Nourbakhsh, Hossein

From: Graham B. Wall (b)(6)
Sent: Thursday, June 17, 2010 11:55 AM
To: Nourbakhsh, Hossein
Subject: Re: Consultant Report for SOARCA
Attachments: consultant 6.17.doc

Hossein,

I enclose a short consultant report on SOARCA. I have not gone into details, as the reviewers have already done that well.

Sorry to miss the meeting.

G.

D/12

COMMENTS ON THE SOARCA STUDY

Graham Wallis 6/17/2010

This is a very useful study, using current best estimate codes.

The extensive comments by reviewers are mostly supportive and I agree with them.

Yanch makes a very important point. I doubt if I would be happy not being allowed to return home when the radiation risk would be less than for a single CT scan or from moving to a region with higher background radiation level. *Since this is the only significant risk to the public that is predicted in the SOARCA, it clearly needs further evaluation and public input.*

Several reviewers suggest the study be built upon and extended to provide a more comprehensive measure of overall risk. I agree.

Mrowca points out the possible misuse of selection criteria for sequences, since one can always reduce the probability by subdividing into more subsequences, each with lower probability (ACRS has raised this issue). It would be useful for the report to address this point and give more quantitative estimates of the cumulative effects of what was left out.

He also mentions the lack of human reliability assessment. This area is tough to include with much confidence, but it is hard to deny its possible significance, since most major reactor incidents have involved inappropriate human actions.

With predictions of individual risk from known sequences being so minute, one has to suspect that the biggest and most likely risk is from some unexpected or neglected sequence, probably involving human actions.

On page 1 it is stated that "the analyses were used to determine the average probability of an individual dying from acute exposure or latent cancer..." Since an "average individual" is an equivocal definition, I suggest explanation. As it stands, this could be an average resident of the USA. I think the report means an average resident of the EPZ who returns home according to some local guidelines? What is the influence of those who refuse to evacuate? Does the "average" include workers who die on the site, as at Chernobyl? Would it be significantly changed by the way in which low probability, low dose, high population events are treated, such as a plume from Peach Bottom descending on Baltimore (and causing civilian chaos?)? I note the statement on page 50 , "It is not expected that areas beyond the EPZ would need to take protective actions..."
Since this "individual risk" is the bottom line, it needs to be clear at the start how it is defined and evaluated and how the public should interpret it. I suggest a few paragraphs added right at the beginning of the report

Even though individual risk is the chosen metric, there are evaluations of total deaths, especially when comparing with earlier studies. Shouldn't this also be a metric that the public would understand and want to know?

With the risk from radiation being so low, it would seem that the risk of injury during possible panicky evacuation and extensive relocation would be greater.