Omaha Public Power District
444 South 16th Street Mall
Omaha, Nebraska 68102-2247

April 14, 2000
LIC-00-0025

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, DC 20555

Reference: Docket No. 50-285

SUBJECT: Application for Amendment of Facility Operating License No. DPR-40

Omaha Public Power District (OPPD) is submitting this "Application for Amendment of Facility Operating License" to change the surveillance requirements for laboratory testing of the charcoal adsorbers for the control room, the spent fuel pool storage area and the safety injection pump rooms. In addition, this application proposes to delete the laboratory testing requirements for the containment charcoal adsorbers. These changes are proposed in order to comply with the guidance of Generic Letter 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal."

OPPD proposes to amend the applicable sections in the Fort Calhoun Station Unit No.1 Technical Specifications as follows:

- Change the applicable laboratory testing requirements in Table 3-5 to require the use of the American Society for Testing and Materials (ASTM) D3803-1989 testing methodology.
- Delete the initial and refueling laboratory testing requirements in Section 3.6 for the containment charcoal adsorbers.
- Delete the charcoal performance and efficiency testing discussion for the containment charcoal adsorbers in the Basis of Section 3.6.
- Change words in the Basis of Section 2.4 from "air recirculation cooling and iodine removal system" to "air cooling and filtering unit" and add the words "Credit is taken for iodine removal by the containment spray system."

A081

Attachment A contains a markup reflecting the proposed changes to Appendix A, Technical Specifications, of the Facility Operating License. Attachment B provides the "Background, Discussion, Justification and No Significant Hazards Consideration."

OPPD respectfully requests 60 days to implement the proposed specifications following NRC approval. If you have additional questions, or require further information, please contact me or members of my staff.

Sincerely,

W. G. Gates
Vice President

DLS/dls

Attachments

c: E. W. Merschoff, NRC Regional Administrator, Region IV
L. R. Wharton, NRC Project Manager
W. C. Walker, NRC Senior Resident Inspector
B. E. Casari, Director - Environmental Health Division,
State of Nebraska
Winston & Strawn

U.S Nuclear Regulatory Commission
LIC-00-0025
Enclosure

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
Omaha Public Power District	)	Docket No. 50-285
(Fort Calhoun Station	)	
Unit No. 1)	)	

APPLICATION FOR AMENDMENT
OF
FACILITY OPERATING LICENSE

Pursuant to Section 50.90 of the regulations of the U. S. Nuclear Regulatory Commission ("the Commission"), Omaha Public Power District, holder of Facility Operating License No. DPR-40, herewith requests that Technical Specifications set forth in Appendix A of the Facility Operating License be amended to change the surveillance requirements for laboratory testing of the charcoal adsorbers for the control room, the spent fuel pool storage area and the safety injection pump rooms. In addition, this amendment proposes to delete the laboratory testing requirements for the containment charcoal adsorbers. These changes are proposed in order to comply with the guidance of Generic Letter 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal."

The proposed changes to the Technical Specifications are provided in Attachment A of this Application. A Background, Discussion, Justification, and No Significant Hazards Consideration Analysis, which demonstrates that the proposed changes do not involve significant hazards considerations, is appended in Attachment B. The proposed changes to Appendix A, Technical Specifications of the Facility Operating License, would not authorize any change in the types or any increase in the amounts of effluents or any change in the authorized power level of the facility.

WHEREFORE, Applicant respectfully requests that Appendix A of the Facility Operating License be amended hereto as Attachment A.

A copy of this Application, including its attachments, has been submitted to the Director - Nebraska State Division of Environmental Health, as required by 10 CFR 50.91.

OMAHA PUBLIC POWER DISTRICT

By W. Gary Gates
Vice President

Subscribed and sworn to before me this 14th day of April, 2000

Joan M. Hineline
Notary Public

GENERAL NOTARY-State of Nebraska
JOAN M. HINELINE
My Comm. Exp. Sept. 3, 2000

U.S Nuclear Regulatory Commission
LIC-00-0025
Enclosure

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
Omaha Public Power District	)	Docket No. 50-285
(Fort Calhoun Station	)	
Unit No. 1)	)	

AFFIDAVIT

W. G. Gates, being duly sworn, hereby deposes and says that he is the Vice President in charge of all nuclear activities of the Omaha Public Power District; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached information concerning the Application for Amendment of the Facility Operating License dated April 14, 2000, regarding the change to surveillance requirements for laboratory testing for the control room, spent fuel pool storage area and the safety injection pump rooms charcoal adsorbers and the deletion of the laboratory testing requirements for the containment charcoal adsorbers; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information, and belief.

