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FirstEnergy Nuclear Operating Company

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September 18, 2008
L-08-268

10 CFR 20

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT:
Beaver Valley Power Station, Unit Nos. 1 and 2
Docket Nos. 50-334, 50-412; License Nos. DPR-66, NPF-73

Davis-Besse Nuclear Power Station, Unit No. 1
Docket No. 50-346, License No. NPF-3

Perry Nuclear Power Plant, Unit No. 1
Docket No. 50-440, License No. NPF-58
Response to a Request for Additional Information Related
to an Application to Use Weighting Factors for External Exposure
(TAC Nos. MD 8286, 8287, 8288, and 8289)

By letter dated August 22, 2008, the Nuclear Regulatory Commission (NRC) staff requested additional information related to an application to use weighting factors for external exposure for the Beaver Valley Power Station, Unit Nos. 1 and 2; the Davis-Besse Nuclear Power Station, Unit No. 1; and the Perry Nuclear Power Plant, Unit No. 1. As clarified during a September 3, 2008 teleconference held between the NRC and the FirstEnergy Nuclear Operating Company staffs, the due date of the response is October 2, 2008, which is 30 days from the receipt of the request. The response to the NRC staff's request is contained in Attachment 1.

There are no regulatory commitments contained in this letter. If there are any questions, or if additional information is required, please contact Mr. Thomas A. Lentz, Manager - Fleet Licensing, at (330) 761-6071.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 18, 2008.

Sincerely,

J. J. Hagan

A001
IE56
NRR

Attachment:

1. Response to a Request for Additional Information Related to an Application to Use Weighting Factors for External Exposure

cc: NRR Project Manager - Beaver Valley Power Station
NRR Project Manager - Davis Besse Nuclear Power Station
NRR Project Manager - Perry Nuclear Power Plant
NRR Project Manager - FENOC
NRC Resident Inspector - Beaver Valley Power Station
NRC Resident Inspector - Davis Besse Nuclear Power Station
NRC Resident Inspector - Perry Nuclear Power Plant
NRC Regional Administrator - Region I
NRC Regional Administrator - Region III
Executive Director, Ohio Emergency Management Agency (NRC Liaison)
Director BRP/DEP
Site BRP/DEP Representative
Utility Radiological Safety Board

Attachment 1
L-08-268

Response to a Request for Additional Information Related to an Application to Use Weighting Factors for External Exposure

The following information is provided by the FirstEnergy Nuclear Operating Company (FENOC) in response to a Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) dated August 22, 2008. The NRC request is listed below, in bold, and is followed by the FENOC response for the Beaver Valley Power Station, Unit Nos. 1 and 2; the Davis-Besse Nuclear Power Station, Unit No. 1; and the Perry Nuclear Power Plant, Unit No. 1.

NRC REQUEST

1. **On page 2 of 6 (Section 2.0) of the enclosure in your application you state, "For the purposes of implementing workplace controls, and due to the difference in dosimetry, 10 CFR 20 breaks this [effective dose equivalent] EDE (H_E) into two components: (1) dose resulting from radioactive sources internal to the body, and (2) dose resulting from sources external to the body."**

   Title 10 of the *Code of Federal Regulations*, Section 20.1003 states that Total Effective Dose Equivalent (TEDE) means the sum of the EDE (for external exposures) and the committed effective dose equivalent (for internal exposures). By definition, EDE (H_E) "is the sum of the products of the dose equivalent to the organ or tissue (H_T) and the weighting factors (W_T) applicable to each of the body organs or tissues that are irradiated ($H_E = \Sigma W_T H_T$).

   Question: Did you intend to reference TEDE, rather than EDE in your statement, as described above? Please provide a written clarification or correction to your statement.

RESPONSE

The initial application was based upon the use of precedence from other licensees which referenced EDE. However, the FENOC application should have referenced TEDE, and not EDE. The amended statement should read:

> For the purposes of implementing workplace controls, and due to the difference in dosimetry, 10 CFR 20 breaks TEDE into two components: (1) dose resulting from radioactive sources internal to the body, and (2) dose resulting from sources external to the body.

NRC REQUEST

2. **On page 5 of 6 (Section 3.3) in your application you state that, "FENOC will monitor the part of the whole body within each compartment (and/or composite compartment) that receives the highest dose." The sentence that follows states, "Consistent with current FENOC practice, a single dosimeter placed between the head and the waist is used to measure the dose to the whole body which includes the head, trunk (including male gonads), arms above the elbows, and legs above the knees."**

   The second statement appears to conflict with the first. Combining the head, trunk (including male gonads), arms above the elbows, and legs above the knees into a single compartment would not be consistent with the intent of the method for multiple dosimetry presented in the American National Standards Institute (ANSI)/Health Physics Society (HPS) N13.41-1997, standard, "Criteria For Performing Multiple Dosimetry," for non-uniform radiation fields, as previously approved by the NRC.

   Question: How does the second statement relate to your intended use of the ANSI/HPS standard? Do you intend to combine compartments while monitoring dose in non-uniform radiation fields? Please provide a written clarification for how you intend to monitor each of the compartments described in the ANSI/HPS standard, as approved by the NRC, compared to your current practice for using multiple dosimeters in non-uniform radiation fields.

RESPONSE

The second statement does not relate to FENOC's intended use of ANSI/HPS N13.41-1997. The statement was meant to indicate that when the ANSI/HPS compartmental approach was not used, the current FENOC practices would be applied.

FENOC does not intend to combine compartments while monitoring dose in non-uniform radiation fields, when using the ANSI/HPS N13.41-1997 weighting factors.

In non-uniform radiation fields, FENOC currently uses multiple dosimeters to monitor major body parts and assigns TEDE dose from the highest reading dosimeter. Upon approval of this application, in non-uniform radiation fields, FENOC will have available,

the option to use the summation of the weighted dose of the monitored compartments method in the determination of the TEDE dose. Dosimeters will be placed in the appropriate compartments (for example, head and neck, thorax above the diaphragm, and abdomen including the pelvis) and the summation of weighted dose of the monitored compartments would be used in the determination of the TEDE dose. The weighting factors for each compartment will use the criteria specified in ANSI/HPS N13.41-1997.