

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

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**From:** DanMcKeel2@aol.com  
**Sent:** Monday, May 21, 2012 4:25 PM  
**To:** NIOSH Docket Office (CDC)  
**Cc:** danmckeel2@aol.com  
**Subject:** Docket 140 GSI: PETITIONER DOCUMENTS 3-8  
**Attachments:** McKeel\_ADD3.pdf+.zip

Dear NIOSH Docket 140 (GSI) Office:

Attachment: DOCUMENT 3: <McKeel\_ADD3.pdf> (288 KB)  
Attachment: DOCUMENT 4: <MCNPx\_memo\_3.22.12.pdf> (73 KB)  
→ Attachment: DOCUMENT 5: <McKeel\_Comment\_Allen2\_ADFD3.pdf> (477 KB)  
Attachment: DOCUMENT 6: <McKeel\_Part2\_Allen\_ADD-3.pdf> (411 KB)  
Attachment: DOCUMENT 7: <McKeel\_Comment\_3.28.12.pdf> (76 KB)  
Attachment: DOCUMENT 8: <DWM\_GSI\_email\_Katz\_4.26.12.pdf> (36 KB)

Please accept this submission to GSI Docket 140 for posting on the DCAS website. There are 6 small PDF files representing 6 separate communications from myself to the TBD-6000 work group and full Board.

### Descriptions:

*MCKEEL PETITIONER DOCUMENT 3. FILE: McKeel\_ADD3.pdf (288 KB), dated March 19, 2012. Covers unresolved SC&A "SEC Issues" 5 and 6 as well as more realistic and time period-accurate surrogate concrete induced radioisotope activation data by the GSI Betatrons.*

*MCKEEL PETITIONER DOCUMENT 4. FILE: MCNPx\_memo\_3.22.12.pdf (76 KB); McKeel Email dated 3/22/12 to Ted Katz to distribute to TBD-6000 work group, DCAS and SC&A containing John Ramspott information about MCNPx with Dan McKeel comments.*

*MCKEEL PETITIONER DOCUMENT 5. FILE: McKeel\_Comment\_Allen2\_ADFD3.pdf (480 KB) dated 3/23/12. 2 page initial reaction to mistaken calculations in David Allen's Addendum 3 action items white paper following the 3/15/12 TBD-6000 work group meeting.*

*MCKEEL PETITIONER DOCUMENT 6. FILE: McKeel\_Part2\_Allen\_ADD-3.pdf (411 KB) dated 3/26/12. A critically important document showing that layout worker photon and neutron external radiation doses should be increased based on new knowledge they worked immediately outside the GSI new Betatron shooting room shielded only by a thin steel ribbon door that offered scant protection to them.*

*MCKEEL PETITIONER DOCUMENT 7. FILE: McKeel\_Comment\_3.28.12.pdf (80 KB) dated 3/28/12. McKeel read into the record of the 3.28.12 TBD-6000 work group meeting. Very important rebuttal to the DCAS and SC&A presentations at the same meeting.*

*MCKEEL PETITIONER DOCUMENT 8: FILE (PDF of email): DWM\_GSI\_email\_Katz\_4.26.12.pdf (40 KB) dated 4/26/12. McKeel added comments about the TBD-6000 work group 2 Yes (Ziemer, Munn), 1 No (Josie Beach, 1st ten years of covered period) recommendation on 3/28/12 to support NIOSH and to deny the GSI SEC-00105 petition for the entire covered period of 1953-June 1966.*

Sincerely,

-- Dan McKeel May 21, 2012

Daniel W. McKeel, Jr., MD  
GSI SEC-00105 co-petitioner  
Phone: 573-323-8897  
Fax: 573-323-0043  
E-mail: [danmckeel2@aol.com](mailto:danmckeel2@aol.com)  
US Mail: P.O. Box 15, Van Buren, MO 63965-0015

