UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JAN 25 1982

MEMORANDUM FOR: George Knighton, Chief
Research & Standards Coordination Branch, DST

FROM: Frank J. Congel, Acting Chief
Radiological Assessment Branch, DSI

SUBJECT: REVIEW OF REGULATORY GUIDE ON APPLICATIONS OF BIOASSAY FOR TRITIUM

The Radiological Assessment Branch has reviewed the subject Regulatory Guide and finds that is provides appropriate technical and administrative criteria so that our licensees may establish a tritium bioassay program acceptable to the staff. Comments on the guide are attached.

With respect to the Appendix "Information for Establishing Bioassay Measurements and Evaluations of Tritium," we feel that the technical contents are so broad and detailed that it should be published as a separate document. The guide could then reference the separately published Appendix.

This review was performed by S. Block, RPS/RAB.

Frank J. Congel

Frank J. Congel, Acting Chief
Radiological Assessment Branch
Division of Systems Integration

Attachment:
As Stated

cc: w/attachment
R. Mattson
R. W. Houston
F. Congel
D. Collins
P. Cota
S. Block
RPS Staff

Revised
RB
1/29/82

(1) Page 4, Section 2. Participation - Substitute the words "in the environs of" for the words "sufficiently close to" since the latter expression alludes to a distance rather than a work area. The former expression better describes the area of interest of potential participants for bioassay.

(2) Page 4, Section 3(c). Change the heading "Post-operational and separation physical" to "Post-operational or termination physical examination."

(3) Page 4, Section 3(d). If treatment is to be initiated as a result of a bioassay sample exceeding action point levels, it is of paramount importance to provide a more definitive follow-up program than indicated in this section in order to see if treatment is effective. The words "within a week" could allow 6 days to elapse before a confirmatory sample is taken. It would be of great interest to the individual whose bioassay showed an action point intake of tritium to (1) want more immediate follow-up sample analysis (2) want more timely treatment and (3) want to know the effectiveness of the treatment as soon as possible. Taking a follow-up sample possibly 6 days later just to provide effective half-life data seems to show lack of concern for the exposed individual.

(4) Page 4, Section 4. Frequency - It appears relevant to state that air monitoring measurements should also be a criterion for decision for bioassay frequency. That is, if an air monitor indicates 40 MPC hours or some fraction thereof, then a bioassay should be performed within 24 hours, or sooner.

(5) Page 5, Section 4(c). Add underlined words "A bioassay sample should be taken within 72 hours after respiratory devices---as stated in regulatory position 1.d." This will better follow previous format (e.g., 4(a)).

(6) Pages 6 and 7, items 2(a), (b) and (d). The word "should" in each item should be changed to "shall". It is imperative that surveys be carried out if the urinary excretion concentration is approaching 50 µci/liter. Also corrective action must be implemented to insure against further exposure to people if we are to assure ALARA exposures to people.

(7) Page 7, Section 3(d). This section specifies the urine sample size of 100 ml. whenever the excretion rate exceeds 50 µci/liter. Perhaps the sample size criteria should have been addressed earlier in the Guide (e.g., Page 4, Section 4(a)).