

**UNITED STATES**  
**NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

May 28, 2015

Mr. Ronald A. Jones  
Vice President, New Nuclear Operations  
South Carolina Electric and Gas  
P.O. Box 88 (Mail Code P40)  
Jenkinsville, SC 29065-0088

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 – NRC PROGRAM INSPECTION FOR MANAGEMENT OF INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA AND CORRECTIVE ACTION PROGRAM IMPLEMENTATION INSPECTION, REPORTS 05200027/2015007 AND 05200028/2015007

Dear Mr. Jones:

On April 24, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Virgil C. Summer Nuclear Station Units 2 and 3. The enclosed inspection report documents the inspection results which were discussed on April 24, 2015, with Mr. A. Torres and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to your programs for managing inspection, test, analyses, and acceptance criteria and for problem identification and resolution and compliance with the Commission's rules and regulations and the conditions of your license. Within these areas, the inspection involved examination of selected procedures and representative records, observations of activities, and interviews with personnel.

Based on the inspection sample, the inspection team concluded that the implementation of the corrective action program and overall performance related to identifying, evaluating, and resolving problems at Virgil C. Summer Nuclear Station Units 2 and 3 was effective. Licensee and contractor-identified problems were entered into the corrective action program at an appropriate threshold. Problems were effectively prioritized and evaluated commensurate with the safety significance of the problems. Corrective actions were effectively implemented in a timely manner commensurate with their importance to safety and addressed the identified causes of problems. Lessons learned from industry construction experience were effectively reviewed and applied when appropriate. Audits and self-assessments were generally used to identify problems and appropriate actions.

No findings were identified during this inspection.

In accordance with 10 Code of Federal Regulations (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly

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Sincerely,

**/RA/**

Michael Ernstes, Chief  
Construction Projects Branch 4  
Division of Construction Projects

Docket Nos.: 5200027, 5200028  
License Nos.: NPF-93, NPF-94

Enclosure: NRC Inspection Report (IR) 05200027/2015007  
and 05200028/2015007  
w/attachment: Supplemental Information

cc w/encl: (See page 3)

May 28, 2015

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NAME	M. Checkle	S. Temple	P. Heher	G. Khouri	J. Kent	T. Chandler	
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Document Control and Records Management  
P.O. Box 88  
Mail Code 846  
Jenksville, SC 29065

Mr. Jeffrey B. Archie  
Sr. Vice President, Nuclear Operations  
South Carolina Electric & Gas Company  
MC D304  
220 Operation Way  
Cayce, SC 29033-3172

Gregrey Ginyard  
366 Lakeview Drive  
Jenksville, SC 29065

Ms. Gidget Stanley-Banks  
Director  
Allendale County EPA  
426 Mullberry Street  
Allendale, SC 29810

Email

abynum@scana.com (Al Bynum)  
amonroe@scana.com (Amy Monroe)  
andy.barbee@scana.com (Andy Barbee)  
April.Rice@scana.com (April Rice)  
arice@scana.com (April R. Rice)  
awc@nei.org (Anne W. Cottingham)  
bedforbj@westinghouse.com (Brian Bedford)  
Bill.Jacobs@gdsassociates.com (Bill Jacobs)  
charles.baucom@cbi.com (Charles T. Baucom)  
christina.barnett@scana.com (Christina Barnett)  
collinlj@westinghouse.com (Leslie Collins)  
CumminWE@Westinghouse.com (Edward W. Cummins)  
cwaltman@roe.com (C. Waltman)  
david.lewis@pillsburylaw.com (David Lewis)  
DCRM-EDMS@SCANA.COM  
delongra@westinghouse.com (Rich DeLong)  
dgriffin@scana.com (Donna S. Griffin)  
ed.burns@earthlink.net (Ed Burns)  
ewingja@westinghouse.com (Jerrod Ewing)  
fbelser@regstaff.sc.gov  
gary@jonespartners.net (Gary Jones)  
George\_Stramback@Charter.net (George Stramback)  
gsoult@regstaff.sc.gov (Gene G. Soult)  
jarchie@scana.com (Jeffrey B. Archie)  
jenkinse@dhec.sc.gov (Susan Jenkins)  
jflitter@regstaff.sc.gov  
Joseph\_Hegner@dom.com (Joseph Hegner)  
karlg@att.net (Karl Gross)  
kinneyrw@dhec.sc.gov (Ronald Kinney)  
kroberts@southernco.com (Kelli Roberts)  
KSutton@morganlewis.com (Kathryn M. Sutton)  
kwaugh@impact-net.org (Kenneth O. Waugh)  
lchandler@morganlewis.com (Lawrence J. Chandler)  
majames@regstaff.sc.gov (Anthony James)  
maria.webb@pillsburylaw.com (Maria Webb)  
mcintyba@westinghouse.com (Brian McIntyre)  
media@nei.org (Scott Peterson)  
MSF@nei.org (Marvin Fertel)  
nirsnet@nirs.org (Michael Mariotte)  
Nuclaw@mindspring.com (Robert Temple)  
patriciaL.campbell@ge.com (Patricia L. Campbell)  
paul.mothena@scana.com (Paul Mothena)  
Paul@beyondnuclear.org (Paul Gunter)  
pbessette@morganlewis.com (Paul Bessette)  
porterhj@dhec.sc.gov (Henry Porter)

r.joshi15@comcast.net (Ravi Joshi)  
randall@nexusamllc.com (Randall Li)  
RJB@NEI.org (Russell Bell)  
Ronald.Jones@scana.com (Ronald Jones)  
russpa@westinghouse.com (Paul Russ)  
rwink@ameren.com (Roger Wink)  
sabinski@suddenlink.net (Steve A. Bennett)  
sburdick@morganlewis.com (Stephen Burdick)  
sbyrne@scana.com (Stephen A. Byrne)  
sfrantz@morganlewis.com (Stephen P. Frantz)  
shudson@regstaff.sc.gov (Shannon Hudson)  
solleyda@dhec.sc.gov (David Solley)  
stephan.moen@ge.com (Stephan Moen)  
TGATLIN@scana.com (Thomas Gatlin)  
threatsj@dhec.sc.gov (Sandra Threatt)  
tom.miller@hq.doe.gov (Tom Miller)  
TomClements329@cs.com (Tom Clements)  
Vanessa.quinn@dhs.gov (Vanessa Quinn)  
vcsnrc@scana.com (NRC Senior Resident Inspector)  
Wanda.K.Marshall@dom.com (Wanda K. Marshall)  
weave1dw@westinghouse.com (Doug Weaver)  
William.Cherry@scana.com (William Cherry)  
wmcherry@santeecooper.com (Marion Cherry)

Letter to R. Jones from Michael E. Ernstes dated May 28, 2015.

