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Docket Nos. 50-237  
50-249  
50-254  
and 50-265

FEBRUARY 20 1980

Mr. D. Louis Peoples  
Director of Nuclear Licensing  
Commonwealth Edison Company  
P. O. Box 767  
Chicago, Illinois 60690

Dear Mr. Peoples:

We have enclosed corrected pages 88 and 93 for both DPR-19 and DPR-25, and corrected pages 3.6/4.6-2 and 3.6/4.6-9 for both DPR-29 and DPR-30. These corrections are in response to your letter of October 2, 1979 which brought to our attention that substitute pages enclosed with amendments issued August 13, 1979 for the named license did not incorporate the currently approved specified pages.

Distribution  
✓ Docket ACRS (16)  
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Sincerely,  
Original Signed By  
T. A. Ippolito

Thomas A. Ippolito, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

Enclosures:  
As stated

cc w/enclosures:  
See page 2

OFFICE	ORB #3	ORB #3	ORB #3			
SURNAME	SSheppard	RBevan:mjf	Tippolito			
DATE	2/ /80	2/ /80	2/ /80			8004080296

Mr. D. Louis Peoples  
Commonwealth Edison Company

- 2 -

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**3.6 LIMITING CONDITION FOR OPERATION****B. Pressurization Temperature**

1. The reactor vessel shall be vented and power operation shall not be conducted unless the reactor vessel temperature is equal to or greater than that shown in Curve C of Figure 3.6.1. Operation for hydrostatic or leakage tests, during heatup or cooldown, and with the core critical shall be conducted only when vessel temperature is equal to or above that shown in the appropriate curve of Fig. 3.6.1. Figure 3.6.1 is effective through 6 effective full power years. At least six months prior to 6 effective full power years new curves will be submitted.
2. The reactor vessel head bolting studs shall not be under tension unless the temperature of the vessel shell immediately below the vessel flange is  $\geq 100^{\circ}\text{F}$ .

**C. Coolant Chemistry**

1. The reactor coolant system radioactivity concentration in water shall not exceed 20 microcuries of total iodine per ml of water

**4.6 SURVEILLANCE REQUIREMENT****B. Pressurization Temperature**

1. Reactor Vessel shell temperature and reactor coolant pressure shall be permanently recorded at 15 minute intervals whenever the shell temperature is below  $220^{\circ}\text{F}$  and the reactor vessel is not vented.
2. When the reactor vessel head bolting studs are tightened or loosened the reactor vessel shell temperature immediately below the head flange shall be permanently recorded.
3. Neutron flux monitors and samples shall be installed in the reactor vessel adjacent to the vessel wall at the core midplane level. The monitor and sample program where possible conform to ASTM E 185. The monitors and samples will be removed and tested as outlined in Table 4.6.2 to experimentally verify the calculated values of integrated neutron flux that are used to determine NDTT for Figure 4.6.1.

**C. Coolant Chemistry**

1. a. A sample of reactor coolant shall be taken at least every 96 hours and analyzed for radio-activity.
- b. Isotopic analysis of a sample of reactor coolant shall be made at least once per month.

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- b) the relationship between  $RT_{NDT}$  and integrated neutron flux (fluence, at energies  $> 1$  Mev), and
- c) the fluence at the location of a postulated flow.

The initial  $RT_{NDT}$  of the main closure flange, the shell and head materials connecting to these flanges, and connecting welds is  $100^{\circ}F$ . However, the vertical electroslag welds which terminate immediately below the vessel flange have an  $RT_{NDT}$  of  $40^{\circ}F$ . Reference Appendix F to the FSAR. The closure flanges and connecting shell materials are not subject to any appreciable neutron radiation exposure, nor are the vertical electroslag seams. The flange area is moderately stressed by tensioning the head bolts. Therefore, as is indicated in curves (a) and (b) of Figure 3.6.1, the minimum temperature of the vessel shell immediately below the vessel flange is established as  $100^{\circ}F$  below a pressure of 400 psig. ( $40^{\circ}F + 60^{\circ}F$ , where  $40^{\circ}F$  is the  $RT_{NDT}$  of the electroslag weld and  $60^{\circ}F$  is a conservatism required by the ASME Code). Above approximately 400 psig pressure, the stresses associated with pressurization are more limiting than the bolting stresses, a fact that is reflected in the non-linear portion of curves (a) and (b). Curve (c), which defines the temperature limitations for critical core operation, was established per Section IV 2.c. of Appendix G of 10CFR50. Each of the curves, (a), (b) and (c) define temperature limitations for unirradiated

ferretic steels. Provision has been made for the modification of these curves to account for the change in  $RT_{NDT}$  as a result of neutron embrittlement.

