



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II**

245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

May 6, 2016

Mr. David R. Vineyard  
Vice President  
Southern Nuclear Operating Company, Inc.  
Edwin I. Hatch Nuclear Plant  
11028 Hatch Parkway North  
Baxley, GA 31513

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT – NRC INTEGRATED INSPECTION  
REPORT 05000321/2016001 AND 05000366/ 2016001

Dear Mr. Vineyard:

On March 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Edwin I. Hatch Nuclear Plant, Units 1 and 2. On April 25, 2016, the NRC inspectors discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report. The NRC inspectors did not identify any findings or violations of more than minor significance.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding," 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's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Shane Sandal, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Docket Nos.: 50-321, 50-366  
License Nos.: DPR-57 and NPF-5

Enclosures: Inspection Report 05000321/2016001, 05000366/2016001  
w/Attachment: Supplementary Information

cc: Distribution via Listserv

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D. Vineyard

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Letter to David R. Vineyard from Shane Sandal dated May 6, 2016

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT – NRC INTEGRATED INSPECTION  
REPORT 05000321/2016001 AND 05000366/ 2016001

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos.: 50-321, 50-366

License Nos.: DPR-57 and NPF-5

Report No.: 05000321/2016001 and 05000366/2016001

Licensee: Southern Nuclear Operating Company (SNC)

Facility: Edwin I. Hatch Nuclear Plant

Location: Baxley, Georgia 31513

Dates: January 1 through March 31, 2016

Inspectors: D. Hardage, Senior Resident Inspector  
D. Retterer, Resident Inspector  
B. Collins, Reactor Inspector (1R08)  
K. Kirchbaum, Project Engineer (1R19)  
W. Pursley, Health Physicist (2RS1)  
A. Nielsen, Senior Health Physicist (2RS8)

Approved by: Shane Sandal, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Enclosure

## **SUMMARY OF FINDINGS**

IR 05000321/2016001 and 05000366/2016001; January 1, 2016 through March 31, 2016;  
Edwin I. Hatch, Units 1 and 2; Quarterly Integrated Inspection Report

The report covered a 3-month period of inspection by resident inspectors and regional inspectors. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 began the inspection period at 98 percent rated thermal power (RTP). On February 8, 2016, the licensee shut down the unit for a scheduled refueling outage. The unit was restarted on March 3, 2016, and returned to 100 percent RTP on March 8, 2016. The unit operated at or near 100 percent RTP for the remainder of the inspection period.

Unit 2 operated at or near 100 percent RTP for the duration of the inspection period.

### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R01 Adverse Weather Protection (71111.01)

##### a. Inspection Scope

Impending Adverse Weather Conditions: The inspectors reviewed the licensee's preparations to protect risk-significant systems from cold weather expected during January 11 through January 19, 2016. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures, including operator staffing, before the onset of the adverse weather conditions. The inspectors reviewed the licensee's plans to address the consequences that may result from freezing weather. The inspectors verified that operator actions specified in the licensee's adverse weather procedure maintain readiness of essential systems. The inspectors verified that required surveillances were current, or were scheduled and completed, if practical, before the onset of anticipated adverse weather conditions. The inspectors also verified that the licensee implemented periodic equipment walkdowns or other measures to ensure that the condition of plant equipment met operability requirements.

##### b. Findings

No findings were identified.

#### 1R04 Equipment Alignment (71111.04)

##### a. Inspection Scope

- .1 Partial Walkdown: The inspectors verified that critical portions of the following systems were correctly aligned by performing partial walkdowns. The inspectors determined the correct system lineup by reviewing plant procedures and drawings listed in the Attachment.

- Main Control Room Ventilation following restoration of the 'B' train, January 15, 2016
- Unit 1 Reactor Core Isolation Cooling System following refueling outage, March 2, 2016

- Unit 1, 'B' train of Residual Heat Removal following refueling outage, March 6, 2016

- .2 Complete Walkdown: The inspectors verified the alignment of the Unit 2 high pressure coolant injection system by reviewing plant procedures, drawings, the updated final safety analysis report, and other documents. The inspectors also reviewed records related to the system outstanding design issues, maintenance work requests, and deficiencies.

The inspectors reviewed corrective action documents, including condition reports and outstanding work orders, to verify the licensee was identifying and resolving equipment alignment discrepancies. The inspectors also reviewed periodic reports containing information on the status of risk-significant systems, including maintenance rule reports and system health reports.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05AQ)

a. Inspection Scope

Quarterly Inspection: The inspectors evaluated the adequacy of fire plans by comparing the fire plans to the defined hazards and defense-in-depth features specified in the fire protection program, in the following areas:

- control of transient combustibles and ignition sources
- fire detection systems
- fire suppression systems
- manual firefighting equipment and capability
- passive fire protection features
- compensatory measures and fire watches
- issues related to fire protection contained in the licensee's corrective action program

The inspectors toured the following five fire areas to assess material condition and operational status of fire protection equipment. Documents reviewed are listed in the attachment.

- Unit 1 and Unit 2, Cable spreading room 147' 0", fire zone 0024A
- Unit 1 and Unit 2, Control building general area 112' 0", fire zone 0001/0007/1003
- Unit 1 and Unit 2, Control building general area 130' 0", fire zone 0014/2014/2021
- Unit 1 Torus Area, fire zone 1203A/1205A
- Unit 1 and Unit 2, East Cableway, fire zone 1104/2104

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)a. Inspection Scope

Internal Flooding: The inspectors reviewed related flood analysis documents and walked down the areas listed below containing risk-significant structures, systems, and components susceptible to flooding. The inspectors verified that plant design features and plant procedures for flood mitigation were consistent with design requirements and internal flooding analysis assumptions. The inspectors also assessed the condition of flood protection barriers and drain systems. In addition, the inspectors verified the licensee was identifying and properly addressing issues using the corrective action program.

