Filename: McKeel_SC&A_5.30.12-paper.doc

Petitioner Comments on SC&A Discussion Paper Dated 5/30/12 titled Update of "Review of 'Site Profiles for Atomic Weapons Employers That Worked Uranium and Thorium Metals - Appendix BB: General Steel Industries,' Battelle-TBD-6000, Appendix BB," Occupational Internal Dose

by

Daniel W. McKeel, Jr., M.D.
GSI SEC-00105 Co-Petitioner

June 1, 2012

To: All members of the Advisory Board on Radiation and Worker Health (ABRWH):

Comments and concerns are numbered to facilitate future reference to specific points.

Page 1 of 6

Section [1] Background

1. This is a 6 page report dated May 30, 2012, co-authored by David Allen and John Mauro, that was posted to the DCAS website on May 31, 2012. Co-petitioner first became aware of this report the same day (yesterday).

2. It appears from the **Background** section text on page 1 that this paper, in part, addresses a very unfortunate, decidedly not claimant favorable oversight, with respect to the already completed 92 page SC&A review of GSI Appendix BB dated April 2008.

NIOSH Program Area – Radiation Dose Reconstruction – Advisory Board: Reports 1

SC&A Memo and Draft Report: Site Profiles for Atomic Weapons Employers That Worked Uranium and Thorium Metals - Appendix BB: General Steel Industries, Battelle-TBD- 6000, Appendix BB, Rev. 0
Contract No. 200-2004-03805
Task Order No. 1
April 2008
PDF 1.7 MB (92 pages)

This previous SC&A Appendix BB review is not mentioned, nor is it referenced on page 6 in the **References section**. This is a major omission. Why, then, if an SC&A review had already been completed, was it necessary to (quoting the **Background**) ""*...review Allen and Glover's internal exposure assessment during the period of AEC operations, as well as the residual period*" (end quote)?

3. The current report includes several Findings by SC&A that NIOSH seriously underestimated internal occupational radiation dose in Appendix BB.

4. The petitioners have repeatedly pointed out for several years that Appendix BB needs to be revised to reflect a number of SC&A Findings of underestimated dose to GSI claimants. By now, more than 94% of GSI dose reconstructions have been completed since June 2007 based primarily on TBD-6000 Rev 0 and Appendix BB Rev 0. At this point, DCAS and NIOSH have not resolved the previous Appendix BB SC&A findings of record, and in fact no TBD-6000 work group meeting has been scheduled to fully resolve them. This inordinate delay in revising Appendix BB is becoming more and more unacceptable and claimant adverse.

5. This "Updated Review" is oddly tasked by the Designated Federal Official, Mr. Katz, rather than by the chair of the TBD-6000, Paul Ziemer. That Board work group has primary responsibility for assessing GSI Appendix BB and SEC-00105. I am unaware where the DFO derives authority for tasking SC&A directly. The co-petitioner wonders whether there is a precedent in ABRWH affairs where the Board technical contractor, SC&A, is directly tasked by the DFO, a CDC employee? Why was tasking done in this unusual way? Was there off record discussion with the Board that prompted this tasking? If so, why was tasking not done on the record, when there was ample opportunity to do so, during the back to back 3/15/12 and 3/28/12 TBD-6000 work group meetings or at the 4/26/12 Board conference call meeting that preceded the June Santa Fe full Board meeting?

6. The timing of this tasking is very odd as well, coming 5 full years after Appendix BB Rev. 0 was first released in June 2007. The current SC&A review references the report by David Allen and Sam Glover from 2007! Why was there such an inordinate delay?

Section [2] Intakes During Uranium Handling Operations—DCAS Assessment (page 1)

1. It is erroneous to state that the "parent document" for Allen and Glover (2007) was the 2011 Rev 1 version of TBD-6000 that was released 6/17/2011. Such an occurrence would, of course, be an impossibility. The correct citation should have been Rev 0 of TBD-6000 that was released 12/13/2006.

2. Co-petitioner McKeel has commented in previous DCAS and SC&A technical document critiques that generic uranium slug facility intake data is not suitable as surrogate data according to both Board and NIOSH criteria. The equivalence of a surrogate site needs to be established, and this has not been done for the slug facility and GSI. Former Director Elliott identified GSI as a truly "unique site," John Mauro of SC&A has echoed this statement, and the co-petitioner has amplified these sentiments with abundant and compelling facts that illustrate many ways the slug facility and GSI uranium operations, radiation sources, types of uranium metal processed, and other parameters differed significantly between the slug and GSI sites. The slug facility did not use a 24-25 Mev Betatron particle accelerators to irradiate and activate the uranium, as one example. Another example is GSI processed MCW ingots and dingots as well as recycled uranium metal and Betatron slices, none of which were the same as the uranium source terms at the slug facility used for comparison in TBD-6000.

3. This section leaves out the very important point that MCW-AEC uranium related purchase orders to GSI for 1953-1957 do not exist, apparently. Thus calculations of intakes during those years is not based on actual, known uranium source term data.

a) Also needed to be emphasized is the fact the mix of uranium metal products, that is the percentage and volume that was ingots, dingots, Betatron slices, and perhaps other alloyed forms that contained trace transuranics (slightly enriched uranium) or depleted or recycled uranium, all of which were produced at MCW-Destrehan Street and Weldon Spring Uranium Feed Materials Plant by the MCW Uranium Division during 1953-1966, is completely unknown.

b) All pertinent records except limited purchase orders from 1958 to 1966 have been misplaced, hidden or destroyed at GSI, Mallinckrodt, the NRC and U.S. DOE. shipped from MCW to GSI for Betatron x-irradiation NDT inspection is not known. Those records would include shipping manifests to confirm the information on the purchase orders was correct.

c) There is absolutely no confirmatory evidence that DCAS/NIOSH possesses all of the MCW-AEC uranium purchase orders issued to GSI.

Section [3] Intakes During Uranium Handling Observations—SC&A Observations (pages 1-2)

1. The first paragraph on page 1 mentions that "...*Subsequent dose reconstructions that were audited by SC&A.*" The co-petitioner has tried in vain to gain access to these audited GSI DR reports, and currently has in process a request under FACA, to the DFO to obtain redacted copies. The co-petitioner has not been able to ascertain who tasked SC&A to "audit" these GSI cases, given that, according to the DFO, they have not yet been reviewed by the DR subcommittee, which has primary responsibility for this function.

2. The last sentence of the section on page 1 states, "...*it has a significant impact on the reconstruction of doses to the lung.*" The fact is noted, but not commented upon further.

