

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 FACIL: 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana & 05000316
 AUTH. NAME: AUTHOR AFFILIATION:
 HUNTER, R.S. Indiana & Michigan Electric Co.
 RECIP. NAME: RECIPIENT AFFILIATION:
 DENTON, H.R. Office of Nuclear Reactor Regulation

SUBJECT: Submits addl info re current status of four requirements of
 NUREG-0578 concerning direct indication of safety valve
 position, subcooling meter, sys integrity for high
 radioactivity & post-accident sampling.

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NOTES: I & E - 3 cys ALL MATL.

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THE
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D. C. 20240

MEMORANDUM FOR THE RECORD

SUBJECT: [Illegible]

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INDIANA & MICHIGAN ELECTRIC COMPANY

P. O. BOX 18
BOWLING GREEN STATION
NEW YORK, N. Y. 10004

December 19, 1979
AEP:NRC:00253B

Donald C. Cook Nuclear Plant Unit No. 2
Docket No. 50-316
License No. DPR-74

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Denton:

During telephone discussions with members of your staff on December 18 and 19 we were requested to supply additional information concerning the most current status of four requirements in NUREG-0578. These requirements are those for which we had previously indicated that we could not meet the NRC implementation date. The four items are: 2.1.3.a Direct Indication of Safety Valve Position, 2.1.3.b Subcooling Meter, 2.1.6.a System Integrity for High Radioactivity, and 2.1.8.a Post Accident Sampling. The NRC-required implementation date for these items established in NUREG-0578 is January 1, 1980. Our previous two letters responding to NUREG-0578 are dated October 24 (AEP:NRC:00253) and November 26 (AEP:NRC:00253A).

On Item 2.1.3.a, Direct Indication of Safety Valve Position, we have taken all steps necessary to insure that an acoustic monitoring system will be installed on the three pressurizer safety valves and on the common discharge header from the power-operated relief valves by January 1, 1980. The system will meet clarification items 1, 2, 3, and 4 of Mr. Eisenhut's October 30 letter. The system will, in the long term, meet clarification item 5; a proposed schedule for implementation of the environmental qualification program will be provided at a later date. The acoustic monitoring system is in addition to the limit switches and temperature indication and alarm in the common discharge pipe displayed in the Control Room for the PORV's, and the individual discharge temperature indications and alarms displayed in the Control Room for the safety valves.

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On Item 2.1.3.b, Subcooling Meter, the delivery date for the subcooling meter has been advanced ten days to January 15. We are investigating methods to install the meter sooner than our currently scheduled April 1, 1980 date. A Unit outage is not required for this work. As an added step in providing information on saturation margin to the operators, we have written a program to be incorporated in the PRODAC 250 computer system as a substitute for the subcooling meter until the meter is installed. The process inputs include:

- 1) Eight incore thermocouples, two per quadrant.
Selection of incore thermocouples will be made internally so that any eight thermocouples can be used.
- 2) Eight reactor coolant system wide range RTD's, both hot leg and cold leg.
- 3) Two wide range reactor coolant loop system pressures.

By selecting the lowest wide range pressure, the margin to saturation is calculated based on:

- 1) Highest RTD reading
- 2) Highest thermocouple reading
- 3) Average of RTD readings except for the highest RTD reading and the lowest RTD reading.
- 4) Average of all T/C readings except for the highest T/C reading and the lowest T/C reading.

These calculations will provide four separate answers which will be recorded by the trend typewriter every fifteen minutes.

An existing annunciator will be alarmed when the alarm setpoint is reached or when there is an unreliable input. The PRODAC 250 alarm typewriter will also alarm with a message being printed out. The alarm setpoint can be varied.

The computer calculation can be output to various devices, such as: trend typewriter, alarm typewriter, digital display and/or an analog recorder by individual selection. Attachment 1 gives further information on the PRODAC computer.

The experience with the PRODAC computer has shown a reliability of approximately 95%. In case of loss of offsite power, the PRODAC continues to operate off its own inverter fed by the station battery.

This computer program is in addition to the curves of saturation temperature versus reactor coolant pressure for which the operators have a procedure and have been instructed to use.

