Licensee Performance Review for Westinghouse
Assessment Period: January 9, 2000 to December 29, 2001

III. Radiological Controls

B. **Environmental Protection (Gloersen)**

1. Environmental Protection Program Strengths

- None

2. Areas Needing Improvement in the Environmental Protection Program

- None

3. Projected Challenges to Performance in the Environmental Protection Program

- Maintain existing contaminated groundwater below licensee action levels and applicable drinking water standards.

  - The inspector reviewed the licensee's 2000 quarterly (first three quarters) groundwater sampling results and observed that the average gross beta activity levels for monitoring wells 7, 10, 15, and 32 exceeded the licensee's action level of 50 pCi/l with results of 403, 75, 155, and 1424 pCi/l respectively. Previous inspections (see reports 70-1151/98-01, 99-01, and 2000-01) identified that elevated activity in these wells was due to a technetium source term originating from the vicinity of the cylinder recertification building (CRB). The results from 2000 showed that the activity had stabilized, indicating that the licensee's corrective actions (i.e. sealing of cracks in CRB floor trenches, etc.) had effectively neutralized the technetium source term. In addition, the inspector noted that the average 2000 gross beta activity levels for down-gradient groundwater monitoring wells 26 and 3A were approximately <2 pCi/l and 28 pCi/l respectively, which was consistent with 1999 data, indicating minimal down-gradient migration of the technetium-99 contaminated groundwater plume. The inspector also noted that average gross alpha and gross beta activity levels in groundwater monitoring well 30 (in the vicinity of the water treatment facilities (WTFs)) had exceeded the licensee action levels of 15 pCi/l (72 pCi/l gross alpha) and 50 pCi/l (110 pCi/l gross beta) during the first three quarters of 2000. Well 30 had historical contamination problems as observed in previous inspections (see reports 70-1151/98-01, 99-01, and 2000-01) due to leakages from the water treatment processing area. The inspector also observed the acquisition of surface water and environmental air samples and noted that representative samples were being obtained. 02/16/2001 *(IR 01-02)*

  - A 50 gallon spill of uranyl nitrate solution occurred into a diked area at the HF spiking station on October 29th. Before area operators could clean up the spill, it had seeped through a hole in the dike down into the concrete subflooring. The licensee plans to repair the dike and continue using the spiking station until an alternate spiking station can be brought on line at the end of November. The licensee will then remediate the concrete subflooring and any contaminated soil below it. *(One liners for 11/1/01)*

4. Recommended NRC Effort in the Environmental Protection Program Area

- Maintain the core inspection program in environmental protection.

C. Waste Management (Gloersen)

1. Waste Management Program Strengths

- None

2. Areas Needing Improvement in the Waste Management Program

- None

3. Projected Challenges to Performance in the Waste Management Program

- Reduce the concentrations in liquid effluent releases to the Congaree River to as low as reasonably achievable levels.

  - Radiological activity in liquid effluents had increased approximately 21 percent during the first half of 1999 versus last half of 1998 levels. The licensee had formulated an action plan and had implemented corrective actions in order to reduce radioactivity in liquid effluents. Preliminary data indicated that activity concentrations had been reduced to acceptable levels by implementation of the licensee's corrective actions. *(IR 00-01)*

    ** DESIGN ISSUES The total activity released during the first half of 1999 had increased approximately 21 percent over last half of 1998 totals. In addition, the inspector noted that liquid effluent concentrations during the first three quarters of 1999 had averaged approximately 5.0 E-07 (µCi/ml) in comparison to the unrestricted release limit goal of 3.0 E-07 µCi/ml. The licensee stated that one major reason suspected for this increase in liquid effluent concentrations was increased solubility of uranium in effluents due to acidic conditions in the East Pond. The licensee had formulated an action plan to minimize uranium activity in liquid effluents and had instituted corrective actions. The inspector noted that the October liquid effluent activity concentration had decreased to approximately 2.6 E-07 µCi/ml after completion of the licensee's corrective action of neutralization of acidic drainage to the East Pond from the de-Ionized WTF cation regeneration process. 02/04/2000

  - Total radiological activity in liquid effluents had increased approximately 243 percent during 2000 as compared to 1999 levels. *(IR 01-02)*

