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October 22, 1985

Dr. Thomas E. Murley, Regional Administrator
U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Subject: Inspection Report No. 50-244/85-08
R. E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Dr. Murley:

Inspection Report 50-244/85-08 was sent to RG&E with a letter dated September 27, 1985 from Mr. Thomas T. Martin. The inspection report concerned an inspection conducted June 10-14, 1985 to review systems and procedures for post-accident sampling and monitoring. A response was requested within 25 days to several items noted in the letter even though no violations were identified during the inspection. Each of the items of the letter are addressed in Attachment A to this letter. In addition, all of the inspection report Recommendations for post-accident sampling are also addressed in the attachment. Other inspection Findings and Observations will be reviewed for appropriate action even though no response is provided, or required, with this letter.

Very truly yours,

Bruce A Snow for

Roger W. Kober

Attachment

ATTACHMENT A

Response to Inspection Report 50-244/85-08

An inspection was conducted June 10-14, 1985 to review systems and procedures at Ginna Station for post-accident sampling and monitoring as specified in NUREG-0737. During that inspection no violations were observed, however, several concerns were listed in the inspection report and the cover letter dated September 27, 1985 from Mr. Thomas T. Martin. The following responses address each of the items listed in that letter, and in the case of the PASS, all recommendations in the inspection report.

Item: The coaxial signal cable and connection for the containment high range radiation monitors may not withstand an accident environment.

Response:

The report states that the licensee does not address all problem areas of the Victoreen test report and that "critical items omitted in the licensee's review include hardening of the cable, sleeves and red sealant material; and powdering of the cable electrical insulation." All of these items were addressed by RG&E and documented in either the system design package or in the Environmental Qualification Files. RG&E was aware of the failure described in the Victoreen EQ test report and designed a connector system using qualification data independent of the Victoreen tests. RG&E also enclosed the coaxial cable completely within conduit, which assures that in an actual accident the cable will be subject to a less severe environment than in the test where it was exposed directly to steam and caustic spray.

During the inspection the qualification of Raychem sleeving material was questioned. Several test reports on Raychem sleeves for both LOCA/HELB environment and flame propagation (IEEE 383) were made available. RG&E has a number of qualification test reports on Raychem sleeves; some on tests done by the vendor, some by utilities, and one by RG&E. We have thoroughly reviewed these test reports over the course of several projects and consider this material qualified in accordance with current standards. The inspector indicated his concern was based on NRC "internal documents" not provided to RG&E, however, the test reports available for the Raychem sleeves adequately establish qualification to withstand an accident environment.

Copies of a review done by RG&E to address the "hardening and powdering" of cable anomally were given to the inspector. RG&E concluded as a result of this review that the cause of failure was misapplication by Victoreen of certain materials in the fabrication of the connections at both the detector and penetration ends of the coaxial cable. RG&E designed connection systems based on extensive experience with the sleeving materials and qualification test programs independent of Victoreen. RG&E considers that the existing design is completely qualified to function during all design basis events.

Item: The ability to obtain a representative coolant sample at low reactor system pressure is uncertain. And Inspection Report Recommendation 4.3.1.1 is: Demonstrate that a representative sample can be collected at low RCS pressure.

Response:

It has been calculated (NUS Analysis #5486-M-11) that a reactor coolant sample can be introduced to the Post Accident Sampling System (PASS) analytical instrumentation at a flow rate of 0.5 gpm with a reactor coolant system pressure of 50 psig. A three volume change (required for a representative sample) of reactor coolant system sample piping at a flow rate of 0.5 gpm requires 4.9 minutes of purging. Since the reactor coolant system (RCS) sample procedure requires a 5 minute purge, a representative sample is assured at 50 psig RCS pressure.