**Dan McKeel GSI-00105 Co-Petitioner Comments, Part 1,  
to David Allen Addendum 3 to his January 2012 Betatron  
Operations White Paper (via e-mail)**

March 23, 2012

To all participants at the 3/15/12 TBD-6000 work group meeting:

Josh Kinman furnished David Allen's Addendum 3 to his January 2012 Betatron white paper to me earlier today. Here is my initial response to two glaring mistakes concerning modeling of the New Betatron tunnel door (it was thinner roll up steel and not double leaf in 1964-66) and the position of the GSI film badge rack (there were two not one). My concerns are as follows:

MCKEEL RESPONSE TO ALLEN ADDENDUM 3 (PART 1): ITEMS #1  
AND #2

1. Mr. Allen removes the lead from the New Betatron door post 1966 but fails to change the assumptions from a thicker double leaf door to a thinner red ribbon steel roll up door was in place in 1963-66. GSI workers unanimously agree, and photos presented by McKeel have shown, the ribbon roll up door was in place in both Old and New Betatron buildings 1964-66. The ribbon steel roll up door is thinner and thus has a different (lower) shielding efficacy compared to the double leaf post-1068 door. Allen disregards this fact in his Addendum 3. Ignoring the difference between the composition of the double leaf door compared to the roll up steel door is claimant adverse.

2. Mr. Allen also ignores the drawing presented by McKeel showing the badge rack was moved to a second position, farther away from the control room, during 1964-66 when worked at GSI. Allen instead refers to the INCORRECT Anigstein SC&A drawing that shows only one film badge rack position, closer to the shooting area than Dutko's rack position #2. The badges in rack position #2 would receive less gamma dose compared to the badge rack badges in position #1 that Allen and SC&A identify. Again, Ignoring the second badge rack position is claimant adverse.

Items #1 and 2 are examples that NIOSH continues to ignore co-petitioner information that has a more complete (more affidavits in number and currency), more believable and defensible pedigree than

does SC&A data on the presence or absence of a double leaf door and the two locations of the GSI New Betatron film badge racks (plural). The petitioners assert that both Allen modifications to the MCNPx New Betatron January 2012 model are not based on the best available scientific information, and therefore need to be considered invalid. More work is needed and the assumptions and input parameters need to be revisited and modified and new runs made.

It is profoundly discouraging and irritating that petitioner and former eye witness input continues to be IGNORED and misconstrued by Mr. Allen and DCAS. Especially so since \_\_\_\_\_ and co-petitioner Dan McKeel spent considerable time and money and drove from Missouri more than 1000 miles to the TBD-6000 work group meeting held 3/15/12 in Cincinnati and presented our data in a direct Powerpoint demonstration that was copied to all participants following the meeting. Hard copies of most slides were made available to all at the 3/15/12 meeting.

Dan McKeel 3/23/12 Friday 12:27 PM

Daniel W. McKeel, Jr., MD  
GSI SEC-00105 co-petitioner  
Phone: 573-323-8897  
Fax: 573-323-0043  
E-mail: danmckeel2@aol.com  
US Mail: P.O. Box 15, Van Buren, MO 63965-0015

**Daniel McKeel GSI Co-Petitioner Comments, Part 2:  
David Allen January 2012 Betatron White Paper, ADDENDUM 3:  
New Betatron Scenario For Layout Worker Exposures;  
Interpretation of McKeel-Landauer Program 2084 (GSI) Film Badge Data  
(March 25, 2012)  
by**

