March 20, 2013

MEMORANDUM TO: Laura A. Dudes, Director
Division of Construction, Inspection,
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Office of New Reactors

FROM: Timothy J. Frye, Chief **/RA/**
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SUBJECT: CONSTRUCTION REACTOR OVERSIGHT PROCESS ANNUAL PERFORMANCE METRIC REPORT FOR CALENDAR YEAR 2012

The Construction Reactor Oversight Process (cROP) self-assessment program evaluates the effectiveness of the cROP through its success in meeting preestablished goals and intended outcomes. The staff evaluates performance metrics to determine the success of the cROP in meeting these goals and outcomes. The staff performed the Calendar Year (CY) 2012 performance metric analysis in accordance with Inspection Manual Chapter (IMC) 2522, "Construction Reactor Oversight Process Self-Assessment Program."

IMC 2522 describes performance metrics associated with each of four cROP program areas: the inspection program (IP), significance determination process (SDP), assessment (AS) program, and inspection, test, analysis, and acceptance criteria program (ITA). The staff designates the program-specific metrics as the IP, SDP, AS, and ITA metrics, respectively. The staff also monitors and analyzes metrics of a more general nature, which are designated as the O metrics, to assess the overall performance of the cROP. The staff uses the metric analyses as input to the annual Commission paper on cROP self-assessment.

Beginning on January 1, 2012, the staff conducted a 12-month pilot program for the new cROP in accordance with the guidance in Michael Johnson's memorandum, "Pilot Program for the Construction Reactor Oversight Process Assessment and Enforcement Programs," dated January 5, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML113120210). The pilot was conducted at Southern Nuclear Operating Company's (SNC's) Vogtle Units 3 and 4 and South Carolina Electric and Gas Company's (SCE&G's) Virgil C. Summer Units 2 and 3.

The staff conducted numerous activities during the cROP pilot and obtained data from many sources to ensure that it performed a comprehensive and robust self-assessment.

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The staff conducted four public meetings to solicit input on the effectiveness of the cROP.

The staff issued an external survey in a *Federal Register* notice (77 FR 64565, "Solicitation of Feedback and Lessons-Learned from the Pilot of the Revised Construction Reactor Oversight Process," October 22, 2012), and used many other methods to maximize awareness of the survey's availability. The staff also conducted an internal survey via the NRC internal SharePoint site.

The internal and external surveys were identical and requested responses to 13 questions specifically related to program attributes and success criteria listed in the January 5, 2012 cROP pilot memorandum. The NRC received 2 external survey responses and 22 internal survey responses. In addition to analyzing the survey responses, the staff performed an evaluation of the pilot program using 11 metrics that were specifically developed for the pilot.

The results of the staff's CY 2012 analysis are enclosed. The staff found that the cROP met 11 out of 11 performance metrics by meeting the criteria defined in Appendix A, "Construction Reactor Oversight Process Self-Assessment Metrics," to IMC 2522. The staff also found that the cROP met 11 out of 11 success criteria metrics defined in the January 5, 2012 pilot memorandum.

Enclosure:
As stated

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CONSTRUCTION REACTOR OVERSIGHT PROCESS SELF-ASSESSMENT METRICS

I. INSPECTION PROGRAM METRICS

IP-1 Inspection Results timeliness

Definition: Audit 100% of issued inspection reports in relation to the inspection program timeliness requirements.

Criteria: Expect 90% of inspection report timelines requirements met.

Lead: NRO/DCIP (CAEB)

Goals Supported: Objective, Risk-Informed, Predictable, Effective, Open

NOTE: For inspections not conducted by a resident inspector, inspection completion is normally defined as the day of the final exit meeting. For resident inspector and integrated inspection reports, inspection completion is normally defined as the last day covered by the inspection report.

Analysis: During CY 2012, the NRC issued 11 inspection reports for Vogtle Units 3 and 4 and Summer Units 2 and 3. Region II exceeded the timeliness goal of 90% of inspection report timelines requirements met, as all inspection report were issued on time.

Metric Criterion Met: Yes

IP-2 NRC's Response to Technical Assistance Request (TAR) Is Timely and Effective

Definition: Audit 100% of TARs completed in the assessment year to ensure that timely assistance was provided to the inspection program.

Criteria: Expect 90 % of TARs to be closed within program timeliness goals outlined in NRO Office Instruction NRO-COM-108.

