



Commonwealth Edison

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October 26, 1981

Mr. James G. Keppler, Director
Directorate of Inspection and
Enforcement - Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Zion Station Units 1 and 2
I&E Inspection Report Nos.
50-295/81-21 and 50-304/81-17

Reference (a): September 21, 1981, letter from
C. E. Norelius to Cordell Reed.

(b): August 19, 1980, letter from
Cordell Reed to J. G. Keppler.

Dear Mr. Keppler:

Reference (a) contained the results of an inspection by Messrs. D. E. Miller and P. C. Lovendale on August 17-19, 27 and 28, 1981, of activities at Zion Station. No items of noncompliance were identified during that inspection but a review of specific issues was requested. This letter addresses those specific issues.

The possible radiological consequences associated with gaseous waste system leakage under adverse operating conditions have been reviewed as requested. It has been determined that adequate procedures and equipment exist to prevent unacceptable radiological consequences under such circumstances.

In an accident situation, Zion's Phase A containment isolation signal confines highly radioactive fluids and gases to the reactor containment building. Recovery actions taken in such a situation would be highly dependent upon the circumstances of the particular incident and cannot be completely specified in advance. The potential radiological consequences would be included in the evaluation of any recovery action to be taken.

Waste gas leakage during accident recovery operations subsequent to Phase A isolation, or during normal plant operation as the result of a leaky fuel element, would be identified by a radiation monitoring system high activity alarm. Appropriate corrective actions are specified in Zion's Abnormal Operating Procedure AOP-5. Affected systems are systematically isolated to determine and repair faulty components through the use of AOP-5.

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It was also requested that an update be provided to our response to the Health Physics Appraisal Significant Finding which was provided in reference (b). Attachment A to this letter lists the significant steps being taken to monitor waste gas system integrity. Attachment B to this letter lists Action Items resulting from the Quadrex study of Zion's waste gas system operation which was completed in June 1981. The actions identified in these Attachments constitute our present aggressive program to assure waste gas system integrity.

Lastly, the evaluation of alternative organizational structures involving separation of the radiation protection and chemistry RCT job function has been started by a consulting firm. This review will provide equal focus on the health physics and chemistry aspects of a number of alternative organization schemes. The advantages and disadvantages with regard to the performance of each job function will be identified. We expect to be able to provide the final report on this evaluation by February 28, 1982.

Please address any questions regarding these matters to this office.

Very truly yours,

F. G. Lentine

F. G. Lentine
Nuclear Licensing Administrator

Attachments

cc: Zion Resident Inspector

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ATTACHMENT A

Actions taken to Assure Waste Gas System Integrity

- 1) Daily balance checks to waste gas system volumes to assess short term integrity were in progress at the time of the HP Appraisal and continue.
- 2) Nitrogen flow instrumentation was installed on the nitrogen manifolds supplying cover gas to various tanks by December 1, 1980. Specific tanks which were provided with nitrogen flow instruments included the holdup tanks, the Unit 1 reactor coolant drain tank, the spent resin storage tank, and gas decay tanks. An additional flowmeter was installed on the Unit 1 pressurizer relief tank during the January, 1981, Unit 1 refueling outage. Based on the performance of the installed meters, a determination was made to install additional meters on the main supply manifold, Unit 1 boric acid evaporator, Unit 2 pressurizer relief tank, and Unit 2 reactor coolant drain tank. At this time the meters have been installed on all the above manifolds except the Unit 1 boric acid evaporator. Meter installations are scheduled for completion by the end of 1981.
- 3) Suspected gas leakage during the Unit 2 dilution operations was investigated by conducting helium leak testing of the Unit 2 letdown line during the Spring 1980 refueling outage. Results of the Unit 2 letdown line testing indicated no leakage. In addition, no gas leaks were observed during the dilution operations associated with return to power following the Unit 2 refueling outage. No additional testing of the Unit 2 letdown line is planned at this time since the R14 radiation monitor alarms associated with Unit 2 letdown prior to the HP Appraisal have not recurred.
- 4) The present isolation of Volume Control Tanks from the waste gas header was reconsidered in a detailed review of Zion waste gas systems operation which was completed in June 1981 by Quadrex. The present mode of Volume Control Tank operation is in keeping with descriptions provided in Zion Station's Final Safety Analysis Report. Isolation of the Volume Control Tank from the gas header during plant operation has permitted operation within Technical Specification limits for both reactor coolant system activity and site releases and will be retained.
- 5) Investigations of monitor excursions and other waste gas leakage symptoms to determine source and extent of leakage have been upgraded. Unplanned monitor excursions, which cannot be explained by monitor failure or other anomaly with sampling, are reported to the NRC by red phone and investigated as to source, cause and extent of leakage. Station Tech Staff has also initiated a file for investigation of R14 effluent radiation monitor alarms brought to their attention.

ATTACHMENT A

- 2 -

- 6) Zion Administrative Procedure 10-52-4, "Leak Reduction and Control Programs", specifies periodic leak tests to be performed on various waste systems including waste gas with routine reports submitted to the Company's Corporate Office.
- 7) A program for helium leak detection is expected to be established using a mass spectrometer recently purchased by the Station. The benefits of helium leak detection toward ensuring waste gas system integrity are being evaluated by testing during the current Unit 2 refueling outage.
- 8) Pending delivery of parts, a Grinnell valve diaphragm replacement program is prepared for implementation.

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ATTACHMENT B

Action Items Resulting from Quadrex Review
Of Zion Waste Gas System Operation

- 1) Prepare Automatic Gas Analyzer operating procedure. Test unit and put into operation.
- 2) Evaluate sampling, analytical, and calculational methods for accuracy of gaseous releases reported.
- 3) Develop a sampling program to routinely analyze the vapor phase of HUT's, PRT's, RCDT's and VCT's for activity during at least one fuel cycle.
- 4) Develop a historical log of gas decay tank operations to verify that system operation is as expected.
- 5) Dedicate one or two gas decay tanks to gases from VCT degassing to improve gas management.
- 6) Review and revise, if necessary, procedures for draining gas decay tanks to assure adequacy of safeguards against accidental gas releases.
- 7) Evaluate the feasibility of establishing procedures to terminate gas decay tank discharges at a positive pressure to prevent air inleakage.
- 8) Review the benefits and costs associated with the planned addition of separation capability for HUT's and GDT's to improve component leak checking capability.
- 9) Review the benefits and costs associated with the addition of pressure and level recorders on HUT's, RCDT's, PRT's and GDT's to improve waste gas inventory capabilities.
- 10) Modify release forms to stipulate that at least one Unit 1 Auxiliary Building fan be operating prior to release.
- 11) Monitor NRC progress on a revision of the GALE computer code and determine the benefits of using this revision at Zion to develop better estimates of waste gas activity distribution.
- 12) Review the benefits and costs associated with rerouting the BAE vent discharges to the waste gas system from the Auxiliary Building stack to minimize gaseous releases.
- 13) Review the costs and benefits of increasing the waste gas storage capability.
- 14) Review the costs and benefits of adding a hydrogen recombiner to reduce the volume of waste gas and reduce the potential for explosion.