UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

September 13, 2019

Ms. Mary J. Fisher, Vice President
Energy Production and Nuclear Decommissioning
Omaha Public Power District
Fort Calhoun Station
Mail Stop FC-2-4
9610 Power Lane
Blair, NE 68008

SUBJECT: FORT CALHOUN STATION – NRC INSPECTION REPORT 050-00285/2019-003

Dear Ms. Fisher:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) inspection conducted on August 12-15, 2019, at the Fort Calhoun Station, located near Blair, Nebraska. The NRC inspectors discussed the results of the inspection with Mr. Ted Uehling, Senior Director, Decommissioning and other members of your staff during a final exit meeting conducted on August 15, 2019. The inspection results are documented in the enclosure to this letter.

The NRC inspection examined activities conducted under your license as they relate to public health and safety, the common defense and security and confirm compliance with the Commission's rules and regulations, and with the conditions of your license. Within these areas the inspection consisted of selected examination of procedures and representative records, observation of activities, and interviews with personnel. Specifically, the inspectors reviewed your planned decommissioning activities to support SAFESTOR and DECON, emergency preparedness program, and your radiation safety program. No violations of significance were noted and no response to this letter is required.

In accordance with Title 10 Code of Federal Regulations (CFR) 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its enclosure and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response, if you choose to provide one, should not include any personal privacy or proprietary, information so that it can be made available to the public without redaction.

If you have any questions regarding this inspection report, please contact Ms. Marti Poston at 817-200-1181 or the undersigned at 817-200-1249.

Sincerely,

/RA LLCarson Acting for/

Greg G. Warnick, Chief
Reactor Decommissioning Branch
Division of Nuclear Materials Safety

Docket No.: 050-00285
License No.: DPR-40

Enclosure:
Inspection Report 050-00285/2019-003

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket No.:	050-00285
License No.:	DPR-40
Report No.:	050-00285/2019-003
Licensee:	Omaha Public Power District
Facility:	Fort Calhoun Station
Location:	9610 Power Lane Blair, Nebraska
Dates:	August 12-15, 2019
Inspectors:	Marti R. Poston Health Physicist Materials Licensing and Decommissioning Branch Division of Nuclear Materials Safety Bernadette D. Baca Health Physicist Reactor Inspection Branch Division of Nuclear Materials Safety
Approved by:	Greg Warnick, Chief Reactor Inspection Branch Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

Fort Calhoun Station
NRC Inspection Report 050-00285/2019-003

This U.S. Nuclear Regulatory Commission (NRC) inspection was a routine, announced inspection of decommissioning activities being conducted at the Fort Calhoun Station (FCS) under inspection report 050-00285/2019-003. In summary, the licensee was conducting these activities in accordance with site procedures, license requirements and applicable NRC regulations.

Decommissioning Emergency Preparedness Program Evaluation

The licensee was adequately implementing the permanently defueled emergency preparedness program in accordance with the approved plan. The emergency preparedness program is maintained in a state of operational readiness and changes to the program since the last inspection have not negatively affected the licensee's overall state of emergency preparedness. (Section 1.2)

Decommissioning Emergency Preparedness Scenario Review and Exercise Evaluation

The licensee developed an emergency preparedness scenario that provided sufficient opportunities to demonstrate the licensee's capability to perform key skills in principle functional areas to protect public health and safety. The exercise conducted allowed the licensee to assess performance via a formal critique to identify and correct weaknesses. (Section 2.2)

Radioactive Waste Treatment, and Effluent and Environmental Monitoring

The licensee maintained effluent monitoring and control systems as required, to support the condition of the facility since permanently ceasing operations. The effluent flow paths and monitoring systems reviewed aligned with descriptions in the Off-site Does Calculation Manual (ODCM) and were calibrated, functional and alarm setpoints met regulatory requirements. The licensee's effluent monitoring and radiological environmental monitoring programs were being conducted in accordance with the appropriate regulatory requirements as described by the licensee's ODCM. (Section 3.2)

Occupational Radiation Exposure

The licensee effectively implemented it's As Low As is Reasonably Achievable (ALARA) program in accordance with procedures and regulatory requirements. The licensee demonstrated initiative to implement methods and practices to maintain doses ALARA. Based on a review of the licensee's exposure tracking for calendar year (CY) 2017 and CY2018, selected radiation work permits and a review of several ALARA committee meeting agenda and reports, the inspectors concluded there was adequate management support for and cooperation with, radiation protection planning for radiological work activities. (Section 4.2)

