



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

February 10, 2014

Mr. Christopher Costanzo
Site Vice President
Nine Mile Point Nuclear Station, LLC
Constellation Energy Nuclear Group, LLC
P.O. Box 63
Lycoming, NY 13093

**SUBJECT: NINE MILE POINT NUCLEAR STATION, LLC - NRC INTEGRATED
INSPECTION REPORT 05000220/2013005 AND 05000410/2013005 AND
INDEPENDENT SPENT FUEL STORAGE INSTALLATION REPORT
07201036/2013001**

Dear Mr. Costanzo:

On December 31, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Nine Mile Point Nuclear Station, LLC (NMPNS) Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on January 16, 2014, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one Traditional Enforcement Severity Level IV non-cited violation (NCV) and two NRC-identified findings of very low safety significance (Green). Two of these findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as NCVs consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest any NCVs in this report, you should provide a response within 30 days of the date of this inspection report with the basis of your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspectors at NMPNS. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspector at NMPNS.

As a result of the Safety Culture Common Language Initiative, the terminology and coding of cross-cutting aspects were revised beginning in calendar year (CY) 2014. New cross-cutting aspects identified in CY 2014 will be coded under the latest revision to Inspection Manual

Chapter (IMC) 0310. Cross-cutting aspects identified in the last six months of 2013 using the previous terminology will be converted to the latest revision in accordance with the cross-reference in IMC 0310. The revised cross-cutting aspects will be evaluated for cross-cutting themes and potential substantive cross-cutting issues in accordance with IMC 0305 starting with the CY 2014 mid-cycle assessment review.

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 Public Document Room or from the Publicly Available Records 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/

Daniel L. Schroeder, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos: 50-220 and 50-410
License Nos: DPR-63 and NPF-69

Enclosure: Inspection Report 05000220/2013005 and 05000410/2013005
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

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W. Dean, RA
D. Lew, DRA
M. Scott, DRP
E. Benner, DRP
R. Lorson, DRS
J. Trapp, DRS
D. Schroeder, DRP
A. Rosebrook, DRP

K. Kolaczyk, DRP, SRI
E. Miller, DRP, RI
S. Quenneville, DRP, AA
E. Quinones, RI OEDO
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos: 50-220 and 50-410

License No: DPR-63 and NPF-69

Report Nos: 05000220/2013005 and 05000410/2013005

Licensee: Constellation Energy Nuclear Group, LLC

Facility: Nine Mile Point Nuclear Station, LLC
Units 1 and 2

Location: Oswego, NY

Dates: October 1, 2013, through December 31, 2013

Inspectors: K. Kolaczyk, Senior Resident Inspector
E. Miller, Resident Inspector
J. DeBoer, Project Engineer
B. Dionne, Health Physicist
N. Floyd, Reactor Inspector
H. Gray, Senior Reactor Inspector
S. Hammann, Senior Health Physicist
E. Keighley, Project Engineer
J. Laughlin, Emergency Preparedness Inspector
T. Fish, Senior Operations Engineer
T. Hedigan, Operations Engineer

Approved by: Daniel L. Schroeder, Chief
Reactor Projects Branch 1
Division of Reactor Projects

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SUMMARY

IR 05000220/2013005, 05000410/2013005; 10/01/2013 – 12/31/2013; Nine Mile Point Nuclear Station (NMPNS) Units 1 and 2; Maintenance Effectiveness, Problem Identification and Resolution, and Other Activities.

This report covered a 3-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Inspectors identified one NRC-identified non-cited violation (NCV) and an NRC-identified finding of very low safety significance (Green). In addition, one self-revealing traditional enforcement Severity Level IV NCV was identified. The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within the Cross-Cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green finding (FIN) for CENG staff's failure to properly classify operator workarounds, operator burdens, or control room deficiencies in accordance with CNG-OP-1.01-2010, "Operator Workaround/Challenge Control," Revision 0. Specifically, the failure to properly classify operator workarounds resulted in an operator error when control room operators did not recognize a meter was degraded, used that meter during the performance of a surveillance test, and overexcited the Division II emergency diesel generator (EDG) on July 30, 2013. CENG staff entered this inspector identified issue into the corrective action program (CAP) as condition report (CR)-2013-009004. Corrective actions included reviewing, classifying, and adding the inspector identified operator burdens to each of the respective Units shift turnover checklist.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to properly classify the Unit 2 Division II EDG degraded volt amperes reactive (VAR) meter as an operator burden resulted in an operator using the degraded meter during a surveillance test and inadvertently overexciting the diesel generator for 1.5 hours. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, the inspectors determined that this finding is of very low safety significance (Green) because the performance deficiency was not a design or qualification deficiency, did not involve an actual loss of safety function, did not represent actual loss of a safety function of a single train for greater than its technical specification (TS) allowed outage time, and did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, in that CENG staff did not ensure control room deficiencies were evaluated properly in accordance with CNG-OP-1.01-2010. Specifically, CENG staff failed to classify the known degraded Unit 2 Division II EDG VARs meter as an operator burden; which resulted in the EDG being overloaded during a surveillance test. [P.1(c)] (Section 4OA2)

Cornerstone: Barrier Integrity

- Green. The inspectors identified a Green NCV of Unit 1 license condition DPR-63, Section 2.D(7), "Fire Protection," because CENG staff did not perform visual inspections of fire dampers associated with Unit 1 between 2002 and 2013 in accordance with the Fire Protection Program and Updated Final Safety Analysis Report (UFSAR) Section 10A.2.4.1.10.1.A. As a result, CENG staff determined 25 dampers were non-functional due to the surveillance test not being performed. CENG staff's planned corrective actions include revising the UFSAR to state that performance-based testing requirements apply only to non-smoke removal dampers. Further, the 25 smoke removal dampers will remain non-functional until visual inspections can be performed as planned in work order (WO) C92482273. This issue was entered into CENG's CAP as CR-2013-009208.

This finding is more than minor because it is associated with the structure, system, and component (SSC) and barrier performance attribute of the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the operators in the control room from radionuclide releases caused by accidents or events. The finding was evaluated in accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 3 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, and the inspectors determined that this finding is of very low safety significance (Green) because the performance deficiency only represented a degradation of the smoke removal and radiological barrier function provided for the control room. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because CENG staff failed to identify smoke removal damper visual inspections were not being performed. Specifically, UFSAR section 10A.2.4.1.10.1.A, as part of license condition DPR-63 2.D(7) and the Fire Protection Program, requires CENG staff to perform visual inspections of smoke removal dampers, which was not being performed between 2002 and 2013, resulting in the control room envelope not being operable and 25 smoke removal dampers being declared non-functional. CENG performed an evaluation to determine if the control room habitability requirements contained in TS 3.4.5.f for the control envelope were met. CENG staff subsequently determined that Unit 1 control room habitability requirements of TS 3.4.5.f were met based on previous successful surveillance testing for control room operability testing under N1-ST-C9, "Control Room Emergency Ventilation System Testing," Revision 01502 [P.1(a)]. (Section 1R12)

Other Findings

- Severity Level IV. A self-revealing Severity Level IV NCV of Title 10 of the *Code of Federal Regulations* (10 CFR) 72.150, "Instructions, Procedures, and Drawings," was identified when CENG personnel did not ensure that hydrogen concentrations were being properly monitored and maintained during welding on dry shielded container (DSC) #12 on August 14, 2013. Specifically, site procedure S-MMP-ISFSI-004, "DSC Sealing Operation," Revision 00201, provided inadequate direction for the control of purging and hydrogen monitoring calibration, set-up, and operation. This caused an undetected loss of DSC purge and a failure of the hydrogen monitor, ultimately resulting in a hydrogen deflagration in DSC #12. CENG staff generated CR-2013-006840 to address the hydrogen deflagration. Corrective actions included: (1) reducing water level in the DSC by 1100 gallons during welding operations to reduce the amount of hydrogen generation; (2) installed dual hydrogen monitors off the vent line to provide redundant indication; (3) required the

performance of local hydrogen monitoring at the weld joint prior to commencing welding; (4) reconfigured the location of the hydrogen monitors; (5) ensured hydrogen monitors were properly configured, including the use of the low flow differential pressure switch setting in a helium environment; and (6) adjusted the alarm settings on the hydrogen monitors.

The inspectors determined that CENG personnel's failure to provide adequate instructions, procedures, and drawings to ensure that hydrogen concentrations were being properly monitored and maintained in accordance with 10 CFR 72.150, "Instructions, Procedures, and Drawings," during welding of DSC #12 on August 14, 2013, was a performance deficiency that was reasonably within CENG staff's ability to foresee and correct, and should have been prevented. As a result, a hydrogen deflagration occurred. The failure to properly monitor and maintain hydrogen concentrations had the potential to damage the DSC and spent fuel within the DSC. Because the issue involved independent spent fuel storage installation (ISFSI) operations, consistent with the guidance in Section 2.2 of the NRC Enforcement Policy, the inspectors evaluated this performance deficiency in accordance with the traditional enforcement process. Using Example 6.3.d. from the NRC Enforcement Policy, the inspectors determined that the violation was a Severity Level IV (more than minor concern that resulted in no or relatively inappreciable potential safety or security consequence) violation. The hydrogen deflagration ultimately did not result in the damage to fuel; however, the failure to properly monitor and maintain hydrogen concentrations had the potential to damage the DSC and spent fuel within the DSC. Because the violation involved the traditional enforcement process and was not associated with ISFSI support programs conducted under a 10 CFR 50 license, the inspector did not assign a cross-cutting aspect to this violation in accordance with IMC 0612, Appendix B. (Section 40A5)