W. G. Gates
Vice President

STATE OF NEBRASKA)
) ss
COUNTY OF DOUGLAS)

Subscribed and sworn to me, a Notary Public in and for the State of Nebraska on this

14th day of April, 2000

Notary Public

GENERAL NOTARY-State of Nebraska
JOAN M. HINELINE
My Comm. Exp. Sept. 3, 2000

LIC-00-0025
Attachment A
Requested Changes of Technical Specifications Set Forth in
Appendix A of the
Facility Operating License
No. DPR-40

2.0 LIMITING CONDITIONS FOR OPERATION

2.4 Containment Cooling (Continued)

to function during accident conditions may be inoperable for a period of no more than 24 hours. If operability is not restored within 24 hours, the reactor shall be placed in a hot shutdown condition within 12 hours.

Basis

A full capacity diesel-generator is connected to each of the two engineered safeguards 4.16-kV buses. Three engineered safeguards 480-Volt double-ended load centers are provided; of the six transformers, three are connected to each of the two 4.16-kV buses. Two load centers are operated as two-bus-section units; the third is provided with a center bus manually transferable to either associated end section. The center bus section supplies HPSI Pump SI-2C, CS Pump SI-3C and Charging Pump CH-1C any of which can thus be supplied from either 4.16-kV bus if required. The containment sprays initially take coolant from the safety injection and refueling water (SIRW) tank. Before this supply of water is exhausted (at least 24 minutes)[2] the spray system is transferred to the recirculation mode and the pumps take suction from the containment sump. One shutdown cooling heat exchanger is sufficient to satisfy the spray system requirements during the long-term containment cooling period.[3] In addition, in the unlikely event of the component cooling water supply being lost, raw water can be utilized for direct cooling of certain engineered safeguard components.[4]

The containment spray system is independent from the containment air cooling and filtering unit ~~recirculation, cooling and iodine removal system~~ for the containment cooling function.[5] For the limiting Loss of Coolant Accident (LOCA) scenario, one of the three spray pumps would limit the containment pressure to below the design value without taking credit for the air coolers or the cooling capacity of the safety injection system.[6] [7] For the limiting Main Steam Line Break (MSLB) scenario, a heat removal contribution is credited from the air coolers in the mitigation of containment peak pressure.[7] Credit is taken for iodine removal by the containment spray system.

The cooling equipment provided to limit the containment pressure following a DBA is divided between the independent power supply systems. The raw water and component cooling water pumps are similarly distributed on the 4.16-kV and 480 Volt buses. In the event of a DBA, loss of normal power sources and failure of one diesel-generator to operate, a minimum of at least one spray pump, and two air coolers would be connected to the available diesel-generator. This would provide adequate containment cooling equipment to limit the containment pressure below the design value for the limiting one pump, one spray header LOCA event. The limiting MSLB event in which off site power is available, is not affected by the loss of one diesel generator.

TABLE 3-5 (continued)

MINIMUM FREQUENCIES FOR EQUIPMENT TESTS

		Test	Frequency	USAR Section Reference
10a. (continued)	2.	Laboratory ~~Labaratory~~ Testing** Verify, within 31 days after removal, that a laboratory test of a sample of the charcoal adsorber, when obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows methyl iodide penetration less than 0.175% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C [86°F] and a relative humidity of 70%. ~~a. Initial batch tests of activated charcoal shall show 99.825% radioactive methyl iodide removal when tested under conditions of ≥70% relative humidity, ≥176°F (80°C) 1.5 to 2.0 mg/m³ inlet methyl iodide concentration at a face velocity of 40 ± 1.6 FPM (12.2) ± 0.5 m/min) and at a bed depth of 4 inches (101.6mm).~~ ~~b. Activated charcoal cells shall be replaced or tested. The test results shall show ≥99.825% methyl iodide removal when tested under conditions of ≥70% relative humidity, ≥176°F (80°C), at a face velocity of 40 ± 1.6 FPM (12.2 ± 0.5 m/min) and at a bed depth of 4 inches (101.6 mm).~~	On a refueling frequency or 720 hours of system operation or after any structural maintenance on the HEPA filter or charcoal adsorber housing or following significant painting, fire, or chemical release in a ventilation zone communicating with the system. ~~Prior to initial loading in filter unit.~~ ~~On a refueling frequency or every 720 hours of system operation or following significant painting, fire or chemical release in a ventilation zone communicating with the system.~~	
	3.	Overall System Operation a. Each circuit shall be operated. b. The pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to be less than 9 inches of water at system design flow rate. c. Fan shall be shown to operate within ± 10% design flow.	Ten hours every month. R R	
	4.	Automatic and manual initiation of the system shall be demonstrated.	R	