- Unit 1, reactor building southeast diagonal
- Unit 1, reactor building northeast diagonal

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)a. Inspection Scope

Non-Destructive Examination Activities and Welding Activities: The inspectors conducted an onsite review of the implementation of the licensee's in-service inspection (ISI) program for monitoring degradation of the reactor coolant system boundary, risk-significant piping and component boundaries, and containment boundaries in Unit 1. The inspectors directly observed the following non-destructive examinations (NDEs) listed below, which were mandated by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code of Record: 2001 Edition with 2003 Addenda) to evaluate compliance with the ASME Code, Section XI and Section V requirements and, if any indications or defects were detected, to evaluate if they were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement. The inspectors also reviewed the qualifications of the NDE technicians performing the examinations to determine whether they were current and in compliance with the ASME Code requirements.

- Ultrasonic Testing (UT) examination of weld 1N11-2MSA-6-SJAE-18, ASME Class 2, Main Steam system, 6" elbow-to-pipe weld
- Penetrant Testing (PT) examination of weld 1B31-1RC-28B-9BC, ASME Class 1, Recirculation system, 4" pipe-to-branch connection weld
- Enhanced Visual Testing (EVT) examination of weld H4, ASME Class 2, Core Shroud, ID examination of core shroud from 105° - 115°

The inspectors directly observed the following welding activities, qualification records, and associated documents listed below in order to evaluate compliance with procedures



and the ASME Code, Section XI and Section IX requirements. Specifically, the inspectors reviewed the work order, repair and replacement plan, weld data sheets, welding procedures, procedure qualification records, welder performance qualification records, and NDE reports.

- Work Order SNC685754, Full Structural Weld Overlay Installation on 1B31-1RC-12BR-C-5, ASME Class 1, Recirculation system, 12" nozzle-to-safe end weld
- Work Order SNC685755, Full Structural Weld Overlay Installation on 1B31-1RC-12BR-E-5, ASME Class 1, Recirculation system, 12" nozzle-to-safe end weld

The inspectors reviewed the following volumetric examination records with recordable indications that were analytically evaluated and accepted for continued service to determine if they were dispositioned in accordance with the ASME Code, Section XI requirements or an NRC-approved alternative.

- UT, Plant Service Water piping through-wall leak between 1P41F1378 and 4" header, ASME Class 3
- UT, Plant Service Water piping through-wall leak between 1P41F050 and 1P41F062, ASME Class 3
- UT, Plant Service Water piping through-wall leak between 1P41F049 and 1P41F061, ASME Class 3

Identification and Resolution of Problems: The inspectors reviewed a sample of ISI-related issues entered into the corrective action program to determine if the licensee had appropriately described the scope of the problem and had initiated corrective actions. The review also included the licensee's consideration and assessment of operating experience events applicable to the plant. The inspectors performed this review to ensure compliance with 10CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements.

b. Findings

Unresolved Item (URI) 05000321/2016001-01, Reactor Coolant System N2E Weld Flaw

Introduction: The inspectors identified an unresolved item associated with a flaw identified in the safe end-to-nozzle weld of the Reactor Coolant System N2E Nozzle.

Description: In July 2015, the licensee submitted a proposed alternative to ASME Code, HNP-ISI-ALT-15-01 (ML15183A354), to install a full-structural weld overlay on reactor coolant nozzle N2E (1B31-1RC-12-BR-E). This proposed alternative was approved by the NRC in December 2015 (ML15349A973). The licensee implemented this proposed alternative during the February 2016 refueling outage (1R27). After removing all but 1/16" of the existing overlay, the licensee performed a liquid penetrant examination and noted a pair of linear indications. Subsequently, the licensee determined that these indications were actually a single indication, and that it exceeded allowable size limitations according to ASME Code. Upon further review, the licensee realized that these indications were potentially the result of growth of an inner-diameter, surface-

connected intergranular stress corrosion cracking (IGSCC) flaw found in 1988. The licensee has repaired the flaw, installed the full-structural weld overlay, and completed all required post-installation examinations. This is an unresolved item pending review of whether the licensee performed all required examinations of the N2E nozzle between 1988 and 2016, and whether the flaw exceeded minimum wall limitations at some point during prior operation. The issue will be tracked as URI 05000321/2016001-01, Reactor Coolant System N2E Weld Flaw.

1R11 Licensed Operator Regualification Program and Licensed Operator Performance (71111.11)

a. Inspection Scope

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification: The inspectors observed a simulator scenario conducted for training of an operating crew on March 28, 2016. The inspectors assessed the following:

- licensed operator performance
- the ability of the licensee to administer the scenario and evaluate the operators
- the quality of the post-scenario critique
- simulator performance

.2 Resident Inspector Quarterly Review of Licensed Operator Performance in the Actual Plant/Main Control Room: The inspectors observed licensed operator performance in the main control room during Unit 1 shutdown on February 7, 2016. The inspectors assessed the following:

- use of plant procedures
- control board manipulations
- communications between crew members
- use and interpretation of instruments, indications, and alarms
- use of human error prevention techniques
- documentation of activities
- management and supervision

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors assessed the licensee's treatment of the two issues listed below to verify the licensee appropriately addressed equipment problems within the scope of the maintenance rule (10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"). The inspectors reviewed procedures and

records to evaluate the licensee's identification, assessment, and characterization of the problems as well as their corrective actions for returning the equipment to a satisfactory condition.