Report Details

Summary of Plant Status

On June 24, 2016, Omaha Public Power District (OPPD), the licensee, formally notified the Nuclear Regulatory Commission (NRC) by letter of its intent to permanently ease operations of Fort Calhoun Station (FCS) (ADAMS Accession No. ML16176A213). By letter dated November 13, 2016, OPPD notified NRC that it had permanently ceased power operations at FCS on October 14, 2016, and certified pursuant to Title 10 Code of Federal Regulations (CFR) 50.82(a)(1)(ii), that as of November 13, 2016, all fuel had been permanently removed from the FCS reactor vessel and placed in the FCS spent fuel pool (ADAMS Accession No. ML16319A254). On December 28, 2016, the NRC informed the licensee that it was no longer under NRC Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program," IMC 0608, "Performance Indicator Program." And IMC 2515, "Light-water Reactor Inspection Program," when conducting oversight activities and assessing site performance (ADAMS Accession No. ML1636A449). The licensee was informed that the NRC's oversight of licensed activities under decommissioning would be conducted under the provisions of IMC 2561, "Decommissioning Power Reactor Inspection Program."

The licensee submitted its Post-Shutdown Decommissioning Activities Report (PSDAR) on March 20, 2017 (ADAMS Accession No. ML17089A759). The PSDAR is not a licensing action and therefore is not approved by the NRC; however, the NRC reviewed the report. The licensee's PDSAR described the decommissioning activities and schedule to support SAFSTOR strategy for the facility which is one of the options allowed by the NRC for decommissioning. The NRC subsequently held a public meeting in Omaha, Nebraska on May 31, 2017, to discuss comments regarding the FCS PSDAR. The transcript of the public meeting is available on the NRC's Website at http://www.nrc.gov/reading-rm/adams.html, under ADAMS Accession No. ML17160A394.

The licensee selected the SAFSTOR decommissioning options as described in the PDSAR. The licensee plans to continue in SAFSTOR until the spent fuel is transferred to the U.S. Department of Energy in 2058. On April 29, 2019, however, the OPPD voted to change its decommissioning approach from SAFSTOR to DECON by contracting with Energy Solutions. DECON will consist of decontamination and destruction of the site in a process that will be begin much sooner on a date to be determined by OPPD. FCS will be required to submit a new PDSAR to reflect the change from SAFSTOR to DECON.

On April 12, 2017, Region IV closed the Confirmatory Action Letter regarding the resolution of design issues that had been documented during the IMC 0350 operation period, based on FCS's commitment to either: (1) complete the design and licensing basis reconstruction for spent fuel pool/cooling and supporting structures, systems and components, or (2) submit a license amendment request for an independent spent fuel cooling system (ADAMS Accession No. ML17102B737). On December 14, 2017, the licensee requested to remove Option 2 above and committed to complete Option 1 by June 25, 2018. The licensee entered the commitment into the Corrective Action Program as Condition Report 2017-00842. By letter dated June 24, 2018, the licensee informed the NRC that the commitment actions and associated condition report had been closed (ADAMS Accession No. ML18205A090).

On March 6, 2018, the NRC issued License Amendment 297 for the Decommissioning Technical Specifications (ADAMS Accession No. ML18010A087). The license amendment established a licensing and safety basis that reflects the permanently shutdown and defueled

conditions of the facility. In general, the amendment eliminated the requirements for operations MODES and MODES where fuel was emplaced in the reactor vessel

On December 11, 2017, the NRC issued exemptions to Emergency Planning requirements and related safety evaluation (ADAMS Accession No. ML 17263B198). The NRC issued License Amendment No. 295 (ADAMS Accession No. ML18276B286) for the permanently defueled Emergency Plan that is commensurate with significantly reduced spectrum of credible accidents that can occur in the permanently defueled condition. The license amendment became effective on April 7, 2018 and the licensee officially implemented the Permanently Defueled Emergency Plan (PDEP) on April 9, 2018.

On February 28, 2019, FCS requested a license amendment to replace the existing PDEP and associated Emergency Action Levels (EALs) with an Independent Spent Fuel Storage Installation (ISFSI) – only Emergency Plan and its associated EALs (ADAMS Accession No. ML19064A758) to reflect the ISFSI-only configuration planned for the site by the middle of calendar year 2020 (CY2020). On May 1, 2019, the NRC determined that the license amendment request had sufficient technical information for the NRC to accept it for review (ML19126A280).