** Tests shall be performed in accordance with applicable selection(s) of ANSI N510-1980.

TABLE 3-5 (continued)
MINIMUM FREQUENCIES FOR EQUIPMENT TESTS

	Test	Frequency	USAR Section Reference
10b. Charcoal Adsorbers for Spent Fuel Storage Pool Area	1. In-Place Testing** Charcoal adsorbers shall be leak tested and shall show ≥99% Freon (R-11 or R-112) removal.	On a refueling frequency or every 720 hours of system operation, or after each complete or partial replacement of the charcoal adsorber bank, or after any major structural maintenance on the system housing or following significant painting, fire or chemical release in a ventilation zone communicating with the system.	6.2 9.10
	2. Laboratory Testing Verify, within 31 days after removal, that a laboratory test of a sample of the charcoal adsorber, when obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows methyl iodide penetration less than 10% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C [86°F] and a relative humidity of 95%.	On a refueling frequency or 720 hours of system operation or after any structural maintenance on the HEPA filter or charcoal adsorber housing or following significant painting, fire, or chemical release in a ventilation zone communicating with the system.	
	~~a. Initial batch tests of all charcoal adsorbers shall show ≥99% elemental iodine removal when tested under conditions of >95% R.H., >125°F, 5 to 10 mg/m³ inlet elemental iodine concentration and at the face velocity within +20% of system design.~~	~~Prior to initial loading in the filter unit.~~	
	~~b. The carbon sample test results shall show ≥90% elemental iodine removal, under conditions of >95% R.H., >125°F, 5 to 10mg/m³ inlet elemental concentration and within 20% of design face velocity.~~	~~On a refueling frequency or every 720 hours of system operation, or following significant painting, fire or chemical release in any ventilation zone communicating with the system.~~	
	3. Overall System Operation a. Operation of each circuit shall be demonstrated.	Ten hours every month.	
	b. Volume flow rate through charcoal filter shall be shown to be between 4500 and 12,000 cfm.	R	
	4. Manual initiation of the system shall be demonstrated.	R	

**Tests shall be performed in accordance with applicable section(s) of ANSI N510-1980.

TABLE 3-5 (Continued)

		Test	Frequency	USAR Section Reference
10c.	Charcoal Adsorbers for S.I. Pump Room	1. In-Place Testing** Charcoal adsorbers shall be leak tested and shall show ≥99% Freon (R-11 or R-112) removal.	On a refueling frequency or every 720 hours of system operation, or after each complete or partial replacement of the charcoal adsorber bank, or after any major structural maintenance on the system housing or following significant painting, fire or chemical release in any ventilation zone communicating with the system.	9.10 6.2
		2. Laboratory Testing Verify, within 31 days after removal, that a laboratory test of a sample of the charcoal adsorber, when obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows methyl iodide penetration less than 10% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C [86°F] and a relative humidity of 95%.	On a refueling frequency or following 720 hours of system operation or after any structural maintenance on the HEPA filter or charcoal adsorber housing or following significant painting, fire, or chemical release in a ventilation zone communicating with the system.	
		~~a. Initial batch tests of all charcoal adsorbers shall show >99% elemental iodine removal when tested under conditions of >95% R.H., >125°F, 5 to 10mg/m³ inlet elemental iodine concentration and at a face velocity within ±20% of system design.~~	~~Prior to initial loading in the filter unit.~~	
		~~b. The carbon sample test results for the S.I. Pump Room charcoal filters shall show no less than 90% elemental iodine removal, under conditions of >95% R.H., at >125°F, 5 to 10 mg/m³ inlet elemental iodine concentration and within ±20% of design face velocity.~~	~~On a refueling frequency or every 720 hours of system operation or following significant painting, fire or chemical release in any ventilation zone communicating with the system.~~	
		3. Overall System Operation a. Operation of each circuit shall be demonstrated. b. Volume flow rate shall be shown to be between 3000 and 6000 cfm.	Ten hours every month. R	

** Tests shall be performed in accordance with applicable selection(s) of ANSI N510-1980.

3.0 SURVEILLANCE REQUIREMENTS

3.6 Safety Injection and Containment Cooling Systems Tests (Continued)

~~g. Initial laboratory batch tests of charcoal adsorbers shall show ≥90% radioactive methyl iodide removal when tested under conditions of ≥95% relative humidity, ≥250°F, within ±20% of design face velocity and 5 to 15 mg/m³ inlet methyl iodide concentration. A sample shall be removed for laboratory testing on a refueling frequency or during the next shutdown following 4300 hours of charcoal filtering unit operation and following significant painting, fire or chemical release in any ventilation zone communicating with the system. The results of sample tests shall show ≥85% radioactive methyl iodide removal under the test conditions given above.~~

Basis

The safety injection system and the containment cooling system are principal plant safeguards that are not operated during normal reactor operation.

Complete systems tests cannot be performed when the reactor is operating because a safety injection signal causes containment isolation and a containment spray system test requires the system to be temporarily disabled. The method of assuring operability of these systems is, therefore, to combine systems tests to be performed during refueling shutdowns in addition to more frequent component tests which can be performed during reactor operation.