3. **The co-petitioner strenuously challenges the validity of the statement in the first paragraph on page 2 that *"...it is reasonable and claimant favorable to assume this annual rate for the period January 1, 1953-June 30, 1958."* That interpretation is adverse to client interests because it supports the untenable NIOSH position that it can bound doses for this earliest 5.3 year portion of the GSI covered period, thus supporting NIOSH recommendation that SEC-00105 be denied. Extrapolating post March 1958 MCW purchase order Ur-238 source data back to early years, without having the actual P.O.s, is scientifically indefensible; it is a fabrication of data pure and simple and the flawed rationale should be declared unacceptable to the Board.**

Rather, the "best/good science" claimant favorable interpretation favored by GSI co-petitioner McKeel would be that GSI SEC-00105 merits approval

because there is no real uranium source term data known for 1953 through February 1958. There is no monitoring data of any kind for this time period.

4. The same paragraph on page 2 also observes that Allen and Glover (2007) "*ignore the terms of the first MCW purchase order from 3/1-6/30/1958.*" The analysis is then dropped. The value to the deliberative process of making an observation (finding) in the absence of a suggested remedy escapes the co-petitioner.

Section [4] Intakes Between Uranium Handling Operations—DCAS Observations (page 2 of 6)

1. The first paragraph on page 2 lays out the proposition that surface (aka *surficial*) uranium becomes airborne and is resuspended between periods of handling.

2. Paragraph two describes affected workers and seems to concentrate only on Betatron operators. GSI co-petitioner McKeel and GSI site expert have for years pointed out, supported by worker affidavits, that a variety of people in other job categories than Betatron Radiographer came near or into contact with MCW uranium metal and "dust" resulting from the handling thereof. This information has been ignored by DCAS and SC&A in their technical reports, including this one. The present analysis by both DCAS and SC&A is thus very incomplete and represents a superficial, too simplified, and thus scientifically indefensible exposition of the facts related to uranium intakes at GSI.

3. What is also missing from this analysis is the recognition that 3,000 pound uranium metal ingots and dingots with shaggy Mg-Hexafluoride "crusts" do not magically appear a few feet distant from the Betatron beam port.

The uranium metal outer surface "crust" is rough and sheds with a different shear force than pure uranium would do; the resulting ingot/dingot surface dust resuspends in air differently than would the oxidation layer of freshly cleaved pure uranium. (Also see **note 5**)

These uranium metal objects travel along a pathway thought the GSI building complex that includes at least the following places and job categories of personnel who handle the uranium metal:

a) Places in the pathway or uranium transport at GSI: the loading dock; storage areas outside the Betatron facilities; foundry building path through buildings 6 through 10 into the New Betatron facility and the workers in those named buildings.

b) Job categories of persons who handle uranium metal: truck and train unloaders, dock personnel, storage area handlers, crane operators, chain operators, layout personnel, Betatron assistants and primary operators, photography technicians who handled the x-ray film and cassettes that had *directly contacted the uranium metal* from MCW (and had not been cleaned off), and clerks who handle the paperwork (shot lists, NDT findings report, X-ray film) that accompanies the MCW uranium and almost certainly became contaminated with surface dust.

Obviously NIOSH needed to calculate and bound intake and external uranium doses for all workers who came into contact or were nearby the uranium. The GSI

advocate team claims this is impossible for NIOSH or SC&A to do with sufficient accuracy because the physical and chemical parameters of MCW uranium metal products sent to GSI is not known at all except as noted on the purchase orders that do not define these parameters at all.

4. This analysis, by ignoring the ingestion component of the uranium intake pathway during the GSI residual period, suggests this factor was not in play. Former worker testimony suggests otherwise:

(a) There had been extensive cleanup and repurposing of both the Old (for battery and parts storage) and New (for offices) Betatron facilities by the time ORNL surveyed the Betatron facilities at GSI in the late 1980s,

(b) In contrast, during the residual period of the late 1960s when at least one Betatron was still being used for NDT up until 1973 when active plant operations ceased, the floors of the Old and New Betatron facilities were covered with dust several inches deep, suggesting the total amount of uranium available for resuspension was far greater than NIOSH and SC&A used in their 2006, 2007, 2008 and Appendix BB reports or in this 2012 report. **The surface (surficial) GSI uranium load during the residual period has always been seriously underestimated**.

(c) Similarly, uranium dust along the entire uranium transport pathway from unloading dock to the Betatron facilities was available for resuspension. Betatron and layout workers undoubtedly at their lunches in buildings 6 through 10 and in the Betatron facilities, sitting on castings and on dust that probably did contain uranium. Again, NIOSH cannot possibly accurately determine the true "surficial uranium load" that existed either at the beginning of, or during, the GSI residual contamination period.

5. NIOSH has never produced any AEC technical reports about the Betatron NDT work done for MCW at the GSI AWE site. Therefore the only source of information is GSI former worker testimony, which is necessarily incomplete and conflicting because 48 year years have elapsed since the end of the covered period at GSI and human memory fades and makes errors during such a long interval.

6. Certain contaminating daughter products and radioisotopes of thorium build up and concentrate in the outer crust or "crop" areas of uranium ingots and dingots of the type supplied to GSI by MCW. Some have termed this the Putzier effect, but there are descriptions of the process under other terms in the uranium literature.

Page 2, continued

Section [5] Intakes Between Uranium Handling Operations—SC&A Observations (pages 2 and 3)

1. The text of the first paragraph of this section notes that: "...an RF (resuspension factor) of... might be low by about an **order of magnitude**." (emphasis added) SC&A notes the NIOSH low figure applied to a surrogate building that had undergone decontamination and decommissioning, which did not apply to GSI. During 1 week in the early 1990's ORNL/DOE surveyed and cleaned up some uranium dust from the Old

Betatron facility only. ORNL found no uranium residuum in the New Betatron facility that had been repurposed as offices. No radiological survey was done by ORNL of the main GSI buildings where uranium was unloaded and traveled by crane and transfer rail cars to the Old and New Betatron facilities (referred to hereafter as "the transport pathway"). *Thus, the NIOSH RF might be low by **far more than** 10-fold if all uranium dust contamination throughout the GSI facility had been surveyed (ever) and recorded.* The fact is, ORNL/DOE and GSI on its own volition had never established uranium contamination throughout the plant complex that was only demolished in 2012. Based on this observation alone, **NIOSH is incapable of bounding the total residual uranium dust volume, hence the RF, both of which are unknown quantities that cannot be established with any degree of certainty**. Thus, SC&A has overlooked an important finding that in and of itself justifies approving an SEC at GSI for the residual contamination period. SC&A did identifying a dose underestimation of ten-fold in possible uranium intakes at a time when NIOSH has claimed for years it bound intakes of resuspended uranium at GSI with sufficient accuracy. Both the SC&A and petitioner findings indicate this was not possible.

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The analysis continues and SC&A concludes by stating that TBD-6000 Rev 1 (Allen 2011) includes the same erroneous RF value as did Rev 0. Thus *"If the RF were increased by a factor of 10, the airborne dust loading and the consequent intakes would increase in the same proportion."* This error could and should have been recognized in 2008 in the first SC&A analyses of TBD-6000 Rev 0 and of Appendix BB at the beginning of GSI dose reconstruction activities that had languished up until then.

