



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION REPORT BY THE OFFICE OF SPECIAL PROJECTS

EMPLOYEE CONCERN ELEMENT REPORT 22902

"RADIOACTIVE PANEL DRAINS TO FLOOR DRAINS"

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

1.0 SUBJECT

Category: Construction (10000)
Subcategory: Damage Construction Control (15100)
Element: Instrument and Control Design, Radioactive Panel Drains
into Floor Drains (22902)
Employee Concerns: XX-85-127-001, IN-85-143-003, IN-85-197-002,
IN-85-514-002, IN-85-748-001, IN-85-952-001,
IN-85-983-001

2.0 SUMMARY OF ISSUE

There is a potential for liquid and airborne radioactive contamination spread as a result of drains from instrument panels or sampling sinks that receive inventory from sources having a reasonable potential for carrying radioactive materials routed to open floor drains rather than to closed equipment drains. The presumed release path within the plant would arise from venting of gases or backflow of liquids through the open drain fixtures embedded in the concrete floor. The offsite release path postulated by one concern would be via a presumed conventional sewage/storm drainage path as is the case with plumbing of this type in a commercial building designed to the Uniform Plumbing Code.

3.0. EVALUATION

The employee concerns, namely, radioactive material disposed into open drain systems, were determined to be valid. TVA and their consultant, Bechtel Corporation, identified a total of 9 panel instrument drains in the Reactor Building Units 1 and 2 through their walkdown inspections. These panel drains are routed to headers that connect to open floor drains. The possibility of draining of radioactive material onto the floor does exist. However, connection of panel drains to open floor drains through the header is an acceptable practice provided that a consideration is given in the design to limit personnel exposure and release of untreated radioactive material to the environment.

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The quantity of radioactive materials associated with these identified panel instruments drains (usually 1/2- to 3/8-inch stainless steel tubings) were found to be small and the liquid temperature is below the boiling point. These factors minimize exposure to personnel. During power operation, entrance is permitted in the reactor buildings only with strict health physics controls.

Radioactive materials should not be released to the environment because the radioactive contaminated drain systems terminate either at the Waste Holding Tank or are pumped to the Floor Drain Collector Tank where the liquid is sampled to establish the treatment requirement prior to release or recycling. No contaminated drainage is released to the environment without proper monitoring.

Based on the reasons stated above, the staff concurs with licensee's conclusions that potential radioactive inventory will not be released without proper monitoring and treatment and potential exposure of operating personnel is within regulatory guidelines. Therefore, the concern, while correctly stated, does not warrant corrective action.

4.0 CONCLUSION

Based on the discussions above, the staff concludes that the licensee's resolution procedure of the open drain issue is comprehensive and their recommendation of no corrective action is acceptable.