



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

July 5, 2012

Mr. Regis T. Repko  
Vice President  
Duke Power Company, LLC  
McGuire Nuclear Station  
MG01VP/12700 Hagers Ferry Road  
Huntersville, NC 28078

**SUBJECT: WILLIAM B. MCGUIRE NUCLEAR STATION NOTIFICATION OF INSPECTION  
AND REQUEST FOR INFORMATION**

Dear Mr. Repko:

During the periods of September 17 – 21, 2012, and October 1 - 5, 2012, the NRC will perform the baseline Occupational Radiation Safety Inspection at the McGuire Nuclear Power 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 both for the NRC inspectors and your staff. In order to minimize the impact to your on-site resources and to ensure a productive inspection, we have enclosed a request for documents needed for this inspection. It is important that all of these documents are up to date and complete, in order to minimize the number of additional documents requested during the preparation and/or the onsite portions of the inspection.

We have discussed the schedule for these inspection activities with your staff and understand that our regulatory contact for this inspection will be Kay Crane of your organization and that the material be available for review by August 24, 2012. If there are any questions about this inspection or the material requested, please contact the lead inspector, Wade Loo at (404) 997-4727.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," 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 (PARS) component of NRC's document system(ADAMS). ADAMS is accessible from the NRC Web site at [http://www.nrc.gov/ reading-rm/adams.html](http://www.nrc.gov/reading-rm/adams.html) (the Public Electronic Reading Room).

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Sincerely,

***/RA/***

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

Docket No: 50-369, 50-370  
License No: NPF-9, NPF-17

Enclosure:  
Pre-Inspection Document Request

cc w/encl. (See page 3)

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Brian R. Bonser, Chief  
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cc w/encl: (See page 3)

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SIGNATURE	RA/WL	RA/BB			
NAME	W. LOO	B. BONSER			
DATE	07/05/2012	07/05/2012			
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO

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## **Pre-Inspection Document Request**

Occupational and Public Radiation Safety Cornerstone

Licensee: McGuire Nuclear Plant  
Docket Numbers: 50-369, 50-370  
Inspection Dates: September 17 – 21, 2012, and October 1 - 5, 2012

Inspection Procedures to be performed:

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 and Instrumentation
71151	Performance Indicator Verification

Documentation is requested for IPs 71124.01 and 71124.05 from July 2011, to the present; IPs 71124.03 and 71124.04 from April 2010, to present; and for the Performance Indicator Verification IP from April 2011, to present.

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 inspectors will select documents/areas from the list for on-site review. If any of the requested information is too burdensome to provide electronically or as hard copies, simply indicate that the requested material is available for onsite review by the inspectors.

If you have any questions, please call Wade Loo at (404) 997-4727. Thank you in advance for all your effort in putting together this material.

### Assistance Requested During On-Site Inspection

- ☐ Identification of work activities during the inspection for inspector observations, including notification of pre-job briefings, notification of diving activities, audio/visual surveillance for remote job coverage.
- ☐ Health physics assistance in plant walk-downs assessing access controls, e.g. verifying the posting and locking of entrances to HDR-HRA and VHRA, and spent fuel pool controls.
- ☐ Health physics assistance in plant walk-downs/job coverage of ongoing outage activities to assess access controls and ALARA practices.
- ☐ Discussions with appropriate individuals regarding access controls and ALARA planning.

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General Information Request

- ☐ Telephone numbers of contacts.
- ☐ Plant and Radiation Protection organizational charts.
- ☐ Electronic copy of applicable chapters of UFSAR (e.g. radiation protection program, etc.).
- ☐ Outage schedule, including work activities to be conducted during the weeks of the inspection.
- ☐ List of active radiation work permits, including those specific to outage activities, with their administrative limits, electronic dosimeter dose rate limit, and dose limit.
- ☐ List of radiation protection procedures.
- ☐ Corrective Action Program procedures.
- ☐ Procedure(s) for identifying, notification, tracking, and correcting PI occurrences.
- ☐ List of all Performance Indicators (PIs) and copies of associated corrective action reports for Occupational Exposure Control Effectiveness and RETS/ODCM Radiological Effluent Occurrences.
- ☐ Audits and self-assessments performed since the last inspection that encompass the areas of (1) access controls, (2) the ALARA program and implementation, (3) and (4).
- ☐ Procedures associated with the ISFSI facility. Procedures should include:
  - ▶ Radiological surveys, postings, and radiation control barricades.
  - ▶ Environmental monitoring (including TLDs).
  - ▶ Loading of casks.
  - ▶ Routine activities.
- ☐ Radiation surveys of the ISFSI since the last inspection.
- ☐ ALARA reviews and planning and associated RWPs for cask loading activities.
- ☐ Environmental monitoring results (e.g. TLDs)
- ☐ Radiological records for the loading of casks since the last inspection
- ☐ Records of contamination incidents since the last inspection.
- ☐ List of corrective action reports related to the ISFSI with respect to radiation protection (i.e. access controls, ALARA, contamination, radiation levels, etc.) since the last inspection.

