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

From: DanMcKee'
Sent: Thursday, September 19, 2013 9:24 AM
To: NIOSH Docket Office (CDC)
Cc: danmckee.
Subject: GSI Administrative Review application to HHS
Attachments: MCKEEL_AR123_SEC105.pdf

NIOSH Public Docket Office
Re: GSI Docket 140
Date: September 19, 2013

Attachment: <MCKEEL_AR123_SEC105.pdf> 10.9 MB

Dear NIOSH Docket Office,

Please consider posting this e-mail and the attached file to General Steel Industries (GSI) Docket 140 and as a Discussion paper for the TBD-6000 work group 10/11/13 meeting on the DCAS website. The file should be attributed to Daniel W. McKeel, Jr., M.D., SEC-00105 co-petitioner. It is titled: "GSI SEC-00105 Administrative Review application to HHS," dated 4/17/13.

This PDF file is the petitioner's formal appeal to the HHS Secretary's decision to deny SEC-00105. It is 185 pages long and contains 10 Exhibits. The administrative review document cites 44 discrete errors that led to the ABRWH voting 9 to 8 to deny SEC-00105 on December 11, 2012. Assistant HHS Secretary Koh approved this GSI AR as being properly submitted on May 17, 2013. He indicated a panel of three independent HHS employees would be recruited to review this document and make a recommendation to the HHS Secretary. The approval letter indicated the petitioners would receive no further input until after the Secretary had read the independent panel's recommendation and had rendered a final decision on SEC-00105. That policy has been adhered to in the intervening 4 months and 2 days since the GSI SEC-00105 AR was approved by HHS.

Thank you for your consideration.

Sincerely,

--**Dan McKeel** - 9/19/13

Daniel W. McKeel, Jr., MD
Cofounder, SINEW (So. IL Nuclear Energy Workers)
GSI SEC-00105 co-petitioner

SEC-00105
General Steel Industries ("GSI")

REQUEST FOR ADMINISTRATIVE REVIEW
of
Special Exposure Cohort SEC-00105
by
The United States Department of Health and Human Services

Under Provisions of 42 CFR §83.18
and the
Energy Employees Occupational Illness Program Act of 2000 (EEOICPA)

Submitted by

GSI Petitioner Patricia K. Jeske
and
GSI Co-petitioner Daniel W. McKeel, Jr., M.D.

(April 14, 2013)

Contact Information
Daniel W. McKeel, Jr.

Administrative Review SEC-00105
General Steel Industries ("GSI")

INDEX of COMPONENT DOCUMENTS

-- April 2013 --

Patricia K. Jeske

April 12, 2013

Honorable Wanda Jones, DrPH
Principal Deputy Assistant Secretary for Health
Department of Health and Human Services
200 Independence Avenue, SW, Room 716G
Washington, DC 20201
Phone: 202-690-5627

FAX: (202) 690-6274

RE: Administrative Review Request for General Steel Industries SEC-00105

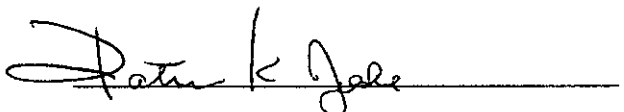
I, Patricia K. Jeske, submitted the original SEC-00105 petition to NIOSH on February 5, 2008. My name was Patricia Coggins at that time; I have since been married.

The Secretary of HHS denied SEC-00105 in a decision dated 3/6/13 and so informed me on March 18, 2013.

I hereby request the U.S. Department of Health and Senior Services conduct an administrative review of SEC-00105 according to provisions of 42 C.F.R §83.18.

Please refer to the attached addendum Administrative Review letter signed by myself and by authorized SEC-00105 co-petitioner Dr. Daniel McKeel for further details of our request, including our current complete contact information. Thank you for your consideration of our request.

Sincerely,



Patricia K. Jeske (formerly Coggins)

Enclosure: SEC-00105 administrative review addendum

PROFILES OF GSI SEC-00105 ADMINISTRATIVE REVIEW REQUESTERS

SEC-00105 petitioner Patricia K. Jeske

- Last name was Coggins at time she submitted GSI SEC-00105 in 2008
- Survivor claimant of EEOICPA 2000 Part B GSI denied dose reconstruction (DR) claim by , who developed two covered cancers, one of which was an SEC presumptive cancer (acute myelogenous leukemia), and the other was prostate cancer. NIOSH has refused to permit new DR data into Appendix BB until it is revised based on all issues being resolved by the TBD-6000 work group that continues to meet about Appendix BB. Petitioner plans to ask this claim be reopened and re-adjudicated when Appendix BB Rev 1 becomes available in the future. All of this information has been placed on the written record, including the claims history, before the Board's recommendation to deny GSI SEC-00105 in their January 31, 2013, HHS letter.

