

Catawba Nuclear Station  
Radiation Safety Baseline Inspection  
Initial Information Request  
Inspection Report: 2018002

During the weeks of March 19 – 23 and April 23 - 27, 2018, the NRC will perform a baseline Radiation Safety Inspection at Catawba Nuclear Station (NRC Inspection Procedures 71124.01, 71124.02, 71124.03, 71124.04, 71124.05, and Radiation Safety Sections of 71151).

Experience has shown that this inspection is resource-intensive for both the NRC inspectors and your staff. In order to minimize the impact to your onsite resources and to ensure a productive inspection, we are requesting in advance 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 no later than **March 2, 2018**.

If there are any questions about this inspection or the material requested, please contact the lead inspector, Wade Loo at 404-997-4727, 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," a copy of this document 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/readingrm/adams.html>.

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## Document Request List

### Occupational Radiation Safety Cornerstone

Inspection Dates: March 19 – 23 and April 23 - 27, 2018

Documents Due by: **March 2, 2018**

Licensee: Catawba Nuclear Station

Docket Numbers: 05000413 and 05000414

Inspection Procedures (IPs): 71124.01 - Radiological Hazard Assessment and Exposure Controls  
71124.02 - Occupational ALARA 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

Docket Numbers: 05000324, 325

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**Note:** The current version of these documents is expected unless specified otherwise. Electronic media is preferred if readily available. [*Note that the inspectors cannot accept data provided on USB or "flash" drives due to NRC IT security policies.*] Please organize the information as it is arranged below to the extent possible. During the inspection, the inspectors may request additional documents. If there are questions regarding the documents requested, or if the documents cannot be provided by the due date, please do not hesitate to contact the lead inspector.

Documentation for these inspection procedures, are requested from October 1, 2016, to present, unless otherwise specified. We would prefer as much of the information as possible in electronic form. An index of 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 on-site review.

### **Miscellaneous:**

1. List of primary site contact(s) for each inspection area including names and telephone numbers.
2. List of radiation protection procedures, including title and number.
3. Plant Management, Radiation Protection, and Chemistry organizational charts w/contact numbers. Outage schedule, including work activities to be conducted during the weeks of the inspection.
4. Most recent DAW 10 CFR Part 61 analytical results.

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5. Independent Spent Fuel Storage Installation (ISFSI) information to include surveys, exposure data, and as low as reasonably achievable (ALARA) planning and reviews conducted for the last two moves, as well as last two routine surveys of the facility and Thermoluminescent Dosimeter (TLD) area monitoring results of the facility.
6. Corrective Action Program procedure(s).
7. Audits and self-assessments performed since October 1, 2016, that encompass the areas of (1) HP controls, (2) the ALARA program and implementation, (3) respiratory protection, (4) airborne radioactivity, monitoring and/or mitigation-engineering controls, (5) dose assessment, and (6) radiological monitoring instrumentation (portable, installed, and counting room instruments).

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

1. List of active Radiation Work Permits (RWPs), including planned and contingency outage RWPs, with their administrative limits, electronic dosimeter dose rate limit, and dose limit.
2. Timeline of major outage activities (e.g., Gantt chart or similar list).
3. Procedures related to health physics (HP) controls (e.g., Posting, labeling, surveys, RWPs, contamination control, high radiation area (HRA)/locked high radiation area (LHRA)/very high radiation area (VHRA) control, key control, control of divers, special controls during fuel offload, hot spots).
4. Procedures related to release of personnel and materials (e.g., release surveys, decontamination, guidance for alarm followup).
5. List of National Source Tracking System (NSTS) sources, change-of-ownership and copies of transactions since May 1, 2017.
6. Documentation of annual NSTS sources inventory reconciliation for 2017.
7. Most recent survey of all LHRAs and VHRAs, as applicable.
8. Most recent radioactive materials (RAM) sealed source inventory record.
9. List of all non-fuel items stored in spent fuel pool (SFP).
10. List of Corrective Action Program (CAP) documents related to HP controls where the cause was listed as human performance (e.g., radworker error, HP technician error, posting issues, HRA/LHRA/VHRA issues, survey problems) issued since May 1, 2017. *[This should be a list of corrective action documents containing an Action Request (AR) or Condition Report (CR) numbers and brief description, not full Nonconformance Reports (NCRs).]*
11. All self-assessments and audits covering HP controls since May 1, 2017.
12. All CAP documents related to NSTS sources since May 1, 2017.

