

**Dragon, Karen E. (CDC/NIOSH/EID)**

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**From:** Daniel Mckeel  
**Sent:** Friday, June 21, 2013 9:57 PM  
**To:** ocaswebupdates (CDC); Katz, Ted (CDC/NIOSH/OD); NIOSH Docket Office (CDC)  
**Cc:** danmckeel2@aol.com  
**Subject:** McKeel 6/18/13 and 6/19/13 discussion papers for 6/20/13 TBD-6000 work group meeting and Docket 140  
**Attachments:** Transmit\_GoalsMemo\_6.18.13.pdf; McKeel\_TIB-70\_GSI\_critiqu2.pdf; TBD6Kwg\_Goals\_6.20.13mtg.pdf

Dear OCAS Updates, Ted Katz, and the NIOSH Docket Office,

I note the SC&A 6/11/13 memo concerning the DCAS David Allen June 2013 "Square function approximation" white paper was posted to the DCAS website today, 6/21/13. DFO Ted Katz sent me a PA-cleared version yesterday, which I received after the TBD-6000 WG meeting ended.

My 14 page white paper dated 6/19/13 that is a critique of OTIB-0070 as it applies to GSI was e-mailed to the entire TBD-6000 work group including Ted Katz on 6/19/13. May I please request that this paper be posted to DOCKET 140 (GSI) and as a discussion paper for the TBD-6000 WG meeting to make the record complete and accurate.

Also, on June 18, 2013, I e-mailed a one page "Goals for the TBD-6000 Work Group" memo to the TBD-6000 WG, including Ted Katz, that should also be posted as a Discussion paper to the TBD-6000 WG 6/20//13 meeting and to Docket 140. Copies of both documents and the 6/18/13 goals memo cover e-mail letter are attached. Thank you.

Sincerely,

-- Dan McKeel 6/21/13 Friday

Daniel W. McKeel, Jr., MD  
GSI SEC-00105 co-petitioner

**From:** DanMcKeel2 <DanMcKeel

**To:** pl.ziemer <pl.ziemer@comcast.net>; paz7 <paz7@cdc.gov>; josiebeach <josiebeach@charter.net>; Josie\_J\_Beach <Josie\_J\_Beach@rl.gov>; j-poston <j-poston@tamu.edu>; wimunn <wimunn@aol.com>; tmk1 <tmk1@cdc.gov>; dka6 <dka6@cdc.gov>; jfn2 <jfn2@cdc.gov>; jmauro <jmauro@scainc.com>; anigstein <anigstein@cs.com>

**Cc:** jwramspott <jwramspott@cdc.gov>; danmckeel

**Subject:** Memo to TBD-6000 WG Re: 6/20/13 meeting goals

**Date:** Tue, Jun 18, 2013 3:38 am

**Attachments:** TBD6Kwg\_Goals\_6.20.13mtg.pdf (73K)

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Dear Dr. Ziemer and all members of the TBD-6000 work group,

[Attachment: <TBD6Kwg\\_Goals\\_6.20.13mtg.pdf> 53K](#)

I have recently reviewed the 2/21/13 and 4/26/13 TBD-6000 work group transcripts and the 5/28/13 NIOSH-SC&A technical call summary that Ted Katz provided to me, and I honestly cannot fathom where the WG stands on assigning final doses to any of the 3 personnel classes, during any of the three eras at GSI, for internal inhalation and ingestion intakes, or for external gamma and x-ray photons, beta skin dose (electrons), or neutrons of a defined RBE.

Attached is a memorandum (PDF file) about the type of progress, in the form of 5 specific goals, that I would like to see as the GSI SEC co-petitioner by the end of the TBD-6000 WG meeting scheduled for June 20, 2013.

Thank you for your consideration. I would also appreciate getting a WG meeting agenda for 6/20/13 as soon as possible. If NIOSH or SC&A will make a presentation at the June 20th meeting, I would appreciate getting a copy of that file in advance as well. I am certain you would like to have these WG 6/20/13 meeting materials as well.

Sincerely,

-- *Dan McKeel* 6/18/13 Tuesday

Daniel W. McKeel, Jr., MD  
GSI SEC-00105 co-petitioner

**TBD-6000 GSI WORK GROUP MEETING ANALYSIS:  
Selected Parts of the 4/26/13 Meeting Transcript**

by  
Daniel W. McKeel, Jr., M.D.,  
GSI SEC-00105 co-petitioner  
(June 19, 2013)

David Allen's review of external doses during the radium era and job assigned doses occurs on pages 9 through 17. I address only a few salient passages (numbers within transcript = line numbers; Dave Allen's transcript quotes are italicized):

p. 9 line 3

*Okay. Thanks, Paul. 3 Like you said, during the last Work Group 4 meeting, February 21st, I was asked to do 5 those three things you just mentioned. It was 6 the give our details of the external dose for 7 non-radiographers prior to 1963 and describe 8 how we would assign individual cases to the 9 different job categories, which are, 10 essentially, radiographer and non-11 radiographer, as well as the details on how we 12 would use the data we already agreed to for 13 internal dosimetry, exactly how we would use 14 it for dose estimating.*

**MCKEEL COMMENT:** Allen omits mentioning the third GSI job class, "administrative," that has been the focus of this WG.