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent power. On October 26, 2013, operators decreased power to 85 percent to start reactor recirculation pump (RRP) 13. Power was returned to 100 percent later that day. On November 1, operators reduced power to 88 percent to start RRP 12. Unit 1 was returned to full power the same day. On November 2, operators decreased power to 70 percent for planned scram time testing, turbine stop valve and turbine control valve testing, and a rod pattern adjustment. Unit 1 was returned to full power later that day. On November 9, operators reduced power to 80 percent for a rod pattern adjustment and returned to 100 percent power later that day. On November 16, operators reduced power to 85 percent to restore reactor recirculation motor generator set 11 to service following maintenance, performed a rod pattern adjustment, and conducted testing for the turbine stop valve 11 reactor protection instrumentation. Unit 1 was returned to full power on the same day. On December 11, operators reduced reactor power to 85 percent to perform a rod pattern adjustment, and returned to full power the same day. On December 26, operators commenced a reactor shutdown when main steam isolation valve 111 failed to operate properly during a quarterly surveillance test. The shutdown was stopped when reactor power was approximately 65 percent when main steam isolation valve 111 was successfully tested. Unit 1 was returned to full power on the same day and remained at full power for the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent power. On October 27, 2013, operators decreased reactor power to 95 percent to perform a rod line adjustment. Power was returned to 100 percent later that day. On November 20, operators reduced power to 93 percent in accordance with procedures due to a loss of feedwater heating (5th point). On November 21, operators further reduced power from 93 to 80 percent to conduct repairs of feedwater heater level control valves and recover moisture separator reheaters. Unit 2 was returned to 100 percent power on November 23. On November 24, operators reduced power to 96 percent to perform a rod pattern adjustment and returned to 100 percent power on the same day. On November 26, operators reduced power to 78 percent due to elevated off-gas system flow and to remove the 5B feedwater heater from service. While shutting down for a forced outage on December 2 to make repairs on the feedwater heating system, operators manually scrammed Unit 2 from 42 percent power when RRPs failed to downshift to slow speed resulting in a loss of forced recirculation flow. Following the scram, operators commenced reactor cooldown and placed Unit 2 in cold shutdown on December 3 to support the forced outage. On December 7, operators commenced a reactor startup and synched to the grid on December 8. Power ascension was held at 22 percent power to conduct troubleshooting on RRP 'B' when the pump tripped during upshift to high speed. Following repairs to the relay logic associated with RRP 'B', operators completed power ascension and returned to 100 percent power on December 10. Also on December 10, operators reduced reactor power to 80 percent to perform a rod pattern adjustment, and returned to 100 percent the same day. On December 12, operators reduced reactor power to 78 percent to perform a rod pattern adjustment and returned to 100 percent the same day. On December 18, operators reduced power to 98 percent to perform a rod line adjustment and returned to 100 percent power on the same day and remained at full power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment

.1 Partial System Walkdown (71111.04Q – 1 sample)

a. Inspection Scope

The inspectors performed a partial walkdown of the following system:

- Unit 1, EDG 103 following testing on December 9, 2013

The inspectors selected this system based on its risk-significance relative to the reactor safety cornerstones at the time it was inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, TSs, WOs, CRs, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted the system's performance of its intended safety functions. The inspectors also performed field walkdowns of accessible portions of the system to verify the system's components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether CENG staff had properly identified equipment issues and entered them into the CAP for resolution with the appropriate significance characterization. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

.2 Full System Walkdown (71111.04S – 1 sample)

a. Inspection Scope

On November 13, 2013, the inspectors performed a complete system walkdown of accessible portions of the Unit 2 control room heating, ventilation, and air conditioning smoke removal system to verify the existing equipment lineup was correct. The inspectors reviewed operating procedures, drawings, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors performed field walkdowns of accessible portions of the system to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of components and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed a sample of related CRs and WOs to ensure CENG personnel appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire ProtectionResident Inspector Quarterly Walkdowns (71111.05Q – 6 samples)a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that CENG personnel controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service (OOS), degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Unit 1, screen house (fire area (FA)-13) on October 11, 2013
- Unit 1, diesel fire pump room (FA-256) on October 11, 2013
- Unit 2, condensate storage tank building (FA-55) on October 18, 2013
- Unit 2, service water (SW) pipe tunnel (FA-55) on October 21, 2013
- Unit 2, SW pipe tunnel (FA-16) on October 21, 2013
- Unit 1, foam room (FA-4) on October 22, 2013

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)Internal Flooding Reviewa. Inspection Scope

The inspectors reviewed the UFSAR, flooding calculations, and plant procedures to assess susceptibilities involving internal flooding. The inspectors also reviewed the CAP to determine if CENG personnel identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors focused on the Unit 2 SW pipe tunnel, elevation 245', on October 14, 2013, to verify the adequacy of equipment seals located below the flood line, floor and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07T– 5 samples)

a. Inspection Scope

Triennial Heat Sink and Heat Exchanger Sample Selection

Based on the Unit 1 and Unit 2 risk ranking of safety-related heat exchangers (HXs), past triennial heat sink inspections, recent operational experience, and resident inspector input, the inspectors selected five HX samples for inspection. On Unit 1, the reactor building closed cooling water (RBCLC) HX, turbine building closed loop cooling water (TBCLC) HXs, and the instrument air (IA) compressor HX were selected. On Unit 2, the closed cooling primary system (CCP) HX and the EDG coolers were selected.

For the samples selected, the inspectors reviewed program and system health reports, self-assessments, and CENG staff's methods (inspection, cleaning, maintenance, and performance monitoring) used to ensure heat removal capabilities for the safety-related HXs and compared them to CENG staff's commitments made in response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment."

Reactor Building Closed-Loop Cooling Heat Exchangers

The inspectors reviewed the programs and procedures for maintaining the safety functions of the Unit 1 RBCLC HXs (70-13R, 70-14R, 70-15R), which are directly cooled by SW. Unit 1 reactor building water is cooled by three RBCLC HXs, which use SW as a cooling medium. The RBCLC HXs are monitored by performance testing that is supplemented with cleaning and inspection.

The inspectors reviewed the results from the most recent inspections and cleaning of the #12 and #13 RBCLC HXs, the trending of tube plugging, and engineering calculations of tube plugging limits. The inspectors walked down and observed conditions of the Unit 1 RBCLC components, including piping, pumps, valves, and HXs with the system engineer. The inspectors also reviewed the previous performance test of the #12 RBCLC HXs and verified that the HX met its acceptance criteria for design-basis heat removal.

Turbine Building Closed-Loop Cooling Heat Exchangers

The inspectors reviewed the programs and procedures for maintaining the safety functions of the Unit 1 TBCLC HXs (71-11R, 71-10R, 71-12R), which are directly cooled by SW. Unit 1 turbine building water is cooled by three TBCLC HXs, which use SW as a cooling medium. The TBCLC HXs are monitored by means of cleaning and inspection.

The inspectors reviewed the results from the most recent inspections and cleaning of the #11 and #13 HXs, the trending of tube plugging, and engineering calculations of tube plugging limits. The inspectors also verified that the HXs met the visual inspection acceptance criteria for as-found and as-left conditions and had adequate cooling margin. The inspectors walked down and observed conditions of the Unit 1 TBCLC components, including piping, pumps, valves, and HXs with the system engineer.

Instrument Air Compressor Heat Exchangers

The inspectors reviewed the programs and procedures for maintaining the safety functions of the Unit 1 IA compressor (IA #11 and #12) HXs. Unit 1 IA compressors are cooled by one intercooler and one after-cooler HX, which use RBCLC as a cooling medium. These HXs are monitored by means of cleaning and inspection, and the intercooler is also pressure tested.

The inspectors reviewed the results from the most recent inspection and cleaning of the #11 and #12 HXs, and verified that the visual inspection acceptance criteria were met and that no tubes required plugging. The inspectors performed walkdowns and observed conditions of the Unit 1 IA components, including piping, valves, compressors, dryers, and HXs with the system engineer.

Closed Cooling Primary System Heat Exchangers

The inspectors reviewed the programs and procedures for maintaining the safety functions of the Unit 2 CCP HXs (2CCP-E1A and 2CCP-E1C), which are directly cooled by SW. Unit 2 reactor building water is cooled by three CCP HXs, which use SW as a cooling medium. The CCP HXs are monitored by means of performance testing and supplemented with cleaning and inspection.

The inspectors reviewed the results from the most recent inspections and cleaning of the CCP HXs, the trending of tube plugging, and engineering calculations of tube plugging limits. The inspectors walked down and observed conditions of the Unit 2 CCP components, including piping, pumps, valves, and HXs with the system engineer.

Emergency Diesel Generator Coolers

The inspectors reviewed the programs and procedures for maintaining the safety functions of the Unit 2 EDG cooler HXs (2EGS*EG1, 2EGS *EG2, 2EGS *EG3). Each Unit 2 EDG is cooled by two HXs connected in parallel, which use SW as a cooling medium. The EDG HXs are monitored by means of cleaning and inspection.

The inspectors reviewed the results from the most recent inspection and cleaning, and verified that the HXs were being maintained within the acceptance criteria. The inspectors walked down the three EDGs and discussed the cooling water supply design for the 2EGS *EG2 cooler with the system engineer.

Review of Unit 1 and Unit 2 Intake Structures and Chemistry Controls

The inspectors performed walkdowns of the Unit 1 and Unit 2 intake structures and verified proper functioning of the trash rakes and traveling screens. The inspectors verified that intake bay silt accumulation is monitored and maintained at an acceptable level, and that level instruments were functional and routinely monitored. The inspectors also reviewed pictures taken underwater of the Unit 1 intake structure, pipeline, and forebay area.

Because NMPNS is located in an area that is susceptible to frazil ice, the inspectors assessed CENG's ability to detect and mitigate frazil ice conditions. The inspectors

reviewed the procedural controls specific to Unit 1 and Unit 2 for mitigating frazil ice formation.

The inspectors also reviewed the chemistry controls for both the open water systems and the closed-loop cooling water systems, and discussed the extent of analysis and monitoring with the plant chemistry department. The inspectors verified that the chemical treatment programs for corrosion control and biotic control were consistent with industry standards.