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

- 1966 M.D. degree graduate of the University of Virginia School of Medicine, Charlottesville; Predoctoral N.I.H. Fellowships in Neuropathology doing x-irradiation research on rat CNS with , M.D. at UVA Medical School, and with M.D., a neuropathologist at UCLA School of Medicine doing laboratory research on IDPN-induced rat CNS neurotoxicity, a model of central neurolathyrism; Postdoctoral N.I.H. Fellowship in electron microscopy of CNS;
- Internship and Residency in Anatomic Pathology at Washington University School of Medicine (WUSM) in St. Louis, Missouri (1966-1971);
- Board eligible in Anatomic Pathology;
- Captain and Major, U.S. Army Medical Branch, USAISR Fort Sam Houston, TX. Section head of Experimental Studies Branch (pathology) last year served (1971-1974);
- Assistant and Associate Professor of Pathology and Immunology (tenured 1982) WUSM 1974-June 30, 2005 (retired 7/1/05);
- N.I.H. Research Career Development Award (1974-77);
- Director of WUSM autopsy pathology service (1982-1987);
- Head of WUSM N.I.H. funded Alzheimer's Disease Research Center (ADRC) Neuropathology Core Laboratory grant (1986-2004);
- Head of WUSM N.I.H. funded Healthy Aging and Senile Dementia (HASD) program project grant Neuropathology Core Laboratory (1986-2004);
- 200 peer reviewed papers, meeting abstracts, invited seminars and talks; peer reviewed WUSM ADRC research related publications continuing through 2012;
- 35 N.I.H. funded federal grants (CRISP listing) 1974-2005;
- Retired from WUSM faculty after 31 years service on June 30, 2005; served as both Vice President and President of the WUSM Faculty Council (1985-1989);
- EEOICPA part B SEC co-petitioner at three AWE sites, two with SECs enacted (Dow Madison, IL SEC-00079, Texas City Chemicals, TX SEC-00088);
- 59 EEOICPA related publications: Health Physics journal letter to editor; NIOSH SEC rule 83.13; Docket 112 (Dow Madison SEC-00079); Docket 113 (Texas City Chemicals SEC-00088); Docket 140 (GSI SEC-00105); and Docket 194 (NIOSH Ten Year Review) white papers
- Compensation at three McKeel SEC co-petitioner sites rose from $300,000 in 2007 to $34,129,303 on April 3, 2013.

Daniel W. McKeel, Jr., M.D

SEC00105

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Transmitted by FAX and U.S. Mail
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April 12, 2013

Honorable Wanda Jones, DrPH
Principal Deputy Assistant Secretary for Health
Department of Health and Human Services
200 Independence Avenue, SW, Room 716G
Washington, DC 20201
Phone: 202-690-5627

FAX: (202) 690-6274

RE: Administrative Review Request for General Steel Industries SEC00105

Dear Assistant Secretary Jones:

This letter is a request for a formal Administrative Review (AR) of HHS Secretary Sebelius' decision to deny Special Exposure Cohort (SEC-00105) status for the General Steel Industries (GSI), Granite City, IL, EEOICPA AWE site. The request is for the Secretary to appoint a three member independent review panel to perform this AR according to the provisions in 42 C.F.R. §83.18.

The Advisory Board on Radiation and Worker Health (ABRWH) recommended the HHS Secretary support NIOSH's recommendation of SEC00105 in a letter dated January 31, 2013. Petitioners consider this the cutoff date for submitting new material about SEC00105 as stipulated in 42 CFR §83.18.

The ADDENDUM package the SEC00105 petitioners are mailing as a hard copy and *digital media (CD-ROM or DVD) to HHS has the following contents:*

1. Transmittal letter to HHS signed by the SEC-00105 petitioner, Patricia K. (Coggins) Jeske, and the SEC-00105 co-petitioner, Daniel W. McKeel, Jr., M.D.;
2. Request for an Administrative Review of SEC-00105 for GSI;

Support Exhibits that include the following elements:

3. TBD-6000/Appendix BB and TBD-6000 work group meeting agenda and transcript Index;
4. Docket 140 (GSI) complete index (as of 4/11/2013);
5. Index to 37 component documents comprising NRC FOIA 2010-0012 obtained originally by the SEC-00105 co-petitioner Daniel McKeel;