**Daniel W. McKeel, Jr.**

**Introduction**

**Highlights of McKeel Part 2 Comments on Allen Addendum 3:**

[1] New Exposure Scenario For New Betatron Layout Workers:  
I would flag this information as *urgent highest priority* for members of the TBD-6000 work group to read. New affidavit information has emerged from a living Betatron operator that some Betatron shots were performed while Layout men were working on "hot castings" on transfer rail cars in the tunnel area, between the shooting room and Building 10, of the New Betatron facility at General Steel Industries. In this real world exposure scenario, Layout workers working on castings would be located just outside of a thin ribbon steel roll-up door that closed off the railroad tunnel in 1964 to 1966. Even without modeling, it is obvious this scenario would expose Layout team workers to *much higher x-ray and neutron photon doses* compared to Layout workers who would be at least 100 to 200 feet away (or more) in Building 10 that was separated from the New Betatron Building by a causeway (railroad tunnel and break area). The importance of NIOSH modeling this scenario cannot be overemphasized. NIOSH should arrange to have an interview with this worker if that should be felt necessary in order to verify this testimony, which is replicated below. SC&A should participate and McKeel asks to be a silent observer.



Subj: **McKeel Cooment Part 2 of 2: Allen Addendum 3**  
Date: Monday, March 26, 2012 9:59:12 AM  
From: DanMcKeel2@aol.com  
To: tmk1@cdc.gov, paz7@cdc.gov, pl.ziemer@comcast.net  
cc: danmckeel2@aol.com,

Hello Dr. Ziemer and Ted,

Attachment <McKeel\_Part2\_Allen\_ADD-3.pdf> 411 KB

Thank you. Ted, for the new white paper and updated SEC issues matrix I received this morning.

I have attached PART 2 of my comment to Dave Allen's Addendum 3 to his January 2012 Betatron Operations white paper. Would Ted please distribute this e-mail and the attachment to all members of the TBD-6000 work group, to Dr. Neton and David Allen of DCAS/NIOSH, and to Drs. \_\_\_\_\_ and \_\_\_\_\_ of SC&A. **This paper outlines a major new piece of information that should significantly increase external photon and neutron doses to Layout men.** That is, GSI layout men did their work on "hot castings" on railroad transfer cars in the rail tunnel just outside the New Betatron shooting room while shooting was in progress inside the facility. This meant the tunnel workers were shielded from photons and neutrons only by the thin ribbon steel roll-up door now known to be present in the 1964-66 time period.

Thank you,

-- Dan McKeel 3/26/12 Monday morning

Daniel W. McKeel, Jr., MD  
Phone: 573-323-8897  
Fax: 573-323-0043  
E-mail: danmckeel2@aol.com  
US Mail: P.O. Box 15, Van Buren, MO 63965-0015

*reminded me that, on a hot castings, layout work was done on transfer car of the casting, in the Betatron tunnel, by workmen getting the casting ready to bring it in to the Betatron for radiograph.” - 3/24/12 to*

This person ( ) is well known to the Board, to NIOSH and to SC&A as he was an active participant in the Anigstein-SC&A satellite meeting that NIOSH attended, recorded and summarized held in Collinsville, IL on October 9, 2007. The new Layout worker information for the New Betatron tunnel activity did not emerge until 3/24/12.

[2] Interpretation of McKeel-Landauer Program 2084 (GSI) Film Badge Data:

The co-petitioner’s analysis of his interactions with Landauer and the GSI film badge data he has obtained differs in important aspects from the NIOSH and SC&A experience with Landauer GSI film badge data. McKeel has reviewed his total experience from 2006, when he first learned that GSI film badge records existed at Landauer, to the present time. Several facts have emerged about these critical data that by now have become central issues in NIOSH revising Appendix BB Rev 0 of June 2007 (issued before the GSI film badge data was obtained or analyzed by NIOSH and SC&A).

(a) The complete GSI film badge data set has not been shared with the petitioners. Dr. , behalf of the TBD-6000/6001 and Appendix BB work group asked McKeel to share his quarterly therefore limited Landauer film badge data set he had obtained 13 months before NIOSH obtained its weekly GSI film badge data set. McKeel declined unless and until SC&A and/or NIOSH reciprocated and shared their weekly film badge data, which they were not willing to do even though McKeel was the one who brought the existence of any GSI film badge attention to NIOSH and SC&A.

(b) There has not been a complete explication of all details of the NIOSH-SC&A film badge weekly data set in which each and every badge reading above “M” is set forth. This needs to be done in the name of transparency of the NIOSH dose reconstruction and SEC evaluation process.

