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

February 3, 2016

Mr. David A. Heacock
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Blvd.
Glen Allen, VA 23060-6711

SUBJECT: NORTH ANNA POWER STATION – NOTIFICATION OF INSPECTION AND REQUEST FOR INFORMATION

Dear Mr. Heacock:

During the weeks of March 21–25 and April 4–8, 2016, the U.S. Nuclear Regulatory Commission (NRC) will perform a baseline Radiation Safety Inspection at North Anna Power Station (NRC Inspection Procedures 71124.01, 71124.02, 71124.03, 71124.04, 71124.05, Radiation Safety Sections of 71151, and portions of Temporary Instruction 2800/041). In order to minimize the impact to your onsite resources and to ensure a productive inspection, we have enclosed a request for documents needed for this activity. It is important that all of these documents are up-to-date, and complete, thereby minimizing the number of additional documents requested during the preparation, and/or the onsite portions of the inspection. The NRC requests that these documents be provided to the inspectors in CD/DVD format on, or before, March 11, 2016.

We have discussed the schedule for these inspection activities with your staff, and understand that our regulatory contact for this inspection will be Jay Leberstien (540-894-2574) of your organization. If there are any questions about this inspection or the material requested, please contact the lead inspector, Robert Kellner at 404-997-4508, or the Plant Support Branch 1 Chief, Brian Bonser at 404-997-4653.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public inspections, exemptions, requests for withholding," of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, and its Enclosure, will be available electronically for public inspection in the NRC Public Document Room, or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS); accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget under control numbers 3150-0008, 3150-0011, 3150-0014, 3150-0044, and 3150-0135. The NRC may not conduct or

sponsor, and a person is not required to respond to, a request for information or an information collection requirement, unless the requesting document displays a currently valid Office of Management and Budget control number.

Sincerely,

***/RA/***

Brian R. Bonser, Chief
Plant Support Branch 1
Division of Reactor Safety

Docket Nos. 50-338 and 50-339
License Nos. NPF-4 and NPF-7

Enclosure:
Pre-Inspection Document Request

cc: Distribution via Listserv

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ADAMS: ☒ Yes ACCESSION NUMBER: ML16035A339 ☒ SUNSI REVIEW COMPLETE ☒ FORM 665 ATTACHED

| OFFICE | RII:DRS/PSB1 | RII:DRS/PSB1 | | | | | |
|---|---|---|---|---|---|---|---|
| SIGNATURE | RXK3 | BRB1 | | | | | |
| NAME | R. Kellner | B. Bonser | | | | | |
| DATE | 2/ 1 /2016 | 2/ 3 /2016 | | | | | |
| E-MAIL COPY | **YES** NO | **YES** NO | | | | | |

OFFICIAL RECORD COPY

**Pre-Inspection Document Request**

**Occupational Radiation Safety Cornerstone**

| | | |
|---|---|---|
| Inspection Dates: | March 21–25, 2016<br>April 4–8, 2016 | |
| Documents Due by: | March 11, 2016 | |
| Licensee: | North Anna Power Station | |
| Docket Number(s): | 05000338 and 05000339 | |
| Inspection Procedures (IPs): | 71124.01 | Radiological Hazard Assessment and Exposure Controls |
| | 71124.02 | Occupational As Low As Reasonably Achievable Planning and Controls |
| | 71124.03 | In-Plant Airborne Radioactivity Control and Mitigation |
| | 71124.04 | Occupational Dose Assessment |
| | 71124.05 | Radiation Monitoring Instrumentation |
| | 71151 | Performance Indicator Verification |
| | TI 2800/041 | Title 10 CFR Part 37 Materials Security Review - At Facilities with a 10 CFR Part 73 Physical Protection Program |

**Note:** Unless specified otherwise, the current version of these documents is expected. Electronic media is preferred if readily available (the preferred file format is MSWord, or searchable ".pdf" files on CDROM). *[Note that the inspectors cannot accept data provided on USB or "flash" drives due to NRC IT security policies.]* To the extent possible, please organize the information in the order shown below. Experience has shown that a poorly organized CD leads to a less efficient inspection, and places additional burden on licensee staff. If there are questions regarding the documents requested, please do not hesitate to contact the lead inspector.

Documentation for the IPs from September 1, 2014, to the present is requested for all procedures, except 71124.01 and 71151, which should be from March 1, 2015, to present. This reflects the last time these areas were inspected. We would prefer as much of the information as possible in electronic form. An index to the CD contents is also helpful. For those items requesting a list of documents/areas, the inspector will select documents/areas from the list for onsite review.

If you have any questions, please call Robert Kellner at 404-997-4508. Thank you in advance for your effort in putting together this material.