6. Daniel W. McKeel, Jr., M.D., SEC-00105 co-petitioner technical white papers 2007-2013;
7. Daniel McKeel SEC-00105 co-petitioner and GSI site expert PUBLIC COMMENTS at regular ABRWH meetings Index (2005-2013);
8. GSI physicist site expert key testimony on Betatron activation of industrial castings and harmful effects caused to operators by these procedures (2/7/07 ABRWH #44, pages 119-121 and 127-141 of the transcript)

Additional instructions for submitting this request were outlined in a letter from Stuart Hinnefeld (DCAS Director, NIOSH), dated 3/11/13, sent with the FedEx packet delivered to SEC petitioner Patricia K. Jeske on March 18, 2013, and to SEC-00105 co-petitioner Daniel W. McKeel, Jr., M.D., respectively, on March 12, 2013. According to §83.18, petitioners have 30 days from receipt of notification by HHS to submit their administrative review request. We are trying to adhere to that schedule.

This Administrative Review application notes at least seven prior communications concerning procedural details connected with submitting an Administrative Review by April 17, 2013 for General Steel Industries (GSI) SEC-00105. A Certified US Mail letter, four phone calls and three Faxes were sent to Jennifer Cannistra, HHS Executive Secretary, on March 16, 22, 26 and 28, 2013. Four Faxes were then exchanged with OASH and ASH Wanda Jones, DrPH, on April 2 and 4, 2013, about follow on procedural questions regarding the § 83.18 process.

Thank you on behalf of GSI potential SEC class members for your efforts to facilitate this Administrative Review of GSI SEC-00105.

Sincerely,

Patricia K. Jeske 04/06/2013

Patricia K. (formerly Coggins) Jeske Date

Daniel W. McKeel, Jr. 4/14/2013

Daniel W. McKeel, Jr., M.D. Date

Enclosures: ADDENDUM support documents

CHECKLIST FOR GSI ADMINISTRATIVE APPEAL
March 29, 2013
Revised April 14, 2013
FILENAME: 04_CkListGSIadmin_appeal6F.doc

1. **Timeline**:

Final Board vote to deny SEC-00105 by 7 Aye to 6 Nay on 12/11/12
Final vote with 4 absentees included was 9 Aye 8 Nay on 12/20/12
Board letter about SEC-105 action to HHS Secretary dated 1/31/13
HHS Secretary decision on SEC-105 in a letter dated 3/6/13; her letters to Congressional leaders dated 3/6/13:
· Posted to DCAS website 3/11/13;
· FedEx letter received by SEC co-petitioner: 3.12.13 PM. Cover letter from Stuart Hinnefeld/NIOSH dated 3.11.13 directs McKeel to correspond only with Jennifer Cannistra, HHS Executive Secretary. This turns out to be incorrect advice and results in 17 day delay in getting AR procedural questions partly answered;
Co-petitioner PUBLIC COMMENT to ABRWH on 3/12/13 expressed concerns he had regarding secrecy surrounding administrative appeals process in general and the GSI SEC in particular;
Co-petitioner learned 3.13.13 petitioner Jeske did not get FedEx letter from HHS on 3.12.13. Co-petitioner told NIOSH 30 day clock would not start until Jeske got her official HHS notice that SEC-00105 had been denied. The Jeske packet was routed to her old NJ address by the SEC Counselor, an easily avoided mistake;
SEC petitioner receives her HHS-NIOSH packet on **3/18/13;**
Last date to deliver administrative appeal to HHS: **4/17/13;**
Co-petitioner Certified US Mail with 6 procedural questions to HHS Executive Director Cannistra mailed 3/16/13; receipt confirmed at HHS by Lawrence Savoy on 3/22/13;
Co-petitioner Fax #1/calls to Cannistra with 3/16 questions on 3/22/13
Co-petitioner Fax #2/call to Cannistra with 3/16 questions on 3/26/13
Co-petitioner Fax #3/call to Cannistra with 3/16 questions on 3/28/13
Wanda Jones OASH answers McKeel first 6 questions via FAX on 4/2/13
Follow up Faxes Jones to DWM and DWM to Jones 4/2/13 and 4/4/13; Jones assures DWM that future AR questions will be directed to her OASH office by NIOSH. The Administrative Review request should be sent to her office. Her two Faxes to DM on 4/4/and 4/5/13
Jone's HHS hard copy reply letters arrive P.O. 4/8, 4/9, 4/13/13
Jeske SEC petitioner signed administrative review papers to DWM 4/10/1
GSI SEC-00105 Administrative Appeal is filed US Express Mail or FedEx target date Monday, April 15, 2013 (copies also to be e-mailed)