    ** NEGATIVE FINDING The total activity released during 2000 (124.0 mCi) had substantially increased (approximately 243 percent) over the total activity levels observed during 1999 (51 mCi). The licensee indicated that this increase had predominantly occurred due to increases in the waste streams from plant inputs such as showers, sinks, drains, uranyl nitrate tank pad, etc., which were processed through holding tank 1187 prior to release to the east lagoon. The inspector observed that the licensee's procedure (COP-831201, Revision 21) stated that if the tank solution radiological activity exceeded 3.0E-06 uCi/ml (gross alpha), tank 1187 contents were to be treated with caustic (sodium hydroxide) to induce uranium precipitates which would then be removed by recirculation through a filtration unit. The process was to be repeated if additional sampling indicated that the radiological activity was still in excess of 3.0E-06 uCi/ml. The inspector reviewed data for several tank batches and observed that the first treatments did not sufficiently reduce the gross alpha activity concentration to less than 3.0E-06 uCi/ml. The inspector observed that there were no redundant tanks (or excess volume capability) and that if tank 1187 was filled close to the overflow level, the tank was released to the east lagoon even if the radioactivity level was still above the 3.0E-06 uCi/ml

administrative limit. The inspector noted that for the first three quarters of calender year 2000, these releases above the administrative limit had caused several monthly effluent averages (process stream and miscellaneous stream (tank 1187 pathway)) to show an increase in gross alpha activity above the levels normally observed (approximately 5.0 E-07 uCi/ml in comparison to the unrestricted release limit goal of 3.0 E-07 uCi/ml). The licensee had investigated the increase in radioactivity in liquid effluents and had formulated administrative actions to reduce radioactivity contributions to final liquid effluents via the miscellaneous (i.e. showers, etc.) stream pathways feeding tank 1187. The inspector observed that the administrative corrective actions instituted by the licensee had resulted in a reduction in liquid effluents to levels consistent with and below the unrestricted release limit goal of 3.0 E-07 uCi/ml during the last quarter of calender year 2000. (02/16/2001)

- Maintain the material condition of the airborne effluent sampling lines to ensure the acquisition of representative samples.

  - Airborne effluent sampling lines (flow rotometer) for the calciner exhaust stacks were observed to contain condensate which affected the acquisition of representative samples. Licensee equipment modifications were being implemented to correct this problem.*(IR 00-01)*

    ** DESIGN ISSUES The inspector also observed the acquisition of airborne effluent particulate samples at several of the exhaust stack sampling stations. The inspector noted that the sample lines and flow rotometers from the calciner exhaust stacks had an accumulation of condensate which resulted in reduced/erratic flow through the particulate filter which could compromise sample representativeness (non-isokinetic/reduced flow) during upset conditions. The licensee stated that this problem would be investigated and corrected.

- Ensure proper storage of contaminated waste items.

  - A container of contaminated incinerator ash was improperly stored and posed a potential for airborne contamination. (*IR 01-02)*

    ** NEGATIVE FINDING The inspector toured the LLRW processing and storage facilities (Southwest Expansion Area/Drum Storage Area) and observed a polypak container (number A90238) on a carrier (number 117) in the upright condition which appeared to be partially open. The licensee investigated this condition and noted that the polypak contained incinerator ash with approximately 19 grams U-235 content. In addition, the licensee stated that the incinerator ash was contained in plastic wrapping material. The inspector noted that the improper storage of this radiological material was not consistent with good radiological control practices which the licensee acknowledged and issued an Unusual Occurrence Report (Redbook Item). The polypak contents were then properly dispositioned. 02/16/2001

  - Contaminated material was being stored in corroded drums on an outside storage pad susceptible to possible water intrusion.(*IR 01-02)*

    ** NEGATIVE FINDING The inspector noted that the licensee had stored uranium contaminated material (used in a proprietary process) on an outside storage pad (southeastern quadrant of the plant) until equipment modifications were made to recover the uranium. The inspector observed that the contaminated material storage drums showed significant corrosion and, in several locations, plastic which had been placed over the drums to further protect the drums from water intrusion was significantly degraded. Other drums contained labels which were not legible as to drum contents. The inspector also noted drums which contained as much as 450 grams of uranium-

235 and had apparently been stored since 1997. The inspector was informed that the material contaminated with low enriched uranium did not present a criticality concern due to the homogenous nature of the material and the low hydrogenous content and that the drums were lined with plastic to prevent material leakage. The inspector discussed these problems with the licensee and was informed that tentative plans had been made to resume process treatment of the material for uranium recovery during the first quarter of 2001. However, in the event of long term process delays, severely degraded drums would be transferred to environmentally acceptable storage locations. (02/16/2001)

4. Recommended NRC Effort in the Waste Management Program Area

- Maintain the core inspection program in waste management, with emphasis placed on maintaining liquid waste releases as low as reasonably achievable.