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

- ☐ Site and corporate procedures associated with the access control program. Procedures should include:
  - ▶Radiological surveys, postings, and radiation control barricades.
  - ▶Security and control of high radiation sources/objects stored in pools.
  - ▶Posting of areas, labeling of containers, and inventories of non-SNM materials maintained within the spent fuel pools.
  - ▶Radiation Work Permits.
  - ▶Radiological Job-Coverage.
  - ▶Controlling access to High Radiation Areas (HRAs), High Dose Rate High Radiation Areas (HDR-HRAs), and Very High Radiation Areas (VHRAs).
  - ▶Key controls for all high radiation areas.
  - ▶Radioactive material control, including contamination and hot particles.
  - ▶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; high radiation area (HRA), locked-HRA (LHRA) and very high radiation area (VHRA) controls for select operational/outage activities; personnel contamination events; storage/care of personal dosimeters; use of electronic dosimeters including evaluation of set-point determination; biases identified relative to TLD monitoring; remote monitoring procedures; post shutdown, fuel movement, and/or diving operations.
  - ▶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 suspect alpha particle exposures.
  - ▶Contamination control, i.e., procedures for release of contaminated individuals or potentially contaminated materials from the radiologically controlled area (RCA).
- ☐ List five highest cumulative exposures or exposure rate tasks for current outage activities. Provide associated radiation work permit documents, if available.
- ☐ List of all positive whole body count (WBC), *in vitro*, or air sampling analyses since July 2011, which resulted in an assigned CEDE equal to or exceeding 10 millirem [*Note, a listing should be provided for use by the inspectors to select a sample of issues for in-depth review during the on-site inspection*].
- ☐ List of all personnel contamination events, dispersed contamination/discrete particles, identified since July 2011. [*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*].
- ☐ List current outage tasks with significant potential for significant release of airborne radioactive particulates.
- ☐ List of LHRAs, HDR-HRAs (>25 rem in one hour @ 30 cm), and VHRAs. Include areas with the potential to become a LHRA during routine operations or outages.

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- ☐ Copies of all audits, self-assessments, and/or reviews related to internal or external dosimetry issues generated since July 2011. The documents provided should include any reviews/evaluations conducted of vendor facilities, e.g., corporate or outside vendor/ or corporate calibration facilities.
- ☐ List of corrective action reports generated since the last inspection related to access controls, including the following:
  - Access controls, including high radiation area radiological incidents.
  - Radiological events caused by radiation worker errors.
  - Radiological events caused by radiation protection technician errors.
  - Internal or external dosimetry issues/events.
- ☐ Available for onsite review during inspection:
  - Elevation maps with most recent operating and outage radiation survey levels.
  - National Source Tracking System documentation including source inventory and administrative data from National Source Tracking System.

#### **71124.02: ALARA Planning and Controls**

- ☐ 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.
- ☐ Most recent annual ALARA report and most recent refueling outage report.
- ☐ Annual ALARA goals for 2011, and 2012, and the methodology utilized to make the projections.
- ☐ Historic trends and current status of plant source term.
- ☐ List approximately 10-15 work activities planned during the inspection likely to result in the highest personnel collective exposures and those which present the greatest radiological risk to workers (e.g. work in HRAs, diving, potentially changing radiological conditions). Include the dose projections and ALARA package numbers.
- ☐ ALARA Committee activity summaries (e.g. meeting minutes) for three (3) months or 3 meetings after the last refueling outage, and the three (3) months or 3 meetings prior to the upcoming refueling outage.



- ☐ Completed ALARA packages (including post-job reviews) for the five (5) work activities that were completed during the last outage which had the greatest collective dose and/or presented significant radiological risk.
- ☐ List of five (5) activities (including ALARA package number) from the previous outage in which the work scope changed or was extended and alternative ALARA measures were taken to respond to the emergent conditions.
- ☐ List of five activities from the previous outage in which the estimated work hours were significantly different than the actual hours expended. List five (5) activities in which the estimated and actual hours expended were accurate.
- ☐ 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 last inspection.
- ☐ List of activities since that last inspection that were reviewed for ALARA problems and actions taken to prevent recurrence. Include corrective action report number(s) if applicable.
- ☐ List of corrective action reports generated since the last inspection 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.
- ☐ Available for onsite review during the inspection:
  - ▶ ALARA planning packages for jobs being performed during the outage.
  - ▶ Temporary shielding requests generated for the outage.
  - ▶ Records of personnel monitored for radiation exposure that show the total TEDE to date for each person. If possible, sort individuals by work group.

