DOCKET: 70-1151

LICENSEE: SNM-1107

SUBJECT: SAFETY EVALUATION REPORT – WESTINGHOUSE SUBMITTAL DATED, LICENSE APPLICATION REVISION (TAC L33215)

1. BACKGROUND

Westinghouse Electric Company (Westinghouse) submitted a revised license application (LA) (Ref. 1) dated March 20, 2012. On May 3, 2012, the U.S. Nuclear Regulatory Commission (NRC) staff had a conference call (Ref. 2) to discuss the application for gaining a perspective to develop requests for additional information (RAIs). On June 15, 2012, the NRC staff met with the licensee to discuss draft RAIs to ensure that the RAIs were understood. The RAIs were sent to the licensee as a letter dated June 20, 2012 (Ref. 4). The licensee responded to the RAIs as a letter dated June 29, 2012, (Ref. 5) which included a revised LA reflecting the responses to the RAIs.

The focus of the submittal is a reorganization of the Environmental Health and Safety function at the Columbia Fuel Fabrication Facility (CFFF). Other changes were also made through the submittal.

The NRC staff reviewed the LA in terms of the applicable sections of the Standard Review Plan (Ref. 6).

- Organization and Administration
- Criticality Safety
- Chemical safety
- Fire safety
- Decommissioning Cost Estimate

The major portion of the revised LA is the reorganization of the Environment Health and Safety Department (Component) at the CFFF.

2. DISCUSSION

2.1. Organization and Administration

The licensee proposes to separate the Industrial Safety, Chemical Safety, and Fire Safety functions from other safety functions. The staffing of the functions remains unchanged. The licensee has an organizational chart that can be readily compared to the original license application.

2.1.1. Regulatory Requirements

The regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) 70.22(a)(6), 70.23(a)(2), and 70.62(d) require a management system and administrative procedures for the effective implementation of health, safety, and environment functions concerning the applicant's corporate organization, qualifications of the staff, and adequacy of the proposed equipment,

facilities, and procedures to provide adequate safety for workers, the public, and the environment.

2.1.2. Regulatory Acceptance Criteria

The NRC staff reviewed the proposed organizational change with applicable elements from Chapter 2 of the Standard Review Plan (Ref. 6):

- Organizational Units
- Communications and Authority
- Experience
- Organizational Hierarchy
- Shutdown Authority
- Documented Procedures
- Reporting Unsafe Conditions

2.1.3. Staff Review And Analysis

Organizational Units — Specific organizational groups are identified and functionally described for managing the design, construction, operations, and modifications of the facility or licensed activities. The application also includes organizational charts.

The licensee identified and described the specific organizational groups that are responsible for managing and implementing safety programs. The licensee described a new group, called the Safety Component, consisting of two functional groups that were previously under the Regulatory Component, namely, the Chemical and Industrial Safety Function and the Fire Safety Function. In addition, the former was divided into two separate functions, Industrial Safety and Chemical Safety. The two subject organizational Components are described. The term *function* is undefined.

The Human Performance program was modified to incorporate both the Behavioral Based Safety and Informal Compliance programs. The information content between the 2007 application and the 2012 license application is unchanged. The 2012 LA states that the purpose of the human performance tools is to help the individual worker maintain positive control of a work situation. In the 2007 LA, the same is said in two brief paragraphs.

Communications and Authority — Clear and effective lines of communication and authority among the organizational units involved in the engineering, HS&E, and operations functions of the facility are defined.

The licensee states that administrative and managerial controls are in effect at all times to assure that decisions related to the operation of the CFFF are made at designated levels of accountability by individuals meeting the necessary authority and technical requirements. The lines of communication and authority among the Engineering, Manufacturing and Regulatory components are formally described in written position descriptions and department charters.

Project Reviews and Approvals, including necessary regulatory reviews and approvals to include the links of the modification to appropriate sections of the Integrated Safety Analysis (ISA). Permission (signature and date) to proceed with projects is given by cognizant individuals; such as engineers, reviewers and managers from the appropriate Components.

Experience — Personnel responsible for managing the design, construction, operation, and modifications of the facility or licensed activities have substantive breadth and level of experience.