- Unit 2, 2P41F311B, 'B' PSW pump check valve did not close on pump stop
- Unit 2, Emergency Lighting Failures exceed surveillance testing criteria

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed the five maintenance activities listed below to verify that the licensee assessed and managed plant risk as required by 10 CFR 50.65(a)(4) and licensee procedures. The inspectors assessed the adequacy of the licensee's risk assessments and implementation of risk management actions. The inspectors also verified that the licensee was identifying and resolving problems with assessing and managing maintenance-related risk using the corrective action program. Additionally, for maintenance resulting from unforeseen situations, the inspectors assessed the effectiveness of the licensee's planning and control of emergent work activities.

- Unit 1 and Unit 2, week of January 30 – February 6, including scheduled maintenance on "1B" plant service water pump
- Unit 1 and Unit 2, week of February 13- February 19, including protected equipment status reviews for Unit 1 outage and Unit 2 routine maintenance
- Unit 1 and Unit 2, week of February 20- February 26, including protected equipment status reviews for Unit 1 outage and Unit 2 routine maintenance
- Unit 1 and Unit 2, week of February 27- March 5, including protected equipment status reviews for Unit 1 outage and Unit 2 routine maintenance
- Unit 1 and Unit 2, week of March 12 - March 19, including emergent work activities on the 2C EDG air start tubing

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

Operability Determinations and Functionality Assessments Review: The inspectors selected the five operability determinations or functionality evaluations listed below for review based on the risk-significance of the associated components and systems. The inspectors reviewed the technical adequacy of the determinations to ensure that

technical specification operability was properly justified and the components or systems remained capable of performing their design functions. To verify whether components or systems were operable, the inspectors compared the operability and design criteria in the appropriate sections of the technical specification and updated final safety analysis report to the licensee's evaluations. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with operability evaluations.

- Unit 2, Improperly sized EDG Timer capacitors, CR10159635
- Unit 1 and Unit 2, EDG Fire Damper operability, CR10168630
- 1E11F048B scope revision for nonintrusive testing until 2018, CR10189143
- 1C EDG frequency dropped below RG 1.9 requirements during testing, CR10189069
- 1E41F111 LLRT is above acceptance criteria, CR10187708

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors verified that the plant modification listed below did not affect the safety functions of important safety systems. The inspectors confirmed the modification did not degrade the design bases, licensing bases, and performance capability of risk significant structures, systems and components. The inspectors also verified modification performed during plant configurations involving increased risk did not place the plant in an unsafe condition. Additionally, the inspectors evaluated whether system operability and availability, configuration control, post-installation test activities, and changes to documents, such as drawings, procedures, and operator training materials, complied with licensee standards and NRC requirements. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with modification. Documents reviewed are listed in the attachment.

- SNC595832, Install temporary station service battery charger to facilitate replacement of obsolete unit 2 battery chargers

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)a. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the maintenance activities listed below to verify the work performed was completed correctly and the test activities were adequate to verify system operability and functional capability.

- SNC663965, Tie in Core Cooling Supply Water Piping to 10" RHRSW Div. 1 Piping in the Torus, 02/22/16
- SNC574754, Replace 1P41F1384 PSW Isolation to Drywell Coolers, 02/17/16
- SNC564847, Troubleshoot/Repair 1T48F323F Drywell Vacuum Breaker, 02/26/16
- SNC662898, Remove/Replace SRV 1B21F013A, 02/29/16
- SNC685755, Perform full structural weld overlay at 1B31-1RC-12BR-E-5, 3/2/16
- SNC659789, Replace 1E41F001 HPCI steam supply MOV, 3/4/16

The inspectors evaluated these activities for the following:

- acceptance criteria were clear and demonstrated operational readiness
- effects of testing on the plant were adequately addressed
- test instrumentation was appropriate
- tests were performed in accordance with approved procedures
- equipment was returned to its operational status following testing
- test documentation was properly evaluated

Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with post-maintenance testing.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)a. Inspection Scope

For the Unit 1 outage from February 8, 2016 through March 4, 2016, the inspectors evaluated the following outage activities:

- outage planning
- shutdown, cooldown, refueling, heatup, and startup
- reactor coolant system instrumentation and electrical power configuration
- reactivity and inventory control
- decay heat removal and spent fuel pool cooling system operation
- containment closure

- The inspectors verified that the licensee:
- considered risk in developing the outage schedule
- controlled plant configuration per administrative risk reduction methodologies
- developed work schedules to manage fatigue
- developed mitigation strategies for loss of key safety functions
- adhered to operating license and technical specification requirements

The inspectors verified that safety-related and risk-significant structures, systems, and components not accessible during power operations were maintained in an operable condition. The inspectors also reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with outage activities.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the six surveillance tests listed below and either observed the test or reviewed test results to verify testing adequately demonstrated equipment operability and met technical specification and current licensing basis. The inspectors evaluated the test activities to assess for preconditioning of equipment, procedure adherence, and equipment alignment following completion of the surveillance. Additionally, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with surveillance testing. Documents reviewed are listed in the attachment.

Routine Surveillance Tests

- 34SV-T22-001-0, "Secondary Containment Test"
- 42SV-R43-021-1, "Diesel Generator 1A LOCA/LOSP LSFT"
- 57SV-C11-002-2, "Scram Discharge Level FT"
- 34SV-R43-006-2, "EDG 2C Semi-Annual Test"

Containment Isolation Valve

- 42SV-TET-001-0, "LLRT Testing Methodology"

In-Service Tests (IST)

- 34SV-E51-002-1, "RCIC Pump Operability"

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the emergency preparedness drill conducted on January 14, 2016. The inspectors observed licensee activities in the simulator to evaluate implementation of the emergency plan, including event classification, notification, and protective action recommendations. The inspectors evaluated the licensee's performance against criteria established in the licensee's procedures. Additionally, the inspectors attended the post-exercise critique to assess the licensee's effectiveness in identifying emergency preparedness weaknesses and verified the identified weaknesses were entered in the corrective action program. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