David Allen's review of his white paper and internal inhalation and ingestion intakes is on pages 17, 18, 19. He also mentions "use data we already agreed to" without stating what that data is. This omission of key numbers makes the record unclear and confusing. I wonder why the Board members did not ask to clarify this omission?

**I. EXTERNAL DOSIMETRY DURING THE RADIUM ERA**

PAGES 9 and 10 (DAVE ALLEN SPEAKING):

p. 9, line 21: From the hierarchy

p. 10, line 1: of data, the actual measurements are usually 1 considered better than any kind of modeling, 2 so I started with the actual measurements from 3 the cobalt-60, but, obviously, it has to be 4 adjusted to account for the differences 5 between cobalt and radium and the source 6 strengths.

**MCKEEL COMMENT:** Co-60 sources cannot, using good science, substitute for Ra-226 sources that are different strengths, are shielded differently, and have a different radiation pattern. Mr. Allen has no way to know these details, including when the Ra-226 were leased and what are their calibrated strengths. NCC, according to the same license documents that Dan McKeel obtained from NRC in FOIA 2010-0012, NCC did not start leak testing and calibrating survey instruments at GSI until 1962. There is no real measured data about the GSI Ra-226 sources between 10/1/52 and 12/31/62, the agreed upon end of the GSI "radium era." Mr. James Powers does not know these details, either, based on multiple interviews Dan McKeel and John Ramspott have had with him after he was interviewed by SC&A in 2007 and thereafter for Dr. Anigstein's "three GSI interviews" white paper. Ergo, NIOSH cannot reliably "adjust for differences between the Co-60 and Ra-226 sources."

p. 10, Allen speaking, line 8

*But, also, there's at least some 8 indication that some shielding was added soon 9 before that August 1962 survey. So I adjusted 10 those survey readings up to account for 11 additional shielding prior to that survey. 12 The indications, essentially, were 13 the, it was a map that indicated 24-inch walls 14 and a notation that said shielding added June 15 and July of 1962. And then the prior drawing 16 of that room was in the AC initial application 17 that indicated there were 16-inch walls. So 18 from that, I took it as eight additional 19 inches of concrete block shielding and the 20 write-ups in those AEC documents indicated 21*

p. 11 (ALLEN continues...) lines 1-3

*mortar-filled, so I indicated or I took it as 1 eight inches of mortar-filled concrete block 2 additional shielding added in June and July of 3 1962.*

**MCKEEL COMMENT:** GSI workers uniformly challenge the GSI license document that: (a) the bldg. 6 concrete block walls were ever 16 or 24 inches thick; (b) the concrete blocks were filled with mortar, first, because the AEC license application states they were sand-filled, and (c) because two GSI workers observed the structure being built and testified the concrete blocks were one block, 6 or 8 inches thick, and were observed being filled with "river sand," in 1955 when it was built, and (d) no living GSI workers confirmed the 6 bldg. walls were 16 to 24 inches thick. NIOSH has not yet accounted for the established fact (see [c])

that no 6 bldg. radiography room existed from October 1, 1952, through sometime in 1955 prior to its construction. The petitioners assert the GSI AEC license application is incorrect as to the eventual thickness of the 6 bldg. radiography room walls. We believe those plans were only on paper and were not implemented.

· NIOSH on its own never produced any \*independent\* proof in the form of engineering drawings or photographs of the 6 bldg. Neither did SC&A, nor is there any evidence they even researched confirming this important detail apart from the NRC FOIA 2010-0012 material that Dan McKeel obtained in the first instance.

p. 11 ALLEN lines 5-10

*So adjusting those readings up for 5 the lack of, the less shielding in the radium 6 era and slightly higher source strength of the 7 radium, I came up with, adjusted those survey 8 measurements to what they would be with the 9 radium sources before the shielding was added.*

**MCKEEL COMMENT:** It is impossible to make sense of this passage unless, contrary to what I was told, Dave Allen was speaking from a projected presentation that was available to work group members on their computer screens or in person, but was not provided to Dan McKeel, the GSI SEWC co-petitioner. All of the terms used are qualitative where they need to be stated in quantitative terms instead. Examples are: (1) "those readings" (what readings?); (2) "slightly higher source strength" (how was that determined? What was the Ra-226 source strength that Dave Allen used? (3) "adjusted those survey measurements to what they would be..." (what adjustments were made by Allen and what was the final assigned value Allen used, citing the actual number values used?).

p. 11 lines 11-18 ALLEN speaking

*And from that, you can see from the rest of 11 this, from that and the work practices source 12 utilization time, et cetera, which I estimated 13 a dose for somebody at the wall, on the 14 outside of that radiography wall, if they were 15 there all their work time, and that is the 16 estimate we intended to use for non-17 radiographers in the radium era. 18*

**MCKEEL COMMENT:** Again, statements such as "you can see" indicate Mr. Allen was using a projected prepared presentation that he was referring to while he talked. The SEC co-petitioner also needed to have a copy of that presentation. When Allen states, "...that is the estimate we intended to use for the non-

*radiographers in the radium era" but fails to state the number values he intends to use, the record is impoverished, inaccurate and is not informative. NOTE that no Board or SC&A work group members ask what numerical value Dave Allen was referring to.*

## **II. CATEGORIZING "INDIVIDUAL CLAIMS INTO RADIOGRAPHER AND NON-RADIOGRAPHER"**

DAVID ALLEN (DCAS) Pages 11 through 13

p. 11 line 19-21 and following pages...

