March 17, 2008

MEMORANDUM TO: Peter Habighorst, Chief
Fuel Manufacturing Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

FROM: Kelli Markham ***/RA/***
MOX Branch
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SUBJECT: MEETING SUMMARY FOR JANUARY 17, 2008, TELEPHONIC MEETING WITH THE NUCLEAR INDUSTRY TO DISCUSS 10 CFR PART 70 SOLUBLE URANIUM INTAKE CRITERIA

PARTICIPANTS:

| NRC: | Industry: |
|---|---|
| Peter Habighorst | Felix Killar, NEI |
| Yawar Faraz | John Nagy, NFS |
| Sami Sherbini | Richard Burklin, AREVA-NP |
| Kelli Markham | |

The subject working group (WG) was formed to explore whether numerical soluble uranium intake criteria can be established for a worker who may be potentially impacted by a high or intermediate consequence accident and an individual located outside a controlled area, such as a member of the public, by an intermediate consequence accident. This meeting was conducted over the telephone. The purpose of this meeting was to discuss the status of action items from the October 10, 2007, meeting and establish agenda items for the next meeting, tentatively scheduled for late February or early March 2008.

The U.S. Nuclear Regulatory Commission (NRC) participants discussed the status of three action items following the October 2007 meeting. First, the base population that exposure limits should be designed to protect was discussed. Options considered were a target adult population, child, or infant (due to increased sensitivity and thus potentially conservative limits) or a weighted population, including adult, child and infant. Mr. Burklin indicated that the radiological dose factor for the infant was higher than that for an adult. However, an infant's kidney uptake would be much less and would more than offset the difference in dose factors. The NRC staff indicated that the threshold concentrations for kidney damage due to soluble uranium intakes by an infant may need to be considered, as it may be lower than that of an adult.

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Mr. Burklin was not aware of any studies that have examined the threshold levels for kidney damage for soluble uranium intakes by an infant. The NRC staff stressed the need for concrete toxicological data to verify an increase in the current regulatory limits. This topic will be further discussed at the upcoming meeting.

Second, a table was described and is attached to this meeting summary that gives a qualitative summary of the various forms of communications that the NRC staff can produce for issuing guidance resulting from the WG discussions. A Generic Communication (GC) or Interim Staff Guidance could be issued in the least amount of time and with the least amount of resources. A revised standard review plan (SRP) or NUREG would offer a more permanent and prominent record of WG findings, but would take longer and require more resources. Mr. Habighorst suggested a combination of issuing a GC for the short term and eventual revisions of the SRP and NUREG Guidance. All agreed with this approach and this will be expanded upon in an upcoming meeting.

Mr. Burklin described two of his current papers that detail various intake limits of uranium and their effects. Much of these intake limits of soluble uranium are much higher than the values currently used in the development of the licensee's or applicant's Integrated Safety Analysis (ISA). The details of these papers will be presented after they become publicly available.

The impacts of increasing soluble uranium intake criteria in the ISAs were broadly discussed. A more thorough impact assessment of the ISAs could only be done when the industry can assess the effects against a specific intake criterion. The WG agreed that a quick survey to determine a rough percentage of accident sequences contained in a typical ISA Summary that may be affected by a change in the soluble uranium intake criteria, would be helpful. Mr. Nagy agreed to look into obtaining these estimates for Nuclear Fuel Services, Inc., AREVA-NP, and U.S. Enrichment Corporation gas centrifuge.

The question was also raised regarding regulatory limits for oral intakes of soluble uranium. There is no guidance for limits for this route of intake. Mr. Burklin stated that his publications cover this route of entry and will be expanded upon at the upcoming meeting.

The following agenda items were agreed upon for the upcoming meeting:

1) Discuss the base population that exposure limits should be designed to protect (i.e. adult, child, infant), and identify any relevant data (human or animal) that validates proposed limits. An emphasis on concrete toxicological data to support proposed limits is needed. (All)

2) Discuss results from the NRC staff findings that determined an appropriate vehicle for issuing any guidance resulting from the working group. (NRC staff)

3) Discuss the published papers by Mr. Kathren and Mr. Burklin.

4) Discuss with other members of industry to obtain an estimate of impact on ISAs, of changing exposure limits. (Mr. Nagy)

5) Discuss limits for oral intakes of soluble uranium. (Mr. Burklin)

It was decided that the next meeting might take place in mid-February 2008.

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