(c) Co-petitioner McKeel reminds NIOSH, the Board and SC&A that the advocacy group he founded, the Southern Illinois Nuclear Energy Workers (SINEW), with the assistance and support of SimmonsCooper law firm of East Alton, IL and SINEW member and SimmonsCooper staff attorney . . . obtained notarized releases for dosimetry and medical information from almost all living GSI Betatron employees and presented them to both Landauer and NIOSH in order to facilitate petitioner review of the complete Landauer GSI program 2084 film badge data set.

Sinew and McKeel have repeatedly pointed out that radiation monitoring data (and similar types of data that does not directly affect living persons) from deceased individuals is not protected by the Privacy Act of 1974. In spite of this background, NIOSH and HHS OGC refused to honor these legally valid worker releases that were obtained by an experienced and well respected Illinois litigating law firm. We believed this position was wrong then and McKeel still holds this view. The GSI petitioners were denied legal due process by HHS, OGC, NIOSH and OCAS with respect to seeing the complete set of Landauer program 2084 GSI film badges.

**(d) Most importantly, and the point addressed in this response to Allen Addendum 3, is that both NIOSH and SC&A have analyzed the GSI weekly film badge data in a claimant adverse way.** First, as pointed out previously, the complete film badge data set has not been presented to McKeel and the SEC-00105 petitioners. Second, the complete GSI film badge data set with all values above "M" listed has not been presented to the Board. The previous film badge white papers stopped short of this necessary step.

SC&A produced "evidence" that the very highest GSI film badge readings had been retracted by GSI workers through their supervisors. This "evidence" was established by conversations and activities that were conducted in private, a non-transparent process, between two SC&A employees, one of whom formerly worked for SC&A. Co-petitioner McKeel and former workers have strongly challenged the validity of these retractions and have never had access to the unredacted letters to see the names of persons involved, all of whom except one we believe to be deceased and whose

names therefore should not have been redacted. We hold our position despite DR. Ziemer acting a "referee" in this matter between SC&A and the petitioners and workers. At the 3/15 meeting McKeel recounted that one of the "highest dose" workers (DB) recently again disputed that he had never been informed he had a high badge reading.

Below is an example of film badge data that GSI Betatron clerk obtained as part of his NIOSH case file. The weekly data printout pages each contained 33 records and in the tow examples shown from 4/25/66 and 5/29/66 there was 12 and 13 values ranging between 10 and 2470 mrem with only 21 records showing an "M" for the Cumulative photon total:

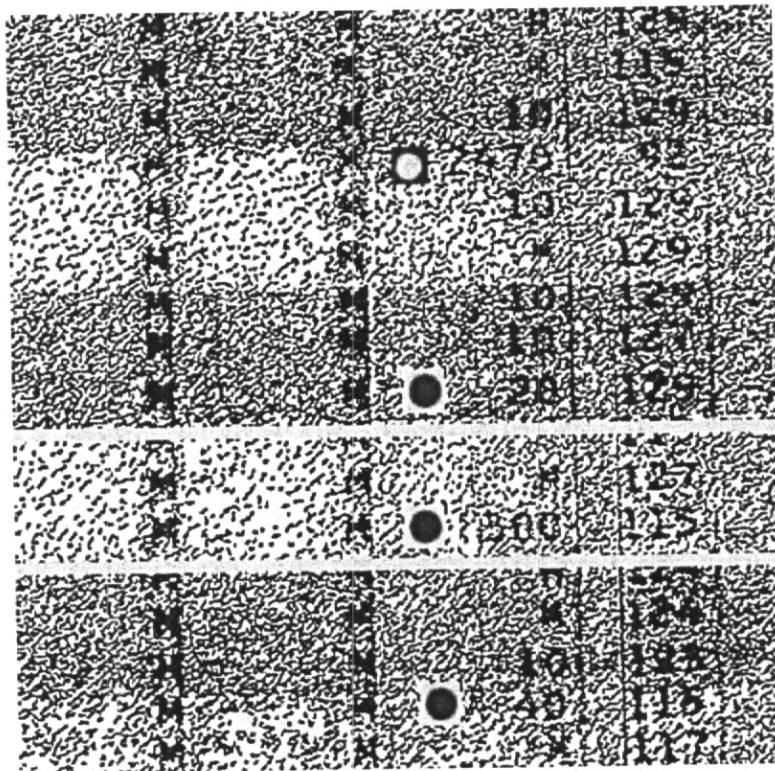
The image shows a film badge data report from Landauer JR & CO. The report includes a header with the company name and address. Below the header is a table with columns for 'DATE', 'TIME', 'DAYS', 'DURATION', 'M', 'H', 'R', 'CUMULATIVE TOTAL', and 'PHOTONS'. A yellow box highlights a row where the cumulative total is 2470 photons. The table contains 33 rows of data.

