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TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

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April 13, 1984

U.S. Nuclear Regulatory Commission
Region II

ATTN: James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

Enclosed is our response to R. C. Lewis' March 14, 1984, letter to H. G. Parris transmitting Inspection Report Nos. 50-259/84-03, -260/84-03, -296/84-03 regarding activities at our Browns Ferry Nuclear Plant which appeared to have been in violation of NRC regulations. We have enclosed our response to the Notice of Violation. If you have any questions, please call Jim Domer at FTS 858-2725.

To the best of my knowledge, I declare the statements contained herein are complete and true.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

D S Kammer

D. S. Kammer
Nuclear Engineer

Enclosure

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RESPONSE - NRC INSPECTION REPORT NOS.
50-259/84-03, 50-260/84-03, AND 50-296/84-03
R. C. LEWIS'S LETTER TO H. G. PARRIS
DATED MARCH 14, 1984

Item 1 - (259, 260, and 296/84-03-01)

Technical Specification 6.3.A.7 requires that detailed radiation control procedures shall be prepared, approved and adhered to.

Contrary to the above, radiation control procedures were not prepared, approved, and adhered to in that:

- (a) The radioactive waste classification, waste stability, manifest preparation and other applicable provisions of 10 CFR Part 61 and 10 CFR 20.311 have not been incorporated into local radioactive materials shipping procedures. Browns Ferry has made ten radioactive waste shipments since the new requirements were effective on December 27, 1983.
- (b) Local radioactive material shipment procedures do not address what actions are required to ensure a similar degree of control as was afforded the initial shipment when a radioactive materials transport has to return to the licensee's site to be reloaded to correct an overweight condition. Such an event has occurred twice in calendar year 1983.
- (c) On January 11, 1984, a licensee employee exited a contamination control zone and did not perform a whole body frisk of his person for contamination contrary to station Radiological Control Instruction (RCI)-1, section III, paragraph IV which requires that each person who exits a contamination control zone perform a whole body frisk.
- (d) On January 11, 1984, three of five individuals sorting contaminated trash on the 565' Elevation of the Unit Three Turbine Building were not complying with all the requirements of the controlling Special Work Permit (SWP) in that SWP 01-3-00139 required taping of anti-contamination gloves closed around the coverall sleeves and these three workers had not done so.

This is a Severity Level IV Violation (Supplement IV).

Item 1(a)

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

The cause of the violation was personnel error. Draft consultant procedures that had not yet been incorporated into plant procedures were being used for initial compliance with part 61 requirements. Plant personnel had instructed the consultant to prepare the procedures using both the reactor water cleanup system and the condensate system sample analyses. This was consistent with how the plant sampled and analyzed sludge. The contractor had evaluated both systems but failed to correctly document this in his draft procedures. The original draft procedure only allowed sludge sampling and analysis from the reactor water cleanup system. The plant failed to identify that the procedure did not include the latitude to sample either reactor water cleanup or condensate system sludge. The technical basis for the supporting calculations actually allowed for either which reflected actual plant practices. The plant failed to identify that the procedures did not reflect actual plant practices.

3. Corrective Steps Which Have Been Taken and the Results Achieved

The consultant sent a letter confirming and correcting his error of deleting the reference to the condensate system. The consultant's revised procedures have been incorporated into the plant radwaste procedures.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

None required.

5. Date When Full Compliance Will Be Achieved

Full compliance was achieved January 20, 1984, when the revised plant procedures were issued.

Item 1(b)

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

Plant radwaste procedures did not specifically state which preshipment activities were to be reperformed when trailers were brought back onsite for load rearrangements. The surveys were all redone; however, administrative controls did not exist to ensure this would always be performed.

3. Corrective Steps Which Have Been Taken and the Results Achieved

Plant procedures have been revised to specify on the preshipment check-off sheet those items which must be reperformed when shipments return for load rearrangement.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

None required.

5. Date When Full Compliance Will be Achieved

Full compliance was achieved January 20, 1984, with procedure revisions.

Item 1(c)

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons For the Violation if Admitted

The incident occurred because of personnel error.

3. Corrective Steps Which Have Been Taken and the Results Achieved

Appropriate disciplinary action was taken and the responsible employee was retrained in health physics procedures. A whole-body frisk training class was scheduled and presented to all employees in the plant building services section. The bench used by personnel to dress out has been relocated downstairs near the frisker station.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

No further corrective action is required.