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The following paragraph on the next page reports another NIOSH dose underestimation by a factor of 2-fold or 100%. The error results from an *"inconsistency in the modeled intakes of uranium during the uranium handling operations and in the accumulation of uranium deposited on floors and other surfaces."* Again the analysis of this phenomenon is restricted to Betatron operators, who represent only a small fraction of the job categories of GSI personnel who handled MCW uranium that resided at GSI for NDT (nondestructive testing) inspection purposes. This entire analysis is based on the apparent false premise that the sole handlers of uranium at GSI were Betatron operators, photography lab technicians who handled the x-ray film and cassettes, neglecting chain men, crane operators, dock loaders, and layout workers and probably others as well. This restricted analysis confined to a single non-representative job category is claimant adverse, not claimant favorable. The analyses in this section need to be modified.

Also, NIOSH needs to acknowledge that Betatron operators were not the only job category for which doses need to be bounded during the residual period. Uranium dust was undoubtedly spread all over the GSI complex all along the transport pathway from unloading dock to the two Betatron facilities and back, as has been outlined. The problem is, the full extent of residual uranium at GSI was never assessed. ORNL did not

prove that there was no residual uranium anywhere on site except the Betatron facilities. They simply confined their inspection to the Old and New Betatron buildings where the decommissioned accelerators happened to be stored. That is, don't look, don't find was the ORNL/DOE policy that has been evident at many facilities the co-petitioner is familiar with. This is clearly DOE cost containment issue. Congress in 1997 was forced to relieve DOE of remediation activities under the FUSRAP and had to transfer this function to the Army Corps of Engineers. DOE's FUSRAP function was thereafter and today relegated to record keeping of previously remediated sites.

The overall NIOSH miscalculation of the total intake during the residual period would be "*to increase the intake from 0.932 to 24.97 dpm per calendar day.*" This results in an error of 24.97 divided by 0.932 or 26.8-fold. It is clear this figure, if SC&A is correct, indicates that NIOSH is unable to calculate and bound intake doses with sufficient accuracy. NIOSH underestimated the true dose by this factor (2680 percent)! And this error has been factored in all 94% of GSI DR completed to date by ORAU/DCAS and DOL. Obviously, a significant number of claims at GSI have been unduly denied based on seriously flawed NIOSH scientific methodology.

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Section [6] External Exposure During Residual Period

1. The first sentence is an excellent example of the scientifically absurd lengths that both NIOSH and SC&A have used an accepted as valid in order to deny approval of SEC-00105. The total uranium contamination in the entire GSI building complex during the residual period was basely solely on a single ORNL analysis of one industrial vacuum cleaner. NIOSH apparently believes that *any single datum (one data point)* is enough to bound residual period doses with sufficient accuracy.

Page 2 last sentence extends to page 3 of 6

2. SC&A concurred saying that "*...we concur that this is a claimant-favorable assumption; however we observe that, for consistency with other time periods, the exposure duration should be increased from 2,400 hours to 3,250 hours per year.*"

(a) The co-petitioner feels strongly as a fellow scientist with an advanced degree (M.D., Doctor of Medicine, University of Virginia 1966) with 200 published papers and abstracts and 36 peer reviewed NIH biomedical grants in his professional C.V., and 31 years (23 tenured) at a major US medical school (Washington University in St. Louis) that no one should accept such *de minimis* evidence of "sufficient accuracy," the gold standard test for one arm of the SEC test, regardless of the fact this term is still being

defined by NIOSH at the present time more than ten years after the start of EEOICPA dose reconstruction and SEC compensation programs.

(b) That the average GSI worker work week should be changed from 46 to 65 hours, a 35% increase, was agreed to by consensus at a former worker meeting that SC&A held in Collinsville, IL October 7, 2007. This numerical increase in average hours worked per week should be a major factor affecting radiation exposures among the large 3000 person SEC class covered by SEC-00105. NIOSH has accepted this consensus determination. However, the consensus finding has not yet been incorporated into a revised Appendix BB document.

2. The Old and New Betatron facilities had both been cleaned and extensively repurposed under several different new owners by 1989 when the ORNL survey.

3. Former workers testified that much larger industrial vacuum units than the one ORNL surveyed were used several times daily to clean the Old and New Betatron facility floors at GSI. However, those vacuum cleaners could not clean up uranium bearing dust from other surfaces such as the overhead cranes, the Betatron machines, the control room Betatron operating console, and so forth.

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Section [7] Summary of SC&A Observations

Page 4 of 6

1. Bullet points listed in this section underscore 5 essential SC&A findings about NIOSH methodology, that if resolved by the Board in favor of SC&A, could affect assigned GSI radiation doses very significantly, as follows:

Bullet 1: Uranium intakes during handling "*understated by a factor of 2.22*"
Bullet 2: Assigned resuspension factor "inapplicable" to GSI, 10-fold too low
Bullet 3: Model discrepancy assumptions not correct, SC&A: "*We recommend modeling the deposition as persisting during the entire period of uranium operations.*"
Bullet 4: NIOSH purchase order based rationale during the residual period should be increased from 337.5 h/y to 375 h/y.
Bullet 5: External exposures should be based on 3,250 hours per year

2. Two remedies could be taken by the Board in response to the above SC&A findings.

One approach would be to allow NIOSH to update their calculations to conform to new SC&A calculations done 5 years after the original Allen and Glover 2007 paper. Based on the discussions at the 3/15/12 and 3/28/12 TBD-6000 work group, held before this SC&A report was released, Board and work group members might endorse that NIOSH be granted the time to modify their models (Bullet 3) and assumptions and calculations (other four Bullet points), thus ignoring the fact that these steps could have and should have been taken anytime since 2007.

Or, as a contrasting much more claimant favorable approach, the Board could conclude, as do the petitioners, based on all these findings of demonstrable severe scientific flawed methodology and inaccurate results as identified by SC&A in 2012, bolstered by many others addressed in other SC&A and co-petitioner reports (such as the 8 reports delivered for the March work group meetings), that NIOSH is unable to assign internal and external doses during the covered and the residual periods with sufficient accuracy.

In the case of the residual period, **NIOSH lacks sufficiently representative monitoring data about the total uranium source term mass to calculate the total uranium metal volume throughout the GSI building complex at the beginning of or at any time during, the residual contamination period. A measurement by ORNL of a single small vacuum cleaner in one repurposed Betatron building is patently insufficient to make a plausible calculation. For this reason, the Board should vote to approve SEC-00105.**

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Section [8] Further SC&A Observations on Exposure Assessments for the Residual Period

1. This very brief section is not well developed as to a scientific rationale. It appears to be an afterthought.

2. The first paragraph suggests NIOSH "could avail itself" of TIB-70 methodology in order to "*derive an exponential rate of decline from the midpoint of the 'this period' Jan. 1, 1962, to March 16, 1989, as follows*:"

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The analysis of section [8] continues...