Lead: NRO/DCIP (CIPB, CAEB)

Goals Supported: Objective, Risk-Informed, Understandable, Open, Effective

Analysis: 11 TARs were submitted in CY 2012. Of these, 10 were closed (resolved) and 1 (TAR #8) is on hold. Of the 10 that were closed, 5 were revised following original submittal, and were closed within COM-108 30-day goal. Of the remaining 5 that were processed, 1 (TAR #5) was not closed within the NRO-COM-108 30-day

goal. Therefore, 9 of 10, or 90% of the TARs submitted were closed within program timeliness goals.

Metric Criterion Met: Yes

II. SIGNIFICANCE DETERMINATION PROCESS METRICS

SDP-1 SDP Results Are Predictable and Repeatable and Focus Stakeholder Attention on Significant Construction Safety Issues

Definition: Annually, audit a representative sample (up to four) of inspection findings against the standard criteria set forth in IMC 2519, "Construction Significance Determination Process," and its appendices. To the extent available, samples should include potentially greater-than-green findings that were presented to the Significance Determination Process/Enforcement Review Panel (SERP).

Findings should contain adequate detail to enable an independent auditor to trace through the available documentation and reach the same significance color characterization. Any SDP outcomes determined to be non-conservative will be evaluated and appropriate programmatic changes will be implemented.

Criteria: The target goal is that at least 90% are determined to be predictable and repeatable.

Lead: NRO/DCIP (CAEB)

Goals Supported: Risk-Informed, Predictable

Analysis: All issued findings were audited against the criteria in IMC 2519 and its appendices. All findings contained adequate detail to enable an independent auditor to trace through the available documentation and reach the same significance color characterization.

Metric Criterion Met: Yes

SDP-2 SDP Results in an Appropriate Regulatory Response to Performance Issues, Outcomes Are Risk-Informed and Accepted by Stakeholders

Definition: Track the total number of appeals of final SDP results.

Criteria: Expect zero appeals of SDP significance that result in a final determination being overturned. All successful appeals will be assessed to determine causal factors and to recommend process improvements.

Lead: Regions, NRO/DCIP (CAEB)

Goals Supported: Risk-Informed, Objective, Predictable, Understandable, Open

Analysis: In CY 2012, there were no appeals of SDP significance that resulted in a final determination being overturned.

Metric Criterion Met: Yes

III. ASSESSMENT PROGRAM METRICS

AS-1 Actions Are Determined by Quantifiable Assessment Inputs (i.e., SDP Results) and are Commensurate with the Risk of the Issue and Overall Quality of Construction

Definition: Audit all assessment-related letters and count the number of deviations from the Construction Action Matrix. Evaluate the causes for these deviations and identify changes to the cROP, if any, to improve the guidance documents.

Criteria: Expect zero deviations.

Lead: NRO/DCIP (CAEB)

Analysis: There were no deviations from the Construction Action Matrix in CY 2012.

Metric Criterion Met: Yes

Goals Supported: Objective, Risk-Informed, Open

AS-2 Assessment Program Results (Assessment Reviews, Assessment Letters and Public Meetings) Are Completed in a Timely Manner

Definition: Track the number of instances in which the timeliness goals stipulated in IMC 2505, "Periodic Assessment of Construction Inspection Program Results," were not met for: (1) the conduct of quarterly, mid-cycle, and end-of-cycle reviews; (2) the issuance of assessment letters; and (3) the conduct of public meetings.

Criteria: Expect 90% timeliness goals for the assessment process to be met.

Lead: Region, NRO/DCIP (CAEB)

Goals Supported: Effective, Open, Predictable

Analysis: In CY 2012, all timeliness goals were met for (1) the conduct of quarterly, mid-cycle, and end-of-cycle reviews; (2) the issuance of assessment letters; and (3) the conduct of public meetings.

Metric Criterion Met: Yes

AS-3 NRC's Response to Performance Issues Is Timely

Definition: Count the number of instances where a finding was held open for more than six months due to the need to complete the supplemental inspection.

Criteria: Expect there to be no instances where a supplemental inspection has not been completed within six months for which the licensee had indicated they were prepared for the inspection.

Lead: Region, NRO/DCIP (CAEB)

Goals Supported: Effective, Predictable

Analysis: There were no greater than green findings; therefore, no findings were held open greater than six months due to the need to conduct a supplemental inspection.

Metric Criterion Met: Yes

AS-4 Degradations in Quality of Construction are Gradual and Allow Adequate Agency Engagement of the Licensees

Definition: Track the number of instances each quarter in which construction sites move more than one column to the right in the Construction Action Matrix (as indicated on the Construction Action Matrix Summary).