No changes have been made to the overall staff at the CFFF as a result of the reorganization. The revised LA states that the minimum requirements for a position of Component Manager are a baccalaureate degree, or equivalent, with a science or engineering emphasis and two years of experience in the nuclear business. A Component Manager in training that does not meet these minimum requirements has an individual, formally designated by the next highest level of management, to provide direct advice and consultation, until the minimum requirements are fully met.

Organizational Hierarchy — In the organizational hierarchy, the HS&E organization(s) is independent of the operations organization, allowing it to provide objective HS&E audit, review, or control activities. *Independent* means that neither organization reports to the other in an administrative sense. Lines of responsibility and authority are clearly drawn.

An organizational chart of the CFFF shows each organizational component reporting directly to the plant manager. The Regulatory Component, which address the nuclear safety aspects of the CFFF, consists of Nuclear Criticality Safety, Radiation Safety, Environmental Protection, EH&S Quality, Emergency Preparedness, Safeguards, ISA, and Licensing Functions. The Safety Component, which addresses the non-nuclear safety aspects of the CFFF, consists of the industrial Safety, Chemical Safety, and Fire Safety Oversight Functions. Other components, which are for the operations at the CFFF, consist of Manufacturing, Engineering, Quality, Human Resources, and Security.

Shutdown Authority — Individual delegated overall responsibility for the HS&E functions has the authority to shut down operations if they appear to be unsafe and, in that case, must approve restart of shutdown operations or licensed activities.

The LA states that, “members of the Regulatory Component have the responsibility and authority to prohibit, through the cognizant first level manager, any situation that is believed to involve undue imminent hazard. Such terminated operations remain in a safe-shutdown state until the situation is reviewed with cognizant management, and there is a consensus resolution of the situation.” Employees are trained that the first step in internal reporting is to safely stop the work in process until the unusual occurrence is resolved.

Members of the Safety Component have parallel responsibilities and authority.

Documented Procedures — Activities essential for effective implementation of the HS&E functions are documented in formally approved, written procedures prepared in compliance with a formal document control program.

Safety Component Managers and Engineering Functions administer the Occupational Safety and Health Program. Radiation and criticality safety remain in the Regulatory Component. The Safety Component addresses industrial, chemical, and fire safety. Hazards are evaluated. Programs and procedures are developed to minimize accidents and injury of employees. Industrial safety protection and monitoring equipment are procured. Programs are developed and implemented to maintain exposures to hazardous materials, and releases of hazardous materials to the environment, below permissible values. Audits of licensed activities for

compliance with applicable regulations, licenses, and permits are supported. Training in, and monitoring the training effectiveness of programs are conducted. Procedures are reviewed. Installed equipment are verified for conformance to requirements. Required records and reports are kept to document
Occupational Safety and Health Program activities.

Reporting Unsafe Conditions — A simple mechanism is available for use by any person in the Plant, for reporting potentially unsafe conditions or activities to the HS&E organization.

A Safety Concerns Policy provides employees with multiple channels to bring safety concerns to the attention of Westinghouse management and to have these concerns appropriately addressed. The policy and training is accessible through the CFFF intranet, and copies of the policy are posted in various locations around the CFFF. Other mechanisms available to employees are covered during new employee orientation training and during annual training for employees with unescorted access to the Columbia plant, including contractor employees.

In accordance with approved procedures, a formal, computerized system is maintained to enable CFFF employees to report safety-related process upsets and procedure inadequacies to their First Level Managers for follow-up action. Such process upsets specifically include failures of items relied on for safety and Management Measures to execute their intended purpose. Procedural inadequacies include failure to have an approved procedure, inability to follow an approved procedure, and/or failure to follow an approved procedure. They are trained to make appropriate notifications to process engineering and regulatory functions. This reporting process is known as the "Redbook System" because prior to its being computerized, it was a manual system involving forms that were completed and filed in red binders.