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 – NRC PROGRAM INSPECTION FOR MANAGEMENT OF INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA AND CORRECTIVE ACTION PROGRAM IMPLEMENTATION INSPECTION, REPORTS 05200027/2015007 AND 05200028/2015007

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[ConE\\_Resouce@nrc.gov](mailto:ConE_Resouce@nrc.gov)

[NRO\\_cROPResource@nrc.gov](mailto:NRO_cROPResource@nrc.gov)

[Summer\\_Construction\\_Support@nrc.gov](mailto:Summer_Construction_Support@nrc.gov)

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**U.S. NUCLEAR REGULATORY COMMISSION**  
**Region II**

Docket Numbers: 5200027  
5200028

License Numbers: NPF-93  
NPF-94

Report Numbers: 05200027/2015007  
05200028/2015007

Licensee: South Carolina Electric & Gas

Facility: Virgil C. Summer Nuclear Station Unit 2  
Virgil C. Summer Nuclear Station Unit 3

Location: Jenkinsville, SC

Inspection Dates: April 20, 2015 through April 24, 2015

Inspectors: T. Chandler, Resident Inspector, DCP  
M. Checkle, Senior Allegations Coordinator, EICS  
P. Heher, Senior Construction Project Inspector, DCP  
J. Kent, Construction Project Inspector, DCP  
G. Khouri, Senior Construction Project Inspector, DCP  
S. Temple, Resident Inspector, DCP

Accompanying Personnel: Dori Willis, Senior Office Allegation Coordinator, Team Leader, NRR

Approved by: Michael Ernstes,  
Branch Chief  
Construction Projects Branch 4  
Division of Construction Projects

Enclosure



## SUMMARY OF FINDINGS

Inspection Report (IR) 05200027/2015007, 05200028/2015007; 04/20/2015 through 04/24/2015; Virgil C. Summer Nuclear Station Unit 2, Virgil C. Summer Nuclear Station Unit 3, NRC Program Inspection for Management of Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) and Corrective Action Program Implementation Inspection.

This report covers an announced team inspection for corrective action program implementation and licensee program for ITAAC management by regional inspectors. The Nuclear Regulatory Commission's (NRC's) program for overseeing the construction of commercial nuclear power reactors is described in Inspection Manual Chapter 2506, "Construction Reactor Oversight Process General Guidance and Basis Document."

### **Problem Identification and Resolution**

Based on the inspection sample, the inspection team concluded that the implementation of the corrective action program and overall performance related to identifying, evaluating, and resolving problems at Virgil C. Summer Nuclear Station Units 2 and 3 was effective. Licensee and contractor identified problems were entered into the corrective action program at an appropriate threshold. Problems were effectively prioritized and evaluated commensurate with the safety significance of the problems. Corrective actions were effectively implemented in a timely manner commensurate with their importance to safety and addressed the identified causes of problems. Lessons learned from industry construction experience were effectively reviewed and applied when appropriate. Audits and self-assessments were generally used to identify problems and appropriate actions. The inspectors did not identify any trends that were not already being addressed in the corrective action program. Based on the independent assessment of safety culture results, interviews conducted during the inspection, and a review of the employee concerns program, employee freedom to raise nuclear safety concerns without fear of reprisal appeared to be demonstrated.

#### **A. NRC-Identified and Self Revealed Findings**

No findings were identified

#### **B. Licensee-Identified Violations**

No findings were identified

## REPORT DETAILS

### 1. CONSTRUCTION REACTOR SAFETY

#### **Cornerstones: Design/Engineering, Procurement/Fabrication, Construction/Installation, Inspection/Testing**

IMC 2504, Appendix A, Inspection of Construction Programs

#### **ITAAC Management**

1P01 IP 40600, "Licensee Program For Managing Inspections, Tests, Analyses, And  
Acceptance Criteria (ITAAC) Closure" – Sections 02.01, 02.02, 02.03 and 02.04

##### a. Inspection Scope

10 CFR 52.80 requires that the combined license application contain the proposed inspections, tests, and analyses that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will be operated in conformity with the combined license, the provisions of the Atomic Energy Act, and the Commission's rules and regulations. Pursuant to 10 CFR 52.99, licensees are required to submit notifications on ITAAC for use by staff to verify ITAAC completion. The notifications also provide the public with information regarding the completion of the ITAAC.

The purpose of this inspection was to determine whether the licensee, South Carolina Electric and Gas (SCE&G), and its engineering, procurement, and construction consortium suppliers, Chicago Bridge and Iron (CB&I) and Westinghouse Electric Company (WEC), have:

- established programmatic controls to manage ITAAC closure;
- established an adequate process for preparing and approving notifications on ITAAC and that the process conforms to the applicable requirements of the licensee's quality assurance program (QAP);
- implemented their notifications on ITAAC in accordance with approved procedures and instructions; and
- implemented an ITAAC maintenance process to ensure that the acceptance criteria continue to be met until the finding described in 10 CFR 52.103(g) is made.

The inspectors reviewed licensee and consortium procedures that were used to control specific construction and tracking activities that relate to the completion of ITAAC to determine if adequate controls for ITAAC completion, documentation, records verification, quality assurance, and notification were in place. The inspectors reviewed a sample of ITAAC closure notifications (ICNs) and ITAAC completion packages to evaluate the principles underlying the basis for the verifiability of the licensee's ITAAC completion packages.

The inspectors also determined whether controls had been established that provide reasonable assurance that the inspections, tests, and analyses have been successfully performed and the acceptance criteria have been met and are also being maintained. The inspectors also evaluated whether ITAAC closure documentation was traceable to Quality Assurance (QA) records and that those records were retrievable. The inspectors also determined whether the licensee had adequate provisions in place to ensure that activities affecting successfully completed ITAAC do not invalidate the conclusion that the acceptance criteria are met. Specifically, the inspectors determined whether:

- an approved procedural and controlled QA process was used to document ITAAC closure;
- the ITAAC closure process was supported by verifiable documents and traceable records that confirmed that ITAAC were satisfactorily closed;
- ICNs were consistent with the examples in Nuclear Energy Institute (NEI) 08-01 and ITAAC completion packages supported the ICN conclusions;
- ITAAC issues that were identified by either the licensee or the NRC were closely tracked and resolved;
- qualification requirements and training activities had been established for the separate groups and individuals involved with preparation, verification, approval, and audit activities for both ITAAC completion packages and ICNs;
- interface controls among the various independent licensee groups involved with the ITAAC closure process had been defined;
- all ITAAC sub-tier construction activities had been adequately controlled and tracked from the start of any related construction to the submittal of the ICN to the NRC;
- ITAAC determination bases supported ITAAC closure and provided evidence of management oversight of the ITAAC during construction;
- there was adequate quality control involvement, such as hold points, where applicable in ITAAC construction activities;
- there was appropriate QA review and audit activities of the licensee's ITAAC management processes;
- conditions adverse to quality related to ITAAC were promptly identified and corrected; and
- there was adequate ITAAC maintenance provisions such that the validity of the acceptance criteria of the completed ITAAC can be maintained for the period of time between the submission of an ICN pursuant to 10 CFR 52.99(c)(1), and an affirmative 10 CFR 52.103(g) finding.