Criteria: Expect no instances in which performance issues causes a construction site to move more than one column to the right in the Construction Action Matrix.

Lead: NRO/DCIP (CAEB)

Goals Supported: Risk-Informed, Predictable

Analysis: No construction sites/units moved more than one column to the right in the Construction Action Matrix during a quarter in CY 2012.

Metric Criterion Met: Yes

IV. ITAAC METRICS

ITA-1 Analysis of ITAAC Family Inspection Completion

Definition: Audit inspections completed for each family to ensure high level procedure steps have been completed to ensure proper closure of an ITAAC family.

Criteria: Expect 100% of the high level steps completed.

Lead: NRO/DCIP (CITB, CIPB)

Goals Supported: Effective, Predictable

Analysis: Due to the limited construction activities ongoing at Vogtle Units 3 and 4 and Summer Units 2 and 3 during CY 2012, the scheduled inspections have not been completed for any ITAAC family. Construction and NRC inspection activities are expected to increase significantly in CY 2013.

Metric Criterion Met: Yes

ITA-2 Analysis of ITAAC Closure Letter Effectiveness

Definition: Annually, review a sample of ITAAC Closure letters to determine the program's effectiveness and contribution to the overall effectiveness of the inspection program. The objectives of the review are: (1) to determine if ITAAC closure letters reviewed are being completed in a timely manner, (2) to determine if effective communication is being achieved during the process between NRC, Licensees, and the Public, (3) to ensure ITAAC closure letters reviews are completed properly and effectively. The focus of this effort is to adjust the closure process and existing resources to improve the effectiveness of the ITAAC Closure program in identifying significant deficiencies.

Criteria: Expect no ITAAC closure letters to be reopened because of a deficiency in the process that was within the NRC's ability to identify before closure verification. Summarize and evaluate the ITAAC closure letter reviews and propose program adjustments as necessary to address noted inefficiencies.

Lead: NRO/DCIP (CITB)

Goals Supported: Effective, Risk-Informed

Analysis: The staff received one ITAAC closure letter during CY 2012. The staff had not completed its review prior to the end of CY 2012 and therefore, no ITAAC closure notifications were closed and then reopened. The staff expects the first significant population of ITAAC closure letters to be submitted in CY 2013.

Metric Criterion Met: Yes

V. OVERALL cROP METRICS

O-1 Analysis of NRC's Responses to Significant Events

Definition: Review reports from incident investigation teams (IITs) and augmented inspection teams (AITs) to collect lessons learned regarding cROP programmatic deficiencies (i.e., did the baseline inspection program inspect this area? did the SDP accurately characterize resultant findings?). IITs already have the provision to determine NRC program deficiencies. AITs will be reviewed by NRO/DCIP (CAEB) to identify any weaknesses.

Criteria: Expect no major programmatic voids.

Lead: NRO/DCIP (CAEB)

Goals Supported: Effective, Predictable

Analysis: There were no IITs or AITs conducted at the construction sites in CY 2012.

Metric Criterion Met: Yes

CONSTRUCTION REACTOR OVERSIGHT PROCESS
PILOT SUCCESS CRITERIA

1.8.1 Risk-informed Baseline Inspection Program

The following criteria will measure the efficiency and effectiveness of the baseline inspection program, including inspection planning, conduct of inspections, inspection finding evaluation, and inspection finding documentation.

- Can the inspection finding significance determination guidance be used by inspectors and regional management to efficiently categorize inspection findings in a timely manner? It can, if by the end of the pilot program, inspection reports can be issued on time for the pilot plants and the significance of all findings can be determined within the agency goal of 90 days.

Analysis: During the cROP pilot, all inspection reports were issued on time and the significance of all findings was determined within the agency goal of 90 days.

Criteria Met: Yes

- Can inspection findings be properly assigned a safety significance rating in accordance with established guidance? They can, if by the end of the pilot program, all of the inspection findings were properly categorized and no risk-significant inspection findings were characterized as green. Success will be determined by an evaluation conducted at the cROP pilot results public meeting.

Analysis: During the cROP pilot, all issued findings were audited against the criteria in IMC 2519 and its appendices. All findings contained adequate detail to enable an independent auditor to trace through the available documentation and reach the same significance color characterization. There were no risk-significant findings that were inappropriately characterized as green.

Criteria Met: Yes

1.8.2 Assessment

The following criteria will measure the efficiency and effectiveness of the new assessment processes.

