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SUBJECT: Forwards update to 890310 response to GL 88-14, "Instrument Air Supply Sys Problems Affecting Safety-Related Equipment."

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MAY 30 1990

L-90-197

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Instrument Air Supply System Problems Affecting
Safety-Related Equipment (Generic Letter 88-14)

Generic Letter (GL) 88-14, "Instrument Air Supply System Problems Affecting Safety-Related Equipment," issued by the NRC on August 8, 1988, requested that licensees review NUREG-1275, "Operating Experience Feedback Report - Air System Problems," Volume 2, and perform a design and operations verification of the Instrument Air System.

In letter L-89-63, dated March 10, 1989, FPL provided an initial response to GL 88-14, along with a schedule for the completion of the remaining action items. Attached is an update of the previously submitted information. FPL considers the design and operations verification of the instrument air system, as required by GL 88-14, to be completed. Action items identified through this effort will be pursued in accordance with the schedules provided.

Should there be any questions regarding this information, please advise.

Very truly yours,

K. N. Harris
Vice President
Turkey Point Nuclear Plant

KNH/DRP/DWH/rat

attachment

cc: Stewart D. Ebneter, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant

A046 1/1

ATTACHMENT
TURKEY POINT UNITS 3&4
GENERIC LETTER 88-14

INTRODUCTION

Turkey Point suffered degradation of safety-related components in July of 1985, due to contamination of the plant's instrument air system. Ref: LER 250/85-21; IE Inspection Report 85-40, 1/2/86; SSFI Report 85-32, 10/7/85. Since then, FPL has aggressively pursued improved system performance via upgraded maintenance and operating procedures, additional training of licensed and non-licensed operators, and reviews of system design and capacity. Specific actions related to requirements of GL 88-14 are delineated.

SCOPE

A list of air operated valves was developed, based on the Total Equipment Data Base listing. This list has been verified complete by comparison to instrument air system drawings as marked up during the Select System Program walkdown.

From this complete list, those valves relevant to GL 88-14 were selected. The selection was based primarily on the safety classification of the valves. The final test list comprises eleven (11) unit-common valves and two hundred and thirty-two (232) unit-specific valves.

REQUIREMENTS/STATUS

The requirements of the verification are quoted from GL 88-14 below, with the status of related activities:

1. "Verification by test that actual instrument air quality is consistent with the manufacturer's recommendations for individual components served."

   1a. Seventeen (17) air quality sample points were selected to obtain samples from diverse locations throughout the instrument air system.

   1b. An independent laboratory analyzed the air quality samples taken from the seventeen (17) selected air quality sample points. Each sample was determined to be within specification when compared to the industry standards used by the independent laboratory. Particulates were measured in milligrams per cubic meter of air sample. When compared to an industry standard of five (5) milligrams per cubic meter, none of the samples tested exceeded 0.5 milligrams per cubic meter.

   1c. FPL Engineering provided the air quality requirements for the valves on the test list. These requirements were based on the individual

valve manufacturers' recommendations.

1d. A comparison of the analyzed air quality samples to individual manufacturer recommended air quality requirements demonstrated that the actual instrument air quality is consistent with the manufacturer's recommendations. With respect to particulate micron size, manufacturer recommendations were compared to installed filter regulators. As a result of this comparison, FPL engineering recommended that filter regulators be installed on air operated valves that do not currently have filter regulators and that filters be replaced in various filter regulators with a different size filter. Cost estimates are being prepared for the recommended filter regulator enhancements. The cost estimates are scheduled to be presented to the FPL Change Review Team (CRT) by August 3, 1990.

2. "Verification that maintenance practices, emergency procedures, and training are adequate to ensure that safety-related equipment will function as intended on loss of instrument air."

2a. <u>Maintenance</u>

Selected maintenance procedures related to the availability of instrument air were reviewed. Many of these were created or revised since the 1985 events, specifically to upgrade the reliability of safety-related functions. These improvements were controlled via Administrative Procedure 0-ADM-705, Guidelines for the Analytical Based Preventive Maintenance Program. Application of this guiding procedure to the instrument air system is discussed later in this attachment. Several additional improvements were identified during the latest review and appropriate procedure changes have been implemented.

2b. <u>Emergency Procedures</u>

FPL's procedure for loss of instrument air is an off normal operating procedure (0-ONOP-013) rather than an emergency procedure. This off normal procedure was reviewed with regard to the concerns expressed in SOER 88-1, and validated on the training simulator; to date, no changes have resulted from this review and validation.

With the exception of restoration of instrument air inside containment (if possible), the emergency operating procedures do not address or take credit for instrument air availability. A success path is still available if an air operated valve is manipulated and "Response Not Obtained." Alternative action is then indicated, which is usually manual operation or operation of a manual valve.

2c. <u>Training</u>

All operators receive specific training on the off normal procedure for instrument air, and systems training on plant air systems. Licensed operators also receive simulator training on complete and partial loss of instrument air, as well as the more traditional simulations of individual component failures.

Conclusion

Based on the above information, maintenance practices, emergency procedures, and training are considered adequate to ensure that safety-related equipment will function as intended on loss of instrument air.

3. "Verification that the design of the entire instrument air system including air or other pneumatic accumulators is in accordance with its intended function, including verification by test that air-operated safety-related components will perform as expected in accordance with all design-basis events, including a loss of the normal instrument air system. This design verification should include an analysis of current air operated component failure positions to verify that they are correct for assuring required safety functions."

