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SUBJECT: Forwards three amended pages to 890224 submittal re instrument air supply sys problems.

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INDIANA MICHIGAN POWER

AEP:NRC:1075A

Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
INSTRUMENT AIR SUPPLY SYSTEM PROBLEMS AFFECTING
SAFETY-RELATED EQUIPMENT: AMENDMENT TO OUR LETTER TO NRC
AEP:NRC:1075, DATED FEBRUARY 24, 1989 (Ref: NRC GL 88-14)

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

Attn: T. E. Murley

March 23, 1989

Dear Dr. Murley:

The purpose of this letter is to amend three pages of our submittal letter AEP:NRC:1075, dated February 24, 1989. The amended pages have margin bars to indicate the changes. Please correct the original pages or insert the amended pages attached (page 5 of Attachment 1, page 2 of Attachment 2 and page 2 of Attachment 3).

The first amendment is under the "Component and System Design" description in Section B.1 on page 5 of Attachment 1 to our original submittal. The Plant Nuclear Safety Review Committee reviewed and approved on March 16, 1989 a minor modification (MM-019) that will remove the check valve internals in each starting air system train. The basis for this change is discussed below. The amended page deletes all reference to these check valves. Our decision to remove the internals of the check valves is based on the following points:

1. The air-operated starting air supply valve, followed by the check valve (one each per supply train), is located immediately upstream of the cross-tie line.

2. Should one supply train fail and depressurize prior to a diesel start, the associated air-operated starting air supply valve will not open. This will prevent backflow from the intact supply train to the failed supply train.

A001
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3. The cross-tie is provided to ensure that air is supplied to all the engine cylinders, thus ensuring the fast start (10 seconds or earlier per the Technical Specifications requirements), should one of the air-operated valves fail to open.

4. It is emphasized that in the event of a failure to start one of the EDGs in each unit, the other intact EDG will start and meet the plant emergency power supply requirements.

The second amendment is under "Particle Size" in Section B on page 2 of Attachment 2. This change provides a time reference regarding the monthly delta-P readings on pre- and after-filters in the instrument/control air system.

The third amendment is under "Emergency Procedures" in Section B on page 2 of Attachment 3. This change corrects the title of the relevant procedure from "emergency operating procedure" to "emergency procedure," and deletes the following sentence "In addition, operating procedures for each unit specifically address responses to a loss of control air." This sentence was redundant in the original document.

This letter is submitted pursuant to 10 CFR 50.54(f) and, as such, an oath of affirmation is enclosed.

Sincerely,

M. P. Alexich
Vice President

SVR/eh

cc: D. H. Williams, Jr.
W. G. Smith, Jr. Bridgman
R. C. Callen
G. Charnoff
A. B. Davis
NRC Resident Inspector - Bridgman
G. Bruchmann

STATE OF OHIO)
COUNTY OF FRANKLIN)

Milton P. Alexich, being duly sworn, deposes and says that he is the Vice President of licensee Indiana Michigan Power Company, that he has read the foregoing response to NRC Generic Letter 88-14, "Instrument Air Supply Problems Affecting Safety-Related Equipment," and knows the contents thereof; and that said contents are true to the best of his knowledge and belief.

M P Alexich

Subscribed and sworn to before me this 23d day of March, 1989.

NOTARY PUBLIC

Commission expires 3-9-91

B. Component and System Design

1. Compressors and Associated Equipment and Air Distribution System

Each engine has its own SAS that is totally independent of the plant CAS. Each system consists of two redundant air supply trains having a compressor, receiver, starting air supply valve and controls. Each supply train is capable of starting the engine. The two trains are cross-tied at the engine starting air manifolds. Each train supplies air through an air-operated starting supply valve. Additionally, an air-operated turbo jet assist valve enables the "fast" start of each engine on demand. The air supply to the turbo jet assist valves is through pressure regulators. The jet assist valves automatically open for the fast start.

As stated earlier, two starting air supply trains serve each engine. Each train consists of an air receiver to store the pressurized starting air and a motor-driven air compressor to maintain the air receiver pressure within a range of 220 and 240 psig. There is a cross-tie containing a manual valve between the two compressor discharge pipes. This valve is normally closed to isolate the two starting air supply trains. If, however, one of the air compressors is out of service, the valve will be opened by operator action to keep both air receivers properly pressurized.

The above redundancies in the compressors and their associated equipment as well as the supply and distribution lines of the SAS ensure adequate starting air for the EDGs.