- Can the assessment process be performed within the scheduled time? It can, if for the pilot plants, an assessment of the inspection findings can be completed and the assessment letter can be issued on time.

Analysis: During the cROP pilot, licensee performance assessments and the assessment letters were all issued on time.

Criteria Met: Yes

- Can the construction action matrix be used to take appropriate NRC actions in response to indications of licensee performance? It can, if there are no instances in which it is concluded that action required for a pilot plant is different from the range of actions specified by the construction action matrix.

Analysis: During the cROP pilot, there were no instances in which it is concluded that an action required for a pilot plant was different from the range of actions specified by the construction action matrix.

Criteria Met: Yes

- Do the inspection findings provide an adequate indication of licensee performance? Does the process provide a reasonable assurance that the cornerstone objectives are being met and the plant is being constructed in accordance with its design? Success will be determined by an evaluation conducted at the cROP pilot results public meeting.

Analysis: The licensees' responses to the external survey indicated that they did not agree that inspection findings provided an adequate indication of licensee performance. The licensees' stated that the design authority (Westinghouse) is acting as a vendor in translating the AP1000 design to specifications, procedures, and drawings and should be held accountable for design control issues that occur during this process. Further discussion at the public meeting held on February 6, 2013, revealed that, while the licensees' understand that they are responsible for constructing the plant in accordance with the design and their license, they feel the NRC should also apply the enforcement policy to the design authority in cases where the AP1000 approved design is not adequately translated into specifications, procedures, and drawings. It was agreed at the public meeting that the issued findings do provide an adequate indication of licensee performance.

Criteria Met: Yes

- Are the mid-cycle and end-of-cycle assessments performed for the pilot plants in a manner that meets the objectives of the assessment program guidance? Success will be determined by an evaluation conducted at the cROP pilot results public meeting.

Analysis: Feedback provided in the internal and external surveys and at the cROP pilot results public meeting generally indicated that the mid-cycle and end-of-cycle assessments meet the objectives of the assessment program guidance.

Criteria Met: Yes

- Does the use of the new assessment program and action matrix result in more consistent and predictable NRC action decisions for plants with varying levels of performance? Success will be determined by an evaluation conducted at the cROP pilot results public meeting.

Analysis: Feedback provided in the internal and external surveys and at the cROP pilot results public meeting generally indicated that the new assessment program and action matrix has resulted in more consistent and predictable NRC action decisions.

Criteria Met: Yes

1.8.3 Enforcement

The following criteria will measure the effectiveness of the new enforcement policy.

- Enforcement actions are taken in a manner consistent with the assessment of inspection findings by the risk characterization guidance. Success will be determined by an evaluation conducted at the cROP pilot results public meeting.

Analysis: Feedback provided in the internal and external surveys and at the cROP pilot results public meeting generally indicated that enforcement actions are taken in a manner consistent with the assessment of inspection findings by the risk characterization guidance. The staff modified the guidance for corrective action program effectiveness reviews during the cROP pilot based on staff feedback and the results of a construction experience review. This should enable a more timely NRC evaluation of the licensee's corrective action programs and, once the programs are determined to be adequately developed and implemented, the issuance of noncited violations for green findings.

Criteria Met: Yes

1.8.4 Information Management Systems and Staff Training

The following criteria will determine whether the NRCs' information management systems are ready to support full implementation of the new assessment and enforcement programs.

- Are the assessment data and results readily available to the public? They are if inspection findings are publicly available on the Internet within 5 days of report issuance for the pilot plants.

Analysis: The cROP public website was updated in a timely manner with assessment data and results. Positive feedback was received from the public and licenses on the content of the cROP website.

Criteria Met: Yes

- Are the NRC information support systems, such as the Construction Inspection Program Information Management System (CIPIMS) ready to support full implementation of the new programs? They are, as determined by an evaluation by the NRO/CPIB and CCI staffs.

Analysis: The staff released and implemented the Construction Inspection Program Information Management System (CIPIMS), which is now functional and in use to support the construction inspection program at Vogtle Units 3 and 4 and Summer Units 2 and 3. The staff's goals in CY2013 for CIPIMS include the completion of the vendor planning and inspection module, maintenance, and feature enhancements.

Criteria Met: Yes

- Have inspectors and managers been adequately trained to successfully implement the new oversight processes? They have, as indicated on training feedback forms received the CCI staff.

Analysis: The staff was trained in October and November 2012, with positive feedback provide on the content of the training. Continuing training sessions were also held with positive results during counterpart meetings in June and December 2013.

Criteria Met: Yes