

**SCAPA PROGRAM TELECONFERENCE 05-01**  
**TUESDAY, January 18, 2005; 10:30 AM-12:00 M EST**

**Participants:**

<b>Michele Baker, WSMS</b>	<b>Larry Campbell, Fluor Hanford</b>
<b>Dorothy Cohen, ORISE</b>	<b>Wayne Davis, WSMS</b>
<b>Cliff Glantz, PNNL</b>	<b>John Harris, ORNL</b>
<b>Jim Jamison, SAIC</b>	<b>Tim Joseph, OROO</b>
<b>Courtney Lester, WSMS</b>	<b>Po-Yung Lu, ORNL</b>
<b>Amber Martin, WSMS</b>	<b>Pete Matonis, INL</b>
<b>Carl Mazzola, Shaw Environmental Inc.</b>	<b>John Nasstrom, LLNL</b>
<b>Tony Pierpoint, ATL</b>	<b>Rocky Petrocchi, WGI</b>
<b>Tom Tuccinardi, Excalibur Associates</b>	<b>Jim Woodring, ANL</b>

**Highlights**

**I. Call to Order**

Carl Mazzola called the meeting to order, but soon had to depart to attend to other business. Cliff Glantz took over coordination of the teleconference and note taking.

**II. Administrative Matters**

Two administrative matters were discussed:

**1. DOE Order 414.1D and Other SQA Guidance**

Cliff Glantz discussed the proposal to acquire the services of a graduate-level toxicologist, through a DOE summer internship program, to work with Doug Craig, Rocky Petrocchi and other SCAPA members. The primary focus of the intern's work would be to conduct verification and validation activities on the TEELs and HCNs in support of a broader program to meet new quality assurance requirements that are being put forth for safety class and safety significant software and other software that may impact health and safety. These requirements are under development by DOE/EH in the new DOE Order 414.1D and in DOE Guide 414.1-4. The order and guide documents have been released in draft form and are expected to be released for implementation within the next month or two.

**2. SQA impacts on TEELs and HCNs**

The new software quality assurance requirements might mandate the preparation of additional documentation (e.g., configuration management documentation) and will almost certainly require that independent verification and validation (V & V) work be conducted. A summer intern fits the bill for conducting an independent, and relatively low cost, V & V effort. To fill this role, SCAPA would be looking for someone with a background in toxicology with some

**SCAPA PROGRAM TELECONFERENCE 05-01**  
**TUESDAY, January 18, 2005; 10:30 AM-12:00 M EST**

programming experience (e.g., in Excel, Visual Basic, C++). The candidate would need the technical background to understand and be able to work with TEEL- and HCN-related software and data bases. Cliff Glantz will work with PNNL's DOE science education office to identify potential internship candidates. Doug Craig and Rocky Petrocchi would be involved in screening the potential candidates and developing all V & V plans.

Jim Jamison reported on his review of the language in draft DOE Order 414.1D and Guide 414.1-4. His review concluded that the Guide clearly spells out that TEELs need to be treated as Level II safety software and will therefore require substantial Software Quality Assurance (SQA).

### **III. SCAPA Working Group Reports**

#### **Chemical Exposures/TEELs Working Group**

Three topics were discussed pertaining to the ongoing efforts associated with chemical exposures and TEELs:

##### **1. TEELs for Refrigerants**

Since our last meeting, Doug Craig has spent much of his time on travel in Australia and New Zealand. In his absence, Rocky Petrocchi has addressed a TEEL development request by George Rusch of ASME. This inquiry focused on the development of TEELs for a group of ten commonly used refrigerants. While George Rusch's efforts do not directly support NNSA/DOE complex missions, as he wants the TEEL data to support a safety classification for ASHRAE, his inquiry about refrigerants was determined to be quite germane to DOE concerns since refrigerants are used in quantities of interest at a number of NNSA/DOE sites.

With the approval of Jim Fairbent, Rocky undertook the development of TEELs for the ten refrigerants in question. These new TEELs are now out for technical review by SCAPA members.

##### **2. Questioning Some TEEL Values**

In another TEELs-related matter, Doug Craig reported that in early December he received an email from Danny Laysak (LLNL) questioning whether approximately 20 TEEL values were too low. This sort of inquiry isn't new to Doug, as periodically various professionals question published TEEL values. In reviewing the TEEL values questioned by Danny, Doug confirmed that they were generated in accordance with the existing TEEL methodology and concluded that there was no error in the methodology. However, the question remains of whether these TEELs are consistent with the most recently developed toxicological data.

**SCAPA PROGRAM TELECONFERENCE 05-01**  
**TUESDAY, January 18, 2005; 10:30 AM-12:00 M EST**

To decide how much time and resources to invest into resolving this question, Doug will formally pass the information related to this inquiry to the TEELs Advisory Group (TAG) and the TAG will decide how best to proceed and advise Jim Fairbent on a path forward.

Implementation of the TAG course of action may involve directing Doug to take a more in-depth closer look at available toxicological data for the chemicals in question. Alternatively, it may simply involve assuring the questioner that the TEEL values currently being used are consistent with the TEEL information data base and no further action will be taken at this time.