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

- ☐ 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,

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etc.)

- ▶ 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).
  - ▶ 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.
- ☐ Two most recent calibrations for the following CAM equipment:
- ▶ Control Room Ventilation.
  - ▶ Spent Fuel Pool.
  - ▶ Radioactive Waste Processing.
- ☐ Records of certification of air quality for equipment used to provide breathing air for air-supplied respirators and SCBA bottles since the last inspection.
- ☐ List of corrective action reports generated since the last inspection involving radiation monitoring and protective equipment deficiencies, including the following:
- ▶ Continuous air monitors.
  - ▶ Respiratory protection equipment and program implementation.
- ☐ *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.
  - ▶ Training records/certification for individuals qualified to perform maintenance on vital components (e.g. regulators) on SCBA.

#### **71124.04: Occupational Dose Assessment**

- ☐ Site and corporate procedures/manual associated with internal and external dosimetry program (e.g., Whole body counters, TLDs, electronic dosimeters, bioassays, declared pregnant workers, neutron monitoring, multi-badging, etc.).
- ☐ NVLAP accreditation for dosimetry used to monitor personnel.
- ☐ Last calibration of Whole Body Counter (WBC) equipment and copy of the analysis library.
- ☐ Two most recent calibrations for PCMs used to monitor employees prior to issuance and return of dosimetry.
- ☐ Correction factors used to address the response of electronic dosimeters as compared to TLDs.

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- ☐ Internal dose assessments since last outage inspection using in-vitro monitoring.
- ☐ Internal dose assessments for any actual internal exposure greater than 10 millirem CEDE since the last outage inspection.
- ☐ Skin dose assessments since the last outage inspection.
- ☐ Available for onsite review during the inspection:
  - ▶ Records for declared pregnant workers since the last outage inspection, listing their monthly radiation exposure during the term or year-to-date.
- ☐ List of corrective action reports generated since the last inspection involving internal and external dosimetry issues (e.g., adverse trends related to EDs, occupational dose assessments, etc.)

#### **71124.05: Radiation Monitoring Instrumentation**

- Site and corporate procedures associated with radiation detection and monitoring instrumentation. Procedures should include:
  - Portable radiation survey instrument calibrations and source checks.
  - Electronic dosimeter calibration and use.
  - Whole body counter, personnel contamination monitor, portal monitor, and small article monitor calibrations and source checks.
  - Area radiation monitor alarm setpoint values and setpoint bases, calibration, and source checks.
  - Effluent monitor alarm setpoint bases and calculational methods.
  - Collecting and analyzing high-range, post-accident iodine effluent samples.
  - Maintenance and calibration/certification of calibration sources/ranges.
- List of in-service survey instrumentation including air samplers, small article monitors, personnel contamination monitors, portal monitors, whole body counters, neutron monitoring instrumentation, etc.
- Two most recent channel calibration and functional test for 1-EMF-36HH, 1-EMF-51A, 2-EMF-36HH, and 2-EMF51B,
- Whole body counter calibration reports since July 2011, calibration/check source information, and WBC analysis library.
- List of CAP condition reports generated since July 2011, related to radiation monitoring instrumentation, including the following:
  - Radiation survey instruments/calibrations

- Radiation Monitoring System, including effluent monitors, process monitors, and area radiation monitors.
- Chemistry count lab, including cross-check analysis and QC.
- Whole body counter, PCMs, PMs, and SAMs.

**IP 71151: Performance Indicator Verification**

- ☐ Monthly/Quarterly PI reports since April 2011, and copies of associated Condition Report documents for any Occupational Exposure or RETS/ODCM Radiological Effluent PI events occurrences.
- ☐ Liquid and gaseous effluent release permits which specify the quarterly (July 2011 – February 2012) and annual CY 2011, curies released by isotope and associated public dose assessments.
- ☐ List of all PIP documents since April 2011, using keywords such as: HRA, LHRA, VHRA, unintended dose, unlocked LHRA door, etc.
- ☐ List of all CAP documents since April 2011, using keywords abnormal/ unmonitored effluent release, etc.
- ☐ List of all electronic dosimeter (ED) dose rate alarms and all ED dose alarms since April 2011.

**Inspector Contact Information**

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Enclosure