5. Date When Full Compliance Will Be Achieved

Full compliance was achieved on March 27, 1984, when the whole-body frisk training class was presented.

Item 1(d)

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons For the Violation if Admitted

The cause was personnel error. The responsible individuals failed to note the special work permit (SWP) requirements for the taping of gloves to their labcoats. The contamination levels in the work area at the time were less than the limit (1000 dpm/100cm²) which requires an area to be designated as a contamination zone.

3. Corrective Steps Which Have Been Taken and the Results Achieved

The responsible individuals were immediately instructed to tape their gloves to their labcoats. The building services employees were counseled on the need for strict adherence to SWP requirements. Appropriate disciplinary action was taken. The incident was discussed with health physics personnel at two separate health physics training seminars.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

A copy of the event report will be distributed to all cognizant health physics personnel to emphasize the need for strict compliance with all SWP requirements. No further corrective action is required.

5. Date When Full Compliance Will Be Achieved

Full compliance will be achieved by May 1, 1984, when the event report will have been distributed to all cognizant health physics personnel.

Item 2 - (259, 260, 296/84-03-02)

10 CFR 71.5(a) requires that each licensee who transports licensed material outside of the confines of its plant or other place of use, or who delivers licensed material to a carrier for transport, shall comply with the applicable requirements of the regulations appropriate to the mode of transport of DOT in 49 CFR Parts 170 through 189.

49 CFR 172.202(a) requires that the shipping description of a hazardous material on the shipping paper must contain the appropriate listed information including (1) The proper shipping name prescribed for the material in 172.101 and (2) The identification number (preceded by "UN" or "NA" as appropriate) prescribed for the material in the same section.

49 CFR 172.101 gives the proper shipping name and identification number for a low specific activity material as "Radioactive Material, low specific activity or LSA, N.O.S., UN 2912".

49 CFR 172.203(d)(1) requires that the description for a shipment of radioactive material must contain the listed information including the name of each radionuclide in the radioactive material that is listed in 173.390 of this subchapter.

10 CFR 30.41(c) requires that before transferring byproduct material to a specific licensee of an Agreement State, the licensee transferring the material shall verify that the transferee's license authorizes the receipt of the type, form, and quantity of byproduct material to be transferred.

The State of South Carolina License Number 97 to Chem-Nuclear Systems, Inc., for the operation of the radioactive waste disposal site near Barnwell, S.C., in License Condition 8 states that only radioactive material consigned for burial shall be received at the Barnwell site, unless otherwise authorized by the licensee or by the State of South Carolina.

- (a) Contrary to the above, the shipping papers for a low specific activity shipment of a box of radioactive tools on January 3, 1984 under control number 0184-166-S were improperly prepared in that the radioactive material description on TVA Form 17111, the shipping manifest did not specify the proper shipping name, identification number or name of each radionuclide in the radioactive material.
- (b) Contrary to the above, radioactive material was transferred to an Agreement State licensee prior to determining the transferee was an authorized recipient in that, on January 3, 1984, radioactive material other than waste, a box of radioactive tools not intended for disposal, was transferred to the Barnwell site in the absence of a prior approval.

This is a Severity Level V Violation (Supplement IV).

Item 2 (a)

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons For the Violation if Admitted

The cause for the violation was personnel error. The radwaste controller involved failed to properly prepare form TVA 17111, "Request for Shipment of Radioactive Materials" using 49 CFR 172.202. The shipping paper described the radioactive material as "Radioactive Tools" rather than "Radioactive Material, LSA, N.O.S - Radioactive Tools - UN2912" which is required by regulations. The 49 CFR 172.203d(1) requirement was not met in that credit for the radionuclide breakdown of the cask material was used.

3. Corrective Steps Which Have Been Taken and the Results Achieved

The incident was discussed with the individual involved and the importance of procedure adherence was emphasized to avoid further NRC and/or DOT regulatory violations. Responsibility for these activities has been reassigned to more knowledgeable personnel.

4. Corrective Steps Which Will Be Taken to Avoid Further Violations

No further action is deemed necessary.

5. Date When Full Compliance Will Be Achieved

Full compliance was achieved February 6, 1984, when the individual was removed from these duties.