*The next thing on there was how we 19 would categorize individual claims into 20 radiographer and non-radiographer. Like I 21*

p. 12 lines 1-15 Allen speaking

*said during the full Board meeting, we would 1 start with the telephone interviews. 2 So what I did was took a search of 3 all the claims we had from GSI so far, and I 4 actually started with the job title that's in 5 our claims database, which is the job title 6 that the claimant puts on the forms when they 7 originally filed the claim. And I put a list 8 in my White Paper of the types of jobs that we 9 would flag initially as radiographers, or at 10 least potential radiographers. That list is a 11 short list. I took quality control; film 12 reader; radiographer, obviously; inspector; 13 anything that said betatron; magnaflux 14 operator; metallurgy department; or x-ray. 15*

**MCKEEL COMMENT:** This passage by Allen is very confusing. First, he states he "will start with the telephone interviews." but then describes how he used the initial claims database instead. In 2006, as an invited guest at a NIOSH DR Workshop, I asked the question about whether the CATI interviews were SYSTEMATICALLY MINED and the data collected into a database TO BE USED IN NIOSH TECHNICAL DOCUMENTS?. That question was not answered YES directly. The answer was "sometimes" and a CATI database was not stated to be an accomplished entity.

In 2013, I ask the same question because ALLEN follows by stating, in lines 18-21: "But as I said during the full Board meeting, we would use the telephone interview, and I 19 did not go through all 284 telephone 20 interviews as part of this exercise...21" MCKEEL ADDED COMMENT: Why did Allen not use the CATI interview for this "exercise." After all, he is supposed to be justifying a dose that will affect possibly hundreds of GSI

claims. Is he too busy, or does the CATI "database" I asked about in 2006 not really exist, as I suspect to be the case? This disingenuousness creates distrust of the NIOSH proposed methodology. This is especially so because the CATI interview has a specific question<sup>1</sup> about whether or not the claimant was a "radiographer." The initial claim asks only for a self reported job identification, which is less precise than the direct CATI question. WHY WOULD NIOSH PROOSE USING BEST SCIENCE PRACTICE AND THEN ACTUALLY USE LESS THAN THE BEST SCIENCE AS AN EXAMPLE OF THEIR APPROACH?

p. 13 ALLEN CONTINUES THE SAME TOPIC, lines 11-17

*That's not the process we intend 11 to use when we're actually doing claims. You 12 know, the telephone interviews are always 13 reviewed, and they would be reviewed for those 14 job categories or any other indications that 15 they were doing radiography. This was just an 16 attempt to see how this process would work.*

**MCKEEL COMMENT:** Again, why would anyone waste the WG's time by describing a process NIOSH WILL NOT USE, when what is necessary is to describe as clearly as possible, and to demonstrate the feasibility of, the exact process NIOSH WILL USE?

### III. USE OF OTIB-070 rev 1 (Scharfi 2012) AT GSI

p. 17 lines 15-21 ALLEN SPEAKING

*At the last Work Group, the Work 15 Group wanted to see, okay, that's the number 16 we're going to start with, but how are we 17 going to use it? So in the White Paper, I 18 started with that 68.7. I intended to assign 19 that to anybody considered, well, actually, I 20 intended to assign that for the time period*

p. 18 lines 1-21 ALLEN SPEAKING

*1 We have the hours of uranium work that we 2 previously talked about, we estimated. And 3 from other previous work with the external 4 dose, we had a scenario on how long they shot 5 this uranium and how long it took them to set 6 up the next shot, et cetera. 7*

*I did not give them that intake 8 for the time they were taking the shots. They 9 would not have been in the betatron*

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<sup>1</sup> This CATI information is posted on the: [www.cdc.gov/niosh/ocas/](http://www.cdc.gov/niosh/ocas/) website

shooting 10 room at that point. They'd be in a control 11 room. I gave it to them for the time in 12 between shots. And after that, that's just 13 for the direct handling type of airborne. 14 I did also account for any 15