The inspectors observed several ITAAC management meetings, attended an ITAAC training session for new employees, interviewed several personnel involved in the ITAAC management processes, and reviewed a sample of ITAAC training records from both the licensee and consortium to determine whether ITAAC management processes were being implemented in accordance with approved procedures and NRC regulations. The inspectors also attended several corrective action program meetings throughout the week to determine that corrective action documents were being screened appropriately for ITAAC applicability.

b. Findings

No findings were identified.

## Quality Assurance – Construction

### 1P02 IP 35007, “Quality Assurance Program Implementation During Construction And Pre-Construction Activities” – Appendix 16, Inspection of Criterion XVI – Corrective Action

#### .1 Assessment of the Corrective Action Program Effectiveness

##### a. Inspection Scope

The inspectors reviewed the licensee’s corrective action program (CAP) to determine if the licensee was effectively implementing their approved quality assurance plan as required by 10 CFR Part 50.55. The licensee delegated responsibility for implementing elements of the CAP to an engineering, procurement, and construction (EPC) consortium consisting of CB&I and WEC. The delegation was permitted by the licensee’s quality assurance plan; however, the plan also stated that the licensee maintained responsibility for the effectiveness of corrective action measures. Consequently, the inspection scope included a review of programs established by both the licensee and the EPC consortium.

The inspectors reviewed the licensee’s and the EPC consortium’s implementing procedures and documents, interviewed personnel, and attended meetings to assess the implementation of the CAP by site personnel. The inspectors reviewed a sample of issues processed or identified since the last CAP inspection in July 2014. The selection of issues ensured an adequate review of issues across the three corrective action programs. The inspectors sampled issues related to conditions adverse to quality, and items that were determined to not represent conditions adverse to quality. The inspectors reviewed all issues categorized as significant conditions adverse to quality. The samples also included items related to:

- NRC operating experience (e.g. generic communications);
- industry operating experience; and
- self-assessments and audits.

The inspectors reviewed corrective action documents and a selection of completed root cause and apparent cause investigations. During the reviews, the inspectors determined whether the actions were in compliance with 10 CFR Part 50, Appendix B, “Quality Assurance Requirements for Nuclear Facility Applications”; NQA-1-1994; and the CAP requirements applicable to each respective organization.

Specifically, the inspectors determined if personnel were identifying issues at the proper threshold, entering the issues into the CAP in a timely manner, and assigning the appropriate prioritization for resolution of the issues. The inspectors also determined whether personnel assigned the appropriate investigation method to ensure the proper determination of root, apparent, and/or contributing causes. The inspectors evaluated the timeliness and effectiveness of corrective actions, and actions to prevent recurrence if required by 10 CFR Part 50, Appendix B.

The inspectors reviewed the selected corrective action documents to determine if the licensee and the EPC consortium followed applicable implementing documents and addressed the following CAP performance attributes, as applicable:

- classification, prioritization, and evaluation for reportability (i.e., 10 CFR 50.55(e)) of conditions adverse to quality;
- complete and accurate identification of the problem in a timely manner commensurate with its significance and ease of discovery;
- screening of items entered into the CAP as necessary to determine the proper level of evaluation;
- identification and correction of procurement document errors, deviations from procurement document requirements, defective items, poor workmanship, incorrect vendor instructions, significant recurring deficiencies at both vendor shops and on site, and generic procurement related deficiencies;
- identification and correction of design deficiencies or errors, including determining the cause and instituting fixes to the design process and QA program to prevent recurrence of similar deficiencies as appropriate;
- considerations for extent of conditions, generic implications, common causes, and previous occurrences as appropriate;
- classification and prioritization of the resolution of problems commensurate with safety significance;
- for significant conditions adverse to quality, identification of root and contributing causes, as well as actions to preclude recurrence;
- identification of corrective actions that are appropriately focused to correct the problem; and
- completion of corrective actions in a timely manner commensurate with the safety significance of the issue (including the use of interim corrective actions and/or compensatory actions minimize the problem and/or mitigate its effects until permanent actions can be implemented).

Additionally, the inspectors reviewed a sample of issues entered into the SCE&G, CB&I, and WEC corrective action programs to determine whether the disposition and evaluation of those issues adequately considered risk, safety significance, consequence of malfunctions or failures, complexity of design and fabrication, needs for special controls or surveillance over activities, the degree to which functional compliance could be demonstrated by inspection or test, the quality history and degree of standardization of items, and the difficulty of repair or replacement. The inspectors assessed whether these issues were screened and classified in a timely manner, consistent with the applicable CAP procedures.

The inspectors reviewed a sample of corrective action records that included a variety of different classification levels under each corrective action program to determine whether:

- conditions adverse to quality were promptly identified and corrected;
- classification and prioritization of the resolution of each problem was commensurate with its safety significance;
- conditions were screened upon entry into the CAP to determine the proper level of evaluation;
- the items entered into the CAP included the identification and correction of issues throughout all aspects of the project scope;
- for significant conditions adverse to quality, the cause was determined, corrective actions were taken to prevent recurrence, and the cause and corrective actions taken were documented and reported to appropriate levels of management;
- proper consideration of extent of conditions, generic implications, common causes, and previous occurrences was performed;

- the corrective actions developed were appropriately focused to ensure the problems were corrected;
- the licensee and their contractors properly evaluated and reported conditions in accordance with 10 CFR 50.55(e) and 10 CFR 21;
- the identification and correction of design deficiencies were being adequately addressed;
- extent of conditions were adequately addressed and appropriate corrective actions were developed and implemented; and
- the evaluations properly considered the escalation of issues to higher management if the corrective actions were not adequate or timely.