**General and Miscellaneous Information**

- List of primary site contact(s) for each inspection area including name(s) and telephone numbers.
- List of radiation protection procedures, including title and number.

- Plant Management, Radiation Protection, and Chemistry organizational charts w/ contact numbers.
- Outage schedule, including work activities to be conducted during the week(s) of the inspection.
- Most recent dry active waste 10 CFR Part 61 analytical results.
- Corrective Action Program procedure(s).
- List of all performance indicators and copies of associated corrective action reports for Occupational Exposure Control Effectiveness and Radiological Effluent Technical Specifications (RETS)/ Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences since March 1, 2016.
- Audits and self-assessments performed since September 1, 2014, that encompass the areas of (1) the as low as reasonably achievable (ALARA) program and implementation, (2) respiratory protection, (3) airborne radioactivity, monitoring and/or mitigation-engineering controls, and (4) radiological monitoring instrumentation (portable, installed, and counting room instruments).

**71124.01 - Radiological Hazard Assessment and Exposure Controls**

(Last Inspected March 2015)

1. List of active Radiation Work Permits (RWPs), including outage RWPs, with their administrative limits, electronic dosimeter (ED) dose rate limit, and dose limit.
2. List of locations, or plant maps indicating the location, of all locked high radiation area (LHRAs) and very high radiation area (VHRAs). Include areas with the potential to become a LHRA during routine operations or outages.
3. Most recent survey of all LHRAs and VHRAs (as applicable).
4. Independent spent fuel storage installation information to include surveys, exposure data, ALARA planning and reviews conducted for the last two moves. Also, the last two routine surveys of the facility and any thermoluminescent dosimeter (TLD) area monitoring results of the facility.
5. Procedures related to health physics (HP) controls (e.g., Posting, labeling, surveys, RWPs, contamination control, HRA/LHRA/VHRA control, key control, control of divers, special controls during fuel offload, hot spots).
6. Procedures related to release of personnel and materials (e.g., release surveys, decontamination, guidance for alarm followup).
7. List of Nationally Tracked Sources, change of owner ship and copies of any National Source Tracking System transaction documentation (e.g., annual reconciliation).
8. Most recent sealed source inventory record.
9. List of all non-fuel items stored in spent fuel pool (SFP).
10. All self-assessments and audits covering HP controls since March 1, 2015.
11. List of condition reports (CRs) related to HP controls where the cause was listed as human performance (radworker error), or human performance (HP technician error) issued since March 1, 2015. *[This should be a list of corrective action documents containing a CR number and brief description, not full CRs.]*
12. All CRs related to Nationally Tracked Sources since March 1, 2015.

**71124.02 - As Low As Reasonably Achievable Planning and Controls**

(Last Inspected September 2014)

1. Site and corporate procedures associated with maintaining site dose ALARA, including those involving ALARA work activities. These procedures should include:
   - ALARA program implementation, including ALARA committee activities and ALARA planning, briefing, and reviews
   - RWP preparation and worker compliance
   - Processes used to estimate and track work activity specific exposures
   - Making changes to dose estimates during task performance
   - Work controls
   - Engineering controls
   - Exposure mitigation requirements
2. List of top five dose jobs for the upcoming refueling outage, and ALARA planning packages (including dose estimates, work-hour estimates, special HP controls, and dose reduction initiatives).
3. Most recent annual ALARA report and most recent refueling outage report.
4. Annual ALARA goals for 2015 and 2016, and the methodology utilized to make the projections.
5. ALARA Committee activity summaries (e.g., meeting minutes) discussing activities associated with the upcoming refueling outage.
6. Outline of the source term reduction strategy. Information should include:
   - Historic trends and current status of plant source term
   - Factors that affect the source term
   - Activities employed to reduce the source term
   - Specific sources identified for reduction actions
   - Source term reduction evaluation
   - Results achieved since September 1, 2014
7. List of corrective action reports generated since September 1, 2014, related to the ALARA program, including the following:
   - ALARA planning
   - Post-job review identified problems
   - Radiation worker practices
   - Occurrences where the collective exposure was greater than intended dose determined to be ALARA for the individual work activities
8. Available for onsite review during the inspection:
   - ALARA planning packages for jobs to be performed during the outage
   - Temporary shielding requests generated for the outage
   - Completed ALARA packages (including post-job reviews) for the five work activities that were completed during the last outage that had the greatest collective dose, and/or presented significant radiological risk.