The refueling shutdown tests demonstrate proper automatic operation of the safety injection and containment spray systems. A test signal is applied to initiate automatic action and verification made that the components receive the safety injection actuation signals in the proper sequence. The test demonstrates the operation of the valves, pump circuit breakers, and automatic circuitry.[1] [2]

During reactor operation, the instrumentation which is depended on to initiate safety injection and containment spray is generally checked daily and the initiating circuits are tested monthly. In addition, the active components (pumps and valves) are to be tested every three months to check the operation of the starting circuits and to verify that the pumps are in satisfactory running order. The test interval of three months is based on the judgement that more frequent testing would not significantly increase the reliability (i.e., the probability that the component would operate when required), yet more frequent tests would result in increased wear over a long period of time. Verification

3.0 **SURVEILLANCE REQUIREMENTS**

3.6 Safety Injection and Containment Cooling Systems Tests (Continued)

that the spray piping and nozzles are open will be made initially by a smoke test or other suitably sensitive method, and at appropriate intervals thereafter. A single containment spray header flow rate of 1885 gpm of atomized spray is required to provide the containment response[3] specified in Section 2.4 of the Technical Specification: To achieve the 1885 gpm flow rate, no greater than ten (10) spray nozzles may be inoperable of which no more than one may be missing. Since the material is all stainless steel, normally in a dry condition, with no plugging mechanism available, retesting at appropriate intervals is considered to be more than adequate.

Other systems that are also important to the emergency cooling function are the SI tanks, the component cooling system, the raw water system and the containment air coolers. The SI tanks are a passive safeguard. In accordance with the specifications, the water volume and pressure in the SI tanks are checked periodically. The other systems mentioned operate when the reactor is in operation and are continuously monitored for satisfactory performance.

The in-containment air treatment system is designed to filter the containment building atmosphere during accident conditions. Both in-containment air treatment systems are designed to automatically start upon accident signals. Should one system fail to start, the redundant system is designed to start automatically. Each of the two systems has 100 percent capacity.[4]

High efficiency particulate air (HEPA) filters are installed before the charcoal adsorbers to prevent clogging~~of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential release of radioiodine to the environment. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 85 percent. If the efficiencies of the HEPA filters and charcoal adsorbers are as specified, the resulting doses will be less than the 10 CFR Part 100 guidelines for the accidents analyzed~~.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than 6 inches of water will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter.

~~If significant painting, fire or chemical release occurs in a ventilation zone communicating with the system that could lead to the degradation of charcoal adsorbers or HEPA filters, testing will be performed to assure system integrity and performance.~~

LIC-00-0025
Attachment B
Background, Discussion, Justification and No Significant Hazards Consideration

BACKGROUND, DISCUSSION, JUSTIFICATION AND NO SIGNIFICANT HAZARDS CONSIDERATION

BACKGROUND

On June 3, 1999, Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," was issued. Generic Letter 99-02 states that testing nuclear-grade activated charcoal to standards other than ASTM D3803-1989 does not provide assurance for complying with the current licensing basis as it relates to the dose limits of General Design Criterion (GDC) 19 of Appendix A to Part 50 of Title 10 of the Code of Federal Regulations and Subpart A of 10 CFR Part 100.

The purpose of GL 99-02 was to:

1. Alert addressees that the NRC has determined that testing nuclear-grade activated charcoal to standards other than American Society for Testing and Materials (ASTM) D3803-1989, "A Standard Test Method for Nuclear-Grade Activated Carbon," does not provide assurance for complying with the current licensing basis as it relates to the dose limits of General Design Criterion (GDC) 19 of Appendix A to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR) and Subpart A of 10 CFR Part 100.

2. Request that all addressees determine whether their technical specifications (TS) reference ASTM D3803-1989 for charcoal filter laboratory testing. Addressees whose TS do not reference ASTM D3803-1989 should either amend their TS to reference ASTM D3803-1989 or propose an alternative test protocol and provide the information discussed in the requested actions.

3. Alert addressees of the NRC Staff's intent to exercise enforcement discretion under certain conditions.

GL 99-02 requested the following actions:

1. Within 180 days of the date of this generic letter, submit a written response to the NRC describing your current TS requirements for the laboratory testing of charcoal samples for each ESF ventilation system including the specific test protocol, temperature, RH, charcoal bed thickness, total residence time per bed depth, and penetration at which the TS require the test to be performed.

2. If you choose to adopt the ASTM D3803-1989 protocol, submit a TS amendment request to require testing to this protocol within 180 days of the date of this generic letter.

3. If you are proposing an alternate test protocol, submit a TS amendment request to require testing to this alternate protocol within 180 days of the date of this generic letter.

BACKGROUND (continued)

4. At the next required laboratory surveillance test of a charcoal sample that is 60 or more days after the date of this generic letter, test your charcoal samples in accordance with ASTM D3803-1989 or replace all of the charcoal with new charcoal that has been tested in accordance with ASTM D3803-1989.