I did also account for any 15 contamination that would be caused from that 16 airborne using the TBD-6000 techniques that we 17 went through some months ago and, using those 18 settling rates and settling time, came up with 19 a contamination value of what it would reach 20 after such a time as to build up to an 21

p. 19 lines 1-21 ALLEN SPEAKING

equilibrium value and re-suspended that to get 1 an airborne that I was intending to use for 2 the times, actually for full time, which we're 3 using 3,250 hours a year. So my intent was to 4 use that re-suspended airborne full time for 5 everybody's employment, the airborne from 6 actually handling the uranium for the time 7 that they would be in the shooting room 8 setting up shots with the uranium, and then 9 using TBD or, I'm sorry, TIB-9 for the 10 ingestion. And we also, I believe, agreed, 11 either during a Board meeting or a Work Group 12 meeting, that we should use TIB-70 reduction 13 of the airborne levels during the residual 14 period after the operational period stopped. 15 And I just put a footnote in there about that, 16 that we intended to decrease that or using 17 TIB-70 values. 18 That is, essentially, what the 19 White Paper says. I summarized some of that. 20 I don't know if anybody wanted more detail 21

**MCKEEL COMMENT:** Dave Allen's commentary on TIB-70 use for GSI is full of inexactitudes that prompted me to write a rebuttal white paper on why I believe that it is NOT scientifically defensible or claimant favorable to employ OTIB-070 for GSI intake values during the residual period. This paper incorporates my comments on the deliberations of the ABRWH Procedures Review subcommittee (PRS) that has been evaluating NIOSH/ORAU OTIB-070 science and SC&A's many related findings for several years. PRS Chair Wanda Munn reported their final analysis of OTIB-070 to the full Board during its 3/12/13 meeting in Augusta, GA. An early draft copy of my paper is included to augment this analysis of the TBD-6000 work group 4/26/13 transcript portions that are related to TIB-070 use at GSI. A few key points I make are as follows:

(a) I point out that neither Appendix BB nor the SEC-00105 NIOSH evaluation report mention OTIB-070, and ask why is TIB-70 rev 1 being invoked now, years later, by David Allen and DCAS?;

(b) I have objected previously to use of OTIB-070 at GSI because the model is too simplistic. Multiple businesses leased, power washed cleaned, swept, partly renovated, and used for



steel making operations multiple GSI buildings during the residual period that we amply documented. These buildings included the old and new Betatron facilities and (at least) buildings 8 through 10 and 5 through 6, where MCW uranium was handled and transported. These business cycles caused uneven waves of uranium dust resuspension of different magnitudes and with uneven settling rates that the two TIB-70 D&D and RES-RAD computer models cannot accommodate. NIOSH has not demonstrated that either of these codes will model the uranium airborne concentrations at GSI 1966-1992 with sufficient accuracy;

(c) The air resuspension factor (RF) used is arbitrary, in agreement with SC&A [REF 1], and the 3/12/13 Munn PRS presentation shows that resuspension factors as high as  $10^{-2} \text{ m}^{-1}$  have been shown to be realistic at other sites. Yet Dave Allen chose  $10^{-6} \text{ m}^{-1}$  four orders of magnitude lower. How is this arbitrary RF selection by David Allen and DCAS scientifically defensible? Petitioners support SC&A the RF number is too low.

Please refer to my attached Draft white paper on use of TIB-070 at GSI for further analysis of this subject matter.

**REF 1.** SC&A: Robert Anigstein and John Mauro, Review of NIOSH Estimates of Internal Exposures at GSI, April 24, 2013. 3 pages. File: TBD6K\_sca-gsiintexp-42413.pdf

**ATTACHMENT:** McKeel DW Jr. White Paper: "Why TIB-70 Use for the General Steel Industries AWE Site Residual Period Is Scientifically Inappropriate" <TIB-70\_Residual\_Period.pdf> June 19, 2013

Respectfully submitted,



6/19/2013

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Daniel W. McKeel, Jr. MD

Date

Contact information:

Daniel W. McKeel, Jr., MD  
GSI SEC-00105 co-petitioner

**ATTACHMENT A: See page 8 ff.**

## **“Why TIB-70 Use for the General Steel Industries AWE Site Residual Period Is Scientifically Inappropriate”**

by

**Daniel W. McKeel, Jr., M.D.  
SEC-00105 Co-petitioner**

-- April 29, 2013 –  
(rev 2.0, 5/13/13)  
(Final ver, 6/19/13)

This paper is an extension of remarks GSI SEC-00105 made during the TBD-6000 work group (“WG”) teleconference call on April 26, 2013. At that meeting, McKeel expressed the very strong opinion that OTIB-070 Rev 1 was scientifically inappropriate for use at General Steel Industries (“GSI”) during the residual period. The major reason was that OTIB-070 did not model the cyclical variations in airborne uranium caused by multiple steel businesses operating during the GSI residual period.

On 4/26/13, at the request of McKeel, both David Allen of DCAS and John Mauro and Bob Anigstein of SC&A defended their reasons why they believe TIB-70 and the assigned values for resuspension factor and settling rate were scientifically defensible. Dan McKeel commented his concerns were not allayed by these explanations, which he appreciated having been given.