1 Decommissioning Emergency Preparedness Program Evaluation (Inspection Procedure 82501

1.1 Inspection Scope

Review the licensee's emergency preparedness program to determine whether it was maintained in a state of operational readiness and whether changes to the program continued to meet NRC requirements and license commitments.

1.2 Observations and Findings

a. Review of Current Emergency Plan

The inspectors reviewed EP-FC-1001, "Permanently Defueled Emergency Response Plan for Fort Calhoun Station," Revision 5. Revision 5 was issued to align with the NRC approved partial site release approved on April 10, 2019 (ADAMS Accession No. ML19074A301). The licensee submitted the Phase I partial site release request on June 29, 2018, (ADAMS Accession No. ML 181215A187) and the Phase II partial site release request on November 12, 2018 (ADAMS Accession No. ML18316A036). The inspectors did not identify any deviations between the implemented emergency plans and the license amendments approved by the NRC.

On February 28, 2019, the licensee requested a license amendment to replace the existing PDEP and associated EALs with an ISFSI-only emergency plan and its associated EALs to reflect the ISFSI-only configuration the licensee plans to be in place by mid-year CY2020 (ADAMS Accession No. ML19064A758). On May 1, 2019, the NRC determined the license amendment request had enough technical information to allow the NRC to conduct the license amendment review ADAMS Accession No. ML19126A280).

b. Maintenance of Emergency Preparedness

The inspectors reviewed the licensee's ability to inform offsite authorities of emergency conditions, to staff and augment the on-shift emergency response organization, to assess the radiological consequences of emergencies, to maintain emergency response facilities, to conduct drills and exercises and to correct emergency preparedness issues using the corrective action program. The inspectors also reviewed training materials provided to licensee personnel responsible for radiological assessment. The inspectors reviewed licensee procedures for notifying offsite authorities of emergency conditions and reviewed the licensee's evaluation of offsite notification functions as documented in drill and exercise reports. The inspectors determined that the licensee continues to have the capability to contact offsite authorities in accordance with the regulatory requirements.

The inspectors reviewed licensee procedures for assessing the radiological consequences of emergencies, reviewed the corrective action program condition reports associated with emergency preparedness and reviewed the licensee's evaluation of radiological assessment functions as documented in drill and exercise reports. The inspectors also visited the Control Room to verify that instruments, equipment and data required for radiological assessment remained functional and available and to verify the Control Room readiness to perform emergency response activities. The inspectors concluded that the licensee continued to have the capability to assess the radiological consequences in accordance with regulatory requirements, and the licensee had maintained the Control Room functional and ready for emergency response.

The inspectors reviewed licensee procedures pertaining to drills and exercises, and reviewed licensee drill and exercise evaluation reports and corrective action reports associated with the licensee's drill and exercise program and concluded that weaknesses in performance had been corrected in a manner consistent with the significance of the performance issue. The inspectors also reviewed procedures for making changes to the site emergency plan and associated procedures and reviewed licensee evaluations of proposed changed to these documents. The inspectors did not identify any instances where the licensee had made changes to the plan or procedures that reduced the effectiveness of the plan.

c. Emergency Response Organization (ERO) and Augmentation System

The inspectors evaluated the adequacy of the emergency response organization on-shift and augmentation staffing levels as required by the PDEP. The inspectors also verified the ERO augmentation system was adequate to allow meeting ERO augmentation staffing and facility activation time commitments.

The inspectors reviewed licensee staffing commitments in the PDEP and reviewed ERO rosters to verify that that the licensee had maintained the ability to continuously staff the ERO as required. The inspectors reviewed procedures for augmenting the on-shift ERO, reviewed corrective action reports associated with emergency response and reviewed activation time as documented in drills and exercises. The inspectors concluded that the licensee had maintained an ERO with sufficient staffing to meet regulatory requirements demonstrated in drill and exercise records.

1.3 Conclusion

The licensee was adequately implementing the permanently defueled emergency preparedness program in accordance with the approved plan. The emergency preparedness program is maintained in a state of operational readiness and changes to the program since the last inspection have not negatively affected the licensee's overall state of emergency preparedness.

