



## Department of Energy

Washington, DC 20585

January 5, 1996

Dr. D. Clark Gibbs  
General Manager  
Energy Technology Engineering  
Center (ETEC)  
P.O. Box 7930  
Canoga Park, California 91309

Dear Dr. Gibbs:

This responds to your request for exemptions from certain provisions contained in Title 10, Code of Federal Regulations, Part 835 (10 CFR 835), "Occupational Radiation Protection." Specifically, this response concerns your request for an exemption from the requirement (835.203(a)) that the total dose during a year be determined by summing the external dose and the internal dose.

The Office of Worker Health and Safety (EH-5) conducted a technical review of the exemption request from 10 CFR 835.203(a) (enclosed) and the results are summarized as follows:

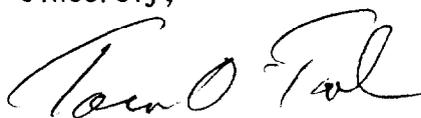
- o ETEC conducts bioassay analysis for individuals. The bioassay analysis results are used in making internal dose measurements. ETEC is not required to make these internal dose measurements for regulatory compliance purposes because as stated in the exemption request, no individual is likely to receive a dose exceeding the regulatory threshold requiring monitoring. ETEC requests exemption from the requirements of 10 CFR 835.203(a) relating to summing internal doses and external doses to determine the total dose. Although not referenced in the exemption request, 10 CFR 835.702(b) also requires, in part, that the results of internal dose measurements performed but not required by regulation, shall be recorded. The records are required to include the summation of internal doses and external doses.
- o ETEC contends that determining internal doses would require a significant amount of work for the relatively small doses discussed in the exemption request. Based on review of the data included in the exemption request and discussion with ETEC personnel, the Department of Energy (DOE) concludes that this process would not require an inordinate effort on ETEC's part. DOE guidance documents provide acceptable methods to achieve compliance with these requirements in a time and cost efficient manner.

Furthermore, the exemption request does not address actions to be taken should an individual receive an internal dose significantly higher than the magnitude of doses discussed in the exemption request.

- o Accordingly, DOE denies ETEC's request for an exemption from the requirement that the total dose during a year be determined by summing the external dose and the internal dose.

The DOE Office of Environmental Management (EM) staff concur with this response. Pursuant to 10 CFR 820.66, ETEC has 15 days from the date of the filing of this decision to file a Request to Review with the Secretary. The Request to Review shall state specifically the respects in which the exemption determination is claimed to be erroneous, the grounds of the request, and the relief requested.

Sincerely,



Tara O'Toole, M.D., M.P.H.  
Assistant Secretary  
Environment, Safety and Health

2 Enclosures

cc w/enclosures:  
T. Grumbly, EM-1  
J. Barnes, ETEC  
Keith Christopher, EH-3  
Docketing Clerk, EH-3  
James M. Turner, Oakland  
Operations Office  
Radiological Control  
Coordinating Committee  
Price Anderson Amendments  
Act Coordinator

## TECHNICAL POSITION

### Energy Technology Engineering Center (ETEC) Title 10, Code of Federal Regulations, Part 835 (CFR 835) Exemption Request

Energy Technology Engineering Center (ETEC) requests exemption from certain requirements of 10 CFR 835, "Occupational Radiation Protection." Specifically, ETEC requests exemption from the requirements of section 203(a) of 10 CFR 835, which requires that determination of the total effective dose equivalent (TEDE) be the sum of the internal dose and the external dose. However, ETEC proposes to record only the external dose component in the determination of total dose. In most cases, ETEC argues that because it does not meet or exceed the regulatory threshold for monitoring and assessment of internal dosage, it is not required to conduct bioassay examinations. ETEC, however, chooses to conduct the bioassay examinations; the results of which are used in internal dose measurements. ETEC requests exemption from the requirement to use the internal dose component for any exposed individual in determining the total dose. The Office of Worker Protection Programs and Hazards Management (EH-52) does not concur with this exemption request.

#### Discussion of Exemption

##### Request

ETEC conducts bioassay analysis for individuals and the results are used in making internal dose measurements. Because it does not meet the regulatory threshold for monitoring (0.1 rem) provided in section 835.402(c)(1), ETEC requests exemption from the requirement to assess and use internal dose in determining the total dose as required by 10 CFR 835.203(a), which states: The total effective dose equivalent during a year shall be determined by summing the effective dose equivalent from external exposures and the committed effective dose equivalent from intakes during the year.

##### Results of Analysis

EH-52 reviewed ETEC's request for exemption and finds that the request does not meet the requirements of 10 CFR 820. ETEC states that the requested exemption meets the special circumstances provided in 10 CFR 820.62, "Application of the requirement in the particular circumstances would not serve or is not necessary to achieve its underlying purpose, or would result in resource impacts which are not justified by the safety improvements." EH-52 does not concur that a sufficient basis for the granting of the exemption has been provided.

