

August 18, 2008

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

FROM: Yawar Faraz, Sr. Project Manager **/RA/**
MOX Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Material Safety
and Safeguards

SUBJECT: JULY 24, 2008, MEETING SUMMARY: 10 CFR PART 70
SOLUBLE URANIUM INTAKE CRITERIA

MEETING ATTENDEES:

NRC: Peter Habighorst
Kelli Markham
Yawar Faraz

INDUSTRY: Kevin Roberts, NFS
John Nagy, NFS (via phone)
Richard Burklin, Areva

PUBLIC: James Salsman (via phone)

Peter Habighorst opened the July 24, 2008, 10 CFR Part 70 Soluble Uranium Intake Criteria meeting by stating that the main purpose of the meeting was to discuss the draft report entitled "Acute Chemical Toxicity of Uranium with Application to 10 CFR 70.61" prepared by Ronald Kathren of Washington State on behalf of Nuclear Energy Institute referred to as "Ron Kathren's report" in this summary (Enclosure 1). Ron Kathren's report was provided by Richard Burklin and distributed to the soluble uranium intake criteria working group members by Yawar Faraz July 17, 2008. Peter Habighorst then reiterated the list of topics that needed to be addressed in Ron Kathren's report as discussed during the April 29, 2008 meeting (ML081480263). Richard Burklin indicated that unlike what was suggested by the working group, Ron Kathren's report did not address absorption of soluble uranium through skin, demographics, and exposure to hydrogen fluoride that may be associated with a release of soluble uranium at U.S. Nuclear Regulatory Commission (NRC)-licensed facilities.

CONTACT: Yawar Faraz, NMSS/FCSS
(301) 492-3207

James Salsman indicated that the working group should also consider reproductive toxicity of uranium as addressed for a single acute dose in the following reference:

Maynard, E. A., W. L. Down, H. C. Hodge, "Oral Toxicity of Uranium Compounds," in C. Voegtlin and H. C. Hodge, eds., *Pharmacology and Toxicology of Uranium Compounds*, New York: McGraw-Hill, 1953.

Mr. Salsman also indicated that the following reference contains information pertinent to toxicity of uranium:

Pellmar T. C., D. O. Keyser, C. Emery, J. B. Hogan. Electrophysiological Changes in Hippocampal Slices Isolated from Rats Embedded with Depleted Uranium Fragments. *Neurotoxicology*, vol. 20, no. 5, pp 785-792; 1999.

Richard Burklin then presented a synopsis of the contents of Ron Kathren's report including the four tables contained in the report. He indicated that Ron Kathren's report was largely based on the following papers that were published recently:

Kathren, R. L. and R. K. Burklin. Acute Chemical Toxicity of Uranium. *Health Phys.* 94:170-179; February 2008.

Kathren, R. L. and R. K. Burklin. Exposure Standards for Acute Exposure to Low Enrichment Uranium for compliance with 10 CFR 70.61. *Operational Radiation Safety. Vol. 95, No.2* :122-127; August 2008.

Richard Burklin indicated that as stated in several studies and an NRC document prepared by G. Athey, S. McGuire, and J. Van Ramsdell, Jr., entitled RASCAL 3.0.5 Workbook, dated March 20, 2007, there were no known cases of permanent renal damage from exposure to soluble uranium.

The working group members then provided their comments on Ron Kathren's report (See Enclosure 2). Following the working group comments, James Salsman provided his thoughts on the adverse effects of uranium. He provided his comments in a set of E-mails he sent to the NRC on and before July 22, 2008 (See Enclosure 3). In addition, James Salsman indicated that he had already submitted a petition to the NRC about his concern that the the Department of Energy's application to dispose high level waste in the Yucca Mountain repository did not adequately consider the toxicological impacts of uranium. Peter Habighorst indicated that he was aware of this and that he would reiterate the concern to the appropriate NRC staff.

Richard Burklin asked if the NRC could adopt Ron Kathren's report after it is finalized. Peter Habighorst responded that the NRC could endorse Ron Kathren's report after it attains its final form preferably in its entirety or in part or not at all. If endorsed in part, the NRC could provide supplements to the parts not adopted. One possible form of NRC's endorsement of the final report may be by attaching it to a Regulatory Information Summary on the findings of the working group and later by including it as a reference in the Standard Review Plan (NUREG 1520).

The next working group meeting was proposed for some time in September 2008.

Enclosures:

1. Draft report on acute chemical toxicity of uranium by Ronald Kathren
2. Working Group's comments on Ron Kathren's report
3. Set of E-mails between James Salsman and the NRC staff

cc: Felix Killar, NEI

John Nagy, NFS

Richard Burklin, AREVA

Kevin Roberts, NFS

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 Kevin Roberts, NFS

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