2RS1 Radiological Hazard Assessment and Exposure Controls

a. Inspection Scope

Hazard Assessment and Instructions to Workers: During facility tours, the inspectors directly observed labeled radioactive material and postings for radiation areas and High Radiation Areas (HRAs) established within the Radiologically Controlled Area (RCA) of Unit 1 (U1) and Unit 2 (U2) Reactor and Turbine Buildings, radioactive waste processing areas, and the Waste Separation and Temporary Storage Facility. The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys for selected RCA areas. The inspectors reviewed and verified survey records for several plant areas including surveys for alpha emitters, airborne radioactivity, and gamma surveys with a range of dose rate gradients. The inspectors reviewed several radiation work permit (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers. The inspectors reviewed selected Electronic Dosimeter (ED) dose and dose rate alarms, to verify workers properly responded to the alarms and that the licensee's review of the events was appropriate. The inspectors observed jobs in radiologically risk-significant areas including HRAs and areas with, or with the potential for airborne activity.

Contamination and Radioactive Material Control: The inspectors observed the release of potentially contaminated items from the RCA and from contaminated areas. The

inspectors also reviewed the procedural requirements for, and equipment used to perform, the radiation surveys for release. During plant walk downs, the inspectors evaluated radioactive material storage areas and containers, including satellite RCAs and yard areas, assessing material condition, posting/labeling, and control of materials/areas. In addition, the inspectors reviewed the sealed source inventory and verified labeling, storage conditions, and leak testing of selected sources.

Radiological Hazards Control and Work Coverage: The inspectors evaluated licensee performance in controlling worker access to radiologically significant areas and monitoring jobs in-progress during the week of the onsite inspection. The inspectors also reviewed the procedural guidance for multi and extremity badging. For HRA tasks involving significant dose rate gradients, the inspectors evaluated the use and placement of whole body and extremity dosimetry to monitor worker exposure. The inspectors reviewed RWPs for use in airborne areas, ensuring the prescribed controls were appropriate for the conditions as identified in radiological surveys and air samples. ED alarm set points and worker stay times were evaluated against area radiation survey results for containment and auxiliary building activities.

Risk Significant High Radiation Areas and Very High Radiation Area Controls: The inspectors evaluated access barrier effectiveness for selected Locked High Radiation Area (LHRA) and Very High Radiation Area (VHRA) locations. Changes to procedural guidance for LHRA and VHRA controls were discussed with Radiation Protection (RP) supervisors. During plant walk downs of the Reactor Building, the inspectors verified the posting/locking of LHRA/VHRA areas. Established radiological controls (including airborne controls) were evaluated for selected tasks including work in auxiliary building HRAs, and radwaste processing and storage. In addition, licensee controls for areas where dose rates could change significantly as a result of plant shutdown and refueling operations were reviewed and discussed.

Radiation Worker Performance and RP Technician Proficiency: The inspectors observed radiation worker performance through direct observation. Jobs observed included maintenance and refueling activities in the drywell, reactor building, and refueling floor in high radiation and contaminated areas. The inspectors also observed health physics technicians (HPTs) providing pre-job/RWP briefings, releasing material from the RCA, and providing field coverage of jobs. Occupational workers' adherence to selected RWPs and HPT proficiency in providing job coverage were evaluated through direct observations and interviews with licensee staff. ED alarm set points and worker stay times were evaluated against area radiation survey results for reviewed RWPs.

Problem Identification and Resolution: Condition Reports (CR) associated with radiological hazard assessment and control were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure NMP-GM-002, "Corrective Action Program," Version 13.1 and NMP-GM-002-001, "Corrective Action Program Instructions," Version 33.1. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results.



RP activities were evaluated against the requirements of Updated Final Safety Analysis Report (UFSAR) Section 12; Technical Specifications (TS) Sections 5.7; 10 CFR Parts 19 and 20; and approved licensee procedures. Licensee programs for monitoring materials and personnel released from the RCA were evaluated against 10 CFR Part 20 and IE Circular 81-07, Control of Radioactively Contaminated Material. Documents and records reviewed are listed in the Attachment.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

a. Inspection Scope

Waste Processing and Characterization: During inspector walk-downs, accessible sections of the liquid and solid radwaste processing systems were assessed for material condition and conformance with system design diagrams. Inspected equipment included storage tanks, transfer piping, resin dewatering and packaging components, and abandoned radwaste processing equipment. The inspectors discussed component function, processing system changes, and radwaste program implementation with licensee staff.

The inspectors reviewed the 2014 Annual Radioactive Effluent Report and radionuclide characterizations from 2015 - 2016 for selected waste streams. For Cleanup Phase Separator resin and Dry Active Waste, the inspectors evaluated analyses for hard-to-detect nuclides, reviewed the use of scaling factors, and examined quality assurance comparison results between licensee waste stream characterizations and outside laboratory data. Waste stream mixing and concentration averaging methodology were evaluated and discussed with radwaste staff. The inspectors also reviewed the licensee's process for monitoring changes in waste stream isotopic mixtures.

Radioactive Material Storage: During walk-downs of indoor and outdoor radioactive material storage areas, the inspectors observed the physical condition and labeling of storage containers and the posting of Radioactive Material Areas. The inspectors also reviewed licensee procedural guidance for storage and monitoring of radioactive material.

Transportation: The inspectors evaluated shipping records for consistency with licensee procedures and compliance with NRC and Department of Transportation (DOT) regulations. The inspectors reviewed emergency response information, DOT shipping package classification, waste classification, radiation survey results, and container handling methodology. The inspectors also observed shipment preparations for a DAW package and evaluated technician performance and knowledge of DOT requirements.

Problem Identification and Resolution: The inspectors reviewed condition reports in the areas of shipping and radwaste processing. The inspectors evaluated the licensee's ability to identify and resolve the issues.

