

August 1, 2006

Mr. Gary Van Middlesworth
Vice President
Duane Arnold Energy Center
3277 DAEC Road
Palo, Iowa 52324-9785

SUBJECT: DUANE ARNOLD ENERGY CENTER - REQUEST FOR ADDITIONAL
INFORMATION RELATED TO THE PROPOSED AMENDMENT
REQUESTING ELIMINATION OF MAIN STEAMLINE RADIATION
MONITOR TRIPS (TAC NO. MC8883)

Dear Mr. Van Middlesworth:

Your letter of November 14, 2005, submitted a proposed amendment to revise the Duane Arnold Energy Center technical specifications table of primary containment isolation instrumentation to eliminate the trip generated by the main steamline radiation monitors.

We are reviewing this information, and find that we need additional information as shown in the enclosed request for additional information (RAI). Telephone conference calls were held on March 2, 2006, April 20, 2006, and July 20, 2006, to discuss this RAI. I spoke with Tony Browning of your organization on July 25, 2006, and he agreed to respond within 30 days of receipt of this RAI. Please contact me at (301) 415-2928 if you have questions.

Sincerely,

/RA/

Deirdre W. Spaulding, Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosure:
RAI

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION
RELATED TO THE PROPOSED AMENDMENT
REQUESTING ELIMINATION OF MAIN STEAMLINE RADIATION
MONITOR TRIPS
DUANE ARNOLD ENERGY CENTER
DOCKET NO. 50-331

1. The "New Analysis for [Main Steamline Rad Monitor] Trip Elimination," section of the application provides the final results and a high level description of the methodology used. The purpose of presenting the re-baseline analysis is not clear. Please provide a clear and detailed description of the scope, analytical methods, and relevant assumptions of the control rod drop accident analysis including, but not limited to:
 - a. Inputs and assumptions used supported by appropriate justification.
 - b. Complete input deck for RADTRAD 3.03, with description and justification of the chosen options that significantly affect the calculated doses.
 - c. RADTRAD output in support of reported doses.
 - d. Complete description of the isotopic source term.
 - e. Provide the assumed fractions of the failed and melted fuel and the basis for the assumptions.
2. Please provide a detailed justification for the statement, "calculation of [control room] and [technical support center] doses is performed in accordance with approved Nuclear Regulatory Commission guidance in [Regulatory Guide (RG)] 1.183."
3. The exclusion area boundary dose acceptance criterion for the control rod drop accident is 6.3 rem (RG 1.183). Your calculated dose of 7.4 rem exceeds the acceptance criterion. Please provide additional justification for why this is acceptable.
4. Please provide the inputs and outputs of the PAVAN atmospheric dispersion factors (χ/Q values) listed in the tables for postulated elevated releases to the control room and the technical support center. Do the elevated release χ/Q values listed in the tables include occupancy adjustment factors for both the ARCON96 values and the PAVAN χ/Q values used for the control room and technical support center dose calculations or only for the ARCON96 values?
5. The tables of the exclusion area boundary and low population zone (LPZ) χ/Q values list 2-8 hour LPZ values of 6.43×10^{-5} s/m³ and 3.58×10^{-6} s/m³ for the ground level and elevated releases, respectively. Based on information provided to support Amendment No. 240, it appears that these values are for the 0-8 hour time period. Please verify the time interval to which these χ/Q values apply. Were dose assessments to the LPZ made using 0.5-2 hour and 2-8 hour LPZ χ/Q values or 0.5-8 hour χ/Q values?
6. There appears to be a typographical error in the exponent of one of the 8-24 hour χ/Q values in the table for postulated releases from the stack to the technical support center. Because RG 1.194, "Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants," allows the use of the ARCON96 χ/Q value for the 8-24 hour time period, it would appear that the χ/Q value in

the column titled RG 1.194 should be the ARCON96 χ/Q value of $8.00 \times 10^{-8} \text{ s/m}^3$ instead of $8.00 \times 10^{-7} \text{ s/m}^3$.

7. The section of your proposed amendment, "New Analysis for MSLRM Trip Elimination," discusses the need for manual action by operators to trip the mechanical vacuum pump (MVP) and terminate the elevated release from the offgas stack. In regard to this manual action, please provide the following information:
 - a. Describe the steps required for operators to accomplish the manual action of tripping the MVP and terminating the elevated release from the offgas stack. Specifically, describe the exact actions operators will carry out to accomplish the task, the time required for each action, and the indication(s) available to reflect successful task completion. Discuss if any equipment or support personnel will be needed.
 - b. The submittal states that operators would be prompted by alarms in the control room "shortly after the event occurred" to take the manual action. Please clarify what is meant by shortly after the event (i.e., provide a time estimate).

Duane Arnold Energy Center

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February 1, 2006