5. Addressees who choose not to do the above actions are requested to notify the NRC in writing of their decision, as soon as a decision is reached but no later than 60 days from the date of this generic letter. The 60 day written response should also discuss: (1) addressee plans to pursue a proposed alternative course of action (including the basis for establishing its acceptability), (2) the schedule for submitting that proposal for NRC staff review, and (3) the basis for continued operability of affected systems and components until such time that the proposed alternative course of action is approved by the NRC.

On August 2, 1999, OPPD submitted the initial response to Generic Letter 99-02. In this response (LIC-99-0068), OPPD declared that, in accordance with Requested Action 5, it was pursuing an alternate course of action at Fort Calhoun Station (FCS) which differs from Requested Actions 1-4. The proposed alternate course of action was taken to: (1) remove credit for the majority of the activated charcoal filters from the FCS design basis accident radiological consequence analyses, and (2) deviate from the schedule requirements of actions 1-4. Activated charcoal filters which were credited in radiological consequence analyses would be tested to the ASTM D3803 -1989 protocol. OPPD committed to revise the radiological consequences analyses to not credit the containment air cooling and filtering charcoal filters (VA-6A/B). To offset the loss of containment atmosphere iodine removal provided by VA-6A/B, the revised LOCA radiological consequence analyses would credit the safety-grade containment spray system (1 pump/1 header). Based upon the results of the revised radiological consequences analyses, OPPD would then develop a detailed GL 99-02 project plan to complete required actions and address GL issues, including revision of the applicable Technical Specifications to specify the test efficiency and use of the ASTM D3803 -1989 protocol for any credited charcoal filters. OPPD committed to submit the project plan by November 29, 1999. OPPD stated the bases for continued operability of the FCS charcoal filters include: continuing compliance with current applicable FCS Technical Specifications regarding charcoal filter testing and the preliminary results of the revised radiological consequences analyses.

On October 8, 1999, OPPD submitted a supplemental response (LIC-99-0091) to Generic Letter 99-02. In this response, OPPD described the content of the initial response to GL 99-02 and stated that OPPD representatives met with the NRC Staff on August 17, 1999, to discuss the Radiological Consequences Analyses Upgrade Project. During that meeting, the NRC Staff requested additional information to supplement the

BACKGROUND (continued)

previously submitted bases for continued operability of affected systems. This letter provided the following information:

1. the charcoal filters that exist within the FCS Containment, Auxiliary Building, Control Room, and Technical Support Center (TSC) HVAC systems,
2. the charcoal filters that are credited in the control room habitability radiological consequence analyses of record,
3. the efficiency results of tests run on the containment charcoal filters using the ASTM D3803 -1989 protocol, and
4. the results of re-running the radiological consequence analyses with credit taken for the containment spray system instead of the containment charcoal filters.

Based on the results of the tests and the re-analyses referenced above, OPPD stated that it is in compliance with 10 CFR 100 and Standard Review Plan (SRP) 6.4 dose limits assuming an unfiltered in-leakage of 0 SCFM into the control room. OPPD also stated that in the event unfiltered in-leakage is greater than 0 SCFM, control room doses could be reduced below the limits specified in SRP 6.4 through the use of available self-contained breathing apparatus and potassium iodide by the operators.

On November 29, 1999, OPPD issued a GL 99-02 Detailed Project Plan. This letter (LIC-99-0114) provided a project plan to address required maintenance and testing of each applicable activated charcoal unit at FCS and the schedule for submitting any required license amendment requests. The project plan was divided into two activities. The first activity was revising the FCS accident-based radiological consequence analyses as part of a comprehensive upgrade program by September 1, 2000. The second activity was preparing, internally processing, and submitting the required license amendment application to support the revised radiological consequence analyses and GL 99-02 compliance. OPPD planned to submit the license amendment application associated with the revised analyses by October 27, 2000.

The schedule for the GL 99-02 Detailed Project Plan was discussed with the NRC Staff during a video conference meeting on December 6, 1999. The proposed plan was determined to be unacceptable to the NRC Staff. The NRC Staff representatives in this meeting indicated that: (1) the proposed October 27, 2000, submittal date for the license amendment application was substantially later than the NRC schedule for completing all GL 99-02 activities, and (2) OPPD currently had sufficient bases and justification for submitting the application. OPPD subsequently developed a revised project plan. On December 29, 1999, OPPD submitted the revised GL 99-02 Detailed Project Plan (LIC-99-0125). In accordance with the revised Project Plan, OPPD committed to submit an application for license amendment by March 17, 2000, to revise applicable FCS Technical Specifications in accordance with GL 99-02. These proposed changes will specify the test efficiency and require the use of the ASTM D3803-1989 methodology when testing credited ESF charcoal filter media.

BACKGROUND (continued)

In addition, the proposal will remove credit for the containment air cooling and filtering charcoal filters (VA-6A/B) and take credit for the containment spray system as a fission product cleanup system in accordance with SRP 6.5.2.