.LEGEND. The Landauer report page has been slightly enlarged, name column has been omitted at left, and one lighter bar has been outlined in yellow (with dot) to indicate a Cumulative dose of 2470 photons had been received. Page image has been changed from black lettering to white to

enhance readability of the report. Many pages were too dark to read. Only 21 records on this weekly 4/25/1966 Landauer report were "M." Twelve other values ranged between 10-2470 mrem.

The next illustration is a page of 5/29/1966 film badge data from the same GSI clerk, the first to handle weekly film badges in the New Betatron facility. This page differs from the 4/25/1966 page in one important respect, a value of 300 mrem appears for another worker. This appears therefore to be a relatively newly incurred dose that was not listed on the 4/25/66 report from a month earlier. It implies an incident has been recorded.

Details such as this need to be recognized, analyzed across time in detail, and brought before the TBD-6000 work group and the full ABRWH before they attempt to make a final recommendation on SEC-00105 or revise Appendix BB.



**LEGEND.** GSI Landauer 5/29/1966 report clipping to show Cumulative photon dose values of 2470 mrem (top yellow dot in red square) and below values of 20 mrem and 40 mrem (red dots in yellow squares) that also appeared on the same workers 4/25/66 film badge report. The new value of 300 mrem appears within the second lighter band from the top (also marked by a red circular dot in a yellow square). This image has been enlarged approximately 2-fold. One can also see 5 values of 10 mrem and 6 clear "M" values.

**Further Comments on Part 1 McKeel Comments:**



Part 1 of the McKeel SEC-00105 co-petitioner comments dealt with two perceived errors made by David Allen in his Addendum 3 to the January 2012 Betatron Operations white paper issued after the 3/15/12 TBD-6000 work group meeting.

The first error cited in McKeel Part 1 in his response to Allen Addendum 3.

The door at the end of the GSI New Betatron railroad track tunnel was a ribbon steel roll up door rather than a double leaf metal door with no lead shield. I have two further comments on that matter: (1) Mr. Allen and DCAS need to modify the MCNPx parameters accordingly. This will be difficult, because the exact metallic composition of the ribbon steel roll up doors and the double leaf doors are not known. (2) the precise input parameters, including the programmed HVL (half value layer) used to model the steel roll up ribbon door should be stated explicitly when results of the modified exposure model are made known.

The second error cited in McKeel Part 1 in his response to Allen Addendum 3.

The Allen analysis of racked film badges failed to acknowledge or model corrected information on the location of racked Betatron employee film badges in the GSI New Betatron facility. Specifically, McKeel offered a new worker affidavit on 3/15/12 that showed there were two locations, not one, as DCAS and SC&A stated. Location (2) was farther away from the console control room, and the Betatron shooting room, than was location (1) modeled by Allen in Addendum 3.