Review of Corrective Action Reports

The inspectors selected and reviewed a sample of CAP reports related to the heat sink and HX samples chosen for this inspection. The review verified that CENG staff is appropriately identifying, characterizing, and correcting problems related to these systems and components, and that the planned or completed corrective actions for the reported issues were appropriate.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program & Licensed Operator Performance

.1 Quarterly Review of Licensed Operator Requalification Testing and Training (71111.11Q – 2 samples)

a. Inspection Scope

The inspectors observed:

- Unit 1, licensed operator simulator training which included a RRP 15 seizure, seismic event, failure of control rod drive pump 12, failure of SW pump 11, and failure of the torus shell on October 16, 2013
- Unit 2, licensed operator classroom training provided on November 12, 2013, which reviewed the theory and approach used to develop the extreme damage mitigating guidelines

The inspectors evaluated operator performance during the simulated event and verified completion of risk-significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classifications made by the shift manager and the technical specification action statements entered. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room
(71111.11Q – 2 samples)

a. Inspection Scope

The inspectors observed:

- Unit 1, control room operations during severe weather and EDG 103 preventive maintenance on October 7, 2013
- Unit 2, control room operations during planned maintenance activities on residual heat removal system 'A' on October 15, 2013

The inspectors reviewed CNG-OP-1.01-1000, "Conduct of Operations," Revision 01000, and verified that procedure use, crew communications, and coordination of plant activities among work groups similarly met established expectations and standards. Additionally, the inspectors observed test performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

.3 Biennial Review of Licensed Operator Requalification
(71111.11 B - 1 sample)

a. Inspection Scope

The following Unit 2 baseline inspection activities were performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program and Licensed Operator Performance."

Examination Results

On December 10, 2013, facility training staff reported requalification exam results for Unit 2. Inspectors reviewed these results to determine if pass/fail rates were consistent with the guidance of IMC 0609, Appendix I, and "Operator Requalification Human Performance Significance Determination Process."

The review verified the following for Unit 2:

- Individual pass rate on the dynamic simulator scenarios was greater than 80 percent. (Pass rate was 100 percent.)
- Individual pass rate on the job performance measures (JPMs) part of the operating exam was greater than 80 percent. (Pass rate was 100 percent.)
- Individual pass rate on the written examination was greater than 80 percent. (Pass rate was 97.8 percent.)

- More than 80 percent of the individuals passed all portions of the requalification exam. (Pass rate was 97.8 percent.)
- Crew pass rate was greater than 80 percent. (Pass rate was 100 percent.)

Written Examination Quality

The inspectors reviewed a sample of Unit 2 comprehensive written exams.

Operating Test Quality

The inspectors reviewed a sample of Unit 2 operating tests (scenarios and JPMs).

Licensee Administration of Operating Tests

The inspectors observed Unit 2 facility training staff administer dynamic simulator exams and JPMs during the week of November 18, 2013. These observations included facility evaluations of crew and individual operator performance during the simulator exams and individual performance of JPMs.

Exam Security

The inspectors assessed whether facility staff properly safeguarded exam material, and whether test item repetition guidelines were met.

Remedial Training and Re-examinations

The inspectors reviewed the remedial training package and associated re-exam for a Unit 2 operator who failed the 2012 operating exam.

Conformance with License Conditions

Unit 2 license reactivation and license proficiency records were reviewed to ensure that 10 CFR 55.53 license conditions and applicable program requirements were met. The inspectors also reviewed a sample of records for requalification training attendance, and a sample of medical examinations for compliance with license conditions and NRC regulations.

Simulator Performance

Unit 2 simulator performance and fidelity were reviewed for conformance to the reference plant control room. A sample of simulator deficiency reports was also reviewed to ensure facility staff addressed identified modeling problems.

Problem Identification and Resolution

The inspectors reviewed recent Unit 2 operating history documentation found in inspection reports, licensee event reports (LERs), CENG's CAP, NRC End-of-Cycle and Mid-Cycle reports, and the most recent NRC plant issues matrix. The inspectors focused on events associated with operator errors that may have occurred due to possible training deficiencies.

b. Findings

No findings were identified.

.4 Annual Review of Licensed Operator Requalification (71111.11A - 1 sample)a. Inspection Scope

The following Unit 1 baseline inspection activity was performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program and Licensed Operator Performance."

Examination Results (Unit 1)

On December 10, 2013, facility training staff reported requalification exam results for Unit 1. Inspectors reviewed these results to determine if pass/fail rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, and "Operator Requalification Human Performance Significance Determination Process."

The review verified the following for Unit 1:

- Individual pass rate on the dynamic simulator scenarios was greater than 80 percent. (Pass rate was 100 percent.)
- Individual pass rate on the JPM part of the operating exam was greater than 80 percent. (Pass rate was 100 percent.)
- Individual pass rate on the written examination was greater than 80 percent. (N/A Written exams will be administered at the end of the Unit 1 two-year requalification program cycle, November/December 2014.)
- More than 80 percent of the individuals passed all portions of the requalification exam. (Pass rate was 100 percent.)
- Crew pass rate was greater than 80 percent. (Pass rate was 100 percent.)

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 1 sample)a. Inspection Scope

The inspectors reviewed the sample listed below to assess the effectiveness of maintenance activities on SSC performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance WOs, and maintenance rule basis documents to ensure that CENG staff was identifying and properly evaluating performance problems within the scope of the maintenance rule. For the sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by CENG staff were reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return

these SSCs to (a)(2). Additionally, the inspectors ensured that CENG staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Unit 1 smoke removal system

b. Findings

Introduction. The inspectors identified a Green NCV of Unit 1 license condition DPR-63 section 2.D(7), "Fire Protection," because CENG staff did not perform visual inspections of fire dampers associated with Unit 1 between 2002 and 2013 in accordance with the Fire Protection Program and UFSAR Section 10A.2.4.1.10.1.A. As a result, CENG staff determined 25 dampers were non-functional due to the surveillance test not being performed.

Description. The smoke removal system in the control room at Unit 1 has dedicated smoke exhaust fans, isolation dampers, and controls to maintain a habitable atmosphere in the control room and auxiliary control room. The system consists of two independent fans, one 6,000 cfm (cubic feet per minute) makeup fan and one 8,000 cfm exhaust fan. The system also contains 10 safety-related smoke removal fire dampers that act as part of the control room envelope and also as part of the 3-hour fire barrier. UFSAR Section 10A.2.4.1.10.1.A states, in part, that fire dampers shall be verified functional by "...a visual inspection of a sample of one-third of the fire dampers once per operating cycle. If any failures are identified in this sample, an additional one-third sample shall be inspected during that operating cycle. If any failures are identified in the second sample, then all of the fire dampers shall be inspected during that operating cycle." During an inspection of failed safety-related smoke removal damper BV-210-27B (1 of the 10 safety-related fire dampers that act as part of the control room envelope) that failed on October 4, 2013, inspectors questioned whether a visual inspection of an additional third of fire dampers was performed as specified in UFSAR section 10A.2.4.1.10.1.A.

CENG staff determined that between 2002 and 2013, Unit 1 staff did not perform the required surveillance tests for fire dampers as specified in the UFSAR. Additionally, since 2010, three damper failures were documented in the CENG CAP prior to the failure of damper BV-210-27B, giving CENG staff additional opportunities to identify that the UFSAR required inspections and scope expansion was not being performed. CENG staff's immediate corrective actions included declaring 25 smoke removal dampers non-functional and establishing a once per 12-hour shift walkdown as part of compensatory measures until the surveillance test can be completed. Since 10 of the 25 smoke removal dampers are part of the smoke removal system for the Unit 1 control room, part of the 3-hour fire barrier, and part of the control room envelope, CENG staff declared the control room envelope inoperable, and performed an evaluation to determine if the control room habitability requirements contained in TS 3.4.5.f for the control envelope were met. CENG staff subsequently determined that Unit 1 control room habitability requirements of TS 3.4.5.f were met based on previous successful surveillance testing for control room operability testing under N1-ST-C9, "Control Room Emergency Ventilation System Testing," Revision 01502.

Additional planned corrective actions include revising the UFSAR to state that performance-based testing requirements apply only to non-smoke removal dampers.

Further, the 25 smoke removal dampers will remain non-functional until visual inspections can be performed as planned in WO C92482273. CENG staff documented these actions in CR-2013-009208. An additional damper failure was subsequently identified and documented as CR-2013-008822 on October 25, 2013.

Analysis. The inspectors determined that CENG staff's failure to perform visual inspections of smoke removal dampers associated with Unit 1 between 2002 and 2013 in accordance with license condition DPR-63, 2.D(7), the Fire Protection Program and UFSAR Section 10A.2.4.1.10.1.A was a performance deficiency that was reasonably within CENG staff's ability to foresee and correct and should have been prevented. This finding is more than minor because it is associated with the SSC and barrier performance attribute of the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the operators in the control room from radionuclide releases caused by accidents or events. Specifically, the failure to perform the required surveillance testing at Unit 1 resulted in CENG staff declaring 25 safe shutdown fire dampers non-functional and the establishment of compensatory measures until the surveillance testing can be completed. It also resulted in the inoperability of the control room envelope, requiring an engineering evaluation to re-establish operability.

In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 3 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, the inspectors determined that this finding is of very low safety significance (Green) because the performance deficiency only represented a degradation of the smoke removal and radiological barrier function provided for the control room.

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because CENG staff failed to identify smoke removal damper visual inspections were not being performed. Specifically, UFSAR section 10A.2.4.1.10.1.A as part of license condition DPR-63 2.D(7) and the Fire Protection Program requires CENG to perform visual inspection of smoke removal dampers, which were not being performed between 2002 and 2013 [P.1(a)].