**71124.03 - In-Plant Airborne Radioactivity Control and Mitigation**

(Last Inspected September 2014)

1. Site and corporate procedures/manuals associated with airborne radiation monitoring instrumentation and respiratory protection. Procedures/manuals should include:
   - Operation, calibration, and maintenance of air sampling instrumentation, including set-point determination (e.g., low-vols, high vols, goosenecks, AMS 4s)
   - Calibration and maintenance of portable instruments
   - Actions to be taken when air sampling instrumentation is found to be significantly out of tolerance/calibration
   - Issuance and use of respiratory protective equipment (emphasis on SCBA and air-supplied equipment)
   - Total Effective Dose Equivalent-ALARA evaluation guidance Training, including fit-testing, for use of Self-contained Breathing Apparatus (SCBA) and supplied-air systems
   - SCBA maintenance activities, including vital components (i.e., regulators)
   - Determination/verification of Grade D air for SCBA
2. Two most recent HEPA filter DOP and charcoal test results or the following ventilation systems:
   - Main Control Room
   - Auxiliary Building Ventilation Exhaust
3. Records of certification of air quality for equipment used to provide breathing air for air-supplied respirators and SCBA bottles (air compressors and bottled breathing air) since September 1, 2014.
4. Documentation for last two surveillances performed on SCBA stored for emergency use.
5. List of corrective action reports generated since September 1, 2014, involving radiation monitoring and protective equipment deficiencies, including the following:
   - Continuous air monitors (CAMs)
   - Respiratory protection equipment and program implementation
6. Available for onsite review by inspector during inspection*:*
   - Inventory, inspection, and maintenance records for SCBA equipment
   - Training records, including fit-testing, for SCBA-qualified individuals
     i. List of all licensed operators qualified to use SCBA
     ii. List of all instrumentation and control personnel qualified to use SCBA
     iii. List of all HP personnel qualified to use SCBA
   - Training records/certification for individuals qualified to perform maintenance on vital components (e.g., regulators) on SCBA

**71124.04: Occupational Dose Assessment**

(Last Inspected September 2014)

1. Site and corporate Procedures/Guidance Documents for external dose monitoring (i.e., dosimetry issuance and use). The documents should include:
   - Guidance for multi-badging; monitoring in steep/highly variable dose rate gradients
   - Personnel contamination events; storage/care of personal dosimeters; use of electronic dosimeters including evaluation of any biases identified relative to TLD monitoring
   - Internal dose assessment (i.e., both *in vivo* and *in vitro*) bioassay and air sampling capabilities. The documents should include guidance for calibration/QC, and use of whole body counter (WBC); release of contaminated individuals, use of passive monitoring as screening method for evaluations, and special *in vitro* sample collection and analysis, and actions for declared pregnant workers

2. National Voluntary laboratory Accreditation Program accreditation documentation for current dosimetry used by the site.
3. List of all positive WBC, *in vitro*, or air sampling analyses which resulted in an assigned Committed effective dose equivalent equal to, or exceeding, 10 millirem since September 1, 2014. *[Note: Only a listing should be provided for use by the inspectors to select a sample of issues for in-depth review during the onsite inspection]*.
4. List of all personnel contamination events, dispersed contamination/discrete particles, identified since September 1, 2014. *[Note: Only a listing should be provided for use by the inspectors to select a sample of issues for in-depth review during the onsite inspection]*.
5. Copies of all audits, self-assessments, and/or reviews related to internal or external dosimetry issues generated since September 1, 2014. The documents provided should include any reviews/evaluations conducted of vendor facilities (e.g., corporate or outside vendor/ or corporate calibration facilities).
6. List of condition reporting documents generated since September 1, 2014, for internal or external dosimetry issues/events. *[Note: Only titles and a summary statement should be provided for use by the inspectors to select a sample of issues for in-depth review]*.

**71124.05 - Radiation Monitoring Instrumentation**

(Last Inspected September 2014)

1. Procedures/Guidance Documents for:
   - Use of portable instrument calibrators (e.g., Shepherd calibrator)
   - Calibration and functional test/source checks of portable radiation detection instrumentation
   - Calibration and functional tests of small article monitor (SAM), personnel contamination monitor (PCM), portal monitor (PM), WBC equipment; and CAMs
   - Determination of set-points for area radiation monitor (ARM), CAM, PCM, PM, and SAM equipment
   - Collection and analysis of high-range, post- accident effluent samples
   - QA program for count room instruments (e.g., laboratory inter-comparison data)
2. The last two calibration records for the following monitors:
   - 1-VG-RM-179-1&2 Ventilation Vent A - Particulate and gas detector(s), all ranges.
   - 2-SV-RM-221 Condenser Air Ejector
   - 2 -RM-RMS-259 Containment Particulate Monitor
   - 2-RM-RMS-260 Containment Gas Monitor
   - 1-LW-RM-110/111 Liquid Waste Disposal
   - 2- SS-RM-225 SG Blowdown discharge
   - 2-RM-RMS-263 Containment High Range Area Radiation Monitor.
   - 1-RM-RMS-157 Main Control Room Area Radiation Monitor.
3. Documentation for the radioactive sources used to calibrate the instruments in item 2 above, including paperwork showing traceability to a National Institute of Standards and Technology standard, and/or traceability to the primary calibration, as applicable.
4. The last two surveillances performed on the Post-accident Sampling System, as applicable if it is still required in the plant technical specifications
5. The last two test records of the instrument calibrator (Shepherd validation testing/dose rate curves).
6. List of the portable instruments currently in service and available for use. Several will be selected for onsite review of the calibration records.