2 Decommissioning Emergency Preparedness Scenario Review and Exercise Evaluation (IP 82401)

2.1 Inspection Scope

Evaluate the adequacy of the licensee's conduct of the biennial exercise and its capability to assess performance via a formal critique process in order to identify and correct weaknesses associated with planning standards.

2.2 Observations and Findings

a. Exercise Evaluation – Scenario Review

The licensee submitted the scenario for the 2019 Emergency Preparedness Exercise on June 6, 2019 (ADAMS Accession No. ML19163A063). The FCS emergency response graded exercise was scheduled for August 14, 2019. The submission was made will within the 60 days prior to the exercise requirements established in Title 10 *Code of Federal Regulations* (CFR) Part 50.4 and 10 CFR 50, Appendix E, IV.F.2a&b. An emergency drill or exercise is the opportunity for a licensee to demonstrate on average 5 to 7 exercise functional standards. The scenario developed and submitted by FCS required the demonstration of 17 exercise functional standards. The licensee staff tasked with development of the scenario observed and reviewed exercises and drills conducted by other reactor sites in various stages of decommissioning prior to development of the scenario. The inspectors determined that the scenario developed was credible and exercised classification to an ALERT status, the highest classification under the PDEP and the submittal made to the NRC was complete and supported demonstration of key skills in the principle functional areas.

b. Exercise Evaluation – Independent Observation

The licensee conducted a pre-exercise brief with the controllers and evaluators to establish protocols and assign a controller to each member of the ERO. The controllers were responsible for providing the information requested by the ERO member once the member had "earned" the information by, for example, going to the appropriate panel in the control room to read the radiation levels on an area radiation monitor. The inspectors did not observe any instances of prompting of the ERO members by either controllers or evaluators during the exercise. The ERO members were observed making good use of the PDEP and its associated procedures and checklists, such as the EAL classification checklist. In addition, the ERO members maintained clear lines of communication and frequently reminded each other of things that needed to be done or should be considered. Announcements to the employees in the Protected Area were clear and concise. The ERO was strongly supported by the security force, when the decision to evacuate the Protected Area as made. Security worked closely with the

ERO to account for all personnel and ensure that protected area was evacuated. Staff augmentation for the five-member ERO was quickly established in the event that the exercise required additional staffing.

The licensee demonstrated the capability to make notifications within 15 minutes of declaration of an ALERT (the licensee did not declare an Unusual Event). Notifications were made to the States of Nebraska and Iowa using a land line in the control room and to the NRC using the Emergency Notification System. Follow-up communications with the States and the NRC were also timely.

The inspectors attended the controller/evaluator meeting at the conclusion of the exercise and concurred with the controller/evaluator assessments on the completion of each functional area standard. The inspectors also attended the critique and determined it was of sufficient scope and depth to allow for the identification and correction of emergency preparedness weaknesses.

The inspectors determined that the conduct of the exercise was adequate to demonstrate the licensee's compliance with the PDEP and its associated EALs, as well as provide reasonable assurance of the licensee's ability to effectively implement its emergency plan to protect the public health and safety in the event of an emergency.

2.2 Conclusion

The licensee developed an emergency preparedness scenario that provided sufficient opportunities to demonstrate the licensee's capability to perform key skills in principle functional areas to protection public health and safety. The exercise conducted allowed the licensee to assess performance via a formal critique to identify and correct weaknesses.

3 Radioactive Waste Treatment, and Effluent and Environmental Monitoring (IP 84750)

3.1 Inspection Scope

The inspectors reviewed documents and interviewed plant personnel to assess the licensee's performance in the following areas:

- Radioactive waste treatment systems were maintained and operated to keep offsite doses ALARA.
- Licensee effectively controlled, monitored and quantified releases of radioactive materials in liquid, gaseous and particulate forms to the environment.
- Radiological environmental monitoring programs were effectively implemented to ensure effluent releases are being adequately performed as required to minimize public dose.

3.2 Observations and Findings

a. Radwaste Treatment and Radioactive Material Storage

The inspectors walked down and reviewed the systems in place for liquid waste treatment and release. The inspectors determined the licensee was operating the

systems as specified in the ODCM Section 6.1 Process Control Program Requirements and Section 6.2 General Waste Program Requirements.

The Standby Gaseous Treatment, Spent Fuel Pool Area Ventilation and the Control Room Ventilation filtration systems were removed from service and deleted from the technical specifications with License Amendment 297 for the Decommissioning Technical Specifications issued March 6, 2018 (ADAMS Accession No ML18010A087). The inspectors walked down the standby gaseous treatment system and observed that the system was removed from service.