In a 6/19/13 e-mail to Dan McKeel, DCAS Director Stuart Hinnefeld added his reasons why NIOSH believes OTIB-070 is appropriate to use to bound GSI residual period radioactivity, as follows:

My question directed to NIOSH was:

**“I request that NIOSH and SC&A provide me a final analysis of why they contend OTIB-070 is a suitable model for the residual uranium dust along the entire uranium transport pathway at GSI? I do appreciate the verbal answers today.” (today referred to the 4/26/13 TBD-6000 WG meeting after which I first posed the question):**

DCAS Director Hinnefeld’s answer on 6/19/13 to me was as follows:

“OTIB-070 provides a general framework for the reconstruction of doses during periods of residual contamination at Atomic Weapons Employer (AWE) facilities. While OTIB-070 describes methods that can be used to bound exposure, the facility-specific conditions that are to be used at GSI are still being deliberated. Specifically, the working group is still deliberating the starting air concentration at the beginning of the residual period. There is agreement between SC&A and NIOSH, however, that the OTIB-070 exponential depletion rate of 0.00067/day is an appropriate value to be used. While it is true that the clearance of material will not perfectly follow a smooth exponential decline, it is our opinion that it provides a reasonable approximation of the integrated intake that would occur on an annual basis.”

This paper is an elaboration of McKeel's 4/26/13 WG concerns based on additional research of the ABRWH Procedures Review subcommittee deliberations on TIB-70 and of the Rev 1 OTIB-0070 document itself. That subcommittee, which is headed by Board member Wanda Munn, reported their findings on TIB-70 Rev 1 at the March 12, 2013 ABRWH meeting in Augusta, GA [REF 1]. There are conflicts between the Rev 1 document and what is reported under TIB-70 Findings in the 3/12/13 Procedures Review subcommittee.

During my further delving into TIB-70 deliberations by the Procedures Review subcommittee, I discovered information about the documentation of technical calls by SC&A and NIOSH that differs significantly from what I was told by the Board designated official that such meetings were not documented. The information I gleaned indicates that was not an entirely true statement. Some technical call information has, in fact, been "memorialized" within the BOARD REVIEW SYSTEM ("BRS") that chairperson Wanda Munn refers to sometimes as "our database." I learned that, after years of development, the BRS is still not fully functional nor is it fully populated with white paper reports that are relevant to the Findings. In particular, the link to BRS given in the 3/12/13 slide presentation on TIB-70 is not functional (not an active working URL link). The presentation slide is thus misleading. I explain in more detail later in this paper.

Summary: Dan McKeel's concerns about the scientific validity, appropriateness, and defensibility of the use of TIB-70 for the GSI residual period have, in fact, *deepened* after studying the TIB-70 rev 01 document itself [REF 3] and the Procedures Review subcommittee handling of SC&A's findings that are encapsulated in the 3/12/13 Board presentation by Ms. Munn [REF 1].

It should be noted that TIB-70 Rev 00 [REF 2] was dated 03/10/2008 and TIB-70 Rev 1 [REF 3] was dated 03/05/2012. As a general comment, in the co-petitioner's view, the Procedures Review subcommittee (PRS) closed several findings based not on the evidence, but primarily it seems from expediency.

### **A Note About NIOSH and SC&A Technical Call Documentation in the Board Review System (BRS)**

The slide on page 4 of chairperson Munn's Procedures Review Subcommittee ("PRS") to the full Board on March 12, 2013, in Augusta, GA [REF 1], contains a link to the BRS, which, upon testing by Dan McKeel on 4/28/13, was not functional (did not work). The slide indicated that "...text..." a full discussion of all 17 TIB-70 Rev 00 Findings and all 7 TIB-70 Rev 1 Findings (24 in all) would be found in the BRS. I wanted to read that material and was therefore disappointed the link to BRS did not work.

That experience led me to read transcripts of the 2011 and 2012 PRS meetings, where I learned additional information about the status of BRS development and current functionality. I also discovered how some NIOSH and SC&A technical call information, specifically e-mail between Marschke and Anigstein, was in fact entered into BRS.

Josh Kinman, had written in an e-mail dated 2/28/13 [REF 4] to Dan McKeel that "as far as I am aware **technical call discussions are not tracked**" In addition to Steve Marschke entering "the gist" of Bob Anigstein's e-mail report of their technical call into BRS, Marschke reported to the PRS members that "...*Bob Anigstein had sent an e-mail report of the technical call discussions to persons who had not been able to listen in to the call...*" Therefore, the true situation is that some technical calls, at least, are recorded (memorialized) in two ways; by the technical call participants sending informational e-mails, and by summaries of the calls being entered into BRS. Now, since someone

summarized the 5/28/13 GSI technical call, there is a precedent for WG technical call summaries to be generated and sent to petitioners. To ensure full transparency, and to improve the written record even further, I suggest that summaries (or better, verbatim transcripts) of all Board technical calls be generated in the future. The cost would be small compared to the overall costs of implementing EEOICPA 2000.

### A Note About PRS Transcripts

During a recent PRS meeting, Chairperson Wanda Munn noted “an astounding” 25 instances of court reporter notations that “*persons talking over one another.*” Ms. Munn encouraged the court reporter to indicate when this more than one person speaking was difficult for the court reporter to capture.