On Item 2.1.6.a, System Integrity for High Radioactivity, we have identified the systems or portions of systems for leak test surveillance to be completed by April 1, 1980. These systems will be included in our plant preventive maintenance program. By January 1, 1980 we will have inspected, measured the leakage, and repaired as necessary, the reactor coolant letdown path and charging flow path. The results of our test on these systems will be available for NRC inspection at the Plant by January 1, 1980. We will continue performing the inspection program such that by April 1 or sooner, the remaining systems will be completed. All initial system results will be submitted to NRC for review by April 1 or sooner. This program will be performed on these systems at least once per refueling cycle. The results of annual tests will be available for NRC review at the Plant. We are currently developing a method of inspecting the systems which contain gases and will complete these in the program outlined above. In addition to this preventive maintenance program, we have in place at Cook Plant the additional leakage detection systems indicated in our two previous letters. We do not foresee requiring special equipment that would prevent us from completing this work by April 1, 1980.

Test procedures of liquid systems do not require a Unit shutdown. The gas systems are presently being evaluated for impact on plant status during test.

On Item 2.1.8.a, Post Accident Sampling, we will complete by January 1, 1980 the installation of two interim sampling systems for taking post accident samples; one to take samples of reactor coolant and the other to take a sample of containment atmosphere. Modifications will be made and procedures in place by the end of the year. We discussed the design of these interim sampling systems with members of your staff in a telephone conversation of December 10.

Our longer term program, in which we are working with an outside contractor, still has a date of April 1, 1980 for submitting to you the description of plant modifications and target date for implementing major plant modifications.

These additional steps being undertaken reflect positive action towards strengthening our position previously described in our two letters AEP:NRC:00253 and 253A. We recognize the need to incorporate the lessons learned from the TMI-2 accident as quickly as is reasonably possible. We will continue to periodically monitor the progress on these four items as well as the remaining NUREG-0578 requirements to make sure that we complete the required analyses and modifications on schedule.

Our schedule for returning Unit No. 2 to power is:


Close the containment - December 23

Criticality - December 25

Parallel - December 28

We request your approval to proceed with our startup on this schedule, including your issuing to us the staff evaluation report on the battery conversion for the turbine driven auxiliary feedwater pump which is needed to enter Mode 3.

Very truly yours,


R. S. Hunter
Vice President

RSH/emc
Attachment

cc: R. C. Callen
G. Charnoff
John E. Dolan
R. W. Jurgensen
D. V. Shaller - Bridgman

INFORMATION REQUIRED ON THE PRODAC

Display

Information Displayed (T-Tsat, Tsat, Press, etc.)

Display Type (Analog, Digital, CRT)

Continuous or on Demand

Single or Redundant Display

Location of Display

Alarms (include setpoints)

Overall uncertainty (°F, PSI)

Range of Display

Qualifications (seismic, environmental, IEEE323)

T-T_{sat}, Temps, Pressures

Digital

Automatic, 4 per hour
and on demand

Single but backup
for output

Control Room

Yes, 30°F

0

Adjustable

-

Calculator

Type (process computer, dedicated digital or analog calc.)

If process computer is used specify availability. (% of time)

Single or redundant calculators

Selection Logic (highest T., lowest press)

Qualifications (seismic, environmental, IEEE323)

Calculational Technique (Steam Tables, Functional Fit, ranges)

Process Computer

Approx. 95%

Single

Highest T and lower
pressure

-

Functional Fit agrees
with Steam Tables to
accuracy of 1 part in
a 1000.

Input

Temperature (RTD's or T/C's)

Temperature (number of sensors and locations)

Range of temperature sensors

Both

See Note 1 8 RTDs, hot & cold
legs T/Cs (2 per quad.)

RTDs 0-700°F

T/C 0-2500°F

Uncertainty* of temperature sensors (°F at 1)
Qualifications (seismic, environmental, IEEE323)
Pressure (specify instrument used)
Pressure (number of sensors and locations)
Range of Pressure sensors
Uncertainty* of pressure sensors (PSI at 1)
Qualifications (seismic, environmental, IEEE323)

Wide range RTDs = 3.5°F

T/Cs = <6°F

RTDs - See Note 2

T/C- Control Grade

Wide Range RCS

2 RCS Loops 1 & 2

0 -3000 psi

30 psi "

See Note 2

Backup Capability

Availability of Temp & Press
Availability of Steam Tables etc.
Training of operators
Procedures

Procedure & Sat. Curves

Pasted to Control Room Panel

Yes

Yes

*Uncertainties must address conditions of forced flow and natural circulation

NOTE 1 - Input to P-250

NOTE 2 - See I&MPCo. response to IE Bulletin 79-01 dated June 28, 1979
(AEP:NRC:00253) further supplemented by our October 15, 1979 submittal
AEP:NRC:00277.

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