During a tour of the facility, the inspectors observed the collection, handling and storage of radioactive material and solid radioactive wastes. The material was being handled, labeled and stored appropriately. The inspectors observed good housekeeping throughout the site. The licensee made radioactive material disposal shipments in a manner to keep the buildup of stored material and wastes to a manageable level.

b. Changes to Offsite Dose Calculation Manual

The inspectors reviewed the changes to CH-ODCM-0001 “Offsite Dose Calculation Manual (ODCM).” The last review of the ODCM by the NRC was revision 27. Revision 28 changed to ODCM to remove effluent release points and iodine requirements as the site was no longer operating at power or retaining fuel in the reactor vessel. Revision 29 to the ODCM changed titles and responsibilities to reflect the reduction in staff, such as eliminating the Chemistry Supervisor and assigning those responsibilities to the new Radiation Protection/Chemistry Supervisor. This revision also reflected changed to the radiological environmental monitoring program (REMP). Revision 30 revised the ODCM to reduce the site boundary after this reduction was approved by the NRC.

c. Radioactive Effluent Monitoring

The inspectors reviewed the licensee’s effluent monitoring program and determined it was implemented in accordance with the ODCM. The review consisted of the Annual Radioactive Effluent Release Reports which covered the period of calendar year (CY) 2017 and CY2018. There was a transition to reduce effluent pathways since the fuel was permanently removed from the reactor vessel in November 2016. The inspectors reviewed the annual reports and selected data used in the development of the reports and compared the information provided against the requirements of the ODCM. As summarized below, the effluents released during CY2017 and CY2018 did not exceed the limits established in the ODCM. In addition, the doses were calculated in accordance with ODCM and were less than 1 millirem (mrem) and did not exceed the dose to members of the public as specified under 10 CFR 20.1301 of 100 mrem. In addition, the licensee demonstrated compliance of dose to members of the public as specified under 10 CFR 20.1302.

The inspectors also reviewed several effluent release packages and confirmed the licensee was adequately implementing its ODCM for release of liquid and gaseous effluents during the review period.

The inspectors observed a routine chemistry surveillance of the laboratory and radioactive waste processing building exhaust stack (RM-043), auxiliary building (RM-062) and containment ventilation (RM-052) for radioactive gases, particulates and iodides. The chemistry technician and accompanying radiation protection technician used good radiological protection techniques to ensure the samples were not mishandled or contaminated.

d. Radiological Environmental Monitoring Program (REMP)

The Technical Specifications, Section 5.16 requires the licensee to monitor the radiation and radionuclides in the environs of the plant. Section 5.16 further states that the program shall provide: (1) representative measurements of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program and modeling of the environmental exposure pathways. In addition, the program shall be contained in the ODCM and conform to the guidance of Appendix I to 10 CFR 50.

The ODCM, Section 5.1.2 states in part, that the Radiological Environmental Monitoring Program (REMP) samples shall be collected at specific locations and frequency provided in Tables 5.1 and 5.2 and analyzed in accordance with the detection capabilities for environmental sample analysis lower limits of detection provided in Table 5.3. The inspectors compared the REMP sample results as documented in the Radiological Environmental Operating Reports for CY2017 and CY2018 and concluded that the sample collection and frequency of air, surface water, groundwater, vegetation, sediment, food crops, milk, and fish as available, and direct radiation exposure as measure by thermoluminescent dosimeters were performed in accordance with the collection and frequency prescribed in the ODCM. The sample results reflected historical data or were less than the lower limits of detection. The inspectors observed the collection and preparation of surface water samples for sample locations 12 (Metropolitan Utilities District, Florence Treatment Plant North Omaha) and 13 (West Bank Missouri River, downstream of plant discharge). The inspectors concluded the results verified the effluent monitoring program was satisfactory.

The licensee was required to perform a biennial environmental land use survey in accordance with the Technical Specifications Section 5.16, and the ODCM, Section 5.2, between the dates of June 1 through October 1, 2019. The licensee performed the land use survey for CY2016 which was documented in the CY2017 annual Radiological Environmental Operating Reports. The result of the CY2018 land use survey will be documented in the CY2019 Radiological Environmental Operating Report. The inspectors confirmed the changes in the CY2016 and use areas at and beyond the site boundary, requiring changes to the radiological environmental monitoring program, were explained and documented in the annual environmental monitoring program report. The inspectors confirmed that the licensee's loss of samples due to flooding conditions during the inspection period and verified the samples were appropriately documented in the annual report.