3. A formula is stipulated with the following annotation: *"The first of the above equations could be used to calculate the contamination level and hence the intake rate during each year of the residual period."* The rationale for validating or introducing these formulae is unstated and is unclear. SC&A is proposing new methodology, a function the co-petitioner believes is the primary responsibility of NIOSH. TIB-70 has been available for some time.

4. The rate of change of surficial contamination is apparently a TIB-70 constant, and thus represents another use of unjustified surrogate data to substitute for a total lack of actual monitoring data at GSI. The surrogate site is not shown to be similar to GSI. Again, the proper way to view this suggestion, in the co-petitioner's view, is that NIOSH is unable to construct ("bound") intake or external doses during the residual period.

5. Comment: This report deals mainly with internal occupational radiation dose assessment. Petitioners also do not accept that external doses can be bounded by

NIOSH for the residual contamination period at GSI because the total mass of uranium metal (dust primarily) at GSI along the entire transport pathway from unloading dock through buildings 6 through 10, and on the well traveled path beside the long foundry, is unknown and unknowable.

For that matter, for the record, former worker testimony indicates that uranium metal was stored at GSI prior to its unloading and return to MCW to the Uranium Division. No one knows the duration, the exact locations of the storage areas, or whether in fact all of the MCW uranium metal pieces were ever actually returned to MCW. No shipping manifests or receipts or Betatron "shot records" of such MCW uranium materials are known to exist at the present time. Therefore, there is no confirmatory evidence that the MCW purchase orders were either the complete series or that they were fulfilled exactly as written. This is all in the realm of conjecture and surmise; **hard scientific evidence does not exist.**

Section [9] References

1. The previous SC&A review of Appendix BB is inexplicably not referenced. The entry from the DCAS website showing the existence of this report on 6/1/12 is shown below:

NIOSH Program Area – Radiation Dose Reconstruction – Advisory Board: Reports

SC&A Memo and Draft Report: Site Profiles for Atomic Weapons Employers That Worked Uranium and Thorium Metals - Appendix BB: General Steel Industries, Battelle-TBD- 6000, Appendix BB, Rev. 0
Contract No. 200-2004-03805
Task Order No. 1
April 2008
PDF 1.7 MB (92 pages)

Co-petitioner's Summary Comment and request for postponement of a full Board presentation and possible final vote for GSI SEC-00105.

Summary comment: This long overdue SC&A report that is oddly tasked and timed is emblematic of my concerns that have been repeatedly expressed and largely ignored during the GSI Board deliberations that began in 2005. I find the omission of the seminal SC&A review of GSI Appendix BB in April 2008 of particular concern. Of most concern is the present SC&A dose underestimations by NIOSH are first revealed very late in the GSI deliberative process. Of ultimate concern, the TBD-6000 work group has not yet scheduled a meeting to resolve the outstanding Appendix BB issues, including those in the present SC&A review/discussion paper.

Intake Data for the Residual Period at GSI is entirely based on two NIOSH technical documents that use surrogate data from a slug facility and from TIB-70, and a single real radiation measurement from a small industrial vacuum in one room of the Old Betatron building that was separated from the main building complex by 300 feet measured. The use of these particular surrogate data was not justified (see Board

criteria and OCAS-IG-004 for NIOSH surrogate data criteria) as to site similarity to GSI. In fact, the surrogate sites could not be similar enough because of the unique mission and source terms at GSI. And as site, one real data point of Ur-238 dust mass and exposure rate in 1989 that was 300 feet from the main plant is plainly insufficient to bound the entire residual period. Claiming so is scientifically untenable and the Board should reject this NIOSH and SC&A endorsed premise.

GSI Appendix BB needs to be revised as soon as possible.

Petitioner request for postponement of Board consideration of SEC-00105:

Based partly on these considerations, together with the fact that eight (8) recent McKeel co-petitioner documents and this document have not been thoroughly discussed by the work group or posted to Docket 140, I therefore suggest it is premature, and will be patently claimant adverse, to bring the GSI SEC before the full Board for a vote at the June 2012 Santa Fe meeting just 18 days from now.

I request therefore that discussion of the GSI SEC-00105 should be postponed until (1) all Appendix BB SC&A findings have been resolved by DCAS and SC&A within the TBD-6000 work group, (2) that all 9 McKeel co-petitioner GSI documents related to the TBD-6000 work group March 2012 meetings, and this report, have been thoroughly discussed and the issues raised have been worked through, and (3) that the GSI SEC-0015 issues related to the residual contamination period have also been discussed and all pertinent issues have been resolved with final agreement between all parties—the Board work group, NIOSH and SC&A. Not until then SEC-00105 be ready to be brought before the full ABRWH for a final vote.

Respectfully submitted,

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Subj:	**McKeel: critique of SC&A 5.30.12 report, GSI intakes update**
Date:	Saturday, June 2, 2012 10:07:32 AM
From:	DanMcKeel2@aol.com
To:	tmk1@cdc.gov, paz7@cdc.gov, josiebeach@charter.net, wimunn@aol.com, dka6@cdc.gov, jfn2@cdc.gov, hls8@cdc.gov, melius@nysliuna.org
cc:	danmckeel2@aol.com, eky1@cdc.gov

Dear Ted, Dr. Melius, and members of the TBD-6000 work group and NIOSH colleagues,

Attachment <McKeel_SC&A_5.30.12-paper.pdf> 170 KB

I am enclosing my response to the SC&A 5.30.12 Discussion paper updating their analysis of GSI occupational intake doses. Ted Katz, please circulate this e-mail and the attachment to all members of the ABRWH. Thank you.

I am also submitting my new report this morning to NIOSH Docket 140 (GSI) for posting on the DCAS website.

The final section of my report is a formal request I repeat here to postpone the presentation of GSI SEC-00105 to the full Board that meets in Santa Fe in 18 days. I consider the presentation to be premature until the following tasks are accomplished, which they cannot possibly be in the short time between now and June 20. From my report:

Petitioner request for postponement of Board consideration of SEC-00105: ***Based partly on these considerations, together with the fact that eight (8) recent McKeel co-petitioner documents and this document have not been thoroughly discussed by the work group or posted to Docket 140, I therefore suggest it is premature, and will be patently claimant adverse, to bring the GSI SEC before the full Board for a vote at the June 2012 Santa Fe meeting just 18 days from now.***
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Sincerely -- Dan McKeel 6.2.12

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Subj:	**McKeel: critique of SC&A 5.30.12 report, GSI intakes update**
Date:	Saturday, June 2, 2012 10:07:32 AM
From:	DanMcKeel2@aol.com
To:	tmk1@cdc.gov, paz7@cdc.gov, joslebeach@charter.net, wimunn@aol.com, dka6@cdc.gov, jfn2@cdc.gov, hls8@cdc.gov, melius@nysliuna.org
cc:	danmckeel2@aol.com , eky1@cdc.gov

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I request therefore that discussion of the GSI SEC-00105 should be postponed until (1) all Appendix BB SC&A findings have been resolved by DCAS and SC&A within the TBD-6000 work group, (2) that all 9 McKeel co-petitioner GSI documents related to the TBD-6000 work group March 2012 meetings, and this report, have been thoroughly discussed and the issues raised have been worked through, and (3) that the GSI SEC-0015 issues related to the residual contamination period have also been discussed and all pertinent issues have been resolved with final agreement between all parties—the Board work group, NIOSH and SC&A. Not until then SEC-00105 be ready to be brought before the full ABRWH for a final vote.