Radwaste processing, radioactive material handling, and transportation activities were reviewed against the guidance and requirements contained in the licensee's Process Control Program, UFSAR Chapter 11, 10 CFR Part 20, 10 CFR Part 61, 10 CFR Part 71, the Branch Technical Position on Waste Classification (1983), and NUREG-1608b "Categorizing and Transporting Low Specific Activity Materials and Surface Contaminated Objects." Documents reviewed during the inspection are listed in the report Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed a sample of the performance indicator (PI) data, submitted by the licensee, for the Unit 1 and Unit 2 PIs listed below. The inspectors reviewed plant records compiled between January 2015 and January 2016 to verify the accuracy and completeness of the data reported for the station. The inspectors verified that the PI data complied with guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," and licensee procedures. The inspectors verified the accuracy of reported data that was used to calculate the value of each PI. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with PI data.

Cornerstone: Initiating Events

- unplanned scrams per 7000 critical hours
- unplanned power changes per 7000 critical hours
- unplanned scrams with complications

b. Findings

No findings were identified.

#### 4OA2 Problem Identification and Resolution (71152)

##### .1 Routine Review

The inspectors screened items entered into the licensee's corrective action program in order to identify repetitive equipment failures or specific human performance issues for follow-up. The inspectors reviewed condition reports, attended screening meetings, or accessed the licensee's computerized corrective action database.

##### .2 Annual Follow-up of Selected Issues

###### a. Inspection Scope

The inspectors conducted a detailed review of the following two condition reports:

- CR 10148136, 10148139, CO2 Calculations for EDG Operability
- CR 10159635, Potential misapplication of tantalum surface mount capacitor in EDG 1B, 2A, and 2C LOSP/LOCA Timing

The inspectors evaluated the following attributes of the licensee's actions:

- complete and accurate identification of the problem in a timely manner
- evaluation and disposition of operability and reportability issues
- consideration of extent of condition, generic implications, common cause, and previous occurrences
- classification and prioritization of the problem
- identification of root and contributing causes of the problem
- identification of any additional condition reports
- completion of corrective actions in a timely manner

###### b. Findings and observations

No findings were identified.

#### 4OA6 Meetings, Including Exit

On April 25, 2016, the resident inspectors presented the inspection results to Mr. David Vineyard and other members of the licensee's staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

## **SUPPLEMENTARY INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

B. Anderson, Health Physics Manager  
G. Brinson, Maintenance Director  
J. Carswell, SNC Corporate RP  
J. Collins, Licensing Supervisor  
B. Dean, Training Director  
B. Duvall, Chemistry Manager  
A. Giancattarino, Engineering Director  
A. Gordon, ISI Program Owner  
G. Johnson, Regulatory Affairs Manager  
D. Komm, Operations Director  
K. Long, Work Management Director  
J. Major, Licensing Engineer  
W. Mathews, Site Repair and Replacement Program/Welding Engineer  
C. Prandini, Licensing Engineer  
D. Reagin, RP Radwaste  
R. Spring, Plant Manager  
M. Torrance, Design Engineering Manager  
D. Vineyard, Vice President  
A. Wheeler, Site Projects Manager  
R. Wheeler, SNC Corporate RP  
K. White, Southern Nuclear Level III

### **LIST OF REPORT ITEMS**

#### **Opened**

URI 05000321/2016001-01 Reactor Coolant System N2E Weld Flaw (Section 1R08)

### **LIST OF DOCUMENTS REVIEWED**

#### **Section 1R01: Adverse Weather**

##### **Procedures:**

52PM-MEL-005-0, "Cold Weather Checks," Ver. 17.2  
DI-OPS-36-0989, "Cold Weather Checks," Ver. 23.1

#### **Section 1R04: Equipment Alignment**

##### **Procedures:**

34SO-Z41-001-1, "Control Room Ventilation System", Ver. 22.4  
34SO-E51-001-1, "Reactor Core Isolation Cooling (RCIC) System," Ver. 29.0

Attachment

34SO-E11-010-1, "Residual Heat Removal System," Ver. 44.6  
 34SO-E41-001-2, "HPCI System," Ver. 30.0

Drawings:

H16334, H16335, H26243, H26275, H26276, H26274, H260220, H26021,

**Section 1R05: Fire Protection**

Procedures:

E.I. Hatch Fire Protection Fire Hazards Analysis  
 52SV-FPX-001-0, "Fire Extinguisher Inspection," Ver. 3.4  
 42SV-FPX-024-0, "Fire Hose Stations – Appendix B Areas," Ver. 3.9

Drawings:

A-43965 sheet 44A/B, Cable spreading room control building 147' 0"  
 A-43965 Sheet 5A/B, 7A/B, 10A/B, Control building general area 112' 0"  
 A-43965 Sheet 23A/B, 24A/B, 25A/B, 35A/B, Control building general area 130' 0"  
 A-43965 Sheet 56A/B, 57A/B, torus area reactor building below 130' 0"  
 A-43965 Sheet 43A/B, 34A/B, Control building east cableway 130' 0"

**Section 1R06: Internal Flood Protection**

Updated Final Safety Analysis Report  
 E.I. Hatch Individual Plant Examination dated December 1992

**Section 1R08: Inservice Inspection Activities**

Procedures:

51GM-MNT-065-0, Weld Process Control, Rev. 4.2  
 NMP-ES-024-206, Visual Examination of Reactor Pressure Vessel Internals, Ver. 12.0  
 NMP-ES-024-301, Liquid Penetrant Examination Color Contrast and Fluorescent, Ver. 11.1  
 NMP-ES-024-502, PDI Generic Procedure for the Ultrasonic Examination of Ferritic Pipe Welds (Appendix VIII), Ver. 5.0