Enforcement. License condition 2.D(7), "Fire Protection," requires that CENG staff implement and maintain in effect all provisions of the approved fire protection program as described in the UFSAR. The UFSAR identifies the Fire Hazards Analysis as part of the licensing basis requirements for the fire protection program. Section 10A.2.4.1.10.1.A requires that fire dampers shall be verified functional by "a visual inspection of a sample of one-third of the fire dampers once per operating cycle. If any failures are identified in this sample, an additional one-third sample shall be inspected during that operating cycle. If any failures are identified in the second sample, then all of the fire dampers shall be inspected during that operating cycle." Contrary to the above, between 2002 and 2013, CENG staff did not implement and maintain in effect all provisions of the approved fire protection program as described in the Nine Mile Point Unit 1 UFSAR. Specifically, the inspectors identified that CENG staff failed to perform the required visual inspection of 25 fire dampers on a once per operating cycle basis. CENG's staff immediate corrective actions included declaring the 25 smoke removal fire

dampers non-functional and establishing a once per 12-hour shift walkdown as part of compensatory measures until the surveillance test can be completed. Because the violation was of very low safety significance and was entered into CENG's CAP as CR-2013-009208, this violation is being treated as an NCV consistent with Section 2.3.2 of the Enforcement Policy. **(NCV 05000220/2013005-01, Failure to Perform Surveillance Test for Unit 1 Smoke Removal Dampers)**

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 4 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that CENG staff performed the appropriate risk assessments prior to removing equipment from service. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that CENG personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When CENG staff performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Unit 2, planned maintenance on the Division II diesel generator on October 29, 2013
- Unit 1, unplanned maintenance on area radiation monitor power supply PWRs-R011A on October 30, 2013
- Unit 2, planned maintenance on SW pump discharge check valve 2SWP*V1E on November 5, 2013
- Unit 1, unplanned maintenance on the 11 high-pressure coolant injection train in conjunction with adverse weather conditions due to high winds on site on November 17, 2013

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 2 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- Unit 1, Emergency SW pump 11 failure to start during N1-ST-Q13, "Emergency Service Water Pump Operability Test," Revision 01500, on October 2, 2013
- Unit 1, EDG load rejection test identified that generator frequency rose above the limit on October 15, 2013

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and UFSAR to CENG staff's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by CENG personnel. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 10 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests (PMT) for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure were consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- Unit 1, control room emergency ventilation system following mechanical preventive maintenance on October 3, 2013
- Unit 1, EDG 102 voltage regulator relay PMT on October 21, 2013
- Unit 2, replace relief valve 2EGA*SV111 on October 24, 2013
- Unit 1, 12 reactor building emergency ventilation system flow transmitter following replacement on October 28, 2013
- Unit 1, SW radiation monitor flush on November 21, 2013
- Unit 1, EDG 102 air compressor check valve 96-12 on November 22, 2013
- Unit 1, EDG 102 following preventive maintenance on November 23, 2013
- Unit 2, Control Room Air Conditioning controller 2HVK*T21A following controller transistor replacement on November 26, 2013
- Unit 2, Reactor Head Vent Valve 2MSS*MOV108 MC² testing after packing replacement on December 6, 2013
- Unit 2, Standby Gas Treatment system fan 2GTS*FN1A following bearing replacement on December 18, 2013

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – 1 sample)

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for the Unit 2 unplanned outage which was conducted December 2 through December 7, 2013. The inspectors reviewed CENG's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the plant cool-down process as well as plant restart and power ascension activities, and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable TSs when taking equipment OOS
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- Status and configuration of electrical systems and switchyard activities to ensure that TSs were met
- Drywell inspection activities
- Monitoring of decay heat removal operations
- Activities that could affect reactivity, including reactor shutdown and startup.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 6 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TSs, the UFSAR, and CENG procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- Unit 1, N1-ST-Q29, Quarterly Turbine Valve Log on November 14, 2013
- Unit 1, N1-ST-Q3, High-Pressure Coolant Injection Pump and Check Valve Operability Test for train 12 on October 2, 2013 (IST)

- Unit 2, N2-CSP-GEN-@209, Service Water and Circulating Water Sampling while 2SWP*CAB146A and 2SWP*CAB146B were OOS on October 29, 2013
- Unit 1, N1-ST-M9, Control Room Air Treatment System Operability Test on November 18, 2013
- Unit 1, N1-ST-SO, Shift Checks on November 20, 2013
- Unit 1, N1-ST-Q26, Feedwater and Main Steam Line Power Operated Isolation Valves Partial Exercise Test and Associated Functional Testing of Reactor Protection System Trip Logic on December 26, 2013

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 – 1 sample)

a. Inspection Scope

The Office of Nuclear Security and Incident Response staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures and the Emergency Plan located under ADAMS accession number ML13345A034 as listed in the Attachment.

CENG staff determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the Emergency Plan, and that the revised Emergency Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 1 sample)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine CENG emergency drill at Unit 1 on October 8, 2013, to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator, technical support center, and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector

observations with those identified by CENG staff in order to evaluate CENG staff's critique and to verify whether CENG staff was properly identifying weaknesses and entering them into the CAP.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety and Occupational Radiation Safety

2RS5 Radiation Monitoring Instrumentation (71124.05 – 1 sample)

a. Inspection Scope

From November 18 through November 21, 2013, the inspectors verified that CENG personnel were assuring the accuracy and operability of radiation monitoring instruments that are used to protect occupational workers and to protect the public from nuclear power plant operations. The inspectors used the requirements in 10 CFR Part 20; 10 CFR Part 50, Appendix A, Criterion 60, "Control of Release of Radioactivity to the Environment;" and Criterion 64, "Monitoring Radioactive Releases;" 10 CFR 50, Appendix I, "Numerical Guides for Design Objectives and Limiting Conditions for Operation to meet the Criterion "As Low as is Reasonably Achievable" for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents;" 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations;" NUREG 0737, "Clarification of Three Mile Island Corrective Action Requirements;" TSs; offsite dose calculation manual (ODCM); applicable industry standards; and CENG's procedures required by TSs as criteria for determining compliance.

The inspectors selected three effluent monitoring instruments and evaluated whether channel calibration and functional tests were performed consistent with NMPNS TSs and ODCM. The inspectors assessed whether; (a) CENG personnel calibrated its monitors with National Institute of Standards and Technology traceable sources; (b) the primary calibrations adequately represented the plant nuclide mix; (c) when secondary calibration sources were used, the sources were verified by comparison with the primary calibration source; and (d) CENG personnel's channel calibrations encompassed the instrument's alarm set-points.

The inspectors assessed whether the effluent monitor alarm set points are established as provided in the ODCM and station procedures. For changes to effluent monitor set points, the inspectors evaluated the basis for any changes.

The inspectors assessed laboratory analytical instruments used for radiological analyses to determine whether daily performance checks and calibration data indicate that the frequency of the calibrations is adequate and there were no indications of degraded performance. The inspectors assessed whether appropriate corrective actions were implemented in response to indications of degraded performance.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06 – 1 sample)

a. Inspection Scope

From November 18 through November 21, 2013, the inspectors verified that gaseous and liquid effluent processing systems were maintained so radiological discharges were properly reduced, monitored, and released. The inspectors also verified the accuracy of calculations for effluent releases and public doses.

The inspectors used the requirements in 10 CFR Part 20; 10CFR50.35(a); TSs; 10 CFR Part 50, Appendix A, Criterion 60, "Control of Release of Radioactivity to the Environment;" and Criterion 64, "Monitoring Radioactive Releases;" 10 CFR 50, Appendix I, "Numerical Guides for Design Objectives and Limiting Conditions for Operations to Meet the Criterion "As Low as is Reasonably Achievable" for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents;" 10 CFR 50.75(g), "Reporting and Recordkeeping for Decommissioning Planning;" 40 CFR Part 141, "Maximum Contaminant Levels for Radionuclides;" 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations;" Regulatory Guide (RG) 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents;" RG 1.21, "Measuring, Evaluating, Reporting Radioactive Material in Liquid and Gaseous Effluents and Solid Waste;" RG 4.1, "Radiological Environmental Monitoring for Nuclear Power Plants;" RG 4.15, "Quality Assurance for Radiological Monitoring Programs;" NUREG 1302, "Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls;" applicable Industry standards; and procedures required by NMPNS TSs and ODCM as criteria for determining compliance.

The inspectors reviewed copies of CENG staff and third party (independent) evaluation reports of the effluent monitoring program since the last inspection.

The inspectors walked down selected components of the gaseous discharge systems to verify that equipment configuration and flow paths aligned with the descriptions in the UFSAR and to assess equipment material condition. Special attention was made to identify potential unmonitored release points, building alterations which could impact airborne or liquid effluent controls, and ventilation system leakage that communicates directly with the environment. The inspectors reviewed NMPNS's material condition surveillance records, as applicable, for equipment or areas associated with the systems selected for review that were not readily accessible due to radiological conditions.

The inspectors walked down filtered ventilation systems to verify there were no degraded conditions associated with high efficiency particulate air/charcoal banks, improper alignment, or system installation issues.

The inspectors observed selected portions of the routine processing and discharge of radioactive gaseous effluent to verify that appropriate treatment equipment was used and the processing activities align with discharge permits.

The inspectors reviewed the results of the inter-laboratory and intra-laboratory comparison program to verify the quality of the radioactive effluent sample analyses. The inspectors also assessed whether the laboratory comparison program includes hard-to-detect isotopes, as appropriate.

The inspectors reviewed the methodology that CENG staff used to determine the effluent stack and vent flow rates to verify that the flow rates are consistent with TS and ODCM and/or UFSAR values. The inspectors reviewed the differences between assumed and actual stack and vent flow rates.

The inspectors evaluated the methods used to determine the isotopes that are included in the source term to ensure all applicable radionuclides are included, within detectability standards. The review included CENG staff's current waste stream analyses to ensure hard-to-detect radionuclides were included in the effluent releases.

For any new effluent discharge points, the inspectors evaluated whether NMPNS's ODCM was updated to include the dose calculation method for the new release point and the associated dose calculation methodology.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (71124.07 – 1 sample)

a. Inspection Scope

From November 18 through November 21, 2013, the inspectors verified that the radiological environmental monitoring program quantifies the impact of radioactive effluent releases to the environment and sufficiently validates the integrity of the radioactive gaseous and liquid effluent release program.