Finally, since the emergency diesel generators are normally in a standby mode, the supporting starting air system compressors are operated only to maintain the associated air receivers charged to full pressure to ensure a fast starting capability. Given this intermittent operation, system air quality testing is not appropriate and is, therefore, not addressed in Attachment 2. Further, since diesel generator operability is addressed in the technical specification surveillance requirements, the maintenance practices for the dryers and compressors are included in the plant's Preventive Maintenance Program. They are, therefore, not described further in Attachment 3. The starting air supply valves and turbo jet assist valves described above are further discussed in Section C.5 of Attachment 4.

B. Particle Size

ANSI/ISA-S 7.3 specifies that "the maximum particle size in the air stream at the instrument shall be three (3) micrometers (microns)." The two trains of control air dryer after-filters at the Cook Nuclear Plant have a rated particle retention size of five (5) microns. There is no filter bypass. Additionally, pressure reducing station filters located downstream of the after-filters are rated as "removing 98% of all particulate matter greater than 0.07 microns." The control air to containment does not pass through this additional set of filters. An engineering analysis comparing instrument orifice sizes and dryer post-filter sizes was, however, completed in response to INPO SOER 88-01. This determined that the five-micron rating of the after-filters was adequate for protecting air quality for the air-operated equipment inside containment.

Particulate sampling is not currently being performed. Based on an engineering review of the maintenance history at Cook Nuclear Plant, documented in response to NRC IE IN 87-28, particulate sampling is not considered to be warranted at this time. Monthly differential pressure (delta-P) measurements are, however, being taken across the dryer after-filters as part of the Preventive Maintenance (PM) Program. Higher than normal readings would be indicative of unusual particulate or other loading of these filters. This program calls for the periodic monitoring and changeout of filter elements (including those in the pressure reducing stations) on a scheduled basis, before any significant deterioration can occur.

Pre- or after-filters would be replaced if filter delta-P as found during monthly testing approaches 12" H_2O. The plant has not observed/recorded any evidence during the recent 7 or 8 years that the delta-P across these filters had ever approached 12" H_2O. The dryer desiccant charge is replaced on an annual basis. This preventive maintenance is considered adequate to prevent particulate carryover into the CAS, based on manufacturers' recommendations.

By way of specific operating history, the after-filters were replaced in April 1988 as part of the PM program, and delta-P monitoring was instituted to track the "loading" of the dryers and filters. The differentials started out at, and remained at, between 1 and 2 inches of water, with no apparent loading of the filters after 8 months of operation.

policy also addresses temporary and permanent modifications and requires that post-modification testing be performed depending on the work/adjustments made. A design change implementation also often entails post-installation testing of safety-related equipment and components. The existing design process identifies all test requirements in accordance with a control valve specification for the fail-safe testing after a design change is performed. Routine fail-safe testing is performed in accordance with appropriate surveillance procedures. These procedures are derived from the Technical Specifications or the second ten-year Inservice Testing Program submitted to the NRC in 1987.

B. Emergency Procedures

Expected system and plant responses to a loss of instrument air are provided in the Cook Nuclear Plant emergency procedures for loss of control air and annunciator response procedures for plant systems. These emergency procedures include both automatic and required manual responses expected upon a reduction in control air system pressure. These procedures list symptoms of air supply loss and identify the failure positions of key air-operated valves upon a complete air loss. In addition, the procedures direct operator action to trip the unit and begin a cooldown when the 100 psi control air header decreases to 80 psig. Subsequent operations are in accordance with the established emergency procedures for "Reactor Trip or Safety Injection" and "Reactor Trip Response" as applicable.

The combination of the existing emergency and operating procedures is considered to adequately address GL 88-14 in relation to the functioning of safety-related equipment on loss of instrument air.

C. Training

Emphasis on the importance of the instrument air system has been included in training for Maintenance (Mechanical Maintenance) personnel by including the recommendations of INPO's SOER 88-01 in a related lesson on Plant Air Systems. The importance is also stressed in the system training lesson plan for I&C personnel, which also includes specific problems of air systems mentioned in SOER 88-01 and NRC IN 87-28.

Operator training (utilizing INPO SOER 88-01, and NRC IN 87-28) has sensitized the Cook Nuclear Plant's operators to the importance of air systems and illustrated problems caused when air systems are contaminated or neglected. This training also serves to familiarize the operators with the