The inspectors attended several meetings associated with the corrective action programs for the licensee and the EPC consortium including management meetings and issue screening meetings to determine whether:

- the licensee and the EPC consortium were identifying equipment, human performance, and program issues at an appropriate threshold and were entering the issues into their respective CAP;
- issues were appropriately screened and classified;
- trending aspects were appropriately applied to issues in accordance with the respective CAP and potential adverse trends were being identified and corrected;
- proper consideration of extent of conditions, generic implications, common causes, and previous occurrences was performed;
- conditions adverse to quality were controlled in accordance with each company's quality assurance program; and
- coordination between the various corrective action programs was managed appropriately to ensure identified conditions adverse to quality were corrected.

Specifically, the inspectors observed the following meetings:

- CB&I Daily CAP Call with V.C. Summer, Vogtle, and Charlotte;
- CB&I V.C. Summer Screening Meeting; and
- Management Review Team with SCE&G, WEC, and CB&I.

The inspectors reviewed a sample of SCE&G surveillance reports and technical evaluations to determine whether items associated with unsatisfactory quality inspection results met the appropriate threshold for screening as conditions adverse to quality. Specifically, the inspectors reviewed these reports to determine whether they were completed in accordance with applicable procedures and whether discrepant items received the appropriate screening for entry into the CAP.

The inspectors reviewed a sample of recent trend reports to determine whether:

- the trend reports were issued within the time frames established by procedures;
- the content of the trend reports contained information and analysis of licensee and contractor performance improvement activities; and
- condition reports were generated for any identified adverse trends or recommendations as required by the procedures.

The inspectors reviewed a sample of licensee observation records, surveillance reports, and quality control inspection reports to determine whether:

- conditions adverse to quality when identified through these processes were appropriately entered into the licensee's CAP as required by procedures and
- any conditions adverse to quality were mischaracterized or inappropriately handled outside of the corrective action process.

In addition, the inspectors reviewed a sample of nonconformance and disposition reports (N&Ds) to determine whether:

- the reports correctly and clearly identified the nonconformances;
- the N&Ds were adequately initiated, processed, reviewed, dispositioned, and closed in accordance with the quality assurance program implementing documents for the control of nonconforming material, parts, and components;
- reportability screening and evaluations under 10 CFR Part 21 and 10 CFR 50.55(e) were performed;
- applicability to project documents, records, and ITAAC was properly identified and documented;
- the dispositions were properly identified and documented;
- adequate technical justification for the acceptability of a nonconforming item, dispositioned repair, or use-as-is was appropriately documented;
- nonconformances to design requirements dispositioned use-as-is or repair were subjected to design control measures commensurate with those applied to the original design;
- the as-built records properly reflected the accepted deviation, if applicable;
- controls were implemented to preclude the inadvertent use of nonconforming items and that nonconforming items were marked or tagged and segregated; and
- repaired or reworked items were reexamined in accordance with applicable procedures and with the original acceptance criteria unless the disposition had established alternate acceptance criteria.

b. Assessment

Assessment – Effectiveness of Problem Identification

The inspectors determined that problem identification was adequate and at an appropriate threshold. The sample of issues reviewed by the inspectors that were entered into the various CAPs indicated a low threshold across all three organizations. Where identified issues and corrective actions involved multiple organizations, the interfaces between corrective action programs were effective in ensuring that identified issues were entered into all applicable corrective action programs and were corrected. Thresholds for identifying issues and determining significance were adequate to ensure that adverse conditions were appropriately evaluated and corrected.

Assessment – Effectiveness of Prioritization and Evaluation of Issues

The inspectors determined that the overall performance in prioritization and evaluation of issues was acceptable and in accordance with the respective CAP procedures. The timeliness of initial classifications and the level of classification were consistent with the respective CAP procedures. Based on the samples selected, the inspectors determined that the evaluations adequately considered the risk, safety significance, complexity of design and fabrication, and needs for special controls over activities. For significant conditions adverse to quality, the extent of conditions, extent of cause, generic

implications, and previous occurrences were addressed and reported to appropriate levels of management. The inspectors determined that the cause evaluations for significant conditions adverse to quality were adequately thorough to determine the causes and to identify the appropriate corrective actions to prevent recurrence.

### Assessment – Effectiveness of Corrective Actions

The inspectors concluded that corrective actions for identified deficiencies were timely, adequately implemented, and commensurate with their safety significance. Problems identified through root and apparent cause methodologies were resolved in accordance with applicable program and NRC requirements. Corrective actions associated with significant conditions adverse to quality included provisions for preventing recurrence.

#### c. Findings

No findings were identified.

### .2 Assessment of the Use of Construction Experience

#### a. Inspection Scope

The inspectors reviewed the SCE&G, CB&I, and WEC construction experience programs to determine whether the licensee and its EPC contractors were systematically implementing the following:

- relevant internal and external construction and operating experience items were collected;
- collected experience items were adequately evaluated;
- relevant experience items were communicated to affected stakeholders; and
- experience items were used to inform plant design and work processes.

The inspectors interviewed the SCE&G, CB&I, and WEC principal managers of Construction and Operating Experience (ConE & OE) to gain a better understanding of the site's handling of relevant issues that may arise anywhere around the globe. The inspectors reviewed the licensee's construction experience database and corrective action program to determine whether items that were classified as applicable were stored in the construction experience database and entered into the corrective action program as specified by procedure. The inspectors reviewed the licensee construction experience database to determine whether the licensee appropriately added NRC related information, such as 10 CFR Part 21 notifications and Generic Letters. The inspectors reviewed a sample of CAP documents to determine if SCE&G, CB&I and WEC were entering applicable industry experience items into the corrective action program and dispositioning the items appropriately.

#### b. Assessment

The inspectors performed an assessment of the licensee's use of internally and externally identified construction and operating experience to ensure that the licensee adequately screened and evaluated this experience for applicability to their project. The inspectors noted that the licensee routinely entered this information in their corrective action program for evaluation and/or tracking. The inspectors reviewed a sample of



condition reports that were initiated in order to capture and evaluate relevant external and internal construction experience. The inspectors determined that the licensee had established adequate measures to identify and evaluate construction and operating experience the licensee and consortium properly communicated relevant operating and construction experience commensurate with the safety significance of the issue.

The inspectors determined that construction experience items were appropriately screened, stored and evaluated for potential effects on plant systems and work being performed by the licensee and its EPC contractors.

c. Findings

No findings were identified.