Sincerely -- Dan McKeel 6.2.12

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Filename: McKeel_SC&A_5.30.12-paper.doc

Petitioner Comments on SC&A Discussion Paper Dated 5/30/12 titled Update of "Review of 'Site Profiles for Atomic Weapons Employers That Worked Uranium and Thorium Metals - Appendix BB: General Steel Industries,' Battelle-TBD-6000, Appendix BB," Occupational Internal Dose

by
Daniel W. McKeel, Jr., M.D.
GSI SEC-00105 Co-Petitioner

June 1, 2012

To: All members of the Advisory Board on Radiation and Worker Health (ABRWH):

Comments and concerns are numbered to facilitate future reference to specific points.

Section [1] Background

1. This is a 6 page report dated May 30, 2012, co-authored by David Allen and John Mauro, that was posted to the DCAS website on May 31, 2012. Co-petitioner first became aware of this report the same day (yesterday).

2. It appears from the **Background** section text on page 1 that this paper, in part, addresses a very unfortunate, decidedly not claimant favorable oversight, with respect to the already completed 92 page SC&A review of GSI Appendix BB dated April 2008.

NIOSH Program Area - Radiation Dose Reconstruction - Advisory Board: Reports

SC&A Memo and Draft Report: Site Profiles for Atomic Weapons Employers That Worked Uranium and Thorium Metals - Appendix BB: General Steel Industries, Battelle-TBD- 6000, Appendix BB, Rev. 0
Contract No. 200-2004-03805
Task Order No. 1
April 2008
PDF 1.7 MB (92 pages)

This previous SC&A Appendix BB review is not mentioned, nor is it referenced on page 6 in the **References section**. This is a major omission. Why, then, if an SC&A review had already been completed, was it necessary to (quoting the **Background**) ""*...review Allen and Glover's internal exposure assessment during the period of AEC operations, as well as the residual period*" (end quote)?

3. The current report includes several Findings by SC&A that NIOSH seriously underestimated internal occupational radiation dose in Appendix BB.

4. The petitioners have repeatedly pointed out for several years that Appendix BB needs to be revised to reflect a number of SC&A Findings of underestimated dose to GSI claimants. By now, more than 94% of GSI dose reconstructions have been completed since June 2007 based primarily on TBD-6000 Rev 0 and Appendix BB Rev 0. At this point, DCAS and NIOSH have not resolved the previous Appendix BB SC&A findings of record, and in fact no TBD-6000 work group meeting has been scheduled to fully resolve them. This inordinate delay in revising Appendix BB is becoming more and more unacceptable and claimant adverse.

5. This "Updated Review" is oddly tasked by the Designated Federal Official, Mr. Katz, rather than by the chair of the TBD-6000, Paul Ziemer. That Board work group has primary responsibility for assessing GSI Appendix BB and SEC-00105. I am unaware where the DFO derives authority for tasking SC&A directly. The co-petitioner wonders whether there is a precedent in ABRWH affairs where the Board technical contractor, SC&A, is directly tasked by the DFO, a CDC employee? Why was tasking done in this unusual way? Was there off record discussion with the Board that prompted this tasking? If so, why was tasking not done on the record, when there was ample opportunity to do so, during the back to back 3/15/12 and 3/28/12 TBD-6000 work group meetings or at the 4/26/12 Board conference call meeting that preceded the June Santa Fe full Board meeting?

6. The timing of this tasking is very odd as well, coming 5 full years after Appendix BB Rev. 0 was first released in June 2007. The current SC&A review references the report by David Allen and Sam Glover from 2007! Why was there such an inordinate delay?

Section [2] Intakes During Uranium Handling Operations—DCAS Assessment (page 1)

1. It is erroneous to state that the "parent document" for Allen and Glover (2007) was the 2011 Rev 1 version of TBD-6000 that was released 6/17/2011. Such an occurrence would, of course, be an impossibility. The correct citation should have been Rev 0 of TBD-6000 that was released 12/13/2006.

2. Co-petitioner McKeel has commented in previous DCAS and SC&A technical document critiques that generic uranium slug facility intake data is not suitable as surrogate data according to both Board and NIOSH criteria. The equivalence of a surrogate site needs to be established, and this has not been done for the slug facility and GSI. Former Director Elliott identified GSI as a truly "unique site," John Mauro of SC&A has echoed this statement, and the co-petitioner has amplified these sentiments with abundant and compelling facts that illustrate many ways the slug facility and GSI uranium operations, radiation sources, types of uranium metal processed, and other parameters differed significantly between the slug and GSI sites. The slug facility did not use a 24-25 Mev Betatron particle accelerators to irradiate and activate the uranium, as one example. Another example is GSI processed MCW ingots and dingots as well as recycled uranium metal and Betatron slices, none of which were the same as the uranium source terms at the slug facility used for comparison in TBD-6000.

3. This section leaves out the very important point that MCW-AEC uranium related purchase orders to GSI for 1953-1957 do not exist, apparently. Thus calculations of intakes during those years is not based on actual, known uranium source term data.

a) Also needed to be emphasized is the fact the mix of uranium metal products, that is the percentage and volume that was ingots, dingots, Betatron slices, and perhaps other alloyed forms that contained trace transuranics (slightly enriched uranium) or depleted or recycled uranium, all of which were produced at MCW-Destrehan Street and Weldon Spring Uranium Feed Materials Plant by the MCW Uranium Division during 1953-1966, is completely unknown.

b) All pertinent records except limited purchase orders from 1958 to 1966 have been misplaced, hidden or destroyed at GSI, Mallinckrodt, the NRC and U.S. DOE. shipped from MCW to GSI for Betatron x-irradiation NDT inspection is not known. Those records would include shipping manifests to confirm the information on the purchase orders was correct.

c) There is absolutely no confirmatory evidence that DCAS/NIOSH possesses all of the MCW-AEC uranium purchase orders issued to GSI.

Section [3] Intakes During Uranium Handling Observations—SC&A Observations (pages 1-2)

1. The first paragraph on page 1 mentions that "*...Subsequent dose reconstructions that were audited by SC&A.*" The co-petitioner has tried in vain to gain access to these audited GSI DR reports, and currently has in process a request under FACA, to the DFO to obtain redacted copies. The co-petitioner has not been able to ascertain who tasked SC&A to "audit" these GSI cases, given that, according to the DFO, they have not yet been reviewed by the DR subcommittee, which has primary responsibility for this function.