Tom Tuccinardi, TAG Chairman, reminded us that it is time for another TAG meeting. He will schedule a teleconference sometime within the next couple of weeks. The question raised about the TEEL values being too low for some compounds can be addressed within the agenda of the TAG meeting. This issue will also provide the TAG with an opportunity to revisit the entire problem/comment reporting process for TEELs. It is likely that a TEEL problem reporting form will be developed and posted on the TEEL web pages for use by anyone with a question or concern about the TEELs.

### **3. Improve Labeling in the TEELs Tables**

TEEL tables need to clearly show for each chemical, which values are derived from final and interim AEGLs, which are derived from ERPGs, and which are developed using the TEEL methodology in the absence of AEGLs and ERPGs. Jim Jamison requested that TEEL values that are derived from ERPGs and final and interim AEGLs be provided using a different font style (e.g., **bold** or *italicized* font), a different **color**, or a **combination of indicators** to allow the user to easily distinguish these values whether being viewed online, from a spreadsheet, or a hardcopy printout.

### **Chemical Mixtures Working Group**

Over the past month, Rocky Petrocchi's efforts have been focused on the development of TEEL values for refrigerants, which placed the chemical mixture work on the back burner. Rocky did share that the current plan is to still publish HCN documentation in the *Journal of Applied Toxicology*.

Some of the action item updates provided by Rocky to Carl Mazzola in December have not yet shown up in the most recent update of the action items. Rocky will follow-up with Carl to incorporate these changes.

**SCAPA PROGRAM TELECONFERENCE 05-01**  
**TUESDAY, January 18, 2005; 10:30 AM-12:00 M EST**

The question was raised about the status of the Chemical Exposure/Chemical Mixture workshop that was planned for initial presentation at the EMI SIG-SCAPA meetings in New Orleans, LA, May 2-5, 2005. Tom Tuccinardi reported that the current plan was to shrink the planned four-to-six hour-long workshop down to just two hours for the New Orleans meeting. As a result, a lot of introductory and background information will be cut from this initial presentation and the focus of the talk will be on the TEELs. The HCN component of this initial talk will need to be rather brief. The subject of the workshops will be a major topic to be discussed during the next TAG teleconference.

### **Biosafety Working Group**

Cliff Glantz reported on recent activities to bring the NNSA/DOE Site Biosafety Officers into the EMI-SIG and SCAPA programs. Cliff has identified and contacted the Biosafety Officers at each NNSA/DOE site that is doing biological research. The current plan is for Jim Powers (DOE NA-41) to engage the Biosafety officers and meet with them during the EMI SIG meeting to discuss NA-41 biosafety issues. The Biosafety Officers would also be invited to participate in the SCAPA meeting. SCAPA's goal is to improve coordination and communication within the consequence assessment and emergency response community between those working in the biological, radiological, and chemical arenas. Cliff Glantz and Carl Mazzola will be working with Jim Powers and Jim Fairbent to develop a preliminary agenda for the SCAPA Biosafety session portion of the meeting. Dorothy Cohen will work on the logistics of the biosafety meetings.

### **Consequence Assessment Modeling Working Group**

John Nasstrom (LLNL-NARAC) provided an update on NARAC activities. NARAC IClient 2.0 development has been delayed to allow his staff to concentrate on upgrading the NARACWeb. A number of improvements have already been made to NARACWeb, including features that allow the user to access meteorological and wind field products and an enhanced suite of other consequence assessment modeling output products.

IClient 2.0 development will pick up again in the next few months. A presentation on the new features of IClient 2.0 will be made at the EMI SIG-SCAPA meetings in May, 2005. A new schedule for beta-testing IClient 2.0 should be available at that time.

A NARAC technical basis document is being developed and should be available for review within the next month or so. NARAC will post a notice on the NARACWeb when the document is available.

NARAC continues its efforts to support the development of an Interagency Modeling and Atmospheric Assessment Center (IMAAC). This center will coordinate federal plume modeling efforts during emergency response situations.

**SCAPA PROGRAM TELECONFERENCE 05-01**  
**TUESDAY, January 18, 2005; 10:30 AM-12:00 M EST**

John reported that NARAC was involved in the recent Graniteville, South Carolina train accident involving the atmospheric release of substantial amounts of chlorine. Both NARAC and the nearby Savannah River Site used their atmospheric transport and dispersion modeling capabilities to address this incident. It was suggested that a presentation on the NARAC and Savannah River Site response to this event would make an interesting talk at the upcoming SCAPA meeting.

**IV. SCAPA Webpage**

The SCAPA webpage is operating smoothly. It will be updated in the near future to provide additional information on the SCAPA meeting in New Orleans, LA. New products that will soon appear on the SCAPA webpage include:

- a *SCAPA Information Request* Form; and,
- a *TEELs Inquiry/Problem Reporting* Form.

A question was asked about whether information is available on the number of visitors to each SCAPA webpage. Dorothy Cohen reported that information on the number of visitors to each SCAPA webpage is captured and recorded. However, this information is not posted on the website. SCAPA members can obtain this information by contacting Dorothy Cohen (ORISE).