.3 Assessment of Self-Assessments and Audits

a. Inspection Scope

The inspectors reviewed a sample of self-assessments, audits, observations, and surveillance reports. The review was performed to determine whether the licensee and EPC consortium oversight of the corrective action program was sufficient to verify the health of the corrective action program and to identify areas for improvement as needed. The inspectors also compared the results of the audits and self-assessments to the results of the inspection to determine if there were any discrepancies between the results of the inspection of the licensee's conclusions.

b. Assessment

The inspectors determined that the conduct of audits and self-assessments by the licensee and EPC consortium members were accomplished in accordance with appropriate procedures. The implementation of the oversight and independent verifications provided sufficient assessments of program effectiveness, including the interfaces of corrective action programs across organizational boundaries. Corrective actions to address the identified issues were generally prioritized, evaluated, and completed within applicable procedural requirements.

c. Findings

No findings were identified.

.4 Assessment of Safety Conscious Work Environment

a. Inspection Scope

The inspectors conducted reviews to provide insight into whether a safety conscious work environment (SCWE) is being maintained, to confirm that SCE&G and contractors are complying with NRC requirements, to assess SCE&G and contractor Employee Concern Programs' (ECP) effectiveness, and to evaluate management oversight of the corrective action process including anonymous CAP entries. These reviews were used to help determine if licensee and contractor personnel were reluctant to report safety issues via the different avenues available (CAP, ECP, management, etc.).

The inspectors interviewed staff and observed other activities involving licensee personnel during the inspection to identify areas and issues that may represent challenges to the free flow of information, such as areas where employees may be reluctant to raise concerns or report issues in the CAP. The inspectors interviewed ECP personnel and other staff who were the designated SCWE subject matter experts. Interviews with SCWE subject matter experts were conducted to:

- determine if the staff was knowledgeable of SCWE processes and procedures;
- understand the interrelationship between SCE&G and CB&I Employee Concerns Programs; and
- understand any current perceived challenges as they related to SCWE.

SCE&G and CB&I ECP procedures and files were reviewed to determine if:

- procedures were adequate;
- files contained adequate documentation;
- issues were entered and reviewed in a timely manner;
- concerns were adequately addressed;
- corrective actions were tracked; and
- whether individuals were provided feedback.

SCE&G and CB&I ECP audits and self-assessments were reviewed to determine if identified issues were addressed and actions to prevent recurrence were put in place.

The inspectors evaluated SCWE training material to determine if:

- the SCWE guidance provided clear, concise, and complete information regarding how to report concerns;
- contact information for reporting concerns;
- roles and responsibilities;
- importance of reporting safety concerns and its impact; and
- whether training was effective.

The inspectors evaluated both a sample of anonymous concerns entered into the CAP and the methods used to resolve safety significant issues where the methods represented alternatives to the CAP (e.g. ECP). The inspectors reviewed both SCE&G and CB&I anonymous CAP entries, CAP entries by ECP or about ECP, and CAP entries pertaining to SCWE issues to determine if these were entered into the corrective action program in a timely manner consistent with the safety significance of the issue, to determine if recurring issues were adequately evaluated and trended, and to determine if the identified issues were adequately resolved. These CAP entries were also reviewed to determine if area trends raised via different avenues (e.g. management, ECP and CAP programs) were promptly identified and addressed, and to determine if the various programs were identifying the cross-cutting and underlying causes. The inspectors also reviewed repeat issue identification in anonymous CAP entries to determine if these had been the result of inadequate corrective action which could cause personnel to be reluctant to identify additional related issues.

Additionally, interviews were conducted with approximately 87 randomly selected employees to include SCE&G, WEC, CB&I Services, CB&I Power, and K2 Industrial

Services (formerly Cannon Slime). Interviews were conducted with random personnel to determine if they knew how to raise safety concerns, if they felt free to raise such concerns, and if they were aware of alternate means for reporting safety concerns.

b. Assessment

In general, the inspectors determined that:

- SCWE and CAP training was effective, in that, employees indicated they were familiar with their employer's ECP, the CAP program, and were aware of the ECP/CAP drop box locations;
- the employees felt the CAP was effective and would use it if needed;
- SCE&G and CB&I ECP organizations are currently effectively handling concerns; and
- SCE&G, WEC, and CB&I Services individuals felt comfortable raising concerns, usually feeling most comfortable raising concerns to their first line supervisor and through the CAP.

Corrective actions to address previously identified SCWE concerns associated with some lower tier subcontractors, conducting non-safety related work on site, are in place and seem to be effective and the SCWE seems to be improving. Some SCWE challenges, however, were identified within CB&I Power. There seemed to be a negative trend in the areas of communication, trust in management, ECP and the CAP program, and individuals either feeling reluctant to raise safety concerns or afraid of retaliation for raising concerns. These issues, however, are being identified and proactively addressed by CB&I management and ECP. Corrective actions are in place to address these issues. Increased leadership emphasis, from both SCE&G & consortium, is being placed on awareness and understanding of safety culture and SCWE.

c. Findings

No findings were identified.

40A6 Meetings, Including Exit

.1 Exit Meeting.

On April 24, 2015, the inspectors presented the inspection results to Mr. A. Torres, SCE&G General Manager for Nuclear Plant Construction, along with other licensee and consortium staff members. The inspectors stated that no proprietary information would be included in the inspection report.

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensees and Contractor Personnel**

K. Altizer, SCE&G ECP  
C. Baucom, CB&I Licensing  
B. Bedford, Westinghouse ITAAC Program Manager  
M. Burley, WEC Principal Engineer  
J. Comer, CB&I CAP Manager  
J. Copsey, CB&I ECP  
L. Cunningham, SCE&G Manager QS  
J. Ewing, WEC Licensing  
P. Gould, WEC Site Installation Manager  
F. Lawrence, Jr., SCE&G OD&P Specialist  
P. Leroy, CB&I Licensing and Regulatory Compliance (ITAAC)  
D. McGlauffin, SCE&G CAP Supervisor  
B. Perricelli, SCE&G Trending  
G. Sanders, SCE&G Licensing  
R. Thompson, SCE&G ITAAC Supervisor  
R. Word, SCE&G Manager OD&P

## LIST OF DOCUMENTS REVIEWED

### ITAAC Management

#### 1P01

##### Corrective Action Documents

CR-NND-14-01292, "ITAAC Tracking for WEC CAPAL Issue 100045530", created on 9/19/2014  
CR-NND-12-00253, "Differing Interpretation of Tier 2\* Requirements in the DCD", created on 5/10/2012  
CR-NND-12-00822, "Tracking CR for WEC IR 12-309-M002 Title Aux Bldg Wall design-shear reinforcement", created on 11/27/2012  
CR-NND-12-00911, "Tracking CR for Eleven WEC IR's screened by WEC as ITAAC yes (ITAAC 2.5.02.14) per MRT", created on 12/21/2012  
CR-NND-13-00135, "Structural damage to the impeller of SN9 RCP during production test", created on 2/14/2013  
CAR 2014-0372, "In-containment Pipe Supports Coated With the Incorrect Coating System", created on 11/04/2013