Work Orders/Work Requests:

SNC685754, Work Order: Install Full-Structural Weld Overlay on N2C Nozzle (1B31-1RC-12BR-C-5), dated 7/17/2015  
 SNC685755, Work Order: Install Full-Structural Weld Overlay on N2E Nozzle (1B31-1RC-12BR-E-5), dated 7/17/2015

NDE Examiner Quals:

GE Hitachi Nuclear Energy Certificate of Qualification: VT-1/VT-3 (Shepard), dated 08/01/14  
 GE Hitachi Vision Acuity Record (Shepard), dated 05/11/2015  
 Sonic Systems International, Inc. Certificate of Qualification: PT (Parker), dated 12/15/2015  
 Sonic Systems International, Inc. Certificate of Qualification: UT (Michael), dated 12-14-15  
 Sonic Systems International, Inc. Vision Acuity Record (Michael), dated 12/02/15  
 Sonic Systems International, Inc. Vision Acuity Record (Parker), dated 03/20/2015

Miscellaneous Documents:

0010900960, Exelon Generation Certificate of Calibration (Infrared Thermometer), dated 07/13/2015

1-14-156, Required Action Sheet: PSW Piping Through-Wall Leak between 1P41F1378 and 4" Header, dated 04-12-14

1-14-168, Required Action Sheet: PSW Piping Through-Wall Leak between 1P41F050 and 1P41F062, dated 04/30/14

1-14-169, Required Action Sheet: PSW Piping Through-Wall Leak between 1P41F049 and 1P41F061, dated 04/30/14

A43256-52, Procedure Qualification Record, dated June 16, 1995

A834256-52, Procedure Qualification Record, dated 07/01/2015

Applied Test Systems, Inc. Certificate of Compliance Ultrasonic Reference Blocks (SN 2478), dated Oct. 1, 2003

AZZ/WSI ASME Section IX Welder Performance Qualification (Martini), dated 6/24/2015

AZZ/WSI ASME Section IX Welder Performance Qualification (Terrapin), dated 8/23/2007

C5-JH-PT-01, AZZ/WSI Liquid Penetration Inspection Report (1B31-1RC-12BR-C-5), dated 02/13/16

C5-TD-PT-03, AZZ/WSI Liquid Penetration Inspection Report (1B31-1RC-12BR-C-5), dated 02/25/16

E5-FS-PT-03, AZZ/WSI Liquid Penetration Inspection Report (1B31-1RC-12BR-E-5), dated 03/02/16

E5-MH-PT-01, AZZ/WSI Liquid Penetration Inspection Report (1B31-1RC-12BR-E-5), dated 02/14/16

H1R27-APR-06, GE Hitachi UT Examination Summary Sheet (1B31-1RC-12BR-C-5), dated 28-Feb-16

H1R27-APR-07, GE Hitachi UT Examination Summary Sheet (1B31-1RC-12BR-E-5), dated 05-Mar-16

INR H1R27 IVVI-16-05 Shroud ID & OD H4 Indication Notification Report, dated 20 Feb 2016

INR H1R27 IVVI-16-09 Jet Pump 3-4 and 7-8 RS-1 Indication Notification Report, dated 18 Feb 2016

IVVI Data Sheet H1R27-16-04 Jet Pump, Visual Examination of Reactor Pressure Vessel Internals (JP-03-04 RS-1), dated 2/17/2016

IVVI Data Sheet H1R27-16-04 Jet Pump, Visual Examination of Reactor Pressure Vessel Internals (JP-05 AS-1a-VS), dated 2/17/2016

IVVI Data Sheet H1R27-16-05 Shroud, Visual Examination of Reactor Pressure Vessel Internals (SHD H4 ID 50-19), dated 2/15/2016

IVVI Data Sheet H1R27-16-05 Shroud, Visual Examination of Reactor Pressure Vessel Internals (Shroud ID 50-23), dated 2/16/2016

Krautkramer UT Transducer Certification (SN 00KTKV), dated 7/24/2000

Krautkramer UT Transducer Certification (SN 00MPXT), dated 1/19/01

M04343, Procedure Qualification Record, dated 8/10/98

Magnaflux Certificate of Certification (Spotcheck Developer), dated 9/11/12

Magnaflux Certificate of Certification (Spotcheck Penetrant), dated 10/24/2013

Magnaflux Certificate of Certification (Ultrage II Couplant), dated 02/18/2015

PQR-08-08-TS-001, Procedure Qualification Record, dated 8/01/2011

PQR-08-08-TS-002, Procedure Qualification Record, dated 01/20/2010

PQR-08-43-S-001, Procedure Qualification Record, dated 03/08/06

PQR-08-43-T-001, Procedure Qualification Record, dated 12/09/2013

PQR-1001, Procedure Qualification Record, dated 02/26/1999

S16H1P011, Liquid Penetrant Examination Record (1B31-1RC-28B-9BC), dated 2/18/2016

S16H1U032, UT Calibration/Examination Record (1N11-2MSA6-SJAE-18), dated 2/17/2016

WPS-08-08-TS-001, Welding Procedure Specification, Rev. 10  
 WPS-08-43-S-001, Welding Procedure Specification, Rev. 4  
 WPS-08-43-T-001, Welding Procedure Specification, Rev. 6  
 WPS-43-43-S-001, Welding Procedure Specification, Rev. 4  
 WPS-43-43-T-001, Welding Procedure Specification, Rev. 10

### **Section 1R11: Licensed Operator Regualification**

Drill Scenario: LR-SG-50352-16.4, LR-SG-50406-17.3

#### **Procedures:**

34GO-OPS-013-1, "Normal Plant Shutdown," Ver. 29.1  
 34SO-B31-001-1, "Reactor Recirculation System," Ver. 46.0  
 34GO-OPS-065-0, "Control Rod Movement," Ver. 12.7

