordinated with the Office of the General Counsel, which has no legal objection. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

/RA/

Victor M. McCree
Executive Director
for Operations

Enclosure: As stated

ADAMS Accession No: ML16061A168 WITS: 201100140 *via email SECY-012

| | | | | |
|---------------|----------------|--------------------------|---------------|--------------------|
| OFFICE | NRO/DCIP/CIPB* | NRO/DCIP/CIPB | NRO/DCIP/IGCB | NRO/DCIP/DD |
| NAME | TKozak | RLukes | BAnderson | MCheck |
| DATE | 2/26/16 | 3/2/16 | 3/4/16 | 3/9/16 |
| OFFICE | NRO/PMDA | RGN II:DRAC* | OE* | OCFO* |
| NAME | DHumerick | LDudes* (KO'Donohue for) | RFretz | BFicks (SHurd for) |
| DATE | 3/11/16 | 3/21/16 | 3/14/16 | 3/28/16 |
| OFFICE | Tech Editor* | OGC/NLO | NRO | EDO |
| NAME | JDougherty | PMoulding | JUhle | VMcCree |
| DATE | 3/16/16 | 3/25/16 | 4/15/16 | 04/22/16 |

OFFICIAL RECORD COPY

Construction Reactor Oversight Process (cROP) Resources

The staff estimates that the direct inspection effort will be 35,000 hours per unit over the course of the construction project. This estimate includes 15,000 hours for inspections, tests, analyses, and acceptance criteria (ITAAC)-related inspections; 10,000 hours for construction and operational program inspections; 5,000 hours for reactive inspections above the baseline program in response to licensee performance issues, allegations, and nonperformance issues/events; and 5,000 hours for technical support for construction inspection. These have always been stated as average values, with initial units likely to require more inspection than subsequent units.

Table 1 summarizes the U.S. Nuclear Regulatory Commission (NRC) staff resources expended at the four AP1000® units under construction, in hours, for the construction inspection program (CIP) during the past five calendar year (CY) inspection cycles. Tables 2 through 5 reflect direct inspection hours expended by calendar year for Virgil C. Summer, Unit 2, Virgil C. Summer, Unit 3, Vogtle, Unit 3, and Vogtle, Unit 4, respectively. The NRC inspection effort increased in CY 2015 as compared with CY 2014. Through CY 2015, 28 percent to 31 percent of the estimated direct inspection hours were expended at Virgil C. Summer, Unit 2, and Vogtle, Unit 3, and 10 percent to 12 percent of the estimated direct inspection hours were expended at Virgil C. Summer, Unit 3, and Vogtle, Unit 4. As anticipated, the majority of the ITAAC direct inspection hours to date were for ITAAC that have not yet been completed by the respective licensees.

Through CY 2015, actual direct inspection hours at the lead units have been slightly above the direct inspection effort of 35,000 hours per unit over the course of the construction project. This is primarily due to inspections needed to review corrective actions for design control and module receipt inspection performance deficiencies and the need to inspect constructability issues that lead to license amendment requests. Therefore, it is likely that the original direct inspection estimate will be exceeded at Vogtle, Unit 3, and V.C. Summer, Unit 2. However, corrective actions implemented by the licensees have for the most part been effective in preventing similar performance deficiencies from occurring at Vogtle, Unit 4, and V.C. Summer, Unit 3. Therefore, the staff anticipates that direct inspection effort will meet or be less than the 35,000 hour estimate at Vogtle, Unit 4, and V.C. Summer, Unit 3. Thus, the staff has determined that the original estimate of 35,000 direct inspection hours is reasonably accurate and no changes to the estimate are planned based on field experience to date.

A majority of ITAAC will be closed by licensees near the end of construction, but whenever possible, Region II staff is performing inspections early in the process to minimize the inspection resource demand peak and to facilitate timely ITAAC closure. Tracking Smart Plan completion provides the best available method for assessing progress in implementing the required CIP inspections. Smart Plans are the detailed inspection plans used to translate the general inspection guidance in the inspection procedures into plant-specific activities. Through CY 2015, approximately 20 percent of Smart Plans were complete at Virgil C. Summer, Unit 2, and Vogtle, Unit 3; approximately 14 percent were complete at Virgil C. Summer, Unit 3; and approximately 13 percent were complete at Vogtle, Unit 4. The percentage of ITAAC-related direct inspection hours expended was about 10 percent higher for Virgil C. Summer, Unit 2, and Vogtle, Unit 3, when compared to the direct inspection hours estimated in the Smart Plans that have been completed for these units. The percentage of ITAAC-related direct inspection hours expended was about same as the direct inspection hours estimated in the Smart Plans that

Enclosure

have been completed for Virgil C. Summer, Unit 3, and Vogtle, Unit 4. The staff's overall direct inspection effort will increase over the next several years as the units proceed through construction and into the preoperational testing phase.

Direct inspection charges for allegation followup at the two sites are very low in proportion to the number of allegations received. Most of the staff's allegation followup activities have occurred in-office rather than during onsite inspections. The staff will continue to ensure that allegation followup time is appropriately charged.