#### **71124.02 - ALARA Planning and Controls**

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
  - Radiation work permit 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 2017 and 2018, and the methodology utilized to make the projections.
5. ALARA Committee activity summaries (e.g. meeting minutes) discussing and approval of 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 October 1, 2016.
7. List of CAP documents (e.g. NCRs, CRs, etc.) generated since October 1, 2016, 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

*[This should be a list of corrective action documents containing an AR or CR numbers and brief description, not full NCRs.]*
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 (5) 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**

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, etc.)
  - 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 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 for the Main Control Room ventilation system.
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 June 1, 2016.

4. Documentation for last two surveillances performed on SCBA stored for emergency use.
5. List of CAP documents (e.g. NCRs, CRs, etc.) generated since October 1, 2016 involving radiation monitoring and protective equipment deficiencies, including the following:
  - Continuous air monitors
  - Respiratory protection equipment and program implementation

*[This should be a list of corrective action documents containing an AR or CR numbers and brief description, not full NCRs.]*
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**

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. NVLAP accreditation documentation for current dosimetry used by the site.
3. List of all positive whole body count (WBC), *in vitro*, or air sampling analyses which resulted in an assigned CEDE equal to, or exceeding, 10 millirem since October 1, 2016. *[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 October 1, 2016. *[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 October 1, 2016. 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 CAP documents (e.g. NCRs, CRs, etc.) generated since October 1, 2016, for internal or external dosimetry issues/events. *[This should be a list of corrective action documents containing an AR or CR numbers and brief description, not full NCRs.]*

#### **71124.05 - Radiation Monitoring Instrumentation**

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), whole body counting (WBC) equipment; and continuous air monitors (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:
    - 1EMF15                      Refueling Bridge – Spent Fuel Building
    - 1EMF17                      Refueling Bridge – Reactor Building
    - 1EMF26, 27,28, 29      Main Steam Line Loop A, B, C, and D
    - 1 and 2EMF53              Containment High Range Monitor
    - 1EMF12                      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 & 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. The last two records of calibration for the whole body counter (WBC).
  7. List of the portable instruments currently in service and available for use. Several will be selected for on-site review of the calibration records.
  8. List of the following radiation monitors currently in service. Several will be selected for on-site review of the calibration records.
    - Portal Monitors used in Dosimetry for Passive Monitoring
    - SAMs at RCA exit point
    - Whole Body Contamination Monitors at RCA exit point
    - Portal Monitors at RCA exit point
    - Countroom High-purity Germanium and liquid scintillation systems.
  9. Documentation for the radioactive sources used to calibrate the monitors requested for item 8 above showing traceability to a national standard (NIST).
  10. Chart or procedure listing any Emergency Action Level (EAL) value associated with installed or portable radiation monitoring instrument indication(s).
  11. Latest system health report for the Radiation Monitoring system.
  12. Copies of all audits, self-assessments, and/or reviews of area and personnel monitoring equipment and portable radiation survey instruments generated since October 1, 2016. The records should include any reviews conducted of vendor facilities, e.g., outside calibration laboratories, as applicable.
  13. List of CAP documents (e.g. NCRs, CRs, etc.) generated since October 1, 2016, related to portable instruments, area monitors, CAMs, WBCs, and count room instruments. *[This should be a list of corrective action documents containing an AR or CR numbers and brief description, not full NCRs.]*

### **71151 – Performance Indicator (PI) Verification**

1. Site procedures/manuals for gathering and reporting PI data.
2. Monthly/Quarterly PI reports since June 1, 2017, and copies of associated corrective

- action reports for any RETS/ODCM Radiological Effluent occurrences.
3. End of calendar year (CY) 2017 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 June 1, 2017, using keywords such as: HRA, LHRA, VHRA, unintended dose, unlocked door, etc.
  5. List of all electronic dosimeter (ED) dose rate alarms and ED dose alarms since June 1, 2017 which includes dose or dose rate alarm received, and the alarm setpoint(s).
  6. List of all CAP documents (e.g. NCRs, CRs, etc.) generated since June 1, 2017, using keywords abnormal/ unmonitored effluent release, etc. *[This should be a list of corrective action documents containing an AR or CR numbers and brief description, not full NCRs.]*

### **Assistance Requested During Onsite Inspection**

- Identification of work activities available during the inspection for inspector observations, including notification of pre-job briefings, notification of diving activities, audio/visual surveillance for remote job coverage.
- HP assistance in plant walkdowns assessing access controls (e.g., verifying the posting and locking of entrances to HRAs and VHRAs, and SFP controls).
- HP assistance in plant walkdowns/job coverage of ongoing activities to assess access controls.
- Discussions with appropriate individuals regarding access controls
- Assistance with observations of source checks and full calibrations for selected portable and fixed radiation monitoring equipment.
- Assistance with observations of maintenance activities for selected SCBAs.
- Assistance with observations of ALARA committee meetings scheduled during the inspection weeks.

#### **Inspector Contact Information:**

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