Tony Pierpoint reported that information on the usage of the new TEEL database can be found by going to database's "counter" webpage:

<http://www.atlintl.com/DOE/teels/counter/rptChemicalCounter.asp>

A truncated display of this webpage is presented in Figure 1.

**SCAPA PROGRAM TELECONFERENCE 05-01**  
**TUESDAY, January 18, 2005; 10:30 AM-12:00 M EST**

**TEEL**  
**Database Activity Report For**  
**Chemicals**

Start Date:  End Date:  (Date format: mm/dd/yyyy)

Order Request By:  Number of Hits  
 Alphabetically by Chemical

**Total Hits**

Chemical	CAS#	# of hits
Chloropicrin; (Trichloronitromethane)	76-06-2	8
Acetylaminofluorene, 2-	53-96-3	6
Trichlorofluoromethane; (Fluorotrichloromethane, Freon 11)	75-69-4	5
Trichloroethane, 1,1,1-; (Methyl chloroform)	71-55-6	5
Vinyl chloride	75-01-4	4
Trichlorotrifluoroethane; (Freon 113; CFC113)	76-13-1	4
Phenol	108-95-2	4
Naphthalene	91-20-3	4
Hydrogen fluoride; (Hydrofluoric acid)	7664-39-3	4
Dimethyl siloxane; (Syltherm XLT; Silicone 360)	63148-62-9	4

**Figure 1.** The Activity Reporting Webpage for the New TEELS Database

**V. EMI SIG May 2005 Meeting Planning**

Dorothy Cohen reported that she needs to receive information on EMI SIG and SCAPA meeting requirements as soon as possible so that she can finalize logistical arrangements for both meetings. Carl, Cliff, Dorothy and others will address this and will provide a more detailed report on plans for the May meeting during our next SCAPA teleconference.

**VI. EPA AEGLs/PAGs Status**

Tom Tuccinardi gave a brief status report on work going on with AEGLs and PAGs. He mentioned that there will be an April 12-14 AEGL meeting. Tom hasn't heard back from Paul Tobin (EPA) about the AEGLs.

**VII.**

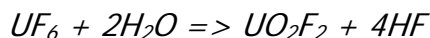
**SCAPA PROGRAM TELECONFERENCE 05-01**  
**TUESDAY, January 18, 2005; 10:30 AM-12:00 M EST**

**AIHA ERPGs Status**

Doan Hansen was not able to participate in the conference call. A report on the AIHA ERPG status will be postponed until our next teleconference.

**VIII. New Business**

Wayne Davis has been working on UF<sub>6</sub> issues for SCAPA. Wayne has been looking into this problem because of his involvement with the ALOHA code. In summary, the problem being faced arises because "*Uranium hexafluoride (UF<sub>6</sub>) is a volatile solid. It is one of the most highly soluble industrial uranium compounds and, when airborne, hydrolyzes immediately on contact with water to form hydrofluoric acid (HF) and uranyl fluoride (UO<sub>2</sub>F<sub>2</sub>) as follows:*



*Thus, an inhalation exposure to UF<sub>6</sub> is actually an inhalation exposure to a mixture of fluorides."*

The use of an ERPG for UF<sub>6</sub> that does not consider the hydrolyzing reaction seems inappropriate (i.e., the chemical released [UF<sub>6</sub>] and the resulting chemicals that are also of concern for human health [UO<sub>2</sub>F<sub>2</sub> and HF] have quite different properties).

The AEGL-1 for UF<sub>6</sub> is based on HF toxicology and the AEGL-2 and AEGL-3 are based on uranium uptake and renal failure. Wayne is concerned that the modeling of UF<sub>6</sub> transport and dispersion does not routinely involve an explicit consideration of the hydrolyzing reaction. The use of the ALOHA or EPICODE models with the assumption of a non-reacting UF<sub>6</sub> seems problematic and inappropriate. What good are the ERPG and AEGL values if the models being used can't estimate the concentrations of the hydrolyzing reaction's products? The problem is further complicated by the following other considerations:

- The impact of the UO<sub>2</sub>F<sub>2</sub> particle size distribution on downwind concentrations and deposition values; and,
- The rising and slumping of the UF<sub>6</sub> plume as a result of the energy released and absorbed in the reaction.

The resolution of the UF<sub>6</sub> issue is important for several NNSA/DOE sites, including Portsmouth, Paducah, Y-12 and ORNL. There is need for guidance from SCAPA to help the NNSA/DOE sites deal with this problem in a consistent manner. It was suggested that an ad hoc group be formed for dealing with this issue and to provide guidance to the NNSA/DOE community. Wayne will work with SCAPA leadership to move forward on this issue.

**SCAPA PROGRAM TELECONFERENCE 05-01**  
**TUESDAY, January 18, 2005; 10:30 AM-12:00 M EST**

**IX. Next SCAPA Conference Call**

The next SCAPA conference call will be on **February 24, 2005 at 10:30 a.m.**

**X. Adjournment**

The meeting was adjourned shortly after about 90 minutes of interactive discussion at 12:00 M EST.