On March 14, 2000, OPPD held a discussion with the NRC Staff. The topic of the discussion was the Limiting Conditions for Operation (LCO) allowed outage time for the containment spray (CS) system. The Section 2.4 LCO (FCS TS) for the containment spray pumps is seven days. The LCO in the Standard Technical Specifications (STS) allows seventy-two hours for one train of CS to be inoperable when credited with iodine removal. To allow time to resolve this issue, OPPD requested an extension to the due date for submitting this amendment request. The NRC Staff agreed to an April 14, 2000, due date.

DISCUSSION

The Omaha Public Power District proposes to revise Technical Specifications 2.4, 3.6 and Table 3-5 in the Fort Calhoun Station Unit No. 1 Technical Specifications (TS) as follows:

1. Specify, in Table 3-5, the use of the ASTM D3803-1989 methodology for testing the control room, spent fuel pool storage area and safety injection pump rooms charcoal adsorbers.

Currently, the charcoal adsorbers listed above are laboratory tested in accordance with the criteria specified in Table 3-5. The proposed amendment will specify testing the charcoal adsorbers in accordance with the requirements of ASTM D3803-1989.

2. Delete the initial and refueling laboratory testing requirements in Section 3.6 for the containment charcoal adsorbers. Delete the charcoal efficiency testing discussion for the containment charcoal adsorbers in the Basis of Section 3.6. Change words in the Basis of Section 2.4 from "air recirculation, cooling and iodine removal system" to "air cooling and filtering unit" and add the words "Credit is taken for the iodine removal by the containment spray system."

Currently, testing requirements for the containment charcoal adsorbers are specified in Section 3.6 and its Basis. The purpose for testing the charcoal adsorbers is to ensure they will reduce the potential release of radioiodine to the environment and thereby, comply with the requirements of 10 CFR 100 and SRP 6.4. The proposed amendment will delete the testing requirements for the containment charcoal adsorbers. By removing these requirements, OPPD will no longer credit the containment charcoal adsorbers in the Loss of Coolant Accident (LOCA) radiological consequences analyses. To offset the loss of containment atmosphere iodine removal provided by those adsorbers, OPPD revised the LOCA radiological consequence analyses to credit the containment spray system (1 pump/1 header) for iodine removal within containment. These analyses were performed by Stone and Webster Engineering Corporation (SWEC) in September 1999 and re-confirmed that OPPD was in compliance with the dose limits of General Design Criterion (GDC) 19 of Appendix A to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR) and Subpart A of 10 CFR Part 100. The analyses assumed a control room unfiltered in-leakage value of 0 SCFM. In discussions with the NRC, they considered a 0 SCFM unfiltered in-leakage value to be unrealistic and unacceptable. OPPD completed tracer gas testing on the control room in December 1999. That test confirmed an actual unfiltered in-leakage value of 8 SCFM. The LOCA radiological consequences analyses were again revised by SWEC in February 2000. The revised analyses, using the 8 SCFM value, resulted in a post-LOCA control room thyroid dose of 32 Rem, which exceeds the SRP 6.4 limit of 30 Rem.

DISCUSSION (continued)

The containment spray system was credited in accordance with SRP 6.5.2, "Containment Spray as a Fission Product Cleanup System." In addition, the containment spray system is an ESF system. The results of the revised LOCA radiological consequence analyses confirmed that OPPD is in compliance with 10 CFR 100 and consistent with the current intent of SRP 6.4. The proposed change in the Basis of Section 2.4 is consistent with removing credit for the containment charcoal adsorbers and replacing their function with the containment spray system. The Section 2.4 allowed outage time (AOT) for one CS pump is seven days. The LCO in the Standard Technical Specifications (STS) allows seventy-two hours for one train of CS to be inoperable when credited for iodine removal. FCS concludes that a seventy-two hour AOT is not appropriate. Justification is provided below.

These changes will be a permanent revision to the Technical Specifications that will have no adverse impact on plant equipment or procedures. The containment spray system operability is assured by Technical Specifications 2.4 and 3.6. Finally, these changes will not affect non-credited functions of the containment charcoal adsorbers. The filters will be left in place and tested in accordance with TS 3.6 (3) to verify they are not clogged by excessive amounts of foreign matter. However, the filters will not be credited in the Loss of Coolant Accident (LOCA) radiological consequences analyses.

JUSTIFICATION

OPPD is pursuing this amendment to comply with the requested actions in NRC Generic Letter 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal." Testing to any other standards does not provide assurance for complying with the current licensing basis as it relates to the dose limits of General Design Criterion 19 of Appendix A to 10 CFR 50 and Subpart A of 10 CFR 100.

In addition, samples from the containment charcoal filters (VA-6A/B) were tested for informational purposes in May 1998 utilizing the methodology prescribed in ASTM D3803-1989. Results from this test indicated the following efficiencies:

Sample Location	ASTM D3803-1989 Efficiency (%)
VA-6A South	85.51
VA-6A West	58.98
VA-6B West	54.27
VA-6B North	17.81

In accordance with the allowable penetration formula contained in Attachment 2 of Generic Letter 99-02, measured efficiencies less than 50% allow no credit for the filters in the radiological analyses. Therefore, the limiting train (VA-6B) average efficiency of approximately 36% would allow OPPD no credit for the containment charcoal filters.