2. **Key error categories**:

(1a) **DCAS' Lavon Rutherford, who oversees the SEC program, and Battelle under Task 16, refused to designate GSI for a 83.14 SEC petition, prior to January 2008, when NIOSH had zero (no) external or internal monitoring data or site wide, process or breathing zone air monitoring data for any GSI worker.** This is the foremost ERROR OF NEGLIGENT OMISSION the SEC-00105 petitioners wish to bring to the attention of the GSI SEC00105 administrative review panel members.

IL Senator Durbin wrote to the Board in 2007 and 2009 about timeliness and slow pace of processing GSI claims and SEC. **[EXHIBIT 1]**

Four IL Congressional delegation members—senator Barack Obama, Senator Dick Durbin, Congressman Jerry Costello, and Congressman John Shimkus wrote

to the NIOSH Director Howard on 8/08/05 protesting the time it was taking to start GSI dose reconstructions. The four Congressman argued in favor of an 83.14 SEC for GSI as something that was obviously merited for a site with zero monitoring data and a unique array of radiation source terms, including two 24-25 Mev particle accelerators used to perform nondestructive testing on AEC/Mallinckrodt uranium. [**EXHIBIT 2**]

(1b) **Missing GSI monitoring, process, medical & safety data that was said to have been burned except for three file cabinets.** The surviving GSI file cabinet data was never tracked further and was never located by NIOSH. Many of the missing, lost or destroyed GSI records were documents known to be in existence 1952-1973 by former workers affidavits and NRC FOIA 2010-0012 records. These included sealed source leak test results, Betatron shot and maintenance records, 1952 to 1958 MCW/AEC purchase orders for GSI uranium NDT work, NDT x-ray films and reports (check list) that GSI returned to MCW, MCW to and from GSI shipping manifests, uranium weight records at GSI (all castings and metal entering and leaving the GSI facility were weighed and the weights for both rail and truck shipments were recorded), source and survey instrument calibration records, and radiation safety test results.

(a) **NIOSH to the petitioner's knowledge never actively sought the GSI Betatron NDT reports related to MCW NDT from MCW itself.** Co-petitioner McKeel sought these records in FOIA requests to DOE that led to the 1952 November-December process reports that detailed active AEC MCW and GSI collaboration involving Betatron uranium R&D. Amy Rothrock, DOE FOIA officer and EEOICPA coordinator, sent McKeel a CD-ROM with the 1994 RHPG sanitized database. The CD-ROM and Ms. Rothrock's cover letter both stated the CD-ROM contained an index of MCW boxes of records that were related to an extensive 4 year study of thorium use at Rocky Flats DOE site. However, the CD-ROM did not contain this Index, another omission error. Without assigning motive, the GSI petitioners were misled again.

(b) **NIOSH never availed themselves of invoking §7384w that allows DOL to subpoena important files.** NIOSH can ask DOL to submit subpoenas for records NIOSH needs to have for DR and SEC implementation of Part B of EEOICPA. The petitioners urged NIOSH and the Board and TBD-6000 work group to use this powerful tool to obtain crucial GSI records. There was no compliance or effort by NIOSH to invoke the subpoena power of DOL on behalf of GSI claimants and potential SEC00105 class members. Petitioners regard this as negligence and malfeasance on the part of NIOSH. The ABRWH and more specifically the TBD-6000 work group should have encouraged NIOSH in this regard, but never did so to our knowledge.

(c) **Co-petitioner McKeel urged NIOSH to seek the St. Louis Testing Laboratories (SLTL) and Nuclear Consulting Corporation (NCC) AEC contemporaneous By-Products materials source licenses for Ir-192 and Co-60 the companies allegedly used at GSI 1962-1966.** Dan McKeel finally had to file a FOIA for this purpose (NRC FOIAs 2013-00142 and NRC 2013-00191). No license records were found for either facility, and thus this result has been appealed. The basis for the appeal was knowledge that those licenses *must have existed* for NCC and SLTL to be in compliance with federal (AEC/NRC) and state of IL radiation source regulatory rules. McKeel's obtaining NRC FOIA 2010-0012 GSI license records was his second FOIA request for this material. The first search revealed no responsive GSI AEC license records.