##### ITAAC Closure Notifications (ICNs)

Letter from SCE&G to USNRC Document Control Desk, "Completion of ITAAC 2.3.11.03a," dated July 28, 2014. (ICN for Unit 2)  
Letter from SCE&G to USNRC Document Control Desk, "ITAAC Closure Notification for ITAAC 2.4.02.03.iii," dated October 30, 2014. (ICN for Unit 2)  
Letter from SCE&G to USNRC Document Control Desk, "ITAAC Closure Notification for ITAAC C.3.8.01.05.01.01," dated October 30, 2014. (ICN for Unit 2)  
Letter from SCE&G to USNRC Document Control Desk, "ITAAC Closure Notification for ITAAC 3.1.00.01," dated October 30, 2014. (ICN for Unit 3)  
Letter from SCE&G to USNRC Document Control Desk, "ITAAC Closure Notification for ITAAC C.3.8.01.05.02.01," dated October 30, 2014. (ICN for Unit 3)  
Letter from SCE&G to USNRC Document Control Desk, "ITAAC Closure Notification for ITAAC C.3.8.01.05.02.02," dated October 30, 2014. (ICN for Unit 3)

##### ITAAC Completion Packages

VSL\_VSG\_000224, "Transmittal of Unit 2 and Unit 3 ITAAC 2.4.02.03.iii Completion Packages", 10/20/2014  
VSL\_VSG\_000205, "Transmittal of Unit 2 and Unit 3 ITAAC 3.1.00.01 Completion Packages", 9/26/2014  
VSL\_VSG\_000180, "Transmittal of Unit 2 ITAAC 2.3.11.03a Completion Package", 7/08/2014  
Attachment 6, "ITAAC Completion Package Cover Page" of NND-AP-0032, Rev. 4 for ITAAC C.3.8.01.05.01.01 for VCS Unit 2, 10/06/2014  
Attachment 7, "ITAAC Determination Report Form" of NND-AP-0032, Rev. 4 for ITAAC C.3.8.01.05.01.01 for VCS Unit 2, 10/06/2014  
Attachment 8, "Principal Closure Document Summary" of NND-AP-0032, Rev. 4 for ITAAC C.3.8.01.05.01.01 for VCS Unit 2, 10/06/2014  
Attachment 6, "ITAAC Completion Package Cover Page" of NND-AP-0032, Rev. 4 for ITAAC C.3.8.01.05.02.01 for VCS Unit 2, 10/06/2014  
Attachment 7, "ITAAC Determination Report Form" of NND-AP-0032, Rev. 4 for ITAAC C.3.8.01.05.02.01 for VCS Unit 2, 10/06/2014

Attachment 8, "Principal Closure Document Summary" of NND-AP-0032, Rev. 4 for ITAAC  
C.3.8.01.05.02.01 for VCS Unit 2, 10/06/2014  
Attachment 6, "ITAAC Completion Package Cover Page" of NND-AP-0032, Rev. 4 for ITAAC  
C.3.8.01.05.02.02 for VCS Unit 2, 10/06/2014  
Attachment 7, "ITAAC Determination Report Form" of NND-AP-0032, Rev. 4 for ITAAC  
C.3.8.01.05.02.02 for VCS Unit 2, 10/06/2014  
Attachment 8, "Principal Closure Document Summary" of NND-AP-0032, Rev. 4 for ITAAC  
C.3.8.01.05.02.02 for VCS Unit 2, 10/06/2014

#### ITAAC Performance and Documentation Plans

APP-MTS-ITH-007, "Standard Plant ITAAC 2.4.02.03.iii Performance and Documentation  
Plan", Rev. 0  
APP-WGS-ITH-007, "Standard Plant ITAAC 2.3.11.02.iii Performance and Documentation  
Plan", Rev. 0  
Attachment 1, "Site Specific ITAAC PDP" of NND-LIC-0003, Rev. 0 for ITAAC  
C.3.8.01.05.01.01, 12/07/2012  
Attachment 1, "Site Specific ITAAC PDP" of NND-LIC-0003, Rev. 0 for ITAAC  
C.3.8.01.05.02.01, 12/27/2012  
Attachment 1, "Site Specific ITAAC PDP" of NND-LIC-0003, Rev. 0 for ITAAC  
C.3.8.01.05.02.02, 12/10/2012

#### ITAAC Training/Qualification Requirements

NND-AP-0006, Attachment 1, "In-Processing"  
NND-AP-0006, Attachment 2, "Orientation"  
NND-AP-0006, Attachment 3, "Technical Fundamentals"  
NND-AP-0006, Attachment 4, "Discipline/Function Specific"  
NND-CS-0010, Rev. 1, Attachment 1, "ITAAC CR Employee Screening Certification"  
VSG-GW-GLH-002, Rev. 3, Appendix A, "Sample ITAAC Completion Package Author  
Qualification Card"  
APP-GW-GAP-609, Rev. 1, Attachment A, "ITAAC Screening Qualification"  
CSI 2-23, "ITAAC Activities (Work Package Screenings)"

#### Miscellaneous

Training Records for 10 SCE&G staff trained to ITAAC requirements, current as of 4/20/2015  
Training Records for 7 Consortium staff trained to ITAAC requirements, current as of 4/20/2015  
Certified Survey Data Prepared for SCE&G V.C. Summer Station Units 2/3, ITAAC C.3.8.1.5,  
"Emergency Facilities and Equipment - No. 849, No. 857, No 858", Rev. 2, 10/03/2014  
APP-PLS-J0R-009, "AP1000 Turbine Control & Protection System Overspeed Diversity  
Analysis", Rev. 0  
VS2-MV6H-VQQ-001, "Volume Worksheet for MV6H Tanks", Rev. 2 (from Sharpsville  
Container: Job No: 788705, Tank Nos: 1 and 2, Serial Nos: 8266 and 8267, Project: V.C.  
Summer Unit 2)

#### Procedures

NND-AP-0032, "Implementation of Inspections, Tests, Analyses and Acceptance Criteria  
(ITAAC)", Rev. 4  
NND-AP-0306, "Maintenance of Inspections, Tests, Analysis and Acceptance Criteria (ITAAC)",  
Rev. 0  
NND-AP-0307, "Site-Specific Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)  
Performance and Documentation Plans", Rev. 1

