THE CLEVELAND ELECTRIC ILLUMINATING COMPANY
ILLUMINATING BLDG. • PUBLIC SQUARE • CLEVELAND, OHIO 44101 • TELEPHONE (216) 623-1350 • MAIL ADDRESS: P.O. BOX 5000
Serving The Best Location in the Nation

Dalwyn R. Davidson
VICE PRESIDENT
SYSTEM ENGINEERING AND CONSTRUCTION

June 7, 1982

Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Schwencer:

Perry Nuclear Power Plant
Docket Nos. 50-440; 50-441
SER Open Item-
HPCS D/G Auxiliary Piping

This letter is provided in response to SER Open Item No. 17 and FSAR Question 430.17 regarding Quality group classification of HPCS diesel generator skid-mounted auxiliary piping. This response supplements our earlier response to question 430.17 transmitted in a letter dated April 29, 1982.

It is CEI's position the PNPP HPCS diesel generator auxiliaries have been adequately designed in accordance with the guidelines of Regulatory Guide 1.26 and can be considered equivalent to a system designed to ASME Section III Class 3 requirements with regard to system functional operability and inservice reliability. The basis for this conclusion is the requirements imposed on the design, manufacture, inspection and testing, described in detail in the attachment to this letter.

Essentially, Seismic Category I, ANSI B31.1, ANSI 45.2, and 10 CFR Appendix B were specified for the auxiliary piping and components. The auxiliary systems have operating pressures well below design capabilities and a proven history of reliable operational experience. Additionally, PNPP requirements for pre-operational testing, vendor material certifications, and augmented visual and liquid penetrant examinations effectively eliminate the technical differences between ANSI B31.1 and ASME Section III, Class 3 requirements.

We believe this letter and its attachment should resolve this matter and eliminate this item as an open issue in the Perry SER.

Very truly yours,

Dalwyn R. Davidson

Dalwyn R. Davidson
Vice President
System Engineering and Construction

DRD:dlp

cc: Jay Silberg, Esq.
John Stefano
Max Gildner

B001

The HPCS Diesel Generator auxiliary systems has been designed as described in FSAR text Section 9.5. Specifically, the components and piping systems are designated Seismic Category I and are designed either to ASME Section III Safety Class 3 or ANSI B31.1 requirements. Utilization of the codes described above meets Regulatory Guide 1.26 which requires the design and associated quality requirements be based on the importance to safety of the plant. There are few technical differences between ANSI B31.1 and ASME Section III, Class 3. Specifying all safety class auxiliaries as Seismic category I and requiring qualification and pre-operational testing further reduces these differences as reflected in the following table. PNPP also notes that conservative design pressures were utilized in the auxiliary systems piping design. Verification that correct piping and component materials were used(material certification) during the manufacturing process should eliminate the need for actual mill test reports for piping. The discussion following the table specifically delineates the differences between the two codes and PNPP's specific design for each of the diesel engine auxiliary systems.

PNPP considers that an acceptable alternative, which provides an equivalent level of design and quality as ASME Section III Class 3 requirements, has been provided in its HPCS diesel generator auxiliary systems design.

ASME SECTION III, 3	ANSI B31.1
1) Requires ASME materials and mill test reports for piping.	1) Requires only material certifications.
2) Requires seismic design in addition to the B31.1 requirements.	2) Requires design for pressure, temperature, and normal operating loads.
3) Requires liquid penetrant examination for welds over 4" IPS.	3) Requires only visual inspection of welds for design pressure and temperatures of the auxiliaries.
4) Requires hydrostatic test to 1.25 x design pressure.	4) Requires initial service leak test.

The diesel generator auxiliaries are separated into three different segments for design and manufacture, as described in FSAR Section 9.5.

- The auxiliaries that were supplied as a part of the diesel engine skid and diesel starting air skid.
- The fuel oil storage tanks and day tanks(provided by a tank fabricator).
- The piping that connects the DSA skid with the engine skid, fuel oil storage tanks and day tanks to the engine skid, the cooling water reservoir tank to the cooling water heat exchanger and the diesel engine air intake and exhaust.

A discussion of each segment follows.