(d) **Co-petitioner McKeel further urged NIOSH to seek 1963 and earlier GSI film badge records from other vendors than RS Landauer.** This was not done by NIOSH to my knowledge, even though two GSI workers (and) produced partial summary exposure records marked "AEC" and "Nuclear Consulting Corp" in one instance. This is another example of NIOSH negligence for not doing seeking these earlier GSI film badge records in the four years and 5 months that have elapsed since SEC00105 was submitted. This is a

particularly egregious error, because NIOSH and SC&A told the full Board in September and December 2012, before the final SEC00105 vote took place on 12/11/12, that *an active film badge program definitely existed at GSI during the first ten years of the operational period.* Petitioners disbelieve the NIOSH/SC&A "evidence" of a letter from GSI management and a single belt object photograph. SC&A alone believed the object was a film badge. Petitioners, site experts, and workers believed the object was more likely a GSI ID badge because film badges were almost always worn on the chest hanging from a shirt pocket. SC&A and NIOSH and the TBD-6000 work group chose to ignore the worker eye witness testimony and more heavily weighted a management letter and a challenged SC&A film badge identification. NIOSH made a mistake the petitioners assert definitely and adversely affected the SEC-00105 final vote of 9 Aye and 8 Nays to support a denial on 12/11/12.

(e) NIOSH never actively pursued, to my knowledge on the record, the missing AEC technical reports from Mallinckrodt Chemical Works (MCW) uranium Division, Destrehan Street plants and Weldon Spring plant, to document the 13 year (10/1/52 through June 30, 1966 uranium Betatron NDT program at GSI.

(2) **Personal legal animus to Dan McKeel and by some NIOSH, ABRWH and SC&A members:**

(a) **and his wife in June 2006 provided each member of the Board, Battelle, NIOSH, SC&A and DOE with FedEx'd hard copies of a 400 page work book of GSI Information they had assembled with careful and time consuming personal research, and at significant personal expense.** This well intentioned altruistic intent and effort was rewarded by NIOSH and SC&A by never adequately attributing or citing this GSI Work Book in any ABRWH or work group meeting or in the any white paper posted to Docket 140 to my knowledge. Further, Dan McKeel is not aware that NIOSH ever assigned this book an SRDB number, an error in itself.

Both NIOSH and SC&A did, however, make use of photographs and other materials in this GSI compendium that listed and provided invaluable early insights into GSI processes, radiation source terms, work practices, safety issues, site photographs, photographs of castings undergoing NDT inspections, of the Eddystone GSI Division that moved from Pennsylvania to Granite City, IL, in 1963, and most all, to the two Allis-Chalmers Betatrons that GSI used to do NDT inspections of steel casting and MCW Uranium owned by the AEC. This was a negligent, rude and unprofessional treatment of two foremost early GSI site experts. and were both instrumental in setting up, arranging with SimmonsCooper, and recruiting GSI workers to attend the series of four 2006 GSI worker meetings that SINEW conducted in 2006 on 7/7, 8/11, 8/21 and 8/26. These four transcripts are posted on the DCAS website under Docket 140 at **www.cdc.gov/niosh/ocas/gsi.htm**

(b) McKeel alone was limited to 10 minute SEC presentations by Board chair Melius at 9/19/12 and 12/11/12 ABRWH GSI SEC presentations. Other SEC petitioners at those same or other meetings were never so time limited.

(c) NIOSH, SC&A and the ABRWH have never properly attributed the fact that McKeel first obtained GSI Landauer film badge data a more than a year earlier than NIOSH did. They refused to share their FB data while asking McKeel to provide copies he obtained from Landauer in Jan. 2007. (**reciprocation error**)

(d) Chairman Paul Ziemer of TBD-6000 work group rarely tasks SC&A to review McKeel's 38 white papers (539 pages) delivered to the TBD-6000 WG and Board from 2007-2012. The only major exception was the 3/15/12 WG meeting that Daniel McKeel attended in person with site expert .

(e) Dr. Robert Anigstein of SC&A on the record stated McKeel missed obtaining the GSI By-Products license on his first try by using wrong site names (not true). McKeel later obtained 1,016 pages of unredacted GSI AEC license materials (**NRC FOIA/PA 2010-0012**) that NIOSH or SC&A should have requested and obtained in the first place.