The existing LOCA radiological analyses were revised to take credit for the containment spray system for iodine removal in accordance with SRP 6.5.2, "Containment Spray as a Fission Product Cleanup System." Both the offsite and control room doses represent the following post-LOCA release pathways: (1) containment leakage, (2) ECCS/SIRWT leakage, and (3) containment vacuum relief line leakage. Calculated whole body and thyroid doses at the Exclusion Area Boundary (EAB) and Low Population Zone (LPZ) are shown below.

Receptor Location	Whole Body Dose (Rem)	Thyroid Dose (Rem)
EAB	0.71	19
LPZ	0.11	3.8

These doses are in compliance with the 10 CFR 100 dose limits of 25 Rem whole body and 300 Rem thyroid.

Control room whole body, thyroid, and skin doses were also determined for existing LOCA radiological analyses using the TID-14844 source term model. The analyses were based on an unfiltered in-leakage of 8 SCFM. The 8 SCFM value is based on actual testing of leakage into the control room. Testing was completed in December 1999. Calculated control room whole body, thyroid,

JUSTIFICATION (continued)

and skin doses, utilizing ICRP-2 dose methodology and incorporating credit for containment spray, are shown below.

Status of VA-6A/B and Containment Spray Credit	Control Room Dose (Rem)		
	Whole Body	Thyroid	Skin
VA-6A/B - No Credit Containment Spray – Credited in accordance with SRP 6.5.2	1.4	32	26

The thyroid dose of 32 REM is greater than the SRP 6.4 thyroid dose limit (30 REM). The SRP 6.4 dose limits are based on ICRP-2 dose methodology. The critical organ approach of ICRP-2 has been replaced by the ICRP-30 dose methodology that utilizes a weighted sum of doses to all irradiated organs and tissues. The applicable dose limits for analyses utilizing the ICRP-30 methodology are 5 REM for stochastic effects, 50 REM for all organs and tissues (e.g., thyroid), and 15 REM for the lens of the eye. The ICRP-30 dose methodology has been approved and implemented by the NRC through the new 10 CFR Part 20 regulation.

OPPD is completing a radiological consequences upgrade program to revise the accident radiological consequences utilizing the NUREG-1465 source term. The calculated doses from the upgrade program will utilize the ICRP-30 dose limits for determining compliance. The upgrade program is scheduled to be complete by August 30, 2000.

As stated above, the TS Section 2.4 Allowed Outage Time (AOT) for one containment spray pump is seven days; the AOT in the STS allows seventy-two hours for one train of CS to be inoperable when credited for iodine removal. The FCS Technical Specifications and design are significantly different from the STS. The STS are based on trains and the FCS TS are based on groups of containment cooling components. The STS assume two CS trains, each with one CS pump capable of satisfying iodine removal requirements, to be operable. If one train is inoperable, seventy-two hours is allowed to restore that train to an operable status. The FCS TS require three CS pumps to be operable. Only one CS pump with an associated flow path is required to satisfy iodine removal requirements, as justified above. With one pump inoperable, seven days are allowed because two pumps, each capable of satisfying iodine removal requirements, remain operable. The CS system is described in Section 6.3 of the Updated Safety Analysis Report (USAR). In addition, the Maintenance Rule availability data for the CS pumps indicates the pumps are operable most of the time. The three year average availability for the pumps are: 99.6% (A), 99.5% (B) and 99.7% (C). Based on the above justification, FCS concludes that a seventy-two hour AOT is not appropriate.

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATIONS

The proposed changes to the Fort Calhoun Station Unit No. 1 Technical Specifications do not involve significant hazards consideration because operation of FCS in accordance with the changes would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated.

Testing the control room, spent fuel pool storage area and safety injection pump rooms charcoal adsorbers in accordance with the requirements of ASTM D3803-1989 will not increase the probability or consequences of an accident previously evaluated. As noted in GL 99-02, testing to the new standards will strengthen the assurance the charcoal adsorbers will perform their design function during a Loss of Coolant Accident (LOCA). The ASTM D3803-1989 testing methodology is superior to the method OPPD presently uses.