Item 2 (b)

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

The cause of the violation was personnel error on the part of the involved radwaste controller. He misinterpreted the specific details of the Chem-Nuclear license which allowed receipt of only radioactive material consigned for burial unless otherwise authorized by the licensee or the State of South Carolina. He thus failed to obtain the proper prior approval for transferring a box containing a radioactive tool (wire brush) to Chem-Nuclear. The external dose rate associated with the box was less than 2 mrem (contact).

3. Corrective Steps Which Have Been Taken and the Results Achieved

The incident was discussed with the individual involved and procedure adherence was emphasized. The practice of transporting a box with a radioactive tool was discontinued.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

Responsibility for these activities has been reassigned to more knowledgeable personnel.

5. Date When Full Compliance Will Be Achieved

Full compliance was achieved February 6, 1984, when the individual was removed from duties.

Item 3 - (259, 260, 296/84-03-03)

10 CFR 20.408(a) states that this section applies to each person licensed by the Commission to: (1) operate a Nuclear reactor designed to produce electrical ... energy

10 CFR 20.408(b) requires that when an individual terminates employment with a licensee described in paragraph (a) of this section . . . the licensee shall furnish to the . . . Commission, a report of the individual's exposure to radiation and radioactive material.

10 CFR 20.409(b) states that when a licensee is required pursuant to 20.408 to report to the Commission any exposure of an individual to radiation or radioactive material, the licensee shall also notify the individual. Such notice shall comply with the provisions of 19.13(a) of this chapter.

10 CFR 19.13(a) requires that the results of any measurements, analyses, and calculations of radioactive material deposited or retained in the body of an individual, shall be reported to the individual.

Contrary to the above, not all of the results of measurements of radioactivity deposited or retained in the body of a terminated employee is reported to the individual in that when the licensee detects quantities of radioactivity above their analysis equipment's lower limit of detection but less than two percent of the maximum permissible organ burden, the report to the individual states that no radioactivity was detected.

This is a Severity Level V Violation (Supplement IV).

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

Computer software used for the whole body counting systems reports some very low numbers as detectable activity. (The examples used by the NRC inspector were 0.34 and 0.12 percent maximum permissible organ burden (MPOB), respectively.) TVA has never viewed these types of numbers as significant indicators of internal activity.

3. Corrective Steps Which Have Been Taken and the Results Achieved

On the day the NRC inspector raised the concern, the statement on the termination letters was changed from "No detectable internal activity . . ." to "No significant detectable internal activity . . ."

4. Corrective Steps Which Will be Taken To Avoid Further Violations

Because of concerns over the use of the word "significant," TVA revised the statement to read "No detectable internal contamination above 10 percent maximum permissible organ burden . . ." This statement is consistent with the use of the word "significant" to mean a level at which some action would be required. The level of 10 percent arose from ANSI N343 action level of 10 percent MPOB.

5. Date When Full Compliance Will Be Achieved

Browns Ferry Nuclear Plant obtained full compliance on the day the NRC inspector raised the concern. The subsequent clarification of the statement was complete on April 6, 1984.

Item 4 - (259, 260, 296/84-03-04)

10 CFR 20.203(e)(1) requires that each area or room in which licensed material is used or stored and which contains any radioactive material in an amount exceeding 10 times the quantity of such material specified Appendix C of this part shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words: CAUTION, or DANGER, RADIOACTIVE MATERIALS.

Contrary to the above, the used laundered anti-contamination clothing storage racks along the walls of the Service Building main passageway 562' Elevator contain amounts of licensed material in excess of 10 times Appendix C quantities and is not posted.

This is a Severity Level V Violation (Supplement IV).

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons For the Violation if Admitted

The incident occurred due to an error in plant management policy. Although laundered protective clothing has never been considered releasable offsite, plant management has considered such clothing to be "clean" (i.e., virtually free from any significant contamination or activity). As such, protective clothing was erroneously interpreted as not being subject to the requirements of 10 CFR 20.203 (e)(i).

3. Corrective Steps Which Have Been Taken and the Results Achieved

The turbine building regulated area, which is a radioactive material storage area, was expanded to include the protective clothing racks. In addition, all plant areas were reviewed to ensure that no similar conditions existed either for radioactive materials storage or protective clothing.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

No further corrective action is required.

5. Date When Full Compliance Will Be Achieved

Full compliance was achieved on January 18, 1984, when the plant regulated area was expanded to include the storage racks for laundered protective clothing.