(f) Dr. Anigstein broke agreement that Dan McKeel could be a silent observer at the PhD interview. Dr. Ziemer and perhaps DFO Ted Katz apparently concurred in this decision. Dr. was principal in the Nuclear Consulting Corporation (NCC) firm and became a Trustee of Washington University where Dr. McKeel taught Pathology as a tenured faculty member with 200 publications and 35 N.I.H. funded federal grants from 1974 through mid-2005 when he retired after 31 years of service. was instrumental in assisting GSI with their 1962 AEC By-Products Co-60 sources license 12-08271-1 that is the subject of NRC FOIA 2010-0012 obtained first by Dan McKeel. SC&A, NIOSH and the Board would not have known about Dr. Konneker had it not been for McKeel's initial research.

(g) HHS/NIOSH: DCAS Director Hinnefeld in his HHS FedEx packet cover letter stated McKeel must correspond only with HHS Exec. Sec. Jennifer Cannistra, where Wanda Jones HHS/ASH was the correct person who handles AR requests for denied SECs under 42 CFR § 83.18 of EEOICPA 2000. This mistake on the part of NIOSH **caused a 17 day delay** in getting McKeel's initial procedural questions about the administrative review for SEC-00105 answered.

(3 new) **NIOSH and SC&A GSI Betatron, Co-60, and Ra-226 source models failed to include measured experimental data for proper validation.**

(a) The petitioners made this assertion to the TBD-6000 WG and Board repeatedly. Dr. Ziemer erred in defending NIOSH and SC&A practices to rely on models with no validating real measured data from the GSI site.

(b) Co-petitioner McKeel challenged the TBD-6000 WG directly at its 3/15/12 meeting to cite any existing Allis Chalmers 24-25 Mev Betatron real measured data and the Board, NIOSH and SC&A were unable to do so.

(c) Co-petitioner McKeel repeatedly challenged NIOSH and SC&A GSI Betatron source model agreement with measured film badge data as being scientifically unacceptable. The range of agency discrepancy of Betatron MCNPX models was 12-fold in 2008 and only 2-fold in 2012. Model-test data agreement should be **± 10 to 20%**. McKeel contended that peer reviewed scientific journals insisted that all computer models must include test (i.e., experimental, measured, real or actual) data that agreed with computer modeled data within plus or minus 10 to 20%. Petitioners supplied the WG and Board with several literature examples of this principle (see (d) for another example.

(d) An article By **Leone *J et al.* from the Nuclear Engineering and Engineering Physics program at Rensselaer Polytechnic Institute, Troy NY, "Dose mapping using MCNP5 mesh tallies," Health Physics 88(Supplement 1): S31-S33, 2005,** illustrates this point nicely. The authors modeled a ^{137}**Cs** (cesium) source using MCNP5 mesh tallies. Table 1, column 5 is labeled "Difference between MCNP and measured results using an ion chamber (%)." Values representing measured and MCNPX data ranged between 2.19 and 5.32% at 60 to 200 cm from the cesium-137 source supporting McKeel's contention.

(4) **Anti-GSI and derogatory comments** about certain AWE nuclear workers deserving an SEC by Board members including Wanda Munn and Paul Ziemer that carried over to the TBD-6000 Ziemer led work group and GSI SEC00105.

(a) The ABRWH transcript of meeting 73, dated 11/5/10, before the Texas City Chemical final vote on SEC-00088, page(s) and line numbers, illustrates Board bias existed for that AWE site as shown in transcript **EXHIBIT 4.**

(5) **Factual errors that adversely affected claimants.**

(a) PhD, Professor of Physics at MSOE, addressed the ABRWH on 2/7/07 at its 44th meeting in Mason, OH (pp. 119-121; 127-141). VK was the GSI petitioner's chief physics expert because he was the first scientist to use a 25 Mev A-C Betatron similar to the GSI models to measure activation products on industrial castings. Professor characterized such photon and neutron activation products in two key

publications in 1973 and 1974. He was also the first person to delineate harm that could occur if Betatron operators approached activated castings. In particular, the **t1/2 of activated nickel steel daughters was 36 hrs.** A GSI metallurgist testified that several types of Ni-steel were used at GSI. In addition, the x-ray film cassettes used for Betatron X-ray NDT radiography were made of nickel bearing stainless steel, a fact GSI site expert confirmed for himself at St. Louis Testing Laboratories on 6/08/07. Dr. 's Board testimony disclosed that MSOE Betatron operators did not approach activated castings for 1 to 2 days after s shot had been completed. **NIOSH erred is assigning *2 hours* as the safe time limit when activated GSI Betatron castings could deliver measurable dose.**

(b) Petitioners contributed peer reviewed scientific literature to the TBD-6000 WG and Board that showed a number of Betatron and high Mev accelerator activation radionuclides had half lives greater than 2 hours. One such specific citation was from former Board chair and current TBD-6000 WG chair Paul Ziemer, PHD, retired Professor of Nuclear Engineering at Purdue University: Guo S, Ziemer PL. Health physics aspects of neutron activated components in a linear accelerator. Health Physics Journal, 2004 May(66)(5 Suppl), pp S94-S102.