### **Section 1R12: Maintenance Effectiveness**

R42 Maintenance Rule (MR) Scoping Manual Documents  
 R42 MR Performance Criteria  
 System Health Report –R42 System –4th quarter 2015  
 P41 Maintenance Rule (MR) Scoping Manual Documents  
 P41 MR Performance Criteria  
 System Health Report –P41 System – 4th quarter 2015  
 NMP-ES-002, "System Monitoring and Health Reporting," Ver. 19.0  
 CRs10134186, 10196532  
 TE941210

### **Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation**

Equipment Out of Service calculations 1/24/16-2/6/16  
 Equipment Out of Service calculations 2/6/16-2/19/16  
 Equipment Out of Service calculations 2/20/16-2/26/16  
 Equipment Out of Service calculations 2/27/16-3/5/16  
 Equipment Out of Service calculations 3/12/16-3/19/16

#### **Procedures:**

NMP-OS-010-002, "Hatch protected equipment logs," Ver. 10.13  
 31GO-OPS-024-0, "Outage Safety Assessment," Ver. 4.1

### **Section 1R15: Operability Evaluations**

#### **Procedures:**

NMP-AD-012, "Operability Determinations and Functional Assessments," Ver. 12.7  
 NMP-ES-045-001, "Technical Oversight Reviews of Engineering Products" Ver. 6.1  
 NMP-ES-044, "Preparation of DCPs", Ver. 13.1  
 42SV-FPX-006-0, "Fire Damper Surveillance", Ver. 2.0  
 52SV-FPX-010-0, "Low Pressure CO2 Surveillance", Ver. 6.0  
 42SV-R43-027-1, "Diesel 1C LOCA/LOSP LSFT," Ver. 11.0

#### **Other:**

DCP SNC114879  
 SNC114879J019

CAR260627

CRs 10159635, 10168630, 10189143, 10189069, 10187708

### **Section 1R18: Plant Modifications**

NMP-ES-084-005, "Temporary Configuration Change Process," Ver. 2.0

NMP-AD-010, "10 CFR 50.59 Screening/Evaluation," Ver. 13.1

NMP-AD-008, "Applicability Determination," Ver. 20.0

SNC595832

### **Section 1R19: Post Maintenance Testing**

Maintenance Work Orders (MWOs):

SNC564487, SNC652126, SNC662898, SNC685755, SNC602077, SNC659789, SNC574754

Procedures:

NMP-MA-014-001, "Post Maintenance Testing Guidance," Ver. 4.1

95IT-OTM-001-0, "Maintenance Work Order Functional Test Guideline," Ver 5.5

52GM-MNT-039-0, "ASME Section XI Repair/Replacement," Ver. 4.0

42IT-TET-001-0, "Requirements for Pressure Testing of Piping and Components," Ver. 9.8

42IT-TET-004-0, "Operating Pressure Test of Piping and Components," Ver. 9.3

42IT-TET-006-1, "ISI Pressure Test of the Class 1 System and Recirc Pump Runback Test," Ver. 21.4

34SV-T48-002-1, "Suppression Chamber to Drywell Vacuum Breaker Operability and Containment Purge/Vent Valve Position Check," Ver. 6.10

52GM-B21-006-1, "Main Steam Three Stage Safety Relief Valve Maintenance," Ver. 4.0

34SV-E41-001-1, "HPCI Valve Operability," Ver. 19.1

34SO-P41-001-1, "Plant Service Water System," Ver. 36.7

### **Section 1R20: Refueling and Outage Activities**

Operating Logs

34GO-OPS-001-1, "Plant Startup," Ver. 42.4

34GO-OPS-003-1, "Startup System Status Checklist," Ver. 12.19

34GO-OPS-013-1, "Normal Plant Shutdown," Ver. 30.0

34GO-OPS-015-1, "Maintaining Cold Shutdown of Refuel Conditions," Ver. 14.0

### **Section 1R22: Surveillance Testing**

Procedures:

34SV-T22-001-0, "Secondary Containment Test," Ver. 16.2

42SV-R43-021-1, "Diesel Generator 1A LOCA/LOSP LSFT," Ver. 13.0

34SV-E51-002-1, "RCIC Pump Operability," Ver. 27.0

42SV-TET-001-0, "LLRT Testing Methodology," Ver. 11.0

42SV-TET-001-1, "Primary Containment Leak Rate Testing," Ver. 29.0

57SV-C11-002-2, "Scram Discharge Level FT," Ver. 11.0

34SV-R43-006-2, "EDG 2C Semi-Annual Test," Ver. 17.2

### **Section 1EP6: Drill Evaluation**

Drill Scenario: EP-SG-QS009-00

Emergency Notification Form dated January 14, 2016



## **Section 2RS1: Radiological Hazard Assessment and Exposure Controls**

### **Procedures, Guidance Documents, and Manuals:**

NMP-HP-101, In-Vivo Bioassay and Internal Dose Assessment, Version (Ver.) 3.1  
 NMP-HP-202, Radiological Controls for Highly Radioactive Objects, Ver. 2.1  
 NMP-HP-206, Issuance, Use and Control of Radiation Work Permits, Ver. 3.0  
 NMP-HP-300, Radiation and Contamination Surveys, Ver. 3.1  
 NMP-HP-302, Restricted Area Classification, Postings, and Access Control, Ver. 7.3  
 NMP-HP-302-002, Radioactive Material Labeling Instruction, Ver. 1.0  
 NMP-HP-305, Alpha Radiation Monitoring, Ver. 5.0  
 NMP-HP-400, Control and Accountability of Radioactive Sources, Ver. 2.0  
 NMP-HP-404, Release of Materials from the RCA and Protected Areas, Ver. 2.1