A review of the design basis accidents of the Ginna Plant revealed that with the exception of a relatively large LOCA, there is no accident that will reduce the reactor coolant system pressure to 50 psig. An eight inch breach of the RCS results in an equilibrium pressure in the system of 100 psia. The exact break size that will result in a 50 psig equilibrium pressure is larger than an eight inch break but is undefined. However, the flow rate of the eight inch break, assuming only one (1) safeguards train is operating, is approximately 1700 gpm or 306,000 gallons during the three hours after the start of the accident. This is more than the Technical Specification volume requirement of the refueling water storage tank which is 300,000 gallons. Under these conditions, the Plant would have both containment sumps filled and be in the recirculation phase of safety injection. If both trains of safeguards are operating, RCS pressure will remain greater than 50 psig for even larger breaks and sump samples will be representative of coolant conditions in shorter times following the initiation of the event.

It can be concluded then, for any accident, including eight inch and larger breaks of the reactor coolant system, that RCS pressure will be sufficient to insure that an RCS sample is available at the PASS. For any LOCA greater than eight inches, the containment sump will be filled with recirculated reactor coolant in less than three hours and a representative RCS sample will be available to the PASS by virtue of its sump sample capability.

Thus, PASS RCS sample capablity and representativeness is assured for all accident conditions.

Item: Testing of the PASS system should be completed to ensure the accuracy, range, and sensitivity of the coolant analysis data. Recommendation 4.3.1.2 is: Complete the remaining system tests and provide data to demonstrate that the stated accuracies, ranges and sensitivities of the analytical instrumentation and techniques can be achieved with the Standard Test Matrix solution (85-08-02).

Response:

The remaining system tests will be completed near the end of the year in concert with the completion of the PASS training program for additional health physics technicians. Sufficient test data has been generated to date in the course of training and testing to adequately demonstrate that the analysis equipment can meet the accuracy, range and sensitivity of NUREG 0737.

The manufacturer of the Ginna PASS performed a comprehensive test program with the Standard Test Matrix for the analysis equipment utilized in the Ginna PASS. A summary of these test procedures and results was forwarded to Mr. Dennis M. Crutchfield by letter dated February 6, 1984 from Roger W. Kober. This test program demonstrated that the system will perform adequately to meet NUREG-0737 requirements in the presence of the Standard Test Matrix elements.

Recommendation 4.4.1.1 is: Streamline or consolidate processes in the system operation procedure to assure that samples can be collected and analyzed within 3 hours.

Response:

For the emergency mode of the PASS operation, the Ginna PASS operating procedures will be revised into one procedure which will address the separate needs for an RCS liquid sample, a containment air sample and a sump sample. RG&E will perform a time and motion study on the revised procedure to insure that each of the above samples can be collected and analyzed within a three hour time frame.

Recommendation 4.4.1.2 is: Make appropriate corrections to equations in the core damage assessment procedure.

Response:

The inconsistencies of the Core Damage Assessment Procedure were corrected by procedure change notices (PCNs) 85-6145 dated June 12, 1985 and 85-6238 dated October 11, 1985.

Recommendation 4.4.1.3 is: Consider the use of the boron pH probe as a backup to the primary in-line pH analysis instrumentation.

Response:

The boron analyzer pH probe can be used as a backup to the primary in-line pH analysis instrumentation. A procedure is presently being written to incorporate this method.

Recommendation 4.4.1.4 is: Indicate the actual method used to isotopically analyze sample in procedures and develop a consolidated library for post accident analysis.

Response:

Procedure PC 25.7.10 has been recently written to accommodate isotopic analyses of PASS samples. This procedure delineates the radiochemistry laboratory gamma spectrometer counting requirements for a PASS sample and describes relevant actions to be taken by the technician to complete the sample analysis. In preparing this procedure, the isotopic libraries for the radiochemistry laboratory gamma spectrometer have been consolidated for specific analysis of the PASS post accident samples.

Recommendation 4.5.1 is: Provide assurances that the representative containment air samples can be obtained at the flow indicators activation threshold.

Response:

An Engineering Change Notice (ECN) will be issued to install an additional flow switch in the containment air sample line. This flow switch will be set to actuate at a threshold flow rate that will ensure three (3) volume changes of the containment air sample line within the purge time required by the containment air sample procedure.