NND-CS-0010, "Inspection, Test, Analysis, and Acceptance Criteria (ITAAC) Corrective Action Screening and Evaluation", Rev. 1  
NNDG-AP-0001, "Standard Plant Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Performance and Documentation Plan (PDP) Reviews", Rev. 1  
NNDG-CS-0010, "ITAAC Oversight Package Preparation", Rev. 0  
APP-GW-GAP-117, "Implementation and Control of Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)", Rev. 4  
VSG-GW-GLH-002, "V.C. Summer ITAAC Program Execution Plan", Rev. 3  
APP-GW-GAP-609, "Screening Issues for ITAAC Significance", Rev. 1

#### QA/QC ITAAC Audits and Surveillances

S-132177-2014-062, "Unit 2 Surveillance on ITAAC 2.3.29.01, Radioactive Waste Drain System (WRS) Functional Arrangement", 9/03/2014  
S-132177-2014-071, "Unit 2 Surveillance on ITAAC 3.3.00.02a.ii.c & 3.3.00.02a.ii.d, "As-Built Concrete Thickness"", 9/10/2014  
S-132177-2014-082, "Surveillance on Field Surveying activities related to ITAAC", 11/10/2014  
S-132177-2014-102, "Unit 2 Surveillance on ITAAC 2.2.03.08c.x.02, coatings inside containment", 11/11/2014  
S-132177-2014-110, "Review of Unit 2 & 3 ITAAC-Related Field Sketches for Embedded "Radioactive Waste Drain System" (WRS) and "Liquid Radwaste System" (WLS) Piping", 1/08/2015  
S-132177-2014-115, "Unit 2 Surveillance on ITAAC 2.2.03.08c.x, "Coatings Inside Containment"", 12/10/2014  
S-132178-2014-063, "Unit 3 Surveillance on ITAAC 2.3.29.01, Radioactive Waste Drain System (WRS) Functional Arrangement", 9/03/2014  
S-132178-2014-072, "Unit 3 Surveillance on ITAAC 3.3.00.02a.ii.c & 3.3.00.02a.ii.d, "As-Built Concrete Thickness"", 9/10/2014  
S-132178-2014-103, "Unit 3 Surveillance on ITAAC 2.2.03.08c.x.02, coatings inside containment", 11/11/2014

#### **Quality Assurance (QA) – Construction**

##### **1P02**

#### CB&I CARs

2013-1744  
2014-0814  
2014-1205  
2014-1239  
2014-1280  
2014-1293  
2014-1295  
2014-1296  
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2014-2700  
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2014-2764  
2014-2765  
2015-0038  
2015-0086  
2015-0105  
2015-0124



2015-0149  
2015-0197  
2015-0218  
2015-0244  
2015-0267  
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2015-0283  
2015-0307  
2015-0318  
2015-0392  
2015-0416  
2015-0420  
2015-0432  
2015-0475  
2015-0488  
2015-0491  
2015-0496  
2015-0584  
2015-0608  
2015-0645  
2015-0664  
2015-0846

#### CB&I Procedures

CMS-805-01-PR-00001, Employee Concerns Program, Rev. 3  
NCAP 3.1, "Power Group Operating Experience/Lessons Learned Program," Rev. 003  
QS 09.04, "Visual Examination – Structural Welding," Rev. 02.00  
QS 15.01, "Nonconformance and Disposition Report," Rev.  
QS 16.05, "Corrective Action Program," Rev. 06.00  
QS 16.06, "Causal Analysis," Rev. 01.00  
QSG-11, Employee Concerns Program Process, Rev. 0  
SAP-1306, Employee Concerns Program, Rev. 3

#### CB&I QC IRs

C112-14-01114, VC Summer / Unit 2 / Containment, 11/18/2014  
C114-15-00026, VC Summer / Unit #2 / 2 Wall (North Face) I wall to CA20; Elev. 66'-6" to 82'-6", 2/8/2015  
Q445-14-1440, VC Summer - Unit 3  
S511-15-00039, VC Summer/Unit 2/1228, 1/21/2015  
S540-14-0189, V.C. Summer Unit 2 CA20\_20, 8/15/14  
S561-15-00036, V.C. Summer Unit 3 / 1200 / CA20, 3/4/2015

#### E&DCRs

APP-1200-GEF-445, "Revise Rebar Parallel Layer Spacing Note," Rev. 0  
APP-1230-GEF-101, "Rebar Modification for Floor Elevations 100'-0", 105'-0" & 107'-2" Auxiliary & Shield Building," Rev. 0  
APP-1230-GEF-121, "Discrepancies on Floors-Walls Interaction, Aux Bled, Areas 1&2, EL 100'-0"," Rev. 0

APP-1230-GEF-121, "Discrepancies on Floors-Walls Interaction, Aux Bled, Areas 1&2, EL 100'-0", Rev. 1  
APP-1230-GEF-160, "Auxiliary Building Concrete Slab EL. 100'-0" in Area 1," Rev. 0  
APP-1230-GEF-171, Auxiliary Building - Floor Reinforcement Procurement, Fabrication and Installation of the Rebar Areas 5 and 6 EL 100'-0", Rev. 0  
APP-1230-GEF-500, Floor Reinforcement Procurement Release Auxiliary Building Areas 5 and 6 EL 100'-0", Rev. 0  
APP-1230-GEF-500, Floor Reinforcement Procurement Release Auxiliary Building Areas 5 and 6 EL 100'-0", Rev. 1  
APP-1233-GEF-021,  
APP-GW-GEF-1075, "Mechanical Module Component Storage," Rev. 0  
APP-MB01-GEF-102, "AP1000 Steam Generator – Design Changes to Receipt Inspection and Storage Technical Manual," Rev. 0  
APP-MB01-GEF-102, "AP1000 Steam Generator – Design Changes to Receipt Inspection and Storage Technical Manual," Rev. 0  
APP-MB01-GEF-112, "AP1000 Steam Generator – Design Changes to Receipt Inspection and Storage Technical Manual," Rev. 0  
APP-MV01-GEF-145, "Modification of AP1000 Reactor Vessel Long Term Storage Manual Requirements," Rev. 0  
APP-MV10-GEF-172, "AP1000 IHP Location Update for Storage Configuration," Rev. 0  
VS2-CC01-GEF-000074, "Crack Repair Matl for Horz. Cracks," Rev. 0  
VS2-CR01-GEF-000092, "L Wall-Shield Wall Rebar El 82'-6", Rev. 0  
VSG-0000-GEF-000273, "Storage Level B Tents at LD 5&6," Rev. 0  
VSG-0000-GEF-000306, "Pressurizer Storage Tent," Rev. 0  
VSG-0000-GEF-000315, "Tents Along West Side of RR Tracks," Rev. 0  
VSG-CC01-GEF-000162, "Batch Plant Supplied Grout Req.," Rev. 0  
VSG-CR01-GEF-000116, "Solvent for cleaning rebar," Rev. 0