The inspectors used the requirements in 10 CFR Part 20; 10 CFR Part 50, Appendix A Criterion 60, "Control of Release of Radioactivity to the Environment;" 10 CFR 50, Appendix I, "Numerical Guides for Design Objectives and Limiting Conditions for Operations to Meet the Criterion "As Low as is Reasonably Achievable" for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents;" 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations;" 40 CFR Part 141, "Maximum Contaminant Levels for Radionuclides," the guidance in RGs 1.23, "Meteorological Measurements Program for Nuclear Power Plants;" RG 4.1, "Radiological Environmental Monitoring Programs for Nuclear Power Plants;" RG 4.15, "Quality Assurance for Radiological Monitoring Programs;" NUREG 1302, "Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls;" applicable industry standards; and CENG procedures as criteria for determining compliance.

Based on direct observation and review of records, the inspectors assessed whether the meteorological instruments were operable, calibrated, and maintained in accordance with CENG's procedures. The inspectors assessed whether the meteorological data readout and recording instruments in the control room and at the meteorological tower were operable and were reading the same values.

The inspectors evaluated whether missed and/or anomalous environmental samples were identified and reported in the annual radiological environmental operating reports. The inspectors selected three events that involved a missed sample, inoperable sampler, lost thermoluminescent dosimeter, or anomalous measurement to verify that CENG staff had identified the cause and implemented effective corrective actions. The inspectors reviewed CENG staff's assessment of any sample results detecting above the lower limits of detection and reviewed the associated radioactive effluent release data that was the source of the radioactive material.

The inspectors reviewed any significant changes made by CENG staff of the ODCM as the result of changes to the land census, long-term meteorological conditions (3-year average), or modifications to the sampler stations since the last inspection. The inspectors reviewed technical justifications for any changed sampling locations to verify that CENG staff performed the reviews required to ensure that the changes did not affect its ability to monitor the impact of radioactive effluent releases on the environment.

The inspectors assessed whether the detection sensitivities for environmental samples were below the lower limits of detection specified in the ODCM. The inspectors reviewed quality control charts for laboratory radiation measurement instrumentation and actions taken for degrading detector performance.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Occupational Exposure Control Effectiveness (1 sample)

a. Inspection Scope

From November 18 through November 21, 2013, the inspectors sampled CENG staff's submittals for the occupational exposure control effectiveness (OR01) performance indicator (PI) for the period from the fourth quarter 2012 through the third quarter 2013. The inspectors used PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, to determine the accuracy of the PI data reported.

To assess the adequacy of CENG staff's PI data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review and the results of those reviews. The inspectors reviewed electronic personal dosimetry accumulated dose alarms, dose reports, and dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized PI occurrences. The inspectors also conducted walkdowns of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas.

b. Findings

No findings were identified.

.2 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual
Radiological Effluent Occurrences (1 sample)

a. Inspection Scope

From November 18 through 21, 2013, the inspectors sampled CENG staff's submittals for the radiological effluent TS/ODCM radiological effluent occurrences (PR01) PI for the period from the fourth quarter 2012 through the third quarter 2013. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, to determine if the PI data was reported properly during this period.

The inspectors reviewed CENG's corrective action report database and selected individual reports generated to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous and liquid effluent summary data and the results of associated offsite dose calculations for selected dates to determine if indicator results were accurately reported. The inspectors also reviewed CENG staff's methods for quantifying gaseous and liquid effluents and determining effluent dose.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 3 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that CENG personnel entered issues into the CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the CAP and periodically attended CR screening meetings.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely related issues that may have been documented by CENG personnel outside of the CAP, such as trend reports, PIs, major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or CAP backlogs. The inspectors also reviewed CENG's CAP database for the second, third, and portions of the fourth quarters of 2013 to assess CRs written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRC's daily CR review (Section 40A2.1). The inspectors reviewed CENG staff's quarterly trend reports for the second and third quarters of 2013 conducted under CNG-CA-1.01-1007, "Performance Improvement Program Trending and Analysis," Revision 00401, to verify that CENG personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

b. Findings and Observations

No findings were identified.

During the second and third quarters of 2013, the Unit 1 and Unit 2 operations department experienced an increased number of events which included improper tagging, plant transients, and mispositioning. Specifically, the following issues occurred:

- CR-2013-001849 – Unit 2, Trip of clean steam reboiler on March 8, 2013
- CR-2013-001958 – Unit 2, Power found during live-dead-live check on March 13, 2013
- CR-2013-002926 – Unit 1, Loss of shutdown cooling on April 16, 2013
- CR-2013-003937 – Unit 1, Incorrect fuse pulled on May 4, 2013
- CR-2013-005568 – Unit 1, Rad waste contamination on June 28, 2013
- CR-2013-005567 – Unit 2, Rad waste contamination on June 29, 2013
- CR-2013-006294 – Unit 2, Power found during live-dead-live on optical isolater on July 25, 2013
- CR-2013-006412 – Unit 2, Division II EDG VARS/AMPS exceeded on July 30, 2013
- CR-2013-007949 – Unit 2, Operator falls off ladder on September 24, 2013
- CR-2013-008947 – Unit 1, Missed fire patrols on October 30, 2013
- CR-2013-009114 – Unit 2, Danger tag hung on wrong component on November 5, 2013

On July 30, 2013, CENG staff generated CR-2013-006420 to evaluate this emerging trend in the operations department. At the time the CR was written, the first seven events were identified. Since that time, four more events occurred. The CENG assessment identified a potential gap in operations leadership organizational effectiveness as a possible cause. To resolve the issue, several corrective actions were developed. The station has completed five of the seven scheduled corrective actions to address this trend, which included developing observation matrices for both Unit 1 and Unit 2 operators. Actions remaining to be completed include performing a

comprehensive assessment of the operations department leadership engagement and effectiveness, and gaining overall approval of the integrated performance observation matrix from the plant general manager. The inspectors' review determined that corrective actions appeared reasonable to improve operator performance. Inspectors will continue to assess open corrective actions related to operations performance through daily review of the CAP.

.3 Annual Sample: Review of the Operator Workaround Program (2 samples)

a. Inspection Scope

The inspectors reviewed the cumulative effects of the existing Unit 1 and Unit 2 operator workarounds, operator burdens, existing operator aids and disabled alarms, and open main control room deficiencies to identify any effect on emergency operating procedures, operator actions, and any impact on possible initiating events and mitigating systems. The inspectors evaluated whether station personnel had identified, assessed, and reviewed operator workarounds as specified in NMPNS procedure, CNG-OP-1.01-2010, "Operator Workaround/Challenge Control," Revision 0.

The inspectors reviewed CENG's process to identify, prioritize and resolve main control room distractions in order to minimize operator burdens. The inspectors reviewed the system used to track these operator workarounds and recent self-assessments of the program. The inspectors also toured the control room and discussed the current operator workarounds with operators to ensure the items were being addressed on a schedule consistent with their safety significance.

b. Findings and Observations

Introduction. The inspectors identified a Green finding for CENG staff's failure to properly classify operator workarounds, operator burdens, or control room deficiencies in accordance with CNG-OP-1.01-2010. Specifically, the failure to properly classify operator workarounds resulted in an operator error when control room operators did not recognize a meter was degraded, used that meter during a surveillance test, and subsequently overexcited the Unit 2 Division II EDG on July 30, 2013.

Description. During a review of operator workarounds, the inspectors identified the following control room deficiencies that had not been classified as operator workarounds or burdens, as required by procedure "CNG-OP-1.01-2010, Operator Workaround/Challenge Control," Revision 0:

- Unit 1, Control rod 30-03 did not have "full in" position indication
- Unit 2, Condensate booster pump 'A' minimum flow valve failed open and isolated
- Unit 2, Condensate booster pump 'C' minimum flow valve failed open and isolated
- Unit 2, Division II EDG 72DC3 relay failed and loss of manual start from control room
- Unit 2, Division II EDG VAR meter indicating less than actual VARS

These deficiencies were instead identified as brown or white "tagnets," which is a labeling classification for a temporary note or operator aid.

The inspectors noted that the control room deficiency regarding the Unit 2 Division II EDG VARS meter (XPS-2EGPB09) resulted in a station event. The meter was listed as a brown tagnet since it was not properly measuring generator excitation. This degraded condition had been in existence since reactor startup from the spring 2012 refuel outage, and was scheduled to be repaired during the spring 2014 refuel outage. On July 30, 2013, during the monthly Division II EDG surveillance test, the diesel was overloaded by 230 KVA for approximately 1.5 hours when a control room operator used the defective meter to adjust generator load. This event necessitated performance of an engineering evaluation to assess diesel operability. This operability evaluation was reviewed in NRC Inspection Report 05000410/2013004, Section 1R15.

Attachment 2, of procedure CNG-OP-1.01-2010, contains a flow chart that is used to assess issues for consideration as being an operator workaround/burden. One of the screening decision points in the flow chart contains the following: "Could this item cause a plant transient or have an adverse effect in normal plant condition if the operator fails to properly compensate for the condition?" The inspectors concluded that this question should have been answered "Yes" and the degraded meter identified as an operator workaround, since there was the potential that operators could fail to compensate for the non-functional VARS meter, and potentially overload and trip the EDG.

Section 5.3 of CNG-OP-1.01-2010 states that the shift manager or designee shall ensure operators are knowledgeable of operator workarounds/challenge items and any compensatory measures involved. The inspectors determined that prior to the July 30, 2013 surveillance test, the shift manager failed to ensure that the operators were aware of the non-functional VARS meter, in part, because it was not adequately classified as an operator burden per CNG-OP-1.01-2010. The overloaded generator condition was identified by the oncoming shift when a reactor operator, who was performing a board walkdown, identified that the VARS meter was not working properly and raised it to the attention of the on shift crew that they had overloaded the generator. Following this event, the non-functioning VARS meter remained classified as a brown tagnet and not reclassified as an operator burden until the inspectors brought it to the attention of CENG staff on October 22, 2013. CENG staff entered this issue into the CAP as CR-2013-009004. Corrective actions included reviewing, classifying, and adding the inspector identified operator burdens to each of the respective Units shift turnover checklist.