That comment resonated with me because recently I have carefully reviewed the ABRWH December 11, 2012, and March 12, 2013 transcripts and have noted several serious transcription mistakes that are both obvious, and significantly change the meaning of the testimony. I wonder whether there is a current Board policy as to when the Board chair reviews these transcripts to correct both minor typos and more serious errors that impact the meaning of the spoken words.

### McKeel’s Scientific Objections to Use of TIB-70 for the GSI Residual Contamination Period

1. Slide X, Finding 2, of Wanda Munn’s TIB-70 presentation to the full Board on 3/12/13, indicated that Rev 1 of TIB-70 used recalculated data from four surrogate sites including “Blockson Chemical, Dow Madison, General Atomics and Simonds Saw.”

#	Finding	Resolution
2	OTIB-0070, Section 2.5 references Sehmel 1980, Till and Meyer 1983, Linsley 1978, and Healy 1971. All of these references are (except Healy 1971) to outdoor soil contamination, which involve conditions with little resemblance to building surfaces, building uses, room heights, and ventilation rates.	Closed on July 31, 2012  OTIB-0070, Revision 1 recalculated the default source-term depletion rate during the residual radiation periods based actual data from 4 AWE sites (Blockson, Dow Madison, General Atomics, and Simonds Saw) rather than being based on literature sources where outdoor measurements were preponderant.

Further reference to TIB-70 Rev 1 indicates references to all of these sites **except** Dow Madison, which is not mentioned in either the text or the references. Thus, the **resolution of this finding as written here is inaccurate.**

2. John Mauro on 4/26/13 at the TBD-6000 work group mentioned that resuspension rates (RF) had been determined to be as high as  $10^{-4} \text{ m}^{-1}$  at some sites, and others indicated the RF rates could be even higher ( $10^{-4} \text{ m}^{-1}$ ).

3. Slide X, Finding 10, of Wanda Munn's TIB-70 presentation to the full Board on 3/12/13 [REF 1], indicated that resuspension factors could be as high as " $10^{-4}$  to  $10^{-3} \text{ m}^{-1}$ ."

10	NIOSH's recommended RF of $10^{-6} \text{ m}^{-1}$ is inappropriate. The scientific literature indicates RF values of $10^{-4}$ to $10^{-3} \text{ m}^{-1}$ for indoor activities involving substantial industrial activities.	Closed on July 31, 2012 A footnote added to Table 5-1 indicates that a site by site analysis should be conducted to establish the RF at sites where no post-operational clean-up has been performed, rather than simply accepting an RF of $10^{-6} \text{ m}^{-1}$ .
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John Mauro should have indicated to the WG on 4/26/13 that resuspension factors in the literature are 100-fold higher ( $10^{-2} \text{ m}^{-1}$ ) than the value he mentioned ( $10^{-4} \text{ m}^{-1}$ ).

NIOSH and the TBD-6000 WG, despite overwhelming proof that GSI buildings 5-7 were heavily repurposed during the residual period, tentatively appeared to agree with the claimant unfavorable decision, based on no real measurement data, that  $1 \times 10^{-5} \text{ m}^{-1}$  was a better RF number compared to  $1 \times 10^{-6} \text{ m}^{-1}$ . NIOSH made no credible scientific defense of this number they chose; thus a final upper RF value is yet to be decided upon.

### **A Digression to Explore Closed Findings 11, 12, 14 and 15 of the PRS TIB-70 Powerpoint from the 3/12/13 ABRWH Meeting**

**Question 1.** Was NUREG-1400 used in Appendix BB Rev 0 (2006)? The issue in the PRS Powerpoint was that NUREG-1400 used no quantitative data.

**Questions 2:** How was Finding 01 of TBD-6000 resolved by PRS, NIOSH and SC&A? This finding was that TIB-009 ingestion doses were too low/claimant unfavorable. This was a circular unresolved argument in the PRS TIB-70 review on 3/12/13.

4. *Dan McKeel's basic objections to use of TIB-70 are:*

- First, that no air sampling of any kind was ever performed at GSI until the very end of the residual period in only the Old and New Betatron buildings [1993 FUSRAP Old Betatron Building report. No air sampling of individual workers or of the rest of the uranium transport pathway was ever performed;
- Second, SEC-00105 petitioners and GSI site expert \_\_\_\_\_ have provided ample evidence that multiple companies leased space at GSI after it ceased Commonwealth Castings Division operations in 1973. These companies conducted various types of steel making businesses, including pickling in acid. No air sampling—breathing zone, general air, or process (the HASL triad)—for uranium was ever done during these operations at 1417 States Street in the old GSI plant buildings to our knowledge. One cannot say, absent any air sampling data, that resuspension rates were  $10^{-5} \text{ m}^{-1}$ . The resuspension rates might have ranged between  **$10^{-6}$  and  $10^{-3} \text{ per m}^{-1}$**  as the literature and the Finding 10 notation and John Mauro's 4/26/13 WG comment indicates. Viewed in this light, petitioner contend that  $10^{-5}$  or  $10^{-6} \text{ m}^{-1}$  is not scientifically defensible as a GSI RF value, the selection of this value is too arbitrary and, on the face, not the most favorable scenario.