Diesel Engine and Diesel Starting Air (DSA) Skid

The diesel generator units and their skid-mounted auxiliary systems are designed, fabricated, shop installed, inspected and examined, and tested in accordance with the commitments in FSAR Table 3.2-1, "Equipment Classification."

The engine-mounted piping and components of the fuel oil, engine cooling water (except heat exchangers - ASME Section III, Class 3), starting air and lubricating oil systems are seismically qualified to Category I requirements as part of the diesel engine skid. These systems, furnished with the engine, are the standard systems developed by the engine manufacturer in accordance with DEMA standards, and have a long history of service and reliability. These systems, piping, and components, are designed, fabricated, inspected, installed, examined, and tested in accordance with the guidelines and requirements of ANSI B31.1.

It should be also noted that it is not possible to obtain all auxiliary components to ASME Section III, Class 3 requirements. For example, the diesel oil pump, lubricating oil pump. filters and flex hoses could not be purchased to ASME Section III, Class 3, since they are unique to engine component manufacturers, which do not manufacture to ASME Section III, Class 3 requirements.

For the engine skid and DSA-skid, the technical differences between ANSI B31.1 and ASME Section III, Class 3 are reduced by the specification of Seismic Category I and PNPP intent per test requirements to perform a system pressure test in accordance with the hydrostatic test parameters specified in ASME Section III, Class 3. The technical differences are delineated in the following paragraph, formatted consistent with the above table.(Technical differences are distinguished from the Section III, Class 3 administrative requirements in that a technical difference will result in a difference in construction, whereas an administrative requirement provides additional paper evidence the work was done in accordance with the Code.)

1) By invoking ANSI B31.1, PNPP has received material certification(certificates of compliance) for the skid-mounted piping components and piping. Mill test reports for piping as required by ASME Section III cannot be obtained.

2) By specifying the skids to be Seismic Category I, the skids and auxiliaries on them will withstand a seismic event.

3) The only piping on the diesel engine skids that is over 4" are the 6" lines between the cooling water heat exchanger, expansion tank, and engine block. These have not been liquid penetrant examined, but will be prior to preoperational testing.

4) The engine auxiliary systems will be at operating pressure for a considerable period of time throughout plant startup testing and thus, will provide a good test of their leak tightness before the systems are put into operation. Because of the overspecified design pressure of the components and piping, the chance for leakage at other than mechanical joints is low. The expansion tank will be hydrostatically tested at 1.5 times its design pressure and the reservoir tank will be tested at 1.5 times its design pressure. The time at operating pressure during pre-operational testing will be as likely to expose a leak as would occur during operation at the higher, but shorter duration test time of 10 minutes required by ASME Section III, Class 3.

Diesel Oil Storage Tank, Day Tank Supplied by Fabricator

These components are ASME Section III, Class 3.

Piping and Components Connecting Skids

The fuel oil piping up to the diesel engine skid, and the cooling water system's piping and components up to the diesel engine heat exchanger, are designed, fabricated, inspected, installed, examined, and tested in accordance with ASME Section III, Class 3 requirements.

The piping connecting the diesel oil storage tank, day tank, and engine skid, is ASME Section III, Class 3. The piping connecting the DSA skid to the engine skid and the piping connecting the cooling water reservoir tank and the cooling water heat exchanger are designed, fabricated, inspected, installed, examined, and tested in accordance with ANSI B31.1 and is designated Seismic Category I. Performance of hydrostatic testing to 1.5 times design pressure will also be accomplished during PNPP onsite testing of the auxiliary systems.

Essential components of the starting air system are designed in accordance with the requirements of Section III of the ASME Code. The system is classified Safety Class 3 and Seismic Category I from the check valve upstream of the receiver tanks. The air intake and exhaust system, except for the crankcase vent lines and exhaust silencers is also classified Seismic Category I Safety Class 3. Piping and components up to the diesel engine interface, are designed in accordance with ASME Section III requirements. For both systems, the time at operating pressure during preoperational testing will be as likely to expose a leak as would occur during operation at the higher, but shorter duration test time of 10 minutes required by ASME Section III, Class 3. Therefore, the technical differences between ANSI B31.1 and ASME Section III, Class 3 are largely closed.