2.1.4. Evaluation Findings

The licensee described its changes to the organization and management for providing adequate safety management and management measures for the safe operation of the facility. The licensee identified and described specific organizational groups. The safety aspects of the CFFF that are similar to a non-nuclear facility such as industrial safety, chemical safety, and fire safety; these safety areas are placed under the new management position, called the “Safety Component.” The EH&S Department retains the nuclear-related aspects of the CFFF; the focus of EH&S is then the nuclear-related aspects of the CFFF. The NRC staff has reviewed this information and concluded that the licensee has an acceptable organization, administrative policies, and sufficient qualified resources to provide for the safe operation of the facility under both normal and abnormal conditions.

2.2. Criticality Safety

2.2.1. Staff Review And Analysis

On page 21, Document Updates, the licensee deleted a statement that for changes involving criticality safety, a new or revised criticality safety evaluation must be completed for the impacted process. The licensee confirmed that commitments in Section 6.1.4.2 (9) and (10) to maintain Criticality Safety Evaluations under the Configuration Management Program and document control requirements are intended to cover the removed the statement from Section 3.1.2.

On page 31, the licensee had removed a statement, “For changes involving criticality safety, a new or revised criticality safety evaluation must be completed for the impacted process.” In Reference 5, the licensee confirmed that the intent is covered by LA Sections 6.1.4.2(9) and (10), and that all configuration changes require a Criticality Safety Evaluation (CSE) prior to performing the activity. Item (9) states that CSEs are the living documentation of the criticality safety basis and are maintained current through Configuration Management. Item (10) states that they must be maintained in accordance with document control requirements.

On page 98, the licensee added a parenthetic statement, clarifying the use of Raschig rings. The use and maintenance of the rings is accordance with ANSI/ANS-8.5(1996), with stated exceptions to pH and temperature ranges. The licensee added a parenthetic statement, “These values may fall outside of the operating ranges noted during system maintenance, start up and shutdown.” The NRC initially had concerns about the parenthetic statement. The licensee stated in Reference 5 that the parameter ranges have not changed. The parenthetical statement clarifies that that the ranges may not be strictly adhered to during startup, maintenance, and shutdown. The licensee removed the parenthetical statement since it was raising questions. Based on the clarification that no change is being made to what was previously approved, and the above-listed processes are all of short duration compared to when the tanks are in use.

On page 102, the licensee added Paragraph (5) to 6.1.5.2 Limits of k_{EFF}. The section had been approved as License Condition S-5 in Amendment 4, dated October 15, 2008. The change was to move the condition from the materials license to the LA. This commitment had been approved in License Condition S-1 in Amendment 4, dated October 15, 2008. This is the letter of July 18, 2007, that was included by reference in Condition S-1. This is consistent with the commitment in the July 18, 2007, letter. The NRC staff believes that the reference to the July 18, 2007, letter should remain in the S-1 Condition.

On page 103, the licensee added a paragraph stating, “New or revised Nuclear Criticality Safety related validation reports that are applicable to the Westinghouse Columbia Fuel Fabrication Facility will be submitted to the NRC staff for review by the end of the next calendar quarter following issuance of the new or revised validation report.”

2.2.2. Evaluation Findings

The NRC staff has reviewed the changes to license application and concluded that the changes do not decrease the effectiveness of the criticality safety program. All configuration changes require a CSE prior to performing the activity. Documentation of the criticality safety basis and are maintained current through Configuration Management.

2.3. Chemical Safety

2.3.1. Staff Review and Analysis

On page 108, the text states that, “A primary purpose of the Chemical Safety Program is to assure that exposure of workers to hazardous chemicals, in particular those that contain licensed nuclear material or are produced from licensed nuclear material, are kept *well below permissible limits*.” In the 2007 LA, the emphasized phase had been as low *as reasonably achievable* (ALARA). ALARA is in the context of radiation safety, not chemical safety.

On page 108, the licensee expanded a statement about the Chemical Safety Program, “The Risk Management Program (RMP) EPA 40CFR68 is the basis for CFFF Chemical Safety Program elements for all consequence levels (low, intermediate, and high). The Chemical Safety Program essentially follows the Process Safety Management (PSM) regulation (29 CFR 1910.119) elements.”

