

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

February 15, 1991

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Serial No. 88-578A
NO/ETS R6
Docket Nos. 50-280
50-281
License Nos. DPR-32
DPR-37

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
SUPPLEMENTAL RESPONSE TO GENERIC LETTER 88-14
INSTRUMENT AIR SUPPLY SYSTEM PROBLEMS
AFFECTING SAFETY-RELATED SYSTEMS

By letter dated February 21, 1989, Virginia Electric and Power Company responded to Generic Letter 88-14, Instrument Air Supply System Problems Affecting Safety-Related Equipment. In that letter we stated our intent to upgrade the Surry Instrument Air Systems to supply safety-related air-operated components with air meeting the Instrument Society of America (ISA) Standard 7.3, Quality Standards for Instrument Air, 1981 revision. Upgrading air quality to ISA 7.3 was committed to due to a lack of definitive requirements specified by the manufacturers of the air-operated devices. Since the time of that submittal, we have been experiencing difficulty in meeting some of the requirements of ISA 7.3 for the Turbine Building and Containment Instrument Air Systems. Specifically, reducing the particulate size to 3 microns in both air systems and maintaining dew point at 35°F for the Containment Instrument Air System have been not accomplished to date.

The Turbine Building Instrument Air System, which normally supplies safety-related components outside containment, has been upgraded by replacing refrigerant dryers with desiccant-type dryers. This modification has substantially improved the air quality of that system. The ISA 7.3 standards for dew point and hydrocarbon content are presently being met with considerable margin. Particulate content has decreased, approaching but not yet meeting the ISA standard of three microns maximum particulate size. We believe that the ISA 7.3 particulate standard will eventually be met. However, industry experience since the issuance of GL 88-14 has shown that particulate content decreases at a very low rate when refrigerant dryers are replaced with desiccant dryers. This is the result of extremely dry air (dew point below -40°F) causing evaporation of moisture pockets and releasing particles which had previously been retained in these pockets. In addition, the piping contains particulate that had been "plated" on the pipe

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and becomes released during system transient flow conditions. These particles move with system air flow and must be removed by regular blowdowns of the system. Particulate counts will decrease only after dry air has been in the system long enough to free accumulated particulates and an adequate number of system blowdowns have occurred to remove them. Based on the results of instrument Air system blowdowns, it has become apparent that particulate cleanup in the Turbine Building Instrument Air System will extend over several operating cycles.

Compliance with the ISA 7.3 particulate standard will remain a long term goal. However, in the near term, we believe that a maximum particle size of five microns is a reasonable and achievable performance standard for the Turbine Building Instrument Air System. We are therefore modifying Item 1 of our response to Generic Letter 88-14 to commit to upgrading instrument air to meet ISA 7.3 with the exception of particulate size, which will be limited to five microns. As previously stated, the other air quality criteria of ISA 7.3 are being met for this system. A maximum particle size of five microns ensures adequate air quality for the air-operated components and, at the same time, takes into consideration the limitations of upgrading an air system with a long operating history.

The second issue concerns safety-related air-operated components inside containment that are supplied by the Containment Instrument Air System. This system is operated independently of the Turbine Building Instrument Air System and normally takes its suction directly from the containment atmosphere. The system can also take suction from the outside environment or be cross-connected to the Turbine Building Instrument Air System via a manual valve. During a design basis accident the Containment Instrument Air System suction and discharge lines are isolated from containment.

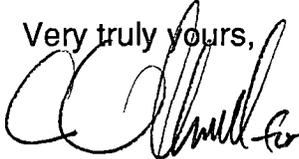
Presently, the Containment Instrument Air System does not meet the ISA 7.3 air quality standards for dew point and particulate. However, per the testing performed in accordance with the Generic Letter, we have verified the components in the system will perform their intended safety function. Review of operating history of system components substantiates the verification test conclusions. In addition, during the recently completed Unit 1 outage, numerous maintenance and performance verification activities were completed on the Containment Instrument Air System. These activities included system blowdowns, stroke testing of air-operated valves supplied by the Containment Instrument Air System, reconditioning of one of the air compressors, and preventive maintenance on both Containment Instrument Air Dryers. Results of these activities were satisfactory with no significant performance issues identified.

We are currently evaluating possible enhancements, modifications, or alternate modes of operation to improve the quality of instrument air supplied to safety-related components inside containment. The design package necessary to make the piping modifications that will provide instrument air to the containment from the Turbine Building Instrument Air System is proceeding. Using an air source outside containment to supply instrument air will add additional mass to the containment atmosphere, which

is required to be maintained subatmospheric for operation. Therefore, a special test must be performed to evaluate the capability of the Containment Vacuum System to maintain the containment subatmospheric. The special test will be conducted on Unit 2 following the next refueling outage. The results of this test will be evaluated, the design studies completed and a schedule for implementing appropriate modifications will be provided by November 30, 1991. In the interim the Containment Instrument Air System will continue to be monitored and maintained in accordance with the preventive maintenance and testing programs implemented for the Generic Letter.

Please contact us if you have any questions.

Very truly yours,



W. L. Stewart
Senior Vice President - Nuclear

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