D. **Transportation** (Gloersen)

1. Transportation Program Strengths

- None

2. Areas Needing Improvement in the Transportation Program

- Coordination of organizational units and task control to assure the effectiveness of shipping packages for radioactive materials.

  - Weld repairs to MCC-3 shipping containers were made by Westinghouse employees that had been trained by a contractor that was not on the Westinghouse Qualified Supplier List. In October 1999, it was determined that several Model MCC-3 shipping containers had an incorrect weld pattern on the top shell. At that time all containers with this weld pattern were taken out of service and a plan was developed to add welds to meet the licensed drawing requirement. The plan involved using Westinghouse welders who were certified to the requirements for welding safety related parts on shipping containers. However, the welders had received their training and certification from the same supplier that was already under contract to provide general welding services. This supplier was not on the Westinghouse Qualified Supplier List (QSL). Westinghouse issued a blanket purchase order to the supplier to provide the ASME code welding certification services. Blanket purchase orders with existing suppliers for maintenance services are not generally routed through Product Assurance. Had a separate purchase order been issued for shipping container welding, the Purchasing Department would have routed the requisition to Product Assurance for approval. Product Assurance would have denied the requisition because the requested supplier was not on the Westinghouse QSL (IR 00-03).

  - The bottom nozzle holddown assemblies for the MCC-5 shipping containers were found to not have been fabricated by a qualified vendor as required by the licensee's QA program .The bottom nozzle holddown assembly is used exclusively with the MCC-5 shipping container, to help secure the VVER- 1000 fuel assembly in the container. Neither the MCC-3 or MCC-4containers are involved. All bottom nozzle holddown assemblies for these containers were fabricated by the same supplier in 1995. Fabrication records indicate that the assemblies were correctly manufactured in accordance with requirements for safety-related items. Westinghouse Product Assurance verified that the assemblies were manufactured in strict accordance to drawings and specifications. The criteria for Category A safety-related items andCategory B safety-related items are essentially the same, a primary difference being that it is not necessary that Category B items be manufactured by a qualified supplier (non-cited violation IR 01-05).

- Bolts missing from packages containing fissile material shipments (pellets) contrary toCertificate of Compliance. On or about July 9, 2000, it was determined that two Model DHTF packages that had been used for fissile material shipments from the Westinghouse Columbia facility to the Westinghouse Hematite facility did not meet the package description requirements contained in the NRC Certificate of Compliance Number USA/9203/AF. The certificate calls for eight bolts to be used to secure the lid to the containment vessel. While unloading the DHTF packages at theWestinghouse Hematite facility, it was discovered that drum 0108 and drum 0519 were missing two bolts adjacent to each other. In addition drum 0519 was missing a third bolt. It was subsequently determined that several DHTF packages that had been used for fissile material shipments between the Westinghouse Columbia facility and the General Electric, Wilmington NC, facility were also missing bolts.(LER dated 08/07/00)

- A violation was identified for shipment of three uranium hexafluoride (UF6) cylinders on December 7, 2000, with radiation levels in excess of the limits in 10 CFR Part 71.47 and 49 CFR Part 173.441 (IR 01-01).

- The licensee inadvertently returned UNH crystals to BWXT in a container labeled as "empty", resulting in the failure to comply with hazard communization requirements, including those for shipping papers, shipper's certification, and package labeling; radiation survey requirements, licensed material control and storage requirements; and the package documentation requirements of 49 CFR 173.415(a) was identified as an apparent violation of 10 CFR 71.5; 49 CFR 170 through189; and 10 CFR 20. *(IR 01-08)*

- The inadvertent shipment of a fuel rod as part of a fuel assembly was determined to be a non-cited violation (NCV).*(IR 01-203)*

- Consistency of shipping paper documentation.

  - A violation was identified for failure to include specific instructions with the Bill of Lading in accordance with 10 CFR Part 71.47(c) regarding exclusive use shipments (Paragraph 2.a). The inspector's review of the shipping documentation disclosed an inconsistency with the licensee's mode of transport. The licensee indicated that the shipment was considered an "Exclusive Use Open Transport" mode. However, the Bill of Lading did not indicate mode of transport,nor were the required instructions for an exclusive use shipment included with the shipping paper information. *(IR 01-01)*

3. Projected Challenges to Performance in the Transportation Program

   - None

4. Recommended NRC Effort in the Transportation Program Area

   - Maintain the core inspection program, with emphasis on the quality control and quality assurance programs.

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