Recommendation 4.5.1.2 is: Repair the system valves and correct the flow indicator designations.

Response:

The PASS system valves have been repaired. Additional valve maintenance difficulties that arise will be addressed in a timely manner.

Flow indicator designations have been corrected in all relevant PASS sample procedures.

Recommendation 4.5.1.3 is: Include the system spare parts in the inventory system.

Response:

Two categories of spare parts are required for the PASS. One category, mainly associated with hardware maintenance, includes such things as valves, switches, fittings, sensing elements, pump parts, electronics, etc. This inventory is normally maintained by I&C and machinist personnel with stock located in the plant stockroom. The other category of spare parts, in general, are expendables such as syringes, chart paper, sample bulbs, standard test solutions, calibration gasses, etc. This type of spare part is normally maintained in inventory by the HP technicians and may or may not be located in the stockroom.

An effort is currently under way to integrate all spare parts for the PASS into a composite inventory list that will be inputted into the Plant computer inventory system.

Item: The calculated sensitivity of the steam line monitors has not been verified by empirical data.

Response:

The steam line monitors are calibrated in accordance with existing procedures using standard sources. Sources for direct testing at the upper design counting rate are not available. Although it is not practical to inject test sources into the main steam lines to simulate an accident, the response of the steam line monitor during the steam generator tube rupture event of 1982 was reviewed in detail and the system performed acceptably, demonstrating the sensitivity of the monitors.

Item: The Eberline Sping-4 system used to monitor particulate, iodine, and noble gases in the station vent may be damaged by high radiation levels and fail to function in accident conditions.

Response:

This item apparently concerns operation of the Sping-4 unit at the upper end of its range, ($10^5$ uCi/cc), for extended periods of time.

The vent monitoring systems are designed, in accordance with NUREG 0737 Section II.F.1, to function during accident conditions as well as during normal operating conditions. The containment vent samples are taken downstream of the containment isolation valves and the detectors are isolated from the containment environment during the initial period of an accident. Emergency procedures do not allow containment purging during the initial response to an accident. The containment purge isolation valves are required to be closed during power operation and may be opened during normal shutdowns only after the reactor has been shut down for at least one hour. During the 1986 refueling outage, the isolation valve inside containment will be replaced with a double-sealed flange providing further assurance of negligible releases following an accident.

The plant vent monitor will measure releases drawn from sources other than the containment purge. These releases may be the result of system leaks in the auxiliary building or other locations and are drawn from large volume buildings. Releases of this type will not exceed the design basis conditions of the monitors.

The capability of the detectors to function at high range ($10^5$ uCi/cc), must be considered in conjunction with the time period that the detectors may operate at the upper range. Venting at $10^5$ uCi/cc will discharge the entire core inventory of noble gas fission products in three and one-half minutes. RG&E has evaluated the capability of the Sping-4 system to operate at the high range, however, even though releases of this concentration are incredible. Although it is clearly not possible to test the system at $10^5$ uCi/cc, Eberline has operated it at $10^2$ uCi/cc continuously for several days. The integrated dose at this source concentration approximates full inventory release in about two and one-half days. RG&E is, therefore, confident that the Sping-4 system can function at the high range for any period that will be significant to plant safety or emergency operations.

With regard to the ability of low and intermediate range detectors to function after a high range excursion, it should be noted that the effluent sample passes through a shielded particulate filter and a shielded silver zeolite cartridge before entering low, intermediate and high range gas chambers. Therefore, there should be little or no particulate "plate out" to affect later activity measurements. In addition, the gas chambers can be remotely purged at any time from the control consoles. Eberline has also stated that the low and intermediate range detectors and associated circuits will not be damaged by high range effluent for limited periods of time and that they will be capable of following decreasing concentrations of noble gases. Should

the release concentration decrease so significantly that, even though the filters are shielded, the filters interfere with lower range operation, an existing procedure can be used to change the filters.

Therefore, RG&E considers the system qualified to perform its safety function in accordance with the requirements of NUREG 0737 Section II.F.1.