#### Miscellaneous

APP-GW-GEE-4944, "Change to Nuclear Island Basemat Floor Sloping Requirements," Rev. 0  
SCE&G Third Quarter 2014 Trend Report Virgil C. Summer Nuclear Station, Dated 12/1/2014  
SCE&G Fourth Quarter 2014 Trend Report Virgil C. Summer Nuclear Station, Dated 3/20/2015  
V2015-86, "Audit of K2 Industrial Services, Inc. (Cannon Sline) QA Program at the VC Summer Construction Site," 19 Feb 2015

#### N&Ds

VS2-CC01-GNR-000145, "CA20 Gap Below Embed," Rev. 0  
VS2-CC01-GNR-000154, "CA20 Gap Below Embeds," Rev. 0  
VS2-CR01-GNR-000169, "Insufficient U-bar Splice Length," Rev. 0  
VS2-MP08-GNR-000001  
VS2-MP08-GNR-000002  
VS2-MP08-GNR-000003  
VS3-CC01-GNR-000107  
VS3-MP08-GNR-000001  
VSG-0000-GNR-000008  
VSG-0000-GNR-000012

#### SCE&G CRs

CR-NND-13-00665  
CR-NND-13-00668  
CR-NND-13-01350

CR-NND-14-00478  
CR-NND-14-00567  
CR-NND-14-00596  
CR-NND-14-00637  
CR-NND-14-00690  
CR-NND-14-00755  
CR-NND-14-00944  
CR-NND-14-00971  
CR-NND-14-01183  
CR-NND-14-01436  
CR-NND-14-01750  
CR-NND-15-00167  
CR-NND-15-00318  
CR-NND-15-00432

#### SCE&G Observations

OBV-NND-2014-80543  
OBV-NND-2014-80769  
OBV-NND-2014-82714  
OBV-NND-2014-83504  
OBV-NND-2014-84250  
OBV-NND-2014-84796  
OBV-NND-2014-85222  
OBV-NND-2014-85933  
OBV-NND-2014-86148  
OBV-NND-2014-86769  
OBV-NND-2014-87026  
OBV-NND-2014-87148  
OBV-NND-2014-87260  
OBV-NND-2014-87654  
OBV-NND-2014-89023  
OBV-NND-2014-89762  
OBV-NND-2014-89871  
OBV-NND-2014-90811  
OBV-NND-2014-91245  
OBV-NND-2014-91477  
OBV-NND-2015-92438

#### SCE&G Procedures

NND-AP-0002, "Corrective Action and Trending Program," Rev. 14  
NND-AP-0015, "Cause Determination," Rev. 6  
NND-AP-0018, "Observation Program," Rev. 5  
NND-AP-0025, "Construction and Operating Experience Program," Rev. 2  
NND-AP-0801, "Corrective Action Interface," Rev. 2

#### Self-Assessments

CB&I Employee Concerns Program Assessment of 2014 VCS Case File Documentation,  
2/18/2015  
SA-13-QS-02, 2013 SCE&G Employee Concerns Program, 7/2013

#### Surveillances

S-132177-2014-044, "Corrective Action Program Surveillance," 22 Jul 2014  
S-132177-2014-057, "Review of Subcontractor Cannon Sline Nuclear Island 2 (NI2) Auxiliary Building Embed Surface Prep and Coatings Activities," 25 Aug 2014  
S-132177-2014-102, "Unit 2 Surveillance on ITAAC 2.2.03.08c.x.02, Coatings Inside Containment," 11 Nov 2014  
S-132177-2014-107, "Review of Coatings Processes," 11 Dec 2014  
S-132177-2014-118, "Re-start Readiness Review of Subcontractor Coatings," 13 Jan 2014  
S-132178-2014-103, "Unit 3 Surveillance on ITAAC 2.2.03.08c.x.02, Coatings Inside Containment," 11 Nov 2014

#### WEC CAPALs

100000215  
100000483  
100000899  
100000934  
100001515  
100004497  
100011952  
100012415  
100012571  
100014641  
100015540  
100015998  
100016817  
100032332  
100033580  
100037378  
100045339  
100051761  
100051848  
100054684  
100057598  
100064203  
100069546  
100070570  
100071409  
100071907  
100076527  
100076598  
100079292  
100084371

#### WEC Procedures

APP-GW-GAH-004, "AP1000 Program Project Quality Plan," Rev. 2  
APP-GW-GAM-200 "AP1000 Quality Assurance Requirements for RTNSS Systems, Structures and Components," Rev. 2  
APP-GW-GAP-106, "Corrective Action Interface," Rev.5  
APP-GW-GAP-150, "Process and Guidelines for Preparing the Technical Content of AP1000 Certified for Construction (CFC) Civil/Structural Drawings," Rev. 1  
APP-GW-GAP-407, "Design Criteria Documents," Rev. 1

APP-GW-GL-026, "AP1000 Implementation of Regulatory Treatment of Nonsafety-Related Systems Process," Rev. 2  
APP-GW-GRR-009, "AP1000 Design Reliability Assurance Program," Rev. 3  
APP-GW-SUP-001, "Design Methodology for Structural Modules," Rev. 4  
BMS-CI-5, "Operating Experience Guideline," Rev. 1  
WEC 16.2, "Westinghouse Corrective Action Program," Rev. 7.0  
WEC 16.3, "Corrective Action Review Board," Rev. 4.0  
WEC 16.4, "Root Cause Analysis," Rev. 4.0  
WEC 16.5, "Apparent Cause Analysis," Rev. 3.0  
WEC 16.10, "Common Cause Analysis (CCA)," Rev. 0.0  
WEC 16.11, "Issue Review Committee," Rev. 1.0  
WEC 16.12, "Limited Cause Analysis (LCA)," Rev. 0.0  
WEC 16.13, "Effectiveness Review," Rev. 0.0

## LIST OF ACRONYMS

ADAMS	Agencywide Documents Access & Management System
CAP	Corrective Action Program
CB&I	Chicago Bridge and Iron
CFR	Code of Federal Regulations
ECP	Employee Concerns Program
EPC	Engineering Procurement and Construction
ICN	ITAAC Closure Notifications
IMC	Inspection Manual Chapter
ITAAC	Inspections, Tests, Analysis, and Inspection Criteria
N&Ds	Non Conformance & Disposition Reports
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
QA	Quality Assurance
QAP	Quality Assurance Program
SCWE	Safety Conscious Work Environment
SCE&G	South Carolina Electric and Gas
WEC	Westinghouse Electric Company, LLC