7. List of the following radiation monitors currently in service. Several will be selected for onsite review of the calibration records.
   - PMs used in Dosimetry for Passive Monitoring
   - SAMs at radiological controlled area (RCA) exit point
   - Whole Body Contamination Monitors at RCA exit point
   - PMs at RCA exit point
   - Countroom High-purity Germanium and liquid scintillation systems
8. Documentation for the radioactive sources used to calibrate the above monitors requested for item 7 above showing traceability to a national standard.
9. Chart or procedure listing any emergency action level value associated with installed, or portable radiation monitoring instrument indication(s).
10. Latest system health report for the Radiation Monitoring system.
11. Copies of all audits, self-assessments, and/or reviews of area and personnel monitoring equipment, and portable radiation survey instruments generated since September 1, 2014. The records should include any reviews conducted of vendor facilities (e.g., outside calibration laboratories, as applicable).
12. List of CRs generated since September 1, 2014, related to portable instruments, area monitors, CAMs, WBCs, and count room instruments. *[This should be a list of corrective action documents containing a CR number and brief description, not full CRs.]*

**71151 – Performance Indicator Verification**

(Last Inspected March 2015)

1. Site procedures/manuals for gathering and reporting performance indicators (PIs) data.
2. Monthly/Quarterly PI reports since March 1, 2015, and copies of associated condition reports for any RETS/ODCM Radiological Effluent occurrences.
3. End of calendar year 2015 liquid and gaseous effluent release permits, which specify the monthly, quarterly, and annual curies released by isotope, and associated public dose assessments.
4. List of all corrective action documents since March 1, 2015, using keywords such as: HRA, LHRA, VHRA, unintended dose, unlocked door, etc.
5. List of all ED dose rate alarms and ED dose alarms since March 1, 2015, which includes dose or dose rate alarm received, and the alarm setpoint(s).
6. List of all corrective action reports generated since March 1, 2015, using keywords abnormal/unmonitored effluent release, etc.

Technical Instruction 2800/041 - Title 10 CFR Part 37 Materials Security Review – At Facilities with a Title 10 CFR Part 73 Physical Protection Program **(Radiation Protection portions only)**

1. All site specific and corporate procedures related to 10 CFR Part 37 compliance (storage of RAM, 10 CFR Part 37 Security Plan, etc.).*
2. List of all known locations of Category 1 and 2 material.
3. All supporting calculations for determination of whether an aggregation of radioactive material (RAM) meets the definition of Category 1 or Category 2 (e.g., warehouse calculation).
4. Any additional radiation protection procedures that identify radiation protection interaction with security, or requirements related to 10 CFR Part 37 compliance.

**Please do not include Safeguards or Official Use Only information in the submittal. That information can be reviewed onsite.*

Assistance Requested During Onsite Inspection

- Identification of work activities available during the inspection for inspector observations, including notification of pre-job briefings, notification of risk-significant work activities, and audio/visual surveillance for remote job coverage
- HP assistance in plant walkdowns of areas identified for storage of Category 1 and 2 materials
- HP assistance in plant walkdowns assessing access controls (e.g. verifying the posting and locking of entrances to HRA and VHRA, and SFP controls.
- HP assistance in plant walkdowns/job coverage of ongoing activities to assess access controls.

Inspector Contact Information:
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ATTN: Robert Kellner
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Suite 1200
Atlanta, GA 30303

**LIST OF ACRONYMS**

| | |
|---|---|
| ALARA | As Low As Reasonably Achievable |
| ARM | Area Radiation Monitor |
| CAMs | Continuous Air Monitors |
| CRs | Condition Reports |
| ED | Electronic Dosimeter |
| HP | Health Physics |
| HRAs | High Radiation Areas |
| IPs | Inspection Procedures |
| LHRA | Locked High Radiation Area |
| ODCM | Offsite Dose Calculation Manual |
| PCM | Personnel Contamination Monitor |
| PIs | Performance Indicators |
| PM | Portal Monitor |
| RAM | Radioactive Material |
| RCA | Radiological Controlled Area |
| RETS | Radiological Effluent Technical Specifications |
| RWPs | Radiation Work Permits |
| SAM | Small Article Monitor |
| TLD | Thermoluminescent Dosimeter |
| VHRA | Very High Radiation Area |
| WBC | Whole Body Counter |