3a. Procedure changes, and in some cases plant modifications, were made for thirty-four (34) of forty-eight (48) air operated valves identified as utilizing accumulators. These actions were taken to ensure proper testing of the check valves associated with the accumulators for backleakage during a loss of instrument air.

Eight (8) air operated valves utilizing accumulators are part of the steam dump system and serve no safety function. Six (6) air operated valves utilizing accumulators are part of the Component Cooling Water System supplying the Emergency Containment Coolers. These six (6) valves are not required to change position to perform a safety function during a loss of instrument air. Therefore, surveillances for backleakage during a loss of instrument air will not be performed on the check valves associated with the accumulators on these fourteen (14) air operated valves.

3b. The failure positions for the valves on the test list were verified by test. Credit was taken for valves tested under the Inservice Testing (IST) Program and for valves tested via post maintenance testing.

3c. FPL Engineering compiled the design failure positions for valves on the test list. This information was based on reviews of design documentation.

3d. A comparison between the as-built failure positions and the plant design verified that the current failure positions are correct for assuring required safety functions. No discrepancies were identified during this comparison.

4. "In addition to the above, each licensee/applicant should provide a discussion of their program for maintaining proper instrument air quality."

Turkey Point has an extensive program for ensuring that proper instrument air quality is maintained. This program consists of proper operation, surveillance, maintenance and ongoing design review of the system to ensure it functions as intended. These four areas are discussed below.

Operation

Operation of the system is controlled by plant procedures which control the configuration of the system and the operation of system components. These procedures ensure that the normal system configuration from the compressors through the dryer after filters is such that compressor discharge air is cooled, the liquid water and any oil is removed, the air is dried, and particulates are removed prior to admitting the air to the distribution portion of the system. Component redundancy allows for maintenance without compromising air quality.

Surveillance

Plant procedures direct various surveillance activites to identify degradation of air quality. Plant Operator logsheets require (1) blowing down of drain traps upstream of the air dryers (to check for excessive moisture, indicative of trap sticking), (2) checking for proper operation of the after cooler automatic drain traps, and (3) blowing down the dryer after filter drains to check for moisture downstream of the dryers. The dryer control panels are equipped with alarm lights for control malfunctions and high outlet dew point.

Plant procedures require dryer outlet dew point to be tested weekly. Out of specification dew point requires action (notification of the system engineer, increased surveillance, troubleshooting per plant procedure, and blowdown of system drains). The extent of this required action is determined by the dew point.

Plant procedures also call for monitoring of system performance and reliability by the system engineer. This is accomplished through frequent system walkdowns to identify potential problems. The system engineer also performs other systematic activities to prevent system failure, predict system degradation, correct system problems, and thereby improve system reliability.

Maintenance

The Instrument Air System maintenance program has been developed in accordance with the Analytical Based Preventive Maintenance (ABPM) program. The goal of the program is to support the plant to preserve the operability and safety of plant system, structures, and components. The ABPM program prioritizes plant systems based on the need for improvement in system maintenance practices. For a particular system, analytical methods are used to generate a set of preventive maintenance (PM) procedures, and the periodicity under which each PM task is to be performed.

The Instrument Air System maintenance program was among the first to be upgraded under the ABPM program. The resulting PM procedures have ensured that instrument air system components are properly maintained at appropriate intervals. This in turn, ensures that the instrument air system continues to supply clean, dry, high quality air as designed.

The compressors currently in use are diesel driven, 100 % oil free, rotary screw units. These have provided a reliable source of compressed air. The original plant electric compressors have been removed from service due to concerns about Emergency Diesel Generator loading. The diesel compressors

and air-cooled after coolers provide a source of compressed air independent of both onsite and offsite electrical power. Maintenance of these units is performed by the vendor.

To further ensure that proper instrument air quality is provided to safety-related air operated valves, planned maintenance (PM) instructions will be developed, as necessary, that will require the filters in instrument air filter regulators to be inspected on a regular basis. This action is scheduled to be completed by December 7, 1990.

Design Review

To further enhance confidence in instrument air quality, a system upgrade project was presented to the FPL Change Review Team (CRT). The system upgrade included new electric air compressors to replace those currently unused, new air dryers, on-line dew point monitoring, and fewer unit crossties. The system upgrade has been sent out for equipment, construction, and engineering estimates. The FPL CRT will review the instrument air system upgrade project when the cost estimates have been developed.

Interfaces between the instrument air system and other systems which may result in contamination of the instrument air system are minimized by design. Interfaces with the service air system and supervisory air to the fire protection system dry piping were reviewed for possible elimination. These interfaces are necessary and will remain in place.

Summary

Considerable effort has gone into upgrading and expanding the operations, surveillance and maintenance practices regarding instrument air at Turkey Point, particularly since the occurrences described in LER 250/85-21. To date these efforts have included: (1) improvements to the plant operating procedures to ensure the system and its components are operated per design, (2) improvements to surveillance practices to ensure that component malfunctions or system problems are identified in a timely manner, and (3) improvements to the preventive maintenance program to ensure that system components are properly maintained, with the goal of preventing failures.

The result of these efforts has been to ensure that proper instrument air quality will be maintained at Turkey Point. In addition, efforts to further improve and refine these practices are continuing, as evidenced by the descriptions of the actions and ongoing programs described herein.