### **Records and Data:**

E.I. Hatch NSTS Annual Inventory Reconciliation Report, 01/13/2016  
 Air Sample (A/S) ID 11Feb16-021, U1 228' Rx Cavity  
 A/S ID 11Feb16-019, U1 Under Vessel DW GA  
 A/S ID 11Feb16-010, U1 TB 164 Stop Valve Breach  
 A/S ID 11Feb16-020, U1 Under Vessel DW GA  
 Plant Hatch NRC Source Category Report, 01/13/2016  
 Radiological Survey #131972, U1 Reactor Building 228  
 Radiological Survey #131927, U1 Cavity (1RX228)  
 Radiological Survey #132044, RF Wet Lift Separator (1RX228)  
 Radiological Survey #131871, U1 Cavity (1RX228)  
 Radiological Survey # 131957, Plant Hatch U1 DW 180 (1DW180)  
 Radiological Survey # 131971, Plant Hatch U1 DW 180 CS Nozzle B (1DW180)  
 Radiological Survey # 131961, Plant Hatch U1 DW 180 (1DW180)  
 Radiological Survey # 132011, Plant Hatch U1 DW 180 CS Nozzle B (1DW180)  
 Radiological Survey # 131854, Plant Hatch DW Subpile Room (1DW114Subpile)  
 RWP Number (No.) 16-1002, RB/RW Bldg & Outside Areas Decon, Pull Drums, Laundry, and Routine Fire Watch  
 RWP No. 16-1004, RB-Tip/Tip Drive Maintenance, Squib Valve Test, Scram Discharge Header Piping Hydrolase and Support Activities  
 RWP No. 16-1202, Refuel Floor - Bridge, Hoist, Grapple and Upper Platform Maint/Repairs, Underwater Camera/Tool Activities/Repairs, CRB Activities, SRM/IRM/LPRM Test/Repair/Replace, Dry Tube Replacement & Support  
 RWP No. 16-1205, U1 Refuel Floor - Vessel Disassembly/Reassembly, Cavity/Dryer Separator Work & Support  
 RWP No. 16-1207, FR RP Coverage & Ops Activities  
 RWP 16-1614, Subpile Room Wk - Carousel PMs/Repair, Cable Pulls, LPRM(GE)/RPIS, Scaffold, Shielding, Painting/Coatings, ECP Flange and Support Activities  
 RWP 16-1616, Drywell G31, G41, System Inspection/PMs/Repairs/Modifications and Supporting Activities  
 62RP-RAD-055-0, Forms HPX-1191 and HPX-1192, Annual Inventory of U1/U2 Spent Fuel Pools, dated 12/02/2015.  
 CRs 10021539, 10022284, 10025997, 10030332, 10030485, 10033022, 10033921, 10035850, 10056348, 10122975, 10135754, 10165804  
 Nuclear Oversight Summary Report, SNC Fleet Radiation Protection – July 2015  
 Nuclear Oversight Summary Report, H-NOSA-OS-2015-01, Hatch 2R23 Outage Assessment

**Section 2RS8: Radioactive Solid Waste Processing and Radioactive Material Handling**  
**Procedures, Manuals, and Guides:**

62RP-RAD-040-0, Resin Dewatering/Drying System, Ver. 8.3  
 62RP-RAD-050-0, Waste Separation and Temporary Storage Facility and Sealand Storage Facility, Ver. 4.0  
 NMP-HP-408, Solid Radioactive Waste Scaling Factor Determination and Implementation and Waste Classification, Ver. 2.0  
 NMP-HP-405, Shipment of Radioactive Waste and Radioactive Material, Ver. 2.3  
 NMP-HP-415, Storage of Radwaste in Outdoor Process Shields, Ver. 2.1  
 Solid Radioactive Waste Process Control Program, Rev. 6  
 Certificate of Compliance, 8-120B Type B Cask No. USA/9168/B(U)-96, 9/23/15  
 NMP-GM-002, Corrective Action Program, Ver. 13.2

**Shipping Records and Radwaste Data:**

2014 Annual Radioactive Effluent Release Report  
 Shipping Logs, 1/1/14 – 12/31/15  
 Shipment 15-6001, Type B, Cleanup Phase Separator Resin  
 Shipment 14-6001, Type B, Cleanup Phase Separator Resin  
 Shipment 15-4032, Low Specific Activity, Dry Active Waste  
 Shipment 15-4022, Low Specific Activity, Torus Filters  
 Shipment 15-1008, Type A, Control Rod Drives  
 10 CFR 71.95 Report on Non Conformance Involving Radwaste Cask 8-120B  
 2016 Scaling Factor Analysis for Dry Active Waste  
 2015 Scaling Factor Analysis for U2 Cleanup Phase Separator Resin  
 NL-15-2010, 10 CFR 71.95 Report on Non Conformance Involving Radwaste Cask 8-120B, 11/2/15

Fleet-RP-2015, Nuclear Oversight Audit of Radiation Protection, 7/23/15  
 CRs 10102638, 10032012, 10139235, 10128050

**Section 4OA1: Performance Indicator Verification**

00AC-REG-005-0, "Preparation and Reporting of NRC PI Data," Ver. 8.0

**Section 4OA2: Identification and Resolution of Problems**

**Procedures:**

52SV-FPX-010-0, "Low Pressure CO2 Surveillance", Ver.6.0  
 NMP-ES-045-001, "Technical Oversight Reviews of Engineering Products," Ver. 6.1

CR 10159635, CR 10164459

**Other:**

CAR 260627 (ACD Ver. 3.0 2/19/2016)  
 Specification NO. HJ-S-10-001  
 S-64307, "Hatch EDG Sequencer Module MTTF Calculation," Ver. 1.0  
 DCP SNC114879