**Table 1: Actual Total Construction Inspection Program Resource Expenditures
Calendar Years 2011–2015 (Hours)**

| Inspection Activity | Hour Estimate Per Unit | Summer U2 | Summer U3 | Vogtle U3 | Vogtle U4 |
|---|------------------------|--------------|--------------|---------------|--------------|
| ITAAC direct Inspections | 15,000 | 4,473 | 1,182 | 4,979 | 1,585 |
| Program direct inspections | 10,000 | 3,962 | 2,054 | 4,582 | 2,083 |
| Reactive and allegation inspections | 5,000 | 157 | 19 | 110 | 53 |
| Headquarters technical staff inspection support* | 5,000 | 1,049 | 399 | 1,179 | 461 |
| TOTAL | 35,000 | 9,642 | 3,654 | 10,850 | 4,182 |
| * To date, headquarters technical staff inspection support has not been linked to a specific docket and has not been fee-billable. Therefore, it is not possible to distinguish the Office of New Reactors technical support hours expended on each unit. In this table, the total hours expended on technical support have been pro-rated between the four units under construction based on total inspection hours. | | | | | |

**Table 2: Actual Construction Inspection Program Resource Expenditures
VC Summer, Unit 2, Calendar Years 2011–2015 (Hours)**

| Inspection Activity | Hour Estimate Per Plant | 2011 | 2012 | 2013 | 2014 | 2015 | Total |
|---|-------------------------|------------|--------------|--------------|--------------|--------------|--------------|
| ITAAC direct Inspections | 15,000 | 0 | 636 | 1,269 | 1,388 | 1,180 | 4,473 |
| Program direct inspections | 10,000 | 98 | 1,169 | 1,035 | 787 | 874 | 3,962 |
| Reactive and allegation inspections | 5,000 | 0 | 0 | 0 | 0 | 157 | 157 |
| Headquarters technical staff inspection support | 5,000 | 13 | 292 | 228 | 214 | 302 | 1,049 |
| TOTAL | 35,000 | 111 | 2,097 | 2,532 | 2,389 | 2,513 | 9,642 |
| Total hours expended at V.C. Summer, Unit 2, were slightly higher in CY 2015 as compared to CY 2014. Approximately 28 percent of the total estimated hours have been expended at V.C. Summer, Unit 2, through the end of CY 2015. | | | | | | | |

**Table 3: Actual Construction Inspection Program Resource Expenditures
V.C. Summer, Unit 3, Calendar Years 2011–2015 (Hours)**

| Inspection Activity | Hour Estimate Per Unit | 2011 | 2012 | 2013 | 2014 | 2015 | Total |
|--|------------------------|------------|------------|--------------|------------|--------------|--------------|
| ITAAC direct Inspections | 15,000 | 0 | 18 | 313 | 359 | 493 | 1182 |
| Program direct inspections | 10,000 | 105 | 550 | 597 | 289 | 513 | 2,054 |
| Reactive and allegation inspections | 5,000 | 0 | 0 | 0 | 0 | 19 | 19 |
| Headquarters technical staff inspection support | 5,000 | 14 | 92 | 90 | 64 | 140 | 399 |
| TOTAL | 35,000 | 119 | 660 | 1,000 | 712 | 1,164 | 3,654 |
| Total hours expended at V.C. Summer, Unit 3, were higher in CY 2015 as compared to CY 2014. Approximately 10 percent of the total estimated hours have been expended at V.C. Summer, Unit 3, through the end of CY 2015. | | | | | | | |

**Table 4: Actual Construction Inspection Program Resource Expenditures
Vogle, Unit 3, Calendar Years 2011–2015 (Hours)**

| Inspection Activity | Hour Estimate Per Unit | 2011 | 2012 | 2013 | 2014 | 2015 | Total |
|---|-------------------------------|-------------|--------------|--------------|--------------|--------------|---------------|
| ITAAC direct inspections | 15,000 | 7 | 739 | 1,049 | 1,552 | 1,632 | 4,979 |
| Program direct inspections | 10,000 | 135 | 1,187 | 1,324 | 1,031 | 906 | 4,582 |
| Reactive and allegation inspections | 5,000 | 0 | 0 | 39 | 12 | 59 | 110 |
| Headquarters technical staff inspection support | 5,000 | 19 | 311 | 239 | 256 | 355 | 1,179 |
| TOTAL | 35,000 | 161 | 2,237 | 2,651 | 2,850 | 2,952 | 10,850 |
| Total hours expended at Vogle, Unit 3, were slightly higher in CY 2015 as compared to CY 2014. Approximately 31 percent of the total estimated hours have been expended at Vogle, Unit 3, through the end of CY 2015. | | | | | | | |

**Table 5: Actual Construction Inspection Program Resource Expenditures
Vogle, Unit 4, Calendar Years 2011 - 2015 (Hours)**

| Inspection Activity | Hour Estimate Per Unit | 2011 | 2012 | 2013 | 2014 | 2015 | Total |
|---|-------------------------------|-------------|-------------|-------------|-------------|--------------|--------------|
| ITAAC direct inspections | 15,000 | 0 | 229 | 301 | 391 | 664 | 1,585 |
| Program direct inspections | 10,000 | 26 | 391 | 572 | 401 | 693 | 2,083 |
| Reactive and allegation inspections | 5,000 | 0 | 0 | 0 | 0 | 53 | 53 |
| Headquarters technical staff inspection support | 5,000 | 3 | 100 | 86 | 78 | 192 | 461 |
| TOTAL | 35,000 | 29 | 721 | 960 | 870 | 1,602 | 4,182 |

Total hours expended at Vogle, Unit 4, were higher in CY 2015 as compared to CY 2014. Approximately 12 percent of the total estimated hours have been expended at Vogle, Unit 4, through the end of CY 2015.