Removing credit for the containment charcoal adsorbers and replacing their function with the containment spray system will not involve a significant increase in the probability or consequences of an accident previously evaluated. This change is being accomplished in accordance with SRP 6.5.2. The containment spray system is an ESF system and its operability is assured by Technical Specifications 2.4 and 3.6. In addition, the LOCA radiological consequences analyses were revised to re-confirm that OPPD is in compliance with SRP 6.4. The revised analyses resulted in a post-LOCA control room thyroid dose of 32 REM, which exceeds the SRP 6.4 limit of 30 REM. The SRP 6.4 dose limits are based on ICRP-2 dose methodology. The critical organ approach of ICRP-2 has been replaced by the ICRP-30 dose methodology that utilizes a weighted sum of doses to all irradiated organs and tissues. The applicable dose limits for analyses utilizing the ICRP-30 methodology are 5 REM for stochastic effects, 50 REM for all organs and tissues (e.g., thyroid), and 15 REM for the lens of the eye. The ICRP-30 dose methodology has been approved and implemented by the NRC through the new 10 CFR Part 20 regulation. Therefore, the calculated doses presented above are acceptable and meet the intent of SRP 6.4.

Finally, these changes will not affect non-credited functions of the containment charcoal adsorbers. The filters will be left in place, but not credited in the Loss of Coolant Accident (LOCA) radiological consequences analyses. The filters will be tested in accordance with TS 3.6 (3) to verify they are not clogged by excessive amounts of foreign matter.

In conclusion, based on the discussion above, these changes will not significantly increase the probability or consequences of an accident previously evaluated.

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATIONS (continued)

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated.

Testing the control room, spent fuel pool storage area and safety injection pump rooms charcoal adsorbers in accordance with the requirements of ASTM D3803-1989 will not create the possibility of a new or different kind of accident from any accident previously evaluated. Testing to the new standards will strengthen the assurance the charcoal adsorbers will perform their design function during a Loss of Coolant Accident. The ASTM D3803-1989 testing protocol is superior to the method OPPD presently uses. Finally, testing these charcoal adsorbers in accordance with requirements of ASTM D3803-1989 will bring OPPD in compliance with the requirements of Generic Letter 99-02.

Removing credit for the containment charcoal adsorbers and replacing their function with the containment spray system will not create the possibility of a new or different kind of accident from any accident previously evaluated. This change is being accomplished in accordance with SRP 6.5.2. Using the containment spray system instead of the containment charcoal adsorbers is a different, but equally effective, approach to mitigating the consequences of a LOCA.

This change will not result in any physical alterations to the containment spray system or the control room, spent fuel pool storage area, S.I. pump rooms or containment charcoal adsorbers. This change will not result in any physical alterations to any plant configuration, systems, or operational characteristics. There will be no changes in operating modes, or safety limits, or instrument limits. Therefore, these changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

(3) Involve a significant reduction in a margin of safety.

Testing the control room, spent fuel pool storage area and S.I. pump rooms charcoal adsorbers in accordance with the requirements of ASTM D3803-1989 will not involve a significant reduction in a margin of safety. Testing to the new standards will strengthen the assurance the charcoal adsorbers will perform their design function during a LOCA. The ASTM D3803-1989 testing protocol is superior to the method OPPD presently uses. Finally, testing these charcoal adsorbers in accordance with requirements of ASTM D3803-1989 will bring OPPD in compliance with the requirements of Generic Letter 99-02. Removing credit for the containment charcoal adsorbers and replacing their function with the containment spray system will not involve a significant reduction in a margin of safety.

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATIONS (continued)

This change is being accomplished in accordance with SRP 6.5.2. The containment spray system is an ESF system and its operability is assured by Technical Specifications 2.4 and 3.6. In addition, the LOCA radiological consequences analyses were revised to re-confirm that OPPD is in compliance with SRP 6.4.

The revised analyses resulted in a post-LOCA control room thyroid dose of 32 REM, which exceeds the SRP 6.4 limit of 30 REM. The SRP 6.4 dose limits are based on ICRP-2 dose methodology. The critical organ approach of ICRP-2 has been replaced by the ICRP-30 dose methodology that utilizes a weighted sum of doses to all irradiated organs and tissues. The applicable dose limits for analyses utilizing the ICRP-30 methodology are 5 REM for stochastic effects, 50 REM for all organs and tissues (e.g., thyroid), and 15 REM for the lens of the eye. The ICRP-30 dose methodology has been approved and implemented by the NRC through the new 10 CFR 20 regulation. Therefore, the calculated doses presented above are acceptable and meet the intent of SRP 6.4.

Finally, these changes will not affect non-credited functions of the containment charcoal adsorbers. The filters will be left in place, but not credited in the Loss of Coolant Accident (LOCA) radiological consequences analyses.

In conclusion, these changes will not significantly reduce a margin of safety because: (1) use of a superior test methodology will provide better assurance of the safety functionality of credited charcoal filters, and (2) the analysis for control room dose is now based on empirical in-leakage data.

Based on the above considerations, OPPD concludes that the proposed amendment to FCS Technical Specifications does not involve a significant hazards considerations as defined by 10 CFR 50.92 and that the proposed amendment will not result in a condition which significantly alters the impact of the station on the environment. Thus the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22 (c) (9) and pursuant to the 10 CFR 51.22 (b) no environment assessment need be prepared.