From: Thomas Kenyon
To: Maher, Bill
Date: 2/26/04 10:09AM
Subject: Discussion Items on Worker Dose

Bill,

Attached is a revision to the discussion items on construction worker dose that I sent you yesterday. I've redlined the changes, which include:

3. Changed last sentence
4b. Clarified question
5. Corrected typo to "2080/8760"
6. Clarified last sentence

and added discussion items 7 -9.

I suggest that we try to arrange a telecon with Charlie Hinson during the audit for Tuesday afternoon after lunch to discuss these. We can set a time when we get there.

I'm sorry about the changes, but I think they clarify Charlie's questions.

Tom

CC: Cushing, Jack; Davis, Jennifer; Gilles, Nanette; Hickey, Eva; Hinson, Charles; Leigh, Kim; Stoetzel, Greg

Exelon (Clinton) ESP Site Audit Questions

1. In Section 4.5.2 of the ESP application, Exelon states that the two principal sources of direct radiation are the cycled condensate storage tank and skyshine from N-16 activity. Are there any other significant radiation sources onsite (such as an independent spent fuel storage installation) that may contribute to construction worker dose?

2. In Section 4.5.3.2 of the ESP application, Exelon discusses measurements recorded using both indicator and control TLDs. What is the criteria used in locating these two types of TLDs to ensure that the control TLDs were not exposed to any exposure from direct radiation (either from onsite radioactive tanks or from N-16 skyshine) from the CPS Facility?

3. In Section 4.5.3.2 of the ESP application, Exelon references the use of environmental TLD measurements from the year 2001 and the third quarter of 2002 to arrive at the average measured direct dose from the CPS Facility. How do these measurements compare with TLD measurements from earlier years (prior to 2001)? If TLD measurements from years prior to 2001 were higher than the 2001 TLD measurements, why did you not use these higher measurements to calculate the average measured direct dose from the CPS facility?

4. In Section 4.5.3.2 of the ESP application, Exelon states that third quarter 2002 TLD measurements at the CPS protected area fenceline averaged approximately 0.021 mrem/hr.

   a. What was the plant capacity factor during this quarter for which these measurements were taken?

   b. Why was this data based on a single quarter of plant operation instead of the highest full year of TLD measurements?

   c. What was the average dose at the portion of the CPS protected area fenceline which is closest to the proposed ESP site?

   d. Exelon states that some of the third quarter TLD measurements at the CPS protected area fenceline were as high as 0.050 mrem/hr. Where were these measurements taken with respect to the proximity of the proposed ESP site and the distance from the turbine building? Why was this number (0.050 mrem/hr.) not used as the dose rate at the fenceline?

5. In Section 4.5.4 of the ESP application, Exelon states that the gaseous effluent contribution was adjusted for worker site occupancy time based on the measurements and calculated values reported in Section 4.5.3.1. Does that mean that the highest calculated offsite dose from gaseous effluents received by a member of the public of 0.003 millirem was corrected by the occupancy factor of 2080/8760 to reflect the portion of this gaseous effluent annual dose that Exelon expects a construction worker to receive?

6. In Section 4.5.4 (fourth from the last paragraph) of the ESP application, Exelon states that the annual construction worker dose is less than 0.045 mrem. From the information

in Section 4.5.4 of the ER, it appears that this should read "0.045 rem." Verify this value.

7. In Table 4.5-1 of the ESP application, Exelon compares the annual dose limits to an estimated construction worker dose of <<1 mrem. Explain how this value is derived, given the contribution from direct radiation (see Question #6).

8. In Section 4.5.4 (second from the last paragraph) of the ESP application, Exelon states that it assumed a construction work force of 3,150 people when calculating the annual collective dose to the construction work force. What is the expected duration of the construction of the proposed plant, and the total estimated dose to construction workers over the duration of the project?

9. In Table 4.5-2 of the ESP application, Exelon compares the construction worker public dose from CPS gaseous effluent discharges to 40 CFR Part 190 criteria. 40 CFR Part 190 applies to doses at the site boundary (not at the ESP construction site which is inside the site boundary) and it includes contributions to doses from liquid effluents as well as from direct radiation. Therefore, comparison to 40 CFR Part 190 criteria does not seem applicable. Discuss your rationale for this comparison.