3.3 Conclusion

The licensee maintained effluent monitoring and control systems as required, to support the condition of the facility since permanently ceasing operations. The effluent flow paths and monitoring systems reviewed aligned with the descriptions in the ODCM, and

were calibrated, functional and alarm setpoints met regulatory requirements. The licensee's effluent monitoring and radiological environmental monitoring programs were being conducted in accordance with the appropriate regulatory requirements as prescribed in the ODCM.

4 Occupational Radiation Exposure (IP 83750)

4.1 Inspection Scope

The inspectors reviewed documents, interviewed plant personnel and observed work activities to assess the licensee's performance in the following areas:

- Planning and preparation for radiation work were adequate and licensee management supported radiation protection planning.
- Training and qualifications of personnel were adequate for the radiation protection organizations.
- Personnel dosimetry for external exposure meets the requirements.
- Management and administrative controls of external and internal radiation exposures meet requirements and were designed to maintain exposures As Low As is Reasonably Achievable (ALARA).
- Processes and other engineering controls were used to the extent possible to limit concentrations or airborne radioactive materials.
- Surveys and monitoring activities were performed as required.
- Control of radioactive materials and contamination met the requirements.
- Effective implementation of the ALARA program.

4.2 Observations and Findings

a. Radiation Work Planning and Preparation

The inspectors toured the facility, conducted in plant work activity observations, and interviewed personnel regarding current and planned operations. The licensee maintained a daily work schedule and planned major work activities to ensure appropriate resources are considered and made available.

The inspectors reviewed the following radiation work permits (RWPs) regarding radiological conditions, alarm setpoints, personal protective equipment, engineered features or activities to reduce personnel dose and other controls for maintaining doses as low as is reasonably achievable (ALARA) were:

- 19-0326, "Dry-Cask Storage Project and Associated Activities"
- 19-0330, "Radiologically Controlled Area (RCA) Asbestos Abatement and Associated Activities"
- 19-0337, "Containment Asbestos Abatement and Associated Activities"

The inspectors observed the implementation of the work planning and preparation through observations of radioactive material handling for disposal activities. The inspectors determined the RWPs were sufficient in detail to inform workers of the radiological hazards present. Radiological oversight by radiation protection was included for specific activities, such as, hold points, stop work criteria, personnel protective equipment, and engineering features required of the work activity. Alarm

setpoints for total dose and dose rates for the anticipated work, and an assessment of dose to be collected from the activity were also included in the RWPs.

b. Training and Qualifications

The inspectors conducted interviews regarding the licensee's current training and qualification program. The licensee provided initial and refresher training to all staff. The licensee cross qualified chemistry and radiation protection technicians on selected activities to provide more efficient and timely completion of these activities. The staff reviewed their qualifications daily and are provided a graduated notification for training due dates. The inspectors reviewed a selected set of employee qualifications and noted training and qualifications obtained were current.

c. Personnel Exposure

Occupational exposure was measured onsite by optically stimulated laser dosimeters exchanged annually. Personnel monitored are also provided with self-reading dosimeters when entering the RCA. Data from the self-reading dosimeters is entered into the system as individuals exit the controlled area. These results are used to track dose and determine if whole body counting for internal exposure is needed. Once an individual's self-reading dosimeters results reach 1000 mrem, the optically stimulated laser dosimeter is exchanged. The licensee has established an administrative level of 2000 mrem/year for all monitored individuals.

The inspectors reviewed the internal and external monitoring results for the 491 employees monitored in CY2018. Only seventy-four (74) employees had measurable dose. Forty-nine (49) of those with measurable dose had doses below 100 millirem. The highest dose reported for CY2018 was 515 millirem Total Effective Dose Equivalent (TEDE). The collective TEDE for all monitored individuals was 6.939 rem, with a collected committed effective dose equivalent of zero and a committed dose equivalent of zero. There were no planned special exposures and no embryo/fetus doses measured in CY2018.