Dan McKeel still challenges that a smooth exponential averaging method, such as is envisioned in TIB-70 using RES-RAD BUILD and/or D&D code, would necessarily be the best statistical curve fit for these unknown and, we contend, unknowable resuspension factor data at GSI. **I strongly disagree with DCAS Director Hinnefeld in his 6/19/13 e-mail that an exponential decay curve, as envisioned in OTIB-070 rev 1 by Sharfi 2012, is a reasonable approximation of average airborne uranium levels at GSI over 26 years. A "saw tooth" curve, even with uneven and difficult to define peaks and valleys and degree of curve overlap, would be a better "real-world" mathematical fit.** NIOSH has repeatedly and stubbornly failed to acknowledge this other possibility that was apparently mentioned at the 5/28/13 GSI technical call that Mr. Hinnefeld did not attend.

The extensive renovations that the current owner of the GSI 5 and 6 buildings (Granite City Pickling Warehouse) has made to the building structures exemplifies the basis for our concern that the TIB-70 DandD and RESRAD BUILD codes cannot accurately capture, in a claimant favorable way, the complex changes that may be listed as follows:

- (a) Four inches of black top have been added to the floor of 6 building;
- (b) New metal siding has been added to the side and back (foundry) walls;
- (c) The inner concrete radiography room has been removed.
- (d) The milling machines, Direct Current power substation, and the locked metal cage where radioactive sources and welding rods were stored in Bldg. 5 have all been removed and replaced by the new pickling machines that are the basis for the new owner's business.

The transfer rail tracks between buildings 4-5-6 are still in place. The railroad tracks at a right angle to the transfer tracks where \_\_\_\_\_ parked his diesel engine in the winter are still visible in GSI buildings 5 and 6 (May 2013).

- Third, The data to complete RESRAD BUILD input tables for GSI would depend entirely on the use of stringently justified surrogate data. Slide X, Finding 2, of the Munn PRS slide presentation to the Board on 3/12/13, indicates that four facilities were used as surrogate sources for OTIB-0070 rev 1: Blockson Chemical, Dow Madison, General Atomic, and Simonds Saw. Petitioners contend that Dow Madison had no such measured data at their Illinois plant, and that no Dow Madison surrogate data was used in TIB-070 Rev 1 (see following item).
- Fourth, Dan McKeel tried to verify these 4 SD sites were actually specified in OTIB-070 Rev 1, the latest version, and could find no references to the Dow Madison site. Dan McKeel was co-petitioner on the Dow SEC-00079 petition. An 83.14 type SEC was granted for the Dow operational period (1957-60) based on NIOSH's inability to bound internal thorium doses with sufficient accuracy. The Board voted to deny extension of Dow Madison site SEC-00079 to the residual period based on very skimpy film badge data from another non-EEOICPA Dow plant located in Michigan. The key report on airborne uranium at Dow, McKeel contended based on unanimous Dow worker testimony, was not from the Madison, IL plant, where the author of the key paper was said to be the chief radiation safety officer. None of the many Dow Madison IL workers interviewed had ever seen Mr. \_\_\_\_\_ at the IL location. I, and they, do not believe that any direct airborne uranium measurements actually emanated from the Illinois Dow plant. Surely, the skimpy surrogate data from the Michigan Dow site should not be used in an AWE-wide important document such as OTIB-0070. This is not only scientifically indefensible, it amounts to deliberate misuse of surrogate data.

**Deliberations of the Procedures Review Subcommittee (PRS)  
Dealing with OTIB-070**

- Meeting dates where TIB-70 was discussed (reverse chronological order)

### **2013**

- [x] **May 21, 2013** (No agenda or transcript 4.29.13)
- [x] **March 25, 2013** (Agenda, no transcript 4.29.13) – reviewed sets 10-13: SRS, RF, LANL, but not GSI – next sites sets 10-13 decided upon; TIB-70 not on agenda [see transcript, write Ted Katz]
- [x] **February 5, 2013** (Agenda and Transcript, 2 white papers from SC&A); TIB-70 not on agenda; Agenda BRS overarching issues and closing notes. Transcript: pp 27 and 86-87. Marschke and Anigstein had a technical meeting, Anigstein sent e-mail to everyone not on the technical meeting, Marschke then entered Anigstein's comment by e-mail into the BRS. Katz attended the meeting (see page 86) and knew about the technical meeting and Anigstein radon issue that was closed. [**Note:** The info RE: technical meetings is relevant to McKeel being told by Ted Katz that discussion of TIB-70 "would not take place during the technical call proposed by SC&A and DCAS" over GSI matters. It was discussed according to the meeting summary. Mr. Katz stated emphatically to McKeel that no previous technical calls about GSI have been held by the Board.