(6) **Factual omissions that adversely affected claimants Dose Reconstructions and Probability of Causation Percentages**

(a) Admitted failure of NIOSH to bound with sufficient accuracy external radium doses to Building 6 inside radiographers during 1953-1962.

(b) Failure of NIOSH to bound with sufficient accuracy any external or internal doses during the extended GSI operational period of October, 1952 through December 31, 1952. The documents to prove this were in the DOE 1994 sanitized DHRG database, and had been captured by ORAU 11 months prior to being disclosed to McKeel through a FOIA request to DOE that he had to initiate. A crucial document was part of the official GSI DOE/FUSRAP Administrative Record as IL.28-5 for many years. All of these resources were known to DCAS/NIOSH for years. SC&A also called the attention to 1952 Betatron operations to the Board in 2009. Yet NIOSH did not act on this volume of information until two days after Dan McKeel submitted his documentation on 12/3/12 for GSI collaboration in NDT Betatron radiography of MCW uranium with the AEC for November and December 1952. According to a letter to DWM from DOL/DEEOIC Rachel Leiton dated 4/08/11, NIOSH submitted their October 1952 GSI Betatron NDT data regarding the MCW-AEC uranium NDT collaboration two days *after* McKeel submitted his information.

· **The Co-petitioner therefore asserts that NIOSH deliberately withheld their GSI 1952 information for months after data capture by ORAU. This withholding was to the detriment of potential SEC00105 class members and claimants under part B of EEOICPA 2000.** This rivaled and expands the type of behavior that led to the complaint ANWAG recently filed against David Allen of DCAS with the HHS IG.

(c) Petitioners proved by NRC FOIA 2010-0012 documents and a 1973 GSA property auction of GSI equipment, that GSI possessed two industrial 250 KVP x-ray units that were portable. NIOSH, SC&A and the Board (TBD-6000 WG) only accounted for one of these units. NIOSH never successfully bounded external dose for operators or bystanders for either unit as they are mandated to do by OCAS-IG-003. An overexposure incident as defined in 42 CFR §83.9 with one of these 250 KVP x-ray units was testified to in GSI worker affidavits.

(7) **Inadequate and poor scholarship "failure to locate," and "errors of omission" caused by this inadequacy. NIOSH showed a marked reluctance to assertively locate missing GSI records that were known to be highly pertinent to SEC00105.** Prime examples include the following information that was first

brought to Board, SC&A and NIOSH attention by SEC-00105 co-petitioner Dan McKeel. This is a NIOSH error of negligent omission:

(a) The existence of RS Landauer film badge program #2084 started in 1963 and ending in 1973 for 108 GSI radiographers;

(b) The existence of 1,016 pages of GSI AEC By-Products materials license **#12-8271-1** for two Co-60 sources in 1962 (NRC FOIA 2010-0012);

(c) The two Ra-226 sources used 1953-1962 (NRC FOIA 2010-0012);

(d) A second Co-60 small (less than a Curie) Co-60 source;

(e) A second 250 KVP industrial portable x-ray source at GSI;

(f) A Nuclear Consulting Corporation (NCC) 18 month film badge summary for a single GSI part-time radiographer, metallurgy lab worker ( );

(g) The date of the GSI stolen Radium plumb bob incident (October 1953). Site expert did this vital research: he found 3 independent newspaper sources and confirmed this evidence with former GSI workers;

(h) The proof that AEC and MCW were actively collaborating with GSI to perform Betatron NDT work on MCW uranium ingots in November and December 1952;

(i) The existence of the GSI Bldg. 6 radiography room prior to 1962, and the fact that at one point it lacked a door altogether.

(j) Many other examples could be cited of information the site expert and petitioners obtained that could/should have been obtained by NIOSH and SC&A.

Petitioners would also cite in this regard that NIOSH did not accept an invitation from SINEW to tour the GSI site during GSI worker outreach meetings in 2006 and 2007. NIOSH did not invoke the subpoena power of DOL under §7384(w) of the Act. NIOSH did not seek By-Products materials licenses for St. Louis Testing and NCC Co-60 and Ir-192 sources in order to confirm the source strength known only through the 45 year past memory recollections of one SLTL individual ( ). There was no corroboration of the NCC source type and strength mentioned in the NCC 1962 survey of the Bldg 6 radiography facility (NRC FOIA 2010-0012). These survey data were included in NRC FOIA 2010-0012 obtained originally by Dan McKeel, not by NIOSH.