This office recommends denying the exemption request because ETEC fails to explain what special circumstances makes it unnecessary or burdensome to take and record internal dosage measurements. Although not referenced in the exemption request, we note that 10 CFR 835.702(b) also requires, in part, that the results of internal dose measurements performed, but not required by regulation, shall be recorded. The records are required to include the summation of internal doses and external doses.

In establishing its record keeping requirements in part 835, DOE felt that maintaining full and accurate records were necessary, in part, to avoid litigation concerning overexposure. Accordingly, DOE promulgated its regulatory scheme to encourage full and complete record keeping by requiring, under section 702, that records be kept of those internal dose measurements that are done even if not required by regulation. Thus, we feel that while ETEC is not required under 402(c) to perform these dose measurements, it is required under sections 702 (a) and (b) to keep this data, including the summation of internal and external dose to obtain total dose.

Further, ETEC's request does not explain why compliance with 203(a) is overly burdensome or result in resource impacts. Indeed, we believe that there are several alternate approaches (none of them overly burdensome) that ETEC could use to comply with 203(a). For instance, DOE Implementation Guide (IG) G-10 CFR 835/C1, "Internal Dosimetry Program," provides guidance for developing a relatively quick and efficient method to determine internal dose for the types of situations discussed in ETEC's exemption request.<sup>1</sup>

Based on a review of the data included in the exemption request and discussion with ETEC personnel, EH-52 concludes that following the IG guidance or adopting an acceptable alternative approach would not require a significant effort on the part of ETEC.

Furthermore, although the exemption request states that there is a high level of confidence that no worker will receive an internal dose greater than 100 mrem in a year, the exemption request does not specify levels above which internal doses would have to be calculated and summed with external doses. This potentially could result in the omission of significant internal doses from individual monitoring records.

#### Concurrence

Consistent with the technical justification and conditions provided above, EH-52 does not concur with the subject exemption request.

#### Duration of Exemption

Not applicable.

### EXEMPTION DECISION

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<sup>1</sup>The IG recommends presuming an intake has occurred if the dose from the intake is projected to be less than 0.1 rem. The IG allows the use of default parameters, including intake date, deposition probabilities, retention functions, organ masses, and absorption fractions in the calculation of internal doses less than 0.1 rem. One could assume that the intake date immediately followed the date of the previous bioassay. Using appropriate reference material or computer codes one could calculate an intake from the bioassay results. Again, using appropriate reference material or computer codes one could then convert the intake to a dose value.

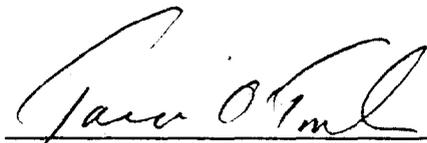
## EXEMPTION DECISION

Pursuant to title 10, Code of Federal Regulations, part 820.61 (10 CFR 820.61), the Assistant Secretary for Environment, Safety and Health (EH-1) is authorized to exercise authority on behalf of the Department of Energy (DOE) with respect to requests for exemptions from nuclear safety rules relating to radiological protection of workers, the public, and the environment.

Energy Technology Engineering Center (ETEC) filed a request with the Department for an exemption from certain requirements of 10 CFR 835, "Occupational Radiation Protection." In particular, ETEC requested relief from the requirements of 10 CFR 835.203(a). These requirements apply to determination of total effective dose equivalent. The request states that the exemption is not prohibited by law; will not present undue risk to the public health and safety, the environment, or facility workers; and is consistent with the safe operation of a DOE nuclear facility.

Based on a review of the supporting documentation, the exemption criteria contained in 10 CFR 820.62, and the technical position prepared by the Office of Worker Protection Programs and Hazards Management, I find that the request set forth above has not been justified for relief from the requirements in the stated sections of 10 CFR 835. ETEC has not provided appropriate documentation indicating that the requested exemption meets the special circumstances established in 10 CFR 820.62. Specifically, ETEC has not demonstrated that "Application of the requirement in the particular circumstances would not serve or is not necessary to achieve its underlying purpose, or would result in resource impacts which are not justified by the safety improvements." Based on a review of the data included in the exemption request and discussion with ETEC personnel, DOE concludes that it would not require a significant effort on the part of ETEC to comply with the requirement.

On the basis of the foregoing, I hereby disapprove ETEC's request for exemption from the stated section of 10 CFR 835. Pursuant to 10 CFR 820.66, ETEC has fifteen days from the date of the filing of this decision to file a Request to Review with the Secretary. The Request to Review shall state specifically the respects in which the exemption determination is claimed to be erroneous, the grounds of the request, and the relief requested.

  
Tara O'Toole, M.D., M.P.H.  
Assistant Secretary  
Environment, Safety and Health

1/6/96  
Date