The withdrawal schedule in Table 4.6.2 is based on the three capsule surveillance program as defined in Section 11.C.3.a of 10 CFR 50 Appendix H. The accelerated capsule (Near Core Top Guide) are not required by Appendix H but will be tested to provide additional information on the vessel material.

This surveillance program conforms to ASTM E 185-73 "Recommended Practice for Surveillance Tests for Nuclear Reactor Vessels" with one exception. The base metal specimens of the vessel were made with their longitudinal axes parallel to the principle rolling direction of the vessel plate.

**3.6 LIMITING CONDITION FOR OPERATION****B. Pressurization Temperature**

1. The reactor vessel shall be vented and power operation shall not be conducted unless the reactor vessel temperature is equal to or greater than that shown in Curve C of Figure 3.6.1. Operation for hydrostatic or leakage tests, during heatup or cooldown, and with the core critical shall be conducted only when vessel temperature is equal to or above that shown in the appropriate curve of Fig. 3.6.1. Figure 3.6.1 is effective through 6 effective full power years. At least six months prior to 6 effective full power years new curves will be submitted.
2. The reactor vessel head bolting studs shall not be under tension unless the temperature of the vessel shell immediately below the vessel flange is  $\geq 100^{\circ}\text{F}$ .

**C. Coolant Chemistry**

1. The reactor coolant system radioactivity concentration in water shall not exceed 20 microcuries of total iodine per ml of water

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1. Reactor Vessel shell temperature and reactor coolant pressure shall be permanently recorded at 15 minute intervals whenever the shell temperature is below  $220^{\circ}\text{F}$  and the reactor vessel is not vented.
2. When the reactor vessel head bolting studs are tightened or loosened the reactor vessel shell temperature immediately below the head flange shall be permanently recorded.
3. Neutron flux monitors and samples shall be installed in the reactor vessel adjacent to the vessel wall at the core midplane level. The monitor and sample program where possible conform to ASTM E 185. The monitors and samples will be removed and tested as outlined in Table 4.6.2 to experimentally verify the calculated values of integrated neutron flux that are used to determine NDTT for Figure 4.6.1.

**C. Coolant Chemistry**

1. a. A sample of reactor coolant shall be taken at least every 96 hours and analyzed for radio-activity.
- b. Isotopic analysis of a sample of reactor coolant shall be made at least once per month.

- b) the relationship between  $RT_{NDT}$  and integrated neutron flux (fluence, at energies  $> 1$  Mev), and
- c) the fluence at the location of a postulated flow.

The initial  $RT_{NDT}$  of the main closure flange, the shell and head materials connecting to these flanges, and connecting welds is  $100^{\circ}F$ . However, the vertical electroslag welds which terminate immediately below the vessel flange have an  $RT_{NDT}$  of  $40^{\circ}F$ . Reference Appendix F to the FSAR. The closure flanges and connecting shell materials are not subject to any appreciable neutron radiation exposure, nor are the vertical electroslag seams. The flange area is moderately stressed by tensioning the head bolts. Therefore, as is indicated in curves (a) and (b) of Figure 3.6.1, the minimum temperature of the vessel shell immediately below the vessel flange is established as  $100^{\circ}F$  below a pressure of 400 psig. ( $40^{\circ}F + 60^{\circ}F$ , where  $40^{\circ}F$  is the  $RT_{NDT}$  of the electroslag weld and  $60^{\circ}F$  is a conservatism required by the ASME Code). Above approximately 400 psig pressure, the stresses associated with pressurization are more limiting than the bolting stresses, a fact that is reflected in the non-linear portion of curves (a) and (b). Curve (c), which defines the temperature limitations for critical core operation, was established per Section IV 2.c. of Appendix G of 10CFR50. Each of the curves, (a), (b) and (c) define temperature limitations for unirradiated

ferrectic steels. Provision has been made for the modification of these curves to account for the change in  $RT_{NDT}$  as a result of neutron embrittlement.