Below is new former Betatron employee affidavit about the exact location of the second film badge rack, the composition of the GSI New Betatron building in the rack area, and the presence of an x-ray pass-through port in the console room:

**[Dutko affidavit #1 here]**

*Dr. Dan—The darkroom – control room wall in the NEW BETATRON, according to \_\_\_\_\_ and Myself, was two concrete blocks wide. Between the control room door to the hallway, and the end of the shooting console, was a FILM TRANSFER BOX-mounted in the wall. This box, accommodated 14 x 17 film cassettes. Film was transferred from the box, to both the control room and darkroom. I estimate the transfer box to be about 20 inches high and 16 inches wide. We estimated wall thickness to be 16 to 18 inches thick. Film was transferred, directly to the darkroom, and received, through the transfer box.*



## **PART 2. NEW MCKEEL INFORMATION**

### **New Betatron Exposure Scenario For Layout Workers:**

Former Betatron operator \_\_\_\_\_ offered the following testimony to Betatron operator \_\_\_\_\_ who forwarded the e-mail to McKeel on 3/25/12:

[ [affidavit here](#) ]

*“ \_\_\_\_\_ reminded me that, on a hot castings, layout work was done on transfer car of the casting, in the Betatron tunnel, by workmen getting the casting ready to bring it in to the Betatron for radiograph.”*

The import of this new information is profound because of the close proximity to the New Betatron shooting room, and because virtually all Betatron operators filled in as Layout workers in order to get overtime pay.

### **Interpretation of Landauer Program 2084 (GSI) Film Badge Data:**

The petitioner's views are the GSI Program 2084 film badge data has not been presented in entirety to the Board or the petitioners. The badge data pedigree is open to challenge as to destroyed and blackened badges, availability for only 3 of the 13 year covered period, absence of badged females, and badge data is confined only to 89 Betatron employees who included operators, clerks, photographers and others out of a total work force of 3,000 (to 4,000 by some estimates, exact figures are not available). There is uncertainty about “control badges” and .CTL001 badges, what they represented and how these values should be used.

The pre-3/15/12 NIOSH and SC&A model values and the Allen Addendum 3 recalculated NIOSH model values still do not agree within acceptable limits with real data or themselves. NIOSH and SC&A appear to accept 2-fold agreement, whereas

McKeel believes the standard should be  $\pm 10$  to 20% agreement between model values and real world measured data. Formal uncertainty analysis has not been applied to these GSI new exposure models. Allen and SC&A admit the MCNPx code base is changing constantly, and the results achieved vary with the "build (version)" of the software. Modeled New Betatron and Layout worker external photon, neutron and beta values by NIOSH and SC&A changed dramatically between 2007/8 and 2012 as shown in a Summary dose Table McKeel presented at the 3/15/12 TBD-6000 work group meeting in Cincinnati. Layout worker values should increase in the new scenario where workers doing layout work on hot castings in the tunnel just outside the steel ribbon roll up door of the New Betatron building that was known to exist in 1966 as a now established fact.

**Comment on Residual Radiation from the Betatron in the OFF condition:**

Petitioners strongly disagree with David Allen's assertion that "magnetic interference" is the most parsimonious explanation for the residual radiation from the Betatron cone. [redacted] was a paid consultant for NIOSH when he issued his report that documented the residual radiation phenomenon. At the 3/15/12 TBD-6000 meeting McKeel offered new [redacted] interview information gathered by [redacted] that [redacted] had removed a Betatron donut tube within seconds of being shut off and [redacted] had again measured and confirmed the presence of residual photon radiation. Ergo, the residual radiation emanated from the Betatron itself. This second test could easily be verified by a call to [redacted] from Mr. Allen. Co-petitioner McKeel suggests following the already established procedure where SC&A participates in the interview and McKeel and [redacted] are allowed to be silent observers to the conversation.