Analysis. The inspectors determined that CENG staff's failure to properly evaluate operator deficiencies at Unit 1 and Unit 2 as required by CNG-OP-1.01-2010 was a performance deficiency that was reasonably within CENG staff's ability to foresee and correct and should have been prevented. This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to properly classify the Unit 2 Division II EDG degraded VAR meter as an operator burden resulted in an operator overloading the diesel for 1.5 hours.

In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, the inspectors determined that this finding is of very low safety significance (Green) because the performance deficiency was not a design or

qualification deficiency, did not involve an actual loss of safety function, did not represent actual loss of a safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event.

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, in that CENG staff did not ensure control room deficiencies were evaluated properly in accordance with the Operator Workaround/Challenge Control procedure. Specifically, CENG staff failed to classify the known degraded Unit 2 Division II EDG VARS meter as an operator burden; which resulted in the degraded equipment being used during by operators on July 30, 2013 and subsequently cause the EDG to become overloaded during a surveillance test for approximately 1.5 hours [P.1(c)].

Enforcement. This finding does not involve enforcement action because no violation of a regulatory requirement was identified. The inspectors determined that the finding did not represent a non-compliance issue because an operator workaround program is not required by TSs or 10 CFR 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." Because this finding does not involve a violation and it is of very low safety significance (Green), it is identified as a finding. **(FIN 05000410/2013005-02, Failure to Implement Procedural Requirements for Evaluating Control Room Deficiencies as Operator Workarounds)**

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 5 samples)

.1 Plant Events

a. Inspection Scope

For the plant event listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant event to appropriate regional personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that CENG staff made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed CENG's follow-up actions related to the events to assure that CENG staff implemented appropriate corrective actions commensurate with their safety significance.

- Unit 2, manual reactor scram following loss of recirculation pump flow during plant power reduction on December 2, 2013.

b. Findings

No findings were identified.

.2 (Closed) LER 05000220/2012-001-01: Automatic Reactor Scram due to Electronic Pressure Regulator Failure

This LER was revised on November 5, 2013, by CENG staff, to update the root and contributing causes for the July 17, 2012, reactor scram that were not discussed in the original LER submittal to the NRC. In the original LER, CENG staff indicated that the root cause of the event was a failure of station personnel to not treat the operational decision making issues (ODMI) checklist and monitoring plan with an appropriate level of importance when alert conditions were received. In the revised LER, CENG staff identified that the root cause of the event was that the ODMI checklist and associated monitoring plan for the electronic pressure regulator had unclear roles and responsibilities assigned which resulted in less than adequate communication, oversight of the plan's implementation, and assessment of the monitoring plan's data. To address the updated root cause, CENG staff completed several corrective actions which involved replacing the electronic pressure regulator and associated servo position indicators during the spring 2013 refueling outage. CENG staff also revised the ODMI procedure to ensure an ODMI checklist is completed when operating conditions change, and when the alarm or alert criteria in implementation plans is reached. Also, the ODMI procedure was revised to state when decision makers should be informed of these changes. The enforcement aspects of this issue were discussed in NRC Integrated Inspection Report 05000220/2012004, Section 1R12. The inspectors did not identify any new issues during the review of the LER. This LER is closed.

.3 (Closed) LER 05000220/2012-002-01: Automatic Reactor Scram due to Automatic Generator Protective Trip

This LER was revised on November 5, 2013, by CENG staff, to report an additional root cause for the September 20, 2012, reactor scram that was not discussed in the original LER submittal to the NRC. In the original LER, CENG staff indicated the scram was caused by a failure of the design engineering department to obtain a cross-discipline review of a 2003 procedure change that revised the operating criteria for the Unit 1 automatic voltage regulator (AVR). CENG staff indicated that the change, which was made to reduce wear on components in the AVR system, left the system in a configuration in which operators were unable to prevent the main generator from becoming underexcited when placed in manual during electrical voltage transients. Such electrical conditions were present prior to the September 2012 scram. In the revised LER, CENG staff identified that in addition to the original root cause, a second cause for the September scram was identified. The second cause was a failure by CENG staff to conduct a life cycle management strategy for the AVR that addressed the increased risk for operating aging electrical components. Specifically in 2009, CENG staff noted that NMPNS had embarked upon a change in strategy for management of the AVR system. The change involved a decision to abandon a strategy of improving operation of the as-built AVR system, to an approach of managing the performance issues of the system until a replacement AVR could be installed. When this change in approach was implemented, NMPNS did not fully analyze the system at the component level and identify what components should be replaced or repaired before the new AVR system was installed. To address the additional root cause that was identified, CENG staff developed corrective actions that included development of a new life cycle management program for the Unit 1 turbine generator system. The enforcement

aspects of this issue were discussed in NRC Integrated Inspection Report 05000220/2013002, Section 4OA3. The inspectors did not identify any new issues during the review of the LER. This LER is closed.

.4 (Closed) LER 05000220/2012-003-01: Loss of Isolation Function on Shutdown Cooling System Suction Line due to an Operating Procedure Deficiency

This LER was revised on October 3, 2013, by CENG staff, to identify additional reporting criterion that were not discussed in the original LER submittal to the NRC. In the revised LER, CENG staff identified that the reportable event, operating the shutdown cooling system on September 20, 2012, with both suction line isolation valves open and de-energized, was reportable not only as a condition that could have prevented fulfillment of a safety function needed to mitigate consequences of an accident as identified in the original LER, but also as a failure to meet TS 3.2.7, "Reactor Coolant System Isolation Valves." The enforcement aspects of this issue were discussed in NRC Integrated Inspection Report 05000220/2013002, Section 4OA3. The inspectors did not identify any new issues during the review of the LER. This LER is closed.

.5 (Closed) LER 05000220/2012-004-01: Automatic Reactor Scram Due to a Generator Load Reject

This LER was revised on November 5, 2013, by CENG staff, to update the root cause for the October 29, 2012, reactor scram, and status of the subsequent corrective actions. In the original LER, CENG staff reported that the root cause of the event was ". . . unclear specificity of requirements for vendor performed testing and inadequate methods of verification for ensuring vendor compliance with engineering specifications." In the revised LER, CENG staff reported that the root cause of the event was "less than adequate oversight by CENG personnel of transformer CF-TB01 testing with respect to unclear specificity of requirements for vendor performed testing and inadequate methods of verification for ensuring vendor compliance with engineering specifications. CENG staff also reported that a number of the corrective actions that were planned to be completed to address the root cause of the scram had now been accomplished. The enforcement aspects of this issue were discussed in NRC Integrated Inspection Report 05000220/2012005, Section 1R04. The inspectors did not identify any new issues during the review of the LER. This LER is closed

4OA5 Other Activities

.1 Operation of an ISFSI at Operating Plants (60855)

a. Inspection Scope

On August 14, 2013, NMPNS experienced a hydrogen deflagration during processing of DSC #12 (CR-2013-006840). The inspectors interviewed CENG and contractor personnel and performed walk-downs of the ISFSI equipment on the refuel floor. The inspectors reviewed the Certificate of Compliance (COC), TSs, and UFSAR for the NUH61BT DSC to verify compliance with the conditions of the general license. The inspectors reviewed CRs, WOs, and procedures. The inspectors also reviewed CENG

staff's evaluations and immediate follow-up actions to assure that CENG personnel implemented appropriate compensatory and corrective actions prior to resuming ISFSI welding and loading operations.

b. Findings

Hydrogen Deflagration During Dry Shielded Canister Processing

Introduction. A self-revealing Severity Level IV NCV of 10 CFR 72.150, "Instructions, Procedures, and Drawings," was identified when CENG staff did not ensure that hydrogen concentrations were being properly monitored and maintained during welding on DSC #12 on August 14, 2013. Specifically, site procedure S-MMP-ISFSI-004, "DSC Sealing Operation," Revision 00201, provided inadequate direction for the control of purging and hydrogen monitoring calibration, set-up, and operation. This caused an undetected loss of DSC purge and a failure of the hydrogen monitor, ultimately resulting in a hydrogen deflagration in DSC #12.

Description. On August 14, 2013, ISFSI loading operations were occurring on Unit 2 refuel floor. DSC #12 was loaded with spent fuel on the refuel floor and its inner cover was in the process of being welded in place by an automated welding system. The welding was being performed in accordance with site procedure, S-MMP-ISFSI-004, "DSC Sealing Operation," Revision 00201. At approximately 2:00 p.m., hydrogen concentrations built up above the lower explosive limit and a hydrogen deflagration occurred. CENG personnel immediately halted work on the DSC. CENG personnel performed radiological dose and airborne measurements along the DSC and the refuel area and verified that conditions remained unchanged. In addition, CENG personnel confirmed that the spent fuel remained covered by water within the DSC.

CENG personnel did not identify any damage to the DSC confinement boundary or the spent fuel integrity due to the hydrogen deflagration. In addition, CENG took the following actions: (1) performed calculations to assess design limits of the DSC and spent fuel cladding integrity due to the internal pressure spike within the DSC; (2) installed temporary radiation monitoring equipment on the refuel floor; (3), instituted continuous monitoring of DSC water temperature, level, hydrogen concentration, and helium purge flow rates.

Prior to resuming ISFSI loading operations, CENG staff completed a prompt investigation. CENG staff determined that the most likely cause of the hydrogen deflagration was the result of hydrogen concentrations greater than indicated on the hydrogen meter at the time of the event. This was caused by inadequate hydrogen monitoring and no intervention could be made by CENG personnel in response to the rising hydrogen levels. They also identified that hydrogen monitoring was occurring in an inadequate location; and an inadequate purge flow was being provided during welding operations.