2. The last sentence of the section on page 1 states, "*...it has a significant impact on the reconstruction of doses to the lung.*" The fact is noted, but not commented upon further.

Page 2 of 6

3. **The co-petitioner strenuously challenges the validity of the statement in the first paragraph on page 2 that *"...it is reasonable and claimant favorable to assume this annual rate for the period January 1, 1953-June 30, 1958."* That interpretation is adverse to client interests because it supports the untenable NIOSH position that it can bound doses for this earliest 5.3 year portion of the GSI covered period, thus supporting NIOSH recommendation that SEC-00105 be denied. Extrapolating post March 1958 MCW purchase order Ur-238 source data back to early years, without having the actual P.O.s, is scientifically indefensible; it is a fabrication of data pure and simple and the flawed rationale should be declared unacceptable to the Board.**

Rather, the "best/good science" claimant favorable interpretation favored by GSI co-petitioner McKeel would be that GSI SEC-00105 merits approval

because there is no real uranium source term data known for 1953 through February 1958. <u>There is no monitoring data of any kind for this time period</u>.

4. The same paragraph on page 2 also observes that Allen and Glover (2007) "*ignore the terms of the first MCW purchase order from 3/1-6/30/1958.*" The analysis is then dropped. The value to the deliberative process of making an observation (finding) in the absence of a suggested remedy escapes the co-petitioner.

Section [4] Intakes Between Uranium Handling Operations—DCAS Observations (page 2 of 6)

1. The first paragraph on page 2 lays out the proposition that surface (aka *surficial*) uranium becomes airborne and is resuspended between periods of handling.

2. Paragraph two describes affected workers and seems to concentrate only on Betatron operators. GSI co-petitioner McKeel and GSI site expert have for years pointed out, supported by worker affidavits, that a variety of people in other job categories than Betatron Radiographer came near or into contact with MCW uranium metal and "dust" resulting from the handling thereof. <u>This information has been ignored</u> by DCAS and SC&A in their technical reports, including this one. The present analysis by both DCAS and SC&A is thus very incomplete and represents a superficial, too simplified, and thus scientifically indefensible exposition of the facts related to uranium intakes at GSI.

3. What is also missing from this analysis is the recognition that 3,000 pound uranium metal ingots and dingots with shaggy Mg-Hexafluoride "crusts" do not magically appear a few feet distant from the Betatron beam port.

The uranium metal outer surface "crust" is rough and sheds with a different shear force than pure uranium would do; the resulting ingot/dingot surface dust resuspends in air differently than would the oxidation layer of freshly cleaved pure uranium. (Also see **<u>note 5</u>**)

These uranium metal objects travel along a pathway thought the GSI building complex that includes at least the following places and job categories of personnel who handle the uranium metal:

a) <u>Places in the pathway or uranium transport at GSI</u>: the loading dock; storage areas outside the Betatron facilities; foundry building path through buildings 6 through 10 into the New Betatron facility and the workers in those named buildings.

b) <u>Job categories of persons who handle uranium metal</u>: truck and train unloaders, dock personnel, storage area handlers, crane operators, chain operators, layout personnel, Betatron assistants and primary operators, photography technicians who handled the x-ray film and cassettes that had *directly contacted the uranium metal* from MCW (and had not been cleaned off), and clerks who handle the paperwork (shot lists, NDT findings report, X-ray film) that accompanies the MCW uranium and almost certainly became contaminated with surface dust.

Obviously NIOSH needed to calculate and bound intake and external uranium doses for all workers who came into contact or were nearby the uranium. The GSI

advocate team claims this is impossible for NIOSH or SC&A to do with sufficient accuracy because the physical and chemical parameters of MCW uranium metal products sent to GSI is not known at all except as noted on the purchase orders that do not define these parameters at all.

4. This analysis, by ignoring the ingestion component of the uranium intake pathway during the GSI residual period, suggests this factor was not in play. Former worker testimony suggests otherwise:

(a) There had been extensive cleanup and repurposing of both the Old (for battery and parts storage) and New (for offices) Betatron facilities by the time ORNL surveyed the Betatron facilities at GSI in the late 1980s,

(b) In contrast, during the residual period of the late 1960s when at least one Betatron was still being used for NDT up until 1973 when active plant operations ceased, the floors of the Old and New Betatron facilities were covered with dust several inches deep, suggesting the total amount of uranium available for resuspension was far greater than NIOSH and SC&A used in their 2006, 2007, 2008 and Appendix BB reports or in this 2012 report. **The surface (surficial) GSI uranium load during the residual period has always been seriously underestimated**.

(c) Similarly, uranium dust along the entire uranium transport pathway from unloading dock to the Betatron facilities was available for resuspension. Betatron and layout workers undoubtedly at their lunches in buildings 6 through 10 and in the Betatron facilities, sitting on castings and on dust that probably did contain uranium. Again, NIOSH cannot possibly accurately determine the true "surficial uranium load" that existed either at the beginning of, or during, the GSI residual contamination period.

5. NIOSH has never produced any AEC technical reports about the Betatron NDT work done for MCW at the GSI AWE site. Therefore the only source of information is GSI former worker testimony, which is necessarily incomplete and conflicting because 48 year years have elapsed since the end of the covered period at GSI and human memory fades and makes errors during such a long interval.

6. Certain contaminating daughter products and radioisotopes of thorium build up and concentrate in the outer crust or "crop" areas of uranium ingots and dingots of the type supplied to GSI by MCW. Some have termed this the Putzier effect, but there are descriptions of the process under other terms in the uranium literature.

Page 2, continued

Section [5] Intakes Between Uranium Handling Operations—SC&A Observations (pages 2 and 3)

1. The text of the first paragraph of this section notes that: "...an RF (resuspension factor) of... might be low by about an **order of magnitude**." (emphasis added) SC&A notes the NIOSH low figure applied to a surrogate building that had undergone decontamination and decommissioning, which did not apply to GSI. During 1 week in the early 1990's ORNL/DOE surveyed and cleaned up some uranium dust from the Old

Betatron facility only. ORNL found no uranium residuum in the New Betatron facility that had been repurposed as offices. No radiological survey was done by ORNL of the main GSI buildings where uranium was unloaded and traveled by crane and transfer rail cars to the Old and New Betatron facilities (referred to hereafter as "the transport pathway"). *Thus, the NIOSH RF might be low by **far more than** 10-fold if all uranium dust contamination throughout the GSI facility had been surveyed (ever) and recorded.* The fact is, ORNL/DOE and GSI on its own volition had never established uranium contamination throughout the plant complex that was only demolished in 2012. Based on this observation alone, **NIOSH is incapable of bounding the total residual uranium dust volume, hence the RF, both of which are unknown quantities that cannot be established with any degree of certainty**. Thus, SC&A has overlooked an important finding that in and of itself justifies approving an SEC at GSI for the residual contamination period. SC&A did identifying a dose underestimation of ten-fold in possible uranium intakes at a time when NIOSH has claimed for years it bound intakes of resuspended uranium at GSI with sufficient accuracy. Both the SC&A and petitioner findings indicate this was not possible.