Reducing the residual Betatron radiation factor to 5 mR/hr is not claimant favorable, nor is the rationale for doing so scientifically defensible in McKeel's view. At the 3/15/12 work group meeting McKeel offered added Betatron operator testimony and showed photos that show the backs of operators were spaced only 1 to 2 feet away from the Betatron cone during set up procedures for shots. The inverse square law therefore suggests that the actual residual radiation based on the original

observation should be 60 mR/hr rather than 15 mR/hr (1.5 ft. versus 6 feet distance). Allen's 5 mR/hr residual radiation factor is therefore even more claimant adverse.

Also, Allen in his Addendum 3 restates that dose reconstructors would use the higher dose assigned to layout persons during real world dose reconstructions. However, there is no guarantee that such practice always has been followed in the past or necessarily will be followed in the future for dose reconstruction "reworks." Such occurrences surely will follow once a revised Appendix BB has been issued and many denied GSI claims are requested to be reopened.

### **McKeel Summary Comment on David Allen's Addendum 3 to his January 2012 Betatron operations white paper.**

David Allen and DCAS have not addressed their Path Forward For GSI goals as I have tried to point out at the 3/15/12 TBD-6000 work group and in my follow up comments, These concerns are amplified in Parts 1 and 2 of this response to David Allen's Addendum 3, where many points put on the record by McKeel, former workers giving eye witness testimony, and site expert have been ignored.

A. There is no new exposure model or OCAS-IG-003 complaint external dose calculations for the following known and now proven GSI radiation sources:

- (1) The GSI Old Betatron 24 Mev x-ray unit,
- (2) For either 250 KVP industrial x-ray portable source that had no safety locks,
- (3) No new exposure model for Radium-226 and the fishpole technique in the roofless 6 building radiography facility that we have now conclusively shown lacked steel plate and extra concrete shielding before Jun/July 1962, when the Ra-226 were used dating back to at least January 29, 1957 inside this facility.
- (4) No new exposure model for the GSI owned 10 to 20 curie iridium-192 NDT source that was used in the late 1950s according to worker affidavit inside the 6 Bldg. radiography facility minus the steel plates and extra concrete block wall shielding.

B. Five of 6 SEC-00105 listed by SC&A have not been resolved. An updated SEC issues matrix is awaiting from SC&A (as of 3/25/12 when this is written).

C. There is no real measured 1953-1966 covered period neutron data for either Betatron unit that is based on appropriate film badges or "gold standard" Bonner spheres. Extant GSI badge program 2084 Landauer reports lack neutron dose values. MCNPX models for neutron exposures at GSI cannot therefore be ascertained with sufficient accuracy for GSI. There is no coworker data or surrogate data that is plausible and scientifically defensible for the GSI AWE site.

D. There is no valid real surrogate or coworker inhalation and ingestion intake data for GSI during the covered period. ORNL cleanup data cannot be reliably back extrapolated to the covered period. Urine bioassay data for uranium do not exist for GSI during any part of the covered period.

E. NIOSH cannot possibly define with sufficient accuracy the uranium source term at GSI 1953-66: (a) Purchase orders do not exist for 1953-58 and cannot be "guesstimated" (not scientifically acceptable); (b) The mix MCW and Weldon Spring sent to GSI cannot be defined as Destrehan Street or Weldon Spring plant, as to Betatron slice versus ingot versus dingot; (c) Weldon Spring produced ingots and dingots composed of uranium alloys that have not been accounted for; (d) Zero film badge data exists for the years when MCW Uranium Division uranium shipments to GSI were highest, that is 1962; (e) MCW uranium shipments to GSI sharply declined during 1964-66 when scant film badge data was available for a tiny subset of the total GSI work force. (f) Mr. Allen's and DCAS assertion that uranium usage at GSI was highest during 1964-66 was wrong (incorrect factually) as proven by Tables in Appendix BB.

Respectfully submitted,



Daniel W. McKeel, Jr., M.D.  
GSI SEC-00105 co-petitioner  
Phone: 573-323-8897  
Fax: 573-323-0043  
E-mail: danmckeel2@aol.com  
Mail: P.O. Box 15, Van Buren, MO 63965  
Street address: #7 CR 301A