As a result of the findings from the prompt investigation, CENG staff implemented the following corrective actions prior to resuming ISFSI loading operations: (1) reduced water level in the DSC by 1,100 gallons during welding operations to reduce the amount of hydrogen generation; (2) installed dual hydrogen monitors off the vent line to provide redundant indication; (3) required the performance of local hydrogen monitoring at the weld joint prior to commencing welding; (4) reconfigured the location of the hydrogen

monitors; (5) ensured hydrogen monitors were properly configured, including the use of the low flow differential pressure switch setting in a helium environment; and (6) adjusted the alarm settings on the hydrogen monitors. These actions were documented in CR-2013-006840.

CENG staff's apparent cause evaluation concluded that the event occurred because site procedure S-MMP-ISFSI-004 provided inadequate direction for the control of purging and hydrogen monitoring calibration, set-up, and operation. This caused an undetected loss of DSC purge and a failure of the hydrogen monitor. A contributing cause of the event was the hydrogen monitor, used by CENG personnel, was not properly classified in their tracking system as requiring calibration and the monitor failed to properly alarm when hydrogen levels increased beyond the alert and alarm limits. The inspectors determined that the results of the apparent cause evaluation appeared reasonable, and that the associated corrective actions appear appropriate to prevent recurrence.

Analysis. The inspectors determined that CENG staff's failure to provide adequate instructions, procedures, and drawings to ensure that hydrogen concentrations were being properly monitored and maintained in accordance with 10 CFR 72.150, "Instructions, Procedures, and Drawings," during welding of DSC #12 on August 14, 2013 was a performance deficiency that was reasonably within CENG staff's ability to foresee and correct, and should have been prevented. As a result, a hydrogen deflagration occurred. The failure to properly monitor and maintain hydrogen concentrations had the potential to damage the DSC and spent fuel within the DSC. Because the issue involved ISFSI operations, consistent with the guidance in Section 2.2 of the NRC Enforcement Policy, the inspectors evaluated this performance deficiency in accordance with the traditional enforcement process. Using Example 6.3.d. from the NRC Enforcement Policy, the inspectors determined that the violation was a Severity Level IV (more than minor concern that resulted in no or relatively inappreciable potential safety or security consequence) violation. The hydrogen deflagration ultimately did not result in damage to the fuel; however, the failure to properly monitor and maintain hydrogen concentrations had the potential to damage the DSC and spent fuel within the DSC. Because the violation involved the traditional enforcement process and was not associated with ISFSI support programs conducted under a 10 CFR 50 license, the inspectors did not assign a cross-cutting aspect to this violation.

Enforcement. 10 CFR 72.150, "Instructions, Procedures, and Drawings," states, in part, that "The licensee, applicant for a license, certificate holder, and applicant for a CoC shall prescribe activities affecting quality by documented instructions, procedures, or drawings of a type appropriate to the circumstance and shall require that these instructions, procedures, and drawings be followed." Contrary to the above, CENG (the 10 CFR 72 license holder for the ISFSI) did not prescribe activities affecting quality by documented instructions or procedures of a type appropriate to the circumstance. On August 14, 2013, CENG's procedure S-MMP-ISFSI-004 "DSC Sealing Operation," Revision 00201, was not adequate to control and monitor hydrogen concentrations below the lower explosive limit during the performance of welding on a DSC and, as a result, a hydrogen deflagration occurred. However, because the violation was of very low safety significance and was entered into CENG's CAP as CR-2013-006840, this violation is being treated as an NCV consistent with Section 2.3.2 of the Enforcement Policy. **(NCV 07201036/2013005-03, Inadequate DSC Welding Procedure to Control and Monitor Hydrogen Concentrations)**

.2 Institute of Nuclear Power Operations (INPO) Report Review

a. Inspection Scope

The inspectors reviewed an October 17, 2013, INPO report that documented the results of an accreditation team evaluation of the licensed and non-licensed operator training program performed at NMPNS during the week of June 24 to June 28, 2013.

The inspectors reviewed the report to ensure that the issues identified were consistent with the NRC perspectives of plant performance and to verify if any significant issues were identified that required further NRC follow-up.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting

On January 16, 2014, the inspectors presented the inspection results to Mr. Christopher Costanzo, Site Vice President, and other members of the NMPNS staff. The inspectors verified that no propriety information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

C. Costanzo, Vice President
J. Stanley, Plant General Manager
P. Bartolini, Supervisor, Design Engineering
J. Bouck, Manager, Operations
M. Busch, Unit 1 General Supervisor, Operations
K. Clark, Director, Security
J. Dean, Supervisor, Quality Assurance
S. Dhar, Design Engineering
J. Holton, Supervisor, Systems Engineering
M. Kunzwiler, Security Supervisor
J. Leonard, Supervisor Design Engineering
J. Manly, Unit 2 General Supervisor, Operations
E. Perkins, Director, Licensing
M. Shanbhag, Licensing Engineer
J. Snyder, Maintenance Rule Coordinator
J. Thompson, General Supervisor, Mechanical Maintenance

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATEDOpened/Closed

05000220/2013005-01	NCV	Failure to Perform Surveillance Test for Unit 1 Smoke Removal Dampers (Section 1R12)
05000410/2013005-02	FIN	Failure to Implement Procedural Requirements for Evaluating Control Room Deficiencies as Operator Workarounds (Section 4OA2.3)
07201036/2013005-03	NCV	Inadequate DSC Welding Procedure to Control and Monitor Hydrogen Concentrations (Section 4OA5)

Closed

05000220/2012-001-01	LER	Automatic Reactor Scram due to Electronic Pressure Regulator Failure (Section 4OA3.2)
05000220/2012-002-01	LER	Automatic Reactor Scram due to Automatic Generator Protective Trip (Section 4OA3.3)
05000220/2012-003-01	LER	Loss of Isolation Function on Shutdown Cooling System Suction line due to an Operating Procedure Deficiency (Section 4OA3.4)
05000220/2012-004-01	LER	Automatic Reactor Scram Due to a Generator Load Reject (Section 4OA3.5)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Procedure

N2-OP-53A-LINEUPS, Unit 2 Control Building Ventilation System – Lineups, Revision 00001

Drawing

Control Building Ventilation Training Drawing, Revision 1

Work Order

WO 95-02842-01

Miscellaneous

Commitment #503312-00, Unit 2 Dampers 2HVC*AOD117+120 Violate Single Failure Criteria

Commitment #503312-01, Unit 2 Modification Request for Permanent Solution for Design Deficiency

LER 05000-000410/88-046, An Engineered Safety Feature not Single Failure Proof due to a Design Deficiency – Inadequate Design Review, Revision 00

DER2-93-1409, Inadequate Corrective Actions for the Operation of the Smoke Removal System, July 7, 1993

EDC 2E10019

EDC 2E00731A

LDCR 2-94-UFS-177, Control Room Smoke Removal Disconnect Switches, Revision 2

PC2-0016-94

SC2-0016-94

SE95-027, Control Room Smoke Removal, Revision 0

Section 1R05: Fire Protection

Procedures

N1-PFP-0101, Unit 1 Pre-Fire Plans, Revision 00200

N2-FPI-PFP-0201, Unit 2 Pre-Fire Plans, Revision 00100

S-MMP-SDM-001, Site Doors Maintenance, Revision 00500

Condition Reports

CR-2013-008653

CR-2013-008658

Miscellaneous

Unit 1 UFSAR, Appendix 10A, Fire Hazards Analysis, Revision 22

UFSAR Section 9.5 and Appendix A October 2004, Revision 16

Section 1R06: Flood Protection

Procedures

PID-64J-11, Piping and Instrumentation Diagram (P&ID) Turbine Building Drains, Revision 10

PID-64-2-SH1, P&ID Turbine Building Drains Fundamental, Revision 2

S-MMP-SDM-001, Site Doors Maintenance, Revision 00500

Drawings

EM-21AH, Radiation Zones, Monitors and Access Controls Piping Tunnel, Revision 5
 EP-108A-12, Tunnel Piping Key Plan Revision 12, Sheet 1

Condition Reports

CR-2007-006794 CR-2008-007718 CR-2011-006886 CR-2011-008008
 CR-2013-001084 CR-2013-008630 CR-2013-008830

Miscellaneous

Calculation A10.1-AA-16, Maximum Flood Height and Maximum Leakage Rates for Moderate Energy Systems in Pipe Tunnels, June 27, 1984

MISC 01.110-5013 FSAR Appendix 3C Spray/Flooding Evaluation, February 21, 1995

N2-PRA-IF, Unit 2 PRA Internal Flooding Analysis Notebook, Revision 0

UFSAR Section 3C.5.5.4, Revision 15, October 2002

Section 1R07: Heat Sink PerformanceProcedures:

GAP-HSC-02, System Aging Inspection and Cleanness Controls, Revision 02000

N1-ARP-H2, Annunciator 1-3, Alarm Response Procedure for Circ Water Pump Intake Level Low, Revision 01100

N1-CTP-V600, Sampling Plant Systems, Revision 00900

N1-MPM-079-412, Diesel Generator Water Heat Exchanger and Temperature Control Valve Maintenance, Revision 00600

N1-OP-19, Circulating Water System, Revision 03101

N1-SOP-18.1, Service Water Failure/Low Intake Level, Revision 00401

N1-SOP-19, Intake Structure Icing, Revision 00303

N1-TTP-003, Reactor Building Closed Loop Cooling Heat Exchanger Performance Test, Revision 00302

N2-CSP-GEN-D100, Reactor Water/Auxiliary Water Chemistry Surveillance, Revision 00700

N2-ESP-SWP-W790, Weekly SW Heater Current Test, Revision 01000

N2-OSP-SWP-Q001, Division 1 Service Water Operability Test, Revision 00302

N2-OSP-SWP-Q005, Division 3 Service Water Operability Test, Revision 00200

N2-SOP-03, Loss of AC Power, Revision 01300

N2-SOP-11, Loss or Degraded SWP System, Revision 00601

S-TDP-REL-0102, Service Water Heat Exchanger and Component Inspection Guide, Revision 03