Page 3 of 6

The analysis continues and SC&A concludes by stating that TBD-6000 Rev 1 (Allen 2011) includes the same erroneous RF value as did Rev 0. Thus *"If the RF were increased by a factor of 10, the airborne dust loading and the consequent intakes would increase in the same proportion."* This error could and should have been recognized in 2008 in the first SC&A analyses of TBD-6000 Rev 0 and of Appendix BB at the beginning of GSI dose reconstruction activities that had languished up until then.

Page 3 of 6 continued...

The following paragraph on the next page reports another NIOSH dose underestimation by a factor of 2-fold or 100%. The error results from an *"inconsistency in the modeled intakes of uranium during the uranium handling operations and in the accumulation of uranium deposited on floors and other surfaces."* Again the analysis of this phenomenon is restricted to Betatron operators, who represent only a small fraction of the job categories of GSI personnel who handled MCW uranium that resided at GSI for NDT (nondestructive testing) inspection purposes. This entire analysis is based on the apparent false premise that the sole handlers of uranium at GSI were Betatron operators, photography lab technicians who handled the x-ray film and cassettes, neglecting chain men, crane operators, dock loaders, and layout workers and probably others as well. This restricted analysis confined to a single non-representative job category is claimant adverse, not claimant favorable. The analyses in this section need to be modified.

Also, NIOSH needs to acknowledge that Betatron operators were not the only job category for which doses need to be bounded during the residual period. Uranium dust was undoubtedly spread all over the GSI complex all along the transport pathway from unloading dock to the two Betatron facilities and back, as has been outlined. The problem is, the full extent of residual uranium at GSI was never assessed. ORNL did not

prove that there was no residual uranium anywhere on site except the Betatron facilities. They simply confined their inspection to the Old and New Betatron buildings where the decommissioned accelerators happened to be stored. That is, don't look, don't find was the ORNL/DOE policy that has been evident at many facilities the co-petitioner is familiar with. This is clearly DOE cost containment issue. Congress in 1997 was forced to relieve DOE of remediation activities under the FUSRAP and had to transfer this function to the Army Corps of Engineers. DOE's FUSRAP function was thereafter and today relegated to record keeping of previously remediated sites.

The overall NIOSH miscalculation of the total intake during the residual period would be "*to increase the intake from 0.932 to 24.97 dpm per calendar day.*" This results in an error of 24.97 divided by 0.932 or 26.8-fold. It is clear this figure, if SC&A is correct, indicates that NIOSH is unable to calculate and bound intake doses with sufficient accuracy. NIOSH underestimated the true dose by this factor (2680 percent)! And this error has been factored in all 94% of GSI DR completed to date by ORAU/DCAS and DOL. Obviously, a significant number of claims at GSI have been unduly denied based on seriously flawed NIOSH scientific methodology.

Page 3 of 6

Section [6] External Exposure During Residual Period

1. The first sentence is an excellent example of the scientifically absurd lengths that both NIOSH and SC&A have used an accepted as valid in order to deny approval of SEC-00105. The total uranium contamination in the entire GSI building complex during the residual period was basely solely on a single ORNL analysis of one industrial vacuum cleaner. NIOSH apparently believes that *any single datum (one data point)* is enough to bound residual period doses with sufficient accuracy.

Page 2 last sentence extends to page 3 of 6

2. SC&A concurred saying that "*...we concur that this is a claimant-favorable assumption; however we observe that, for consistency with other time periods, the exposure duration should be increased from 2,400 hours to 3,250 hours per year.*"

(a) The co-petitioner feels strongly as a fellow scientist with an advanced degree (M.D., Doctor of Medicine, University of Virginia 1966) with 200 published papers and abstracts and 36 peer reviewed NIH biomedical grants in his professional C.V., and 31 years (23 tenured) at a major US medical school (Washington University in St. Louis) that no one should accept such *de minimis* evidence of "sufficient accuracy," the gold standard test for one arm of the SEC test, regardless of the fact this term is still being

defined by NIOSH at the present time more than ten years after the start of EEOICPA dose reconstruction and SEC compensation programs.

(b) That the average GSI worker work week should be changed from 46 to 65 hours, a 35% increase, was agreed to by consensus at a former worker meeting that SC&A held in Collinsville, IL October 7, 2007. This numerical increase in average hours worked per week should be a major factor affecting radiation exposures among the large 3000 person SEC class covered by SEC-00105. NIOSH has accepted this consensus determination. However, the consensus finding has not yet been incorporated into a revised Appendix BB document.

2. The Old and New Betatron facilities had both been cleaned and extensively repurposed under several different new owners by 1989 when the ORNL survey.

3. Former workers testified that much larger industrial vacuum units than the one ORNL surveyed were used several times daily to clean the Old and New Betatron facility floors at GSI. However, those vacuum cleaners could not clean up uranium bearing dust from other surfaces such as the overhead cranes, the Betatron machines, the control room Betatron operating console, and so forth.

Page 4 of 6

Section [7] Summary of SC&A Observations

Page 4 of 6

1. Bullet points listed in this section underscore 5 essential SC&A findings about NIOSH methodology, that if resolved by the Board in favor of SC&A, could affect assigned GSI radiation doses very significantly, as follows:

Bullet 1: Uranium intakes during handling "*understated by a factor of 2.22*"
Bullet 2: Assigned resuspension factor "inapplicable" to GSI, 10-fold too low
Bullet 3: Model discrepancy assumptions not correct, SC&A: "*We recommend modeling the deposition as persisting during the entire period of uranium operations.*"
Bullet 4: NIOSH purchase order based rationale during the residual period should be increased from 337.5 h/y to 375 h/y.
Bullet 5: External exposures should be based on 3,250 hours per year

2. Two remedies could be taken by the Board in response to the above SC&A findings.

One approach would be to allow NIOSH to update their calculations to conform to new SC&A calculations done 5 years after the original Allen and Glover 2007 paper. Based on the discussions at the 3/15/12 and 3/28/12 TBD-6000 work group, held before this SC&A report was released, Board and work group members might endorse that NIOSH be granted the time to modify their models (Bullet 3) and assumptions and calculations (other four Bullet points), thus ignoring the fact that these steps could have and should have been taken anytime since 2007.

Or, as a contrasting much more claimant favorable approach, the Board could conclude, as do the petitioners, based on all these findings of demonstrable severe scientific flawed methodology and inaccurate results as identified by SC&A in 2012, bolstered by many others addressed in other SC&A and co-petitioner reports (such as the 8 reports delivered for the March work group meetings), that NIOSH is unable to assign internal and external doses during the covered and the residual periods with sufficient accuracy.