The inspectors also reviewed the dose year to date for CY2019. For year-to-date 2019, the licensee is monitoring 409 employees and contractors. No internal, planned special exposure or fetal/embryo doses have been recorded during this monitoring period. The highest dose assigned for, year-to-date in 2019 is 756 mrem.

d. Control of Radioactive Materials and Contamination, Surveys and Monitoring

The inspectors toured the facility, conducted in plant work activity observations and interviewed personnel regarding the storage and handling of radioactive materials, control of contamination and the conduct of radiological surveys and monitoring of radiological hazards.

The inspectors verified radioactive materials were properly used, labeled and stored; contaminated and radiation areas were appropriately posted and controlled; and appropriate radiation surveys were being conducted in a timely fashion. Instruments used for surveys were calibrated and were the appropriate type for the radiation measured.

e. Maintaining Occupational Exposures ALARA

The inspectors reviewed the following RWPs and associated ALARA Plans:

- 19-0326, “Dry-Cask Storage Project and Associated Activities”
- 19-0330, “Radiologically Controlled Area (RCA) Asbestos Abatement and Associated Activities”, and
- 19-0337, “Containment Asbestos Abatement and Associated Activities”

The work activities were reviewed at 50 percent and 80 percent completion of the activities associated with the RWP in accordance with RP-4010, “ALARA Planning and Controls, Revision 2. The exposure estimates and job scopes were modified, well documented and approved in accordance with the licensee’s procedure. In addition, the inspectors reviewed associated TEDE ALARA review for the work packages to ensure appropriate consideration and controls were implemented to keep worker doses ALARA. The inspectors reviewed the Fort Calhoun Station’s ALARA Committee meeting minutes dated December 20, 2017, July 18, 2018, and December 19, 2018, and concluded that the committee was present with an overview of the collective site and individual work activity estimated and final doses accumulated to make decisions regarding work activities and keeping exposures ALARA.

The inspectors concluded the ALARA planning packages, work scope and estimate modifications, documented hold points and exposure reduction measures were well thought out and provided conservative decision making in controlling exposures ALARA.

4.3 Conclusions

The licensee effective implemented its ALARA program in accordance with the procedures and regulatory requirements. The license demonstrated initiatives to implement methods and practices to maintain doses ALARA. Based on a review of the licensee’s exposure tracking for CY2017 and CY2018, selected RWPs and a review of several ALARA committee meeting agenda and reports, the inspectors concluded there was adequate management support for and cooperation with, radiation protection planning for radiological work activities.

5 Exit Meeting Summary

On August 15, 2019, the NRC inspectors presented the inspection results to Mr. Ted Uehling, Senior Director, Decommissioning and other members of the licensee’s staff. No proprietary information was identified with the exception handouts from senior management meeting, which were returned to the licensee.

SUPPLEMENTAL INSPECTION INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

B. Blume, Director, Licensing and Regulatory Assurance
T. Uehling, Senior Director, Decommissioning
J. Shuck, Manager, Engineering
J. McBride, Nuclear Oversight Lead
A. Stacbell, Manager, Maintenance Services
C. Longua, Manager, Operations
C. Heimes, Director, Site Security
J. Cate, Manager, Engineering Design and Programs
D. Whisler, Manager, Radiation Protection and Chemistry
J. Layton, Work Management
J. Johnston, Director, IWM
T. Maine, Plant Manager
L. Maine, Emergency Planner
N. DeVries, Emergency Planner

INSPECTION PROCEDURES USED

IP 82501	Decommissioning Emergency Preparedness Program Evaluation
IP 82401	Decommissioning Emergency Preparedness Scenario Review and Exercise Evaluation
IP 84750	Radwaste Treatment, Effluent, Environmental Monitoring
IP 83750	Occupational Radiation Exposure

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Open
None

Closed
None

Discussed
None

LIST OF ACROYMNS

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low As is Reasonably Achievable
CFR	*Code of Federal Regulations*
CY	Calendar Year
EAL	Emergency Action Levels
ERO	Emergency Response Organization
FCS	Fort Calhoun Station
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IOEP	ISFSI-only Emergency Plan
ISFSI	Interim Spent Fuel Storage Installation
mrem	millirem
NRC	U. S. Nuclear Regulatory Commission
ODCM	Off-site Dose Calculation Manual
OPPD	Omaha Public Power District
PDEP	Permanently Defueled Emergency Plan
PSDAR	Permanently Shutdown Decommissioning Activities Report
RCA	Radiologically Controlled Area
REMP	Radiological Environmental Monitoring Program
RWP	Radiation Work Permit
TEDE	Total Effective Dose Equivalent