2.3.2. Evaluation Findings

The NRC staff has reviewed the changes to license application and concluded that the changes do not decrease the effectiveness of the chemical safety program. The text changes amount to clarifications.

2.4. Fire Safety

2.4.1. Staff Review And Analysis

In Section 8, Fire Safety Program, Section 8.1.3. Ventilation Systems, states that the facility’s heating and ventilation systems are designed for fire protection. Section 8.1.3.5 had stated "UL 900 (or equivalent) final high efficiency particulate air (HEPA) filters are used." In the 2007 version of the LA, the same text referred to the UL-586 standard.

The UL-586 standard is a requirement for HEPA filter units intended for the removal of very fine particulate matter (not less than 99.97 percent of 0.3 micron diameter particles) from the air of industrial and laboratory exhaust and ventilating systems. The UL-900 standard is about tests to determine the amount of smoke generated and the combustibility of air filter units of both washable and throwaway types used for removal of dust and other airborne particles from air circulated mechanically in equipment and systems.

The NRC staff viewed the change as replacing HEPA filters with ordinary filters, thus, increasing the amount of particulates that could leave the plant though the ventilation system. This suggests that the revision is a decrease in effectiveness and gives rise to new accident sequences.

The licensee clarified that the intent of Section 8 is Fire Safety; the section had been rewritten to reflect a current position of Underwriters Laboratory. The licensee clarified that the UL-586 standard requirements for HEPA filters are more appropriate Section 5.2.17, Radiological Protection, which has been revised to explicitly require the use of UL-586 for HEPA filters. Section 8.1.3.5 now states that "UL final HEPA filters are used.”

The licensee also clarified that no new accident sequences are created by the previous change or this revised change in the LA. The ISA does not credit the HEPA filters in any accident sequence, thus they are not IROFS.

On page 119, Section, 8.1.6.2, Fire Suppression Services, of the 2007 LA, the licensee states that the site has two water tanks with a combined capacity of 450,000 gallons available for use in firefighting. The tanks are checked weekly, and topped-off with water as required. (Based upon historical data, a minimum water volume of 85-percent of tank. In the 2012 LA, the licensee states that the tanks are equipped with automatic fill capability to maintain water level.

2.4.2. Evaluation Findings

The NRC staff has reviewed the changes to license application and concluded that the changes do not decrease the effectiveness of the fire safety program. HEPA filters continue to be used at the CFFF, even though no credit is taken for them in meeting the performance requirements. The use of the automatic fill mechanism to maintain the water level, instead of the weekly surveillance, replaces a manual control with an engineered control, which is preferable.

2.5. Environmental Safety

2.5.1. Staff Review and Analysis

On page 4 of the 2012 application, the licensee had changed a statement regarding a pH adjustment before discharging waste into a river from *required* to as *necessary*.

Section 10, Environmental Protection Program, states that since license renewal in 2007, groundwater monitoring wells W-13 and W-23 had been relocated in close proximity to the original well locations. The NRC staff wanted assurance that the new wells are in close proximity to the old wells and that they monitor the same aquifer as the monitoring wells they replaced. The license gave the coordinates of the old and new wells. The new well W-13 (N 33°52'47.97, W 80°55'12.00) is about 60 feet NNW of the old well W-13 (N 33°52'47.4, " W 80°55'11.8"). The new well W-23 is only a few feet from the old well W-23 (N 33°52'47.7, " W 80°55'5.2").

On page 125, the licensee discusses the Environmental Protection Program for the site. A primary purpose of the Environmental Protection Program is to assure that exposure of the public and the environment to hazardous materials used in facility operations are kept well *below permissible limits*. The emphasized text had been ALARA in the 2007 LA. ALARA is in the context of radiation safety, not chemical safety.

On page 126, the licensee replaced text stating, “Any violation of the CFFF's NPDES Permit is reported to NRC Region II Staff within15 days of confirmation of the violation. If the Permit is revoked, or if Permit conditions are revised, NRC Headquarters Staff is promptly notified.” The replacement text states, “If the CFFF's NPDES Permit is revoked, or if Permit conditions are revised, NRC Headquarters and Region II Staff are promptly notified.”