In the case of the residual period, **NIOSH lacks sufficiently representative monitoring data about the total uranium source term mass to calculate the total uranium metal volume throughout the GSI building complex at the beginning of or at any time during, the residual contamination period. A measurement by ORNL of a single small vacuum cleaner in one repurposed Betatron building is patently insufficient to make a plausible calculation. For this reason, the Board should vote to approve SEC-00105.**

Page 4 of 6

Section [8] Further SC&A Observations on Exposure Assessments for the Residual Period

1. This very brief section is not well developed as to a scientific rationale. It appears to be an afterthought.

2. The first paragraph suggests NIOSH "could avail itself" of TIB-70 methodology in order to "*derive an exponential rate of decline from the midpoint of the 'this period' Jan. 1, 1962, to March 16, 1989, as follows:*"

Page 5 of 6

The analysis of section [8] continues...

3. A formula is stipulated with the following annotation: *"The first of the above equations could be used to calculate the contamination level and hence the intake rate during each year of the residual period."* The rationale for validating or introducing these formulae is unstated and is unclear. SC&A is proposing new methodology, a function the co-petitioner believes is the primary responsibility of NIOSH. TIB-70 has been available for some time.

4. The rate of change of surficial contamination is apparently a TIB-70 constant, and thus represents another use of unjustified surrogate data to substitute for a total lack of actual monitoring data at GSI. The surrogate site is not shown to be similar to GSI. Again, the proper way to view this suggestion, in the co-petitioner's view, is that NIOSH is unable to construct ("bound") intake or external doses during the residual period.

5. Comment: This report deals mainly with internal occupational radiation dose assessment. Petitioners also do not accept that external doses can be bounded by

NIOSH for the residual contamination period at GSI because the total mass of uranium metal (dust primarily) at GSI along the entire transport pathway from unloading dock through buildings 6 through 10, and on the well traveled path beside the long foundry, is unknown and unknowable.

For that matter, for the record, former worker testimony indicates that uranium metal was stored at GSI prior to its unloading and return to MCW to the Uranium Division. No one knows the duration, the exact locations of the storage areas, or whether in fact all of the MCW uranium metal pieces were ever actually returned to MCW. No shipping manifests or receipts or Betatron "shot records" of such MCW uranium materials are known to exist at the present time. Therefore, there is no confirmatory evidence that the MCW purchase orders were either the complete series or that they were fulfilled exactly as written. This is all in the realm of conjecture and surmise; **hard scientific evidence does not exist**.

Section [9] References

1. The previous SC&A review of Appendix BB is inexplicably not referenced. The entry from the DCAS website showing the existence of this report on 6/1/12 is shown below:

NIOSH Program Area – Radiation Dose Reconstruction – Advisory Board: Reports I

SC&A Memo and Draft Report: Site Profiles for Atomic Weapons Employers That Worked Uranium and Thorium Metals - Appendix BB: General Steel Industries, Battelle-TBD- 6000, Appendix BB, Rev. 0
Contract No. 200-2004-03805
Task Order No. 1
April 2008
PDF 1.7 MB (92 pages)

Co-petitioner's Summary Comment and request for postponement of a full Board presentation and possible final vote for GSI SEC-00105.

Summary comment: This long overdue SC&A report that is oddly tasked and timed is emblematic of my concerns that have been repeatedly expressed and largely ignored during the GSI Board deliberations that began in 2005. I find the omission of the seminal SC&A review of GSI Appendix BB in April 2008 of particular concern. Of most concern is the present SC&A dose underestimations by NIOSH are first revealed very late in the GSI deliberative process. Of ultimate concern, the TBD-6000 work group has not yet scheduled a meeting to resolve the outstanding Appendix BB issues, including those in the present SC&A review/discussion paper.

Intake Data for the Residual Period at GSI is entirely based on two NIOSH technical documents that use surrogate data from a slug facility and from TIB-70, and a single real radiation measurement from a small industrial vacuum in one room of the Old Betatron building that was separated from the main building complex by 300 feet measured. The use of these particular surrogate data was not justified (see Board

criteria and OCAS-IG-004 for NIOSH surrogate data criteria) as to site similarity to GSI. In fact, the surrogate sites could not be similar enough because of the unique mission and source terms at GSI. And as site, one real data point of Ur-238 dust mass and exposure rate in 1989 that was 300 feet from the main plant is plainly insufficient to bound the entire residual period. Claiming so is scientifically untenable and the Board should reject this NIOSH and SC&A endorsed premise.

GSI Appendix BB needs to be revised as soon as possible.

Petitioner request for postponement of Board consideration of SEC-00105:

Based partly on these considerations, together with the fact that eight (8) recent McKeel co-petitioner documents and this document have not been thoroughly discussed by the work group or posted to Docket 140, I therefore suggest it is premature, and will be patently claimant adverse, to bring the GSI SEC before the full Board for a vote at the June 2012 Santa Fe meeting just 18 days from now.

I request therefore that discussion of the GSI SEC-00105 should be postponed until (1) all Appendix BB SC&A findings have been resolved by DCAS and SC&A within the TBD-6000 work group, (2) that all 9 McKeel co-petitioner GSI documents related to the TBD-6000 work group March 2012 meetings, and this report, have been thoroughly discussed and the issues raised have been worked through, and (3) that the GSI SEC-0015 issues related to the residual contamination period have also been discussed and all pertinent issues have been resolved with final agreement between all parties—the Board work group, NIOSH and SC&A. Not until then SEC-00105 be ready to be brought before the full ABRWH for a final vote.

Respectfully submitted,

Daniel W. McKeel, Jr.

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Subj:	**McKeel: critique of SC&A 5.30.12 report, GSI intakes update**
Date:	Saturday, June 2, 2012 10:07:32 AM
From:	DanMcKeel2@aol.com
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cc:	danmckeel2@aol.com, , eky1@cdc.gov

Dear Ted, Dr. Melius, and members of the TBD-6000 work group and NIOSH colleagues,

Attachment <McKeel_SC&A_5.30.12-paper.pdf> 170 KB

I am enclosing my response to the SC&A 5.30.12 Discussion paper updating their analysis of GSI occupational intake doses. Ted Katz, please circulate this e-mail and the attachment to all members of the ABRWH. Thank you.

I am also submitting my new report this morning to NIOSH Docket 140 (GSI) for posting on the DCAS website.

The final section of my report is a formal request I repeat here to postpone the presentation of GSI SEC-00105 to the full Board that meets in Santa Fe in 18 days. I consider the presentation to be premature until the following tasks are accomplished, which they cannot possibly be in the short time between now and June 20. From my report:

Petitioner request for postponement of Board consideration of SEC-00105: ***Based partly on these considerations, together with the fact that eight (8) recent McKeel co-petitioner documents and this document have not been thoroughly discussed by the work group or posted to Docket 140, I therefore suggest it is premature, and will be patently claimant adverse, to bring the GSI SEC before the full Board for a vote at the June 2012 Santa Fe meeting just 18 days from now.***
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Sincerely -- Dan McKeel 6.2.12

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