### **2012**

- [√] **December 30, 2012** SC&A reply to NIOSH Responses
- [√] **July 23, 2012** third discussion, issues resolved
- [√] **January 5, 2012** second discussion with PRS

### **2010**

- [√] **July 10, 2010** first discussion with PRS

**MCKEEL COMMENT:** My review of the 2010 and three 2012 meetings that discussed TIB-70 in detail will be submitted later as an ADDENDUM to this report.

### **References**

1. Munn, Wanda. ORAUT-TIB-0070: Dose Reconstruction During Residual Radioactivity Periods at Atomic Weapons Employer Facilities. Presentation of the ABRWH Procedures Review subcommittee to the full ABRWH meeting in Augusta, GA on 3/12/13 (transcript and PRS handout).
2. Guido, Joseph (2008) OTIB-070 Rev 00 document: ORAUT-OTIB-0070 Rev-00. Dose Reconstruction During Residual Radioactivity Periods at Atomic Weapons Employer Facilities. PDF 26 pages, date 03/10/2008.

3. Sharfi, Mutty (2012), OTIB-070 Rev 01 document: ORAUT-OTIB-0070 Rev-01. Dose Reconstruction During Residual Radioactivity Periods at Atomic Weapons Employer Facilities. PDF 520 KB (24 pages), date 3/05/2012.
4. Kinman, J. E-mail to Daniel W. McKeel, Jr. (2/28/13) stating that NIOSH and SC&A technical calls are not in any way tracked. The e-mail is reproduced below:

<quote>

*Sent: Thu, Feb 28, 2013 2:02 pm*

*Subject: RE: GSI technical meetings*

*Hi Dan:*

*At this time and after discussing this among DCAS staff members, I can inform you that we do not have records of such calls. Also, I am not aware that we track such calls or meetings. As explained to me, the only calls between NIOSH/SC&A would be worker interviews. I think you were on those calls, according to Mr. Allen. If I am able to find any records later, I will let you know. At this time we have none because we do not record or track such meetings that do not involve worker interviews.*

*Josh*

<end quote>



**GSI APPENDIX BB INTERNAL AND EXTERNAL DOSE ASSIGNMENTS  
TBD-6000 Work Group of the ABRWH (6/20/13) Meeting**

by  
Daniel W. McKeel, Jr., M.D.  
GSI SEC-00105 Co-petitioner  
(June 18, 2013)

Goals of the WG for GSI in order to revise Appendix BB (Rev 0) for Battelle TBD-6000 (Rev 1):

To finalize an Appendix BB exposure matrix in three tables that would do the following:

1. Fully report the deliberations and final results of the technical phone call that transpired on May 28, 2013, between NIOSH/DCAS participants David Allen and Jim Neton, SC&A participants Robert Anigstein and John Mauro, and Board DFO participant Ted Katz, with TBD-6000 work group chair Paul Ziemer as a silent listener;
2. Resolve all 13 original SC&A Appendix BB findings, and in addition, would also resolve all SC&A SEC-00105 findings that were later transferred to the Appendix BB issues matrix (11/26/13 latest version);
3. In strict compliance with the Board's five surrogate data criteria and OCAS-IG-003 guidance (*all sources must be bounded with sufficient accuracy*) pertaining to AWE sites such as GSI, assign three levels of internal, external and occupational x-ray dose to the following GSI personnel: (1) to radiographers and (2) to non radiographers, both of whom worked in the plant production areas, and to (3) administrative personnel (to be defined), who rarely visited the plant production areas, for three eras: Oct. 1, 1952-1962: radium era of the AEC operational period); 1963-June 30, 1966 (cobalt era of the AEC operational period; and July 1, 1966-1992, the residual contamination period;
4. Specify the specific established technical guidances (including SRDB numbers), transport code version numbers and dates, and literature sources pertaining to any surrogate data, for the methods proposed by NIOSH to reconstruct gamma and x-ray photons, beta (electron) skin doses, and neutron doses (of specified claimant favorable relative biologic effectiveness [RBE]), for all three levels of personnel dose assignment in all three eras at GSI, in a revised Appendix BB to Battelle TBD-6000.
5. Define GSI job categories to be included in "radiographer," "non radiographer," and "administrative" personnel.

**Table 1: Gamma and X-ray photon exposure matrix for Item #3:**

JOB CLASS	Radium Era (1952-62)	Cobalt Era (1963-66)	Residual Era (1966-92)
Radiographer (production)			
Non radiographer (prod.)			
Administrative (office)			

**Table 2: Beta (electron) skin exposure matrix for Item #3:**

JOB CLASS	Radium Era (1952-62)	Cobalt Era (1963-66)	Residual Era (1966-92)
Radiographer (production)			
Non radiographer (prod.)			
Administrative (office)			

**Table 3: Neutron (RBE=20) exposure matrix for Item #3:**

JOB CLASS	Radium Era (1952-62)	Cobalt Era (1963-66)	Residual Era (1966-92)
Radiographer (production)			
Non radiographer (prod.)			
Administrative (office)			

**Technical Guidance and References:**