2.5.2. Evaluation Findings

The NRC staff has reviewed the changes to license application and concluded that the changes do not decrease the effectiveness of the environmental safety program. The change on page 4 and page 125 are not substantive and are acceptable.

The NRC staff finds, with reasonable assurance, that the new wells discussed in Section 10 are in close proximity to the old wells, that they monitor the same aquifer as the monitoring wells that they replaced, and that they continue to be sufficient to detect groundwater contamination.

While there is no specific requirement to report NPDES permit violations to the NRC. Nonetheless, the licensee is required by 10 CFR 70, Appendix A, subparagraph (c), Concurrent reports, to make a concurrent report to the NRC Operations Center for any event or situation, related to the health and safety of the public or onsite personnel, or protection of the

environment, for which a news release is planned or notification to other government agencies has been or will be made.

2.6. Decommissioning Planning

2.6.1. Staff Review and Analysis

The licensee simplified the section by removing detailed subjects (e.g., assumptions, demolition labor rate, wash-down estimate, labor factors, material density and pack factors, inflation factors, structure data sheets, equipment data sheets) that are typically found in NRC guidance documents. Files that the licensee maintains include the following:

- Correspondence Chronological File,
- Historic Conceptual Plan(s) and Cost Estimate(s),
- Historic Facility Radiological Information,
- NRC Guidance Documents,
- EPA Guidance Documents,
- Decommissioning Plan Shell,
- Current Conceptual Plan and Cost Estimate, and
- Financial Assurance.

2.6.2. Evaluation Findings

The NRC staff has reviewed the changes to license application and concluded that the changes are not substantive and are acceptable.

3. ENVIRONMENTAL REVIEW

The NRC staff has determined that the license amendment belongs to a category of actions which the Commission has determined do not individually or cumulatively have a significant impact on the human environment. The license's changes requested in the amendment application are administrative, organizational, or procedural in nature. Therefore, in accordance with 10 CFR 51.22(c)(11), neither an Environmental Assessment nor an Environmental Impact Statement is required for this action. The regulation in 10 CFR 51.22(c)(11) allows for a categorical exclusion if the following four requirements have been satisfied:

(1) There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

(2) There is no significant increase in individual or cumulative occupational radiation exposure.

(3) There is no significant construction impact.

(4) There is no significant increase in the potential for, or consequences from, radiological accidents.

As discussed in the Safety Evaluation Report, the changes made in this licensing action do not pose a significant change or increase in parameters (1) through (4) above. There are no changes in the types or increases in the amounts of effluents. Occupational exposure is expected to remain the same. These changes involve no construction activity. The potential

for, and consequences from, radiological accidents are expected to be the same. Based on this evaluation, there is no significant impact to the environment, and the action of amending the license is eligible for categorical exclusion.

4. CONCLUSION

Upon review of the revisions, the NRC staff found that the changes are consistent with the regulatory requirements in 10 CFR Part 70. Accordingly, approval of the amendment request is recommended. Region II has reviewed this amendment request and has no objections.

REFERENCES

1. Letter from G. Couture, Westinghouse, "Westinghouse Columbia Plant License Application Revision," March 20, 2012. ADAMS Accession Number ML12081A034.

2. "Conference Call On May 3, 2012, Regarding A License Application Revision Dated March 20, 2012 (TAC L33215)," May 18, 2012. ADAMS Accession Number ML12139A091.

3. Note from C. Ryder, NRC, "Summary of Meeting to Review Draft Requests For Additional Information," June 19, 2012. ADAMS Accession Number ML12171A434.

4. Letter from C. Ryder, NRC, to G. Couture, Westinghouse, "Request For Additional Information Regarding Request To Revise The License Application (TAC NO. L33215)," June 20, 2012. ADAMS Accession Number ML12163A032.

5. Letter from G. Couture, Westinghouse, "Westinghouse Response To Request For Additional Information (TAC L33215, Docket 70-1151)," June 29, 2012. ADAMS Accession Number ML121850045.

6. U.S. NRC, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility," NUREG-1520, Rev. 1, May 2010. ADAMS Accession Number ML1013901100.

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