S-TDP-REL-0103, GL 89-13 Service Water Problems Affecting Safety-Related Equipment Program Plan, Revision 00

Drawings

B-26941-C, U1 Circulation Water System, Revision 13

C-18011-C, U1 Instrument Air System, Sheet 2, Revision 49

C-18022-C, U1 Reactor Building Closed Loop Cooling System, Sheet 2, Revision 55

C-18022-C, U1 Turbine Building Closed Loop Cooling System, Sheet 3, Revision 46

C-18026-C, U1 Emergency Diesel Generator #102 Starting Air and Cooling Water, Revision 24

PID-11L, Service Water System, Revision 24

PID-13A, Reactor Building Closed Loop Cooling Water, Revision 18

PID-13C-11, Reactor Building Closed Loop Cooling Water, Revision 10

PID-13F-8, Reactor Building Closed Loop Cooling Water, Revision 7

PID-43F, Fire Protection Water, Revision 20

PID-57A-8, Diesel Generator Building Ventilation, Revision 8

Condition Reports

CR-2008-008637 CR-2010-005311 CR-2013-007568 CR-2013-009024
 CR-2013-009442 CR-2013-009468

Miscellaneous

2-CCP-E1A HX Inspection Data Sheet, dated 5/11/2010
 2-CCP-E1C HX Inspection Data Sheet, dated 11/16/2009
 2Q2013 System Health Report for Unit 1 Control Room Heating, Ventilation, and Air Conditioning
 2Q2013 System Health Report for Unit 1 Reactor Building Closed Loop Cooling
 2Q2013 System Health Report for Unit 1 Turbine Building Closed Loop Cooling
 2Q2013 System Health Report for Unit 2 Emergency Generators
 2Q2013 System Health Report for Unit 2 Reactor Building Closed Loop Cooling
 441 M, Specification for Emergency Diesel Generator Raw Water Heat Exchanger, Revision 2
 EPRI TR-107396, Closed Cooling Water Chemistry Guideline, dated October 1997
 Functionality Assessment for RBCLC Motor #13, dated 10-28-2013
 Letter regarding revision of U1 Lake Water Temperature Limit, Tech Spec 3.3.7, dated 8/9/2005
 QPA Audit Report DES-12-01-N, Design Engineering Services, dated 4/26/2012
 QPA Audit Report SPC-12-01-N, Special Processes, Testing and Inspection, dated 12/6/2012
 RBCLC #12 HX Inspection Data Sheet, dated 7-11-2013
 RBCLC #12 HX Performance Test Data Sheet, dated 5-30-2013
 RBCLC #13 HX Inspection Data Sheet, dated 9-25-2013
 SA-2011-000227, Snapshot Assessment of Heat Exchanger Program
 SA-2013-000054, Self-Assessment of GL 89-13 Service Water System Problems Affecting
 Safety-related Equipment
 SOER 07-02, Assessment of U1 Intake Structure Design, dated 5-25-2012
 TBCLC #11 HX Inspection Data Sheet, dated 6-3-2013
 TBCLC #13 HX Inspection Data Sheet, dated 7-15-2013

Work Orders

WO C08082810 WO C90655014 WO C91385332

Section 1R11: Licensed Operator Regualification Program and Licensed Operator PerformanceProcedures

CNG-OP-1.01-1000, Conduct of Operations, Revision 01000
 N1-OP-64, Meteorological Monitoring, Revision 00700
 2013 LOR Sample Plan
 2013 Written Exam Sample Plan
 S-ODP-TQS-0101, Administrative Controls for Maintaining Active License Status
 NMP-TR-1.01-60 - Simulator Operation and Testing
 NMP-TR-1.01-22 - License Operator Regualification Exam Writers Guide
 NMP-TR-1.01-102 - Licensed Operator Regualification Training

Job Performance Measures

2102-NOP042P1RF
 2102-EOP006P1R
 2102-EOP006P1R
 2102-NOP030J1RF
 2102-EOP021J1R
 2102-SOP038P1R

2102-SOP038J1R
2102-EALRU1J01R
2102-OSP001J1R
2102-EOP023J1R

Comprehensive Written Exams

UNIT 2 SRO A1
UNIT 2 SRO B1
UNIT 2 SRO C2

Simulator Scenarios

2102-DMSAT2S03
2102-DMSRL7S02
2102-DMSRL4S03
2102-DMSPC3S03
2102-DMSAT3S03

Condition Reports

2012-005507
2013-000511
2013-001613
2013-006412

Simulator Performance Tests

Scenario Based Testing (SBT) Two 2013 Simulator Scenarios

Miscellaneous

NUREG-1021, Operator Licensing Examination Standards for Power Reactors, Revision 9

Section 1R12: Maintenance Effectiveness

Procedures

N1-FST-FPP-C005, Ventilation/Smoke Purge System, Revision 00402
N1-OP-21F, Fire Protection System - Ventilation (Smoke Removal), Revision 01101
N1-OP-49, Control Room Ventilation System, Revision 02401

Drawings

LR-18047-C, Control Room Heating Ventilating & Air Conditioning System License Renewal AMR
Drawing, Revision 8

Condition Reports

CR-2013-008271 CR-2010-009905 CR-2008-003608 CR-2013-008822
CR-2013-002469

Miscellaneous

UFSAR Section 10A.2.4.1.10.1 Revision 21
UFSAR Section 10A.2.4.4 Revision 21

Section 1R13: Maintenance Risk Assessments and Emergent Work ControlDrawings

C-22026-C Elementary Wiring Diagram Radiation Monitoring Sheet 2, Revision 6
 C-22026-C Elementary Wiring Diagram Radiation Monitoring Sheet 3, Revision 4

Condition Reports

CR-2013-009110

Section 1R15: Operability Determinations and Functionality AssessmentsProcedures

CNG-FES-001, Fleet Engineering Standard Format Content and Control, Revision 00003
 CNG-FES-008, Design Change Technical Evaluation, Revision 00001
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N1-ST-M4A, Emergency Diesel Generator 102 and PB 102 Operability Test, Revision 09000

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N2-EOP-RPV RPV Control, Revision 01400

N2-OP-101C, Plant Shutdown, Revision 02200

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CNG-OP-1.01-1002, Conduct of Operability Determinations/Functionality Assessments, Revision 00201

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N1-CSP-Q308 Attachment 1 Stack Radiation Monitor K Factor and Alarm Setpoint Determination, August 5, 2013
N1-CSP-V336 Attachment 1: Off Gas Monitor Alarm Setpoint Determination, September 6, 2013
N2-CSP-RMS-Q308 Attachment 1 Stack Noble Gas Alarm Setpoint, September 6, 2013
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N1-CSP-V336, Att 1, Off-Gas Monitor Alarm Set Point Determination, September 6, 2013
N2-CSP-RMS-Q308, Att 2, Vent Noble Gas Alarm Set Point, September 6, 2013

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Unit 1 System Health Report RMS – Offgas 4/1/13 to 6/30/13
Unit 2 System Health Report RMS – Gas Treatment System 4/1/13 to 6/30/13
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Section 2RS7: Radiological Environmental Monitoring Program

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CNG-EV-1.01-1000, Radiological Environmental Monitoring Program, Revision 1
CENG - Quality Assurance Topical Report, December 11, 2011
DVP-04.01, Environmental Laboratory Quality Assurance/Quality Control Program, Revision 4

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S-ENVSP-3, Radiological Sample Collection, Processing and Shipment, Land Use Census
Vendor Quality Control, Revision 6
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Section 40A1: Performance Indicator Verification

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Section 40A2: Problem Identification and Resolution

Procedures

CNG-CA-1.01-1007, Performance Improvement Program and Trending Analysis, Revision 00401
CNG-HU-1.01-1000, Human Performance, Revision 00801
CNG-OP-1.01-1005, Temporary Notes, Temporary Labels, Operator Aids, and Permanent
Labels, Revision 00200
CNG-OP-1.01-2010, Operator Workaround/Challenge Control, Revision 00000
S-ODP-OPS-0124, Control of Operator Workarounds and Burdens, Revision 00100

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Unit 1 Shift Turnover Checklist/ Information Sheet, October 22, 2013

Unit 2 Shift Turnover Checklist/ Information Sheet, October 22, 2013

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion

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LER 05000220/2012-001-01, Automatic Reactor Scram due to Electronic Pressure Regulator Failure

LER 05000220/2012-002-01, Automatic Reactor Scram due to Automatic Generator Protective Trip

LER 05000220/2012-003-01, Loss of Isolation Function on Shutdown Cooling System Suction Line due to an Operating Procedure Deficiency

LER 05000220/2012-004-01, Automatic Reactor Scram due to Generator Load Reject

Section 4OA5: Other Activities

Miscellaneous

NMPNS INPO Accreditation Report Dated October 17, 2013

LIST OF ACRONYMS

10 CFR	Titles 10 of the <i>Code of Federal Regulations</i>
ADAMS	Agencywide Documents Access and Management System
AVR	automatic voltage regulator
CAP	corrective action program
CCP	closed cooling primary
CENG	Constellation Energy Nuclear Group, LLC
CFM	cubic feet per minute
COC	certificate of compliance
CR	condition report
DSC	dry shielded canister
EDG	emergency diesel generator
FA	fire area
HX	heat exchanger
IA	instrument air
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
ISFSI	independent spent fuel storage installation
JPM	job performance measure
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NMPNS	Nine Mile Point Nuclear Station, LLC
NRC	Nuclear Regulatory Commission
ODCM	offsite dose calculation manual
ODMI	operational decision making issues
OOS	out of service
PI	performance indicator
PMT	post-maintenance testing
RBCLC	reactor building closed-loop cooling
RG	regulatory guide
RRP	reactor recirculation pumps
SSC	structure, system, and component
SW	service water
TBCLC	turbine building closed loop cooling
TS	technical specification
UFSAR	Updated Final Safety Analysis Report
VAR	volt amperes reactive
WO	work order