The withdrawal schedule in Table 4.6.2 is based on the three capsule surveillance program as defined in Section 11.C.3.a of 10 CFR 50 Appendix H. The accelerated capsule (Near Core Top Gu<sup>?</sup>) are not required by Appendix H but will be tested to provide additional information on the vessel material.

This surveillance program conforms to ASTM E 185-73 "Recommended Practice for Surveillance Tests for Nuclear Reactor Vessels" with one exception. The base metal specimens of the vessel were made with their longitudinal axes parallel to the principle rolling direction of the vessel plate.

QUAD-CITIES  
DPR-29

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2. The reactor vessel heat bolting studs shall not be under tension unless the temperature of the vessel shell immediately below the vessel flange is  $\geq 100^\circ \text{F}$ .

C. Coolant Chemistry

1. The steady-state radioiodine concentration in the reactor coolant shall not exceed  $5 \mu\text{Ci}$  of I-131 dose equivalent per gram of water.

below  $220^\circ \text{F}$  and the reactor vessel is not vented.

2. Neutron flux monitors and samples shall be installed in the reactor vessel adjacent to the vessel wall at the core midplane level. The monitor and sample program shall conform to ASTM E 185-66. The monitors and samples shall be removed and tested in accordance with the guidelines set forth in 10CFR50 Appendix H

to experimentally verify the calculated values of integrated neutron flux that are used to determine the NDTT for Figure 3.6-1.

3. When the reactor vessel head bolting studs are tightened or loosened, the reactor vessel shell temperature immediately below the head flange shall be permanently recorded.

C. Coolant Chemistry

1. a. A sample of reactor coolant shall be taken at least every 96 hours and analyzed for radioactive iodines of I-131 through I-135 during power operation. In addition, when chimney monitors indicate an increase in radioactive gaseous effluents of 25% or  $5000 \mu\text{Ci}/\text{sec}$ , whichever is greater, during steady-state reactor operation, a reactor coolant sample shall be taken and analyzed for radioactive iodines.  
b. An isotopic analysis of a reactor coolant sample shall be made at least once per month.  
c. Whenever the steady-state radioiodine concentration of prior operation is greater than 1% but less

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1. The reference nil-ductility temperature ( $RT_{NDT}$ ) for all vessel and adjoining materials.
2. The relationship between  $RT_{NDT}$  and integrated neutron flux (fluence, at energies  $> \text{MeV}$ ), and
3. The fluence at the location of a postulated flaw.

The initial  $RT_{NDT}$  of the main closure flange, the shell and head materials connecting to these flanges, and connecting welds is  $10^{\circ}\text{F}$ . However, the vertical electroslag welds which terminate immediately below the vessel flange have an  $RT_{NDT}$  of  $40^{\circ}\text{F}$ . Reference Appendix F to the Dresden FSAR. The closure flanges and connecting shell materials are not subject to any appreciable neutron radiation exposure, nor are the vertical electroslag seams. The flange area is moderately stressed by tensioning the head bolts. Therefore, as is indicated in curves (a) and (b) of Figure 3.6.1, the minimum temperature of the vessel shell immediately below the vessel flange is established as  $100^{\circ}\text{F}$  below a pressure of 400 psig. ( $40^{\circ}\text{F} + 60^{\circ}\text{F}$ , where  $40^{\circ}\text{F}$  is the  $RT_{NDT}$  of the electroslag weld and  $60^{\circ}\text{F}$  is a conservatism required by the ASME Code). Above approximately 400 psig pressure, the stresses associated with pressurization are more limiting than the bolting stresses, a fact that is reflected in the non-linear portion of curves (a) and (b). Curve (c), which defines the temperature limitations for critical core operation, was established per Section IV 2.c. of Appendix G of 10CFR50. Each of the curves, (a), (b) and (c) define temperature limitations for unirradiated ferritic steels. Provision has been made for the modification of these curves to account for the change in  $RT_{NDT}$  as a result of neutron embrittlement.

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