(8) **Failure to interview key GSI workers with pertinent knowledge about incompletely characterized radiation source terms and radiologic and radiation safety issues at GSI.** Over the years, site expert and Dan McKeel directed NIOSH, Dr. Ziemer and the TBD-6000 work group, and SC&A to interviews with physicist , of NCC, to , to , and to twelve GSI workers at the 10/9/07 Collinsville SC&A satellite outreach meeting that were not followed up upon. These workers NIOSH and SC&A did not interview included: , the only GSI radiographer who actually handled MCW uranium and operated the Betatron during MCW uranium NDT inspections; and , GSI clerks who handled GSI Landauer film badges; , 1963-66 GSI Betatron foreman and film interpreter; , GSI utlrasonics radiographer; who was employed and worked at the GSI site from 1953 through 1988 as a yard main and railroad worker and testified about GSI records he personally was ordered to burn by management, and , who testified to site expert that radium and uranium sources were stored with (possibly thoriated, most were) welding rods in a locked "cage" in GSI building #5. NIOSH failed to bound Building 5 external doses at GSI.

(9) **Misrepresentation of non representativeness of GSI film badge data.** By tradition, in the implementation of part B of EEOICPA, NIOSH, the Board and SC&A assesses monitoring data pedigree, integrity, completeness, and

representativeness. That analysis includes: film badge monitoring data for photons, neutrons and beta; urinary bioassay data for uranium (and thorium and plutonium); assays for "exotic" radionuclides; and general air samples, process air samples and breathing zone air sampling data.

The only such measured data for GSI from October 1, 1952 through 12/31/92 includes Landauer film badge weekly data for 108 male NDT radiographers from November 1963 through 1973 when GSI in Granite City, IL, ceased castings production operations. (The St. Louis Car Division continued operations) The badged workers wore their badges only in the Betatron buildings and Building 6 roofless concrete block building, while operating Radium-226 and Co-60 sources at GSI, and at American Steel operating their one (1) million volt KVP x-ray machine and Ir-192 source on a leased basis.

The rest of the 3,200 person work force at GSI holding other jobs, and GSI radiographers prior to November 1963, did not have weekly film badge data. These film badge data were only for photons. Neutrons and beta dose were not measured at GSI by film badges. There was no GSI air sampling data of any of the 3 types named above. No urinary uranium bioassay intake samples were ever taken on any GSI worker. No measured GSI ingestion data exists.

Petitioners conclude the GSI Landauer film badge data was insufficient to be representative, even of the radiographers. Film badge data was not available for but one worker (who had summary FB data for 18 quarters prior to 1963) for October 1, 1952 through October 1963. NIOSH made the most serious ERROR OF COMMISSION by judging the sparse film badge data (Nov. 1963 to 12/31/73 only for 108 radiographers) was representative, sufficiently complete, and of sufficient integrity to bound with sufficient accuracy external doses for photons for the entire GSI 3,200 male and female 163 job category work force. In fact, the GSI FB data was so sparse it should have been declared non-representative and inadequate to bound even radiographer doses except for Nov. 1963 through the end of 1973. Petitioners regard this as an SEC00105 determinative factual error of analysis on the part of NIOSH, the Board and SC&A, a very major error.

Footnote: Based on worker testimony, approximately 40-65% of the total GSI work force were African Americans, and 1-2% were women. Based on a 1967 listing provided to the NIOSH and SC&A by GSI site expert on 10/29/2007, there were **163 official jobs at GSI.**

(10) **Failure to comply 100% with OCAS-IG-003.** This key guidance states that at AWE sites during the AEC contract or operational period, all radiation source doses must be calculated and bounded with sufficient accuracy. As we note in Errors #6(a), 6(b), 15(a)-(f); 21, 22, 23, 33, 34 (radon), and 38, NIOSH failed to assign definite doses with sufficient accuracy for many GSI source terms, either not at all, or they relied on SC&A not validated MCNPX computer models. Too often NIOSH erred in extrapolating badge dosimetry to 1952-1958 with no MCW purchase orders for uranium and no film badge data.

(11) **Failure to settle all SEC matrix issues; instead transferring then to Appendix BB matrix based on faulty scientific interpretation.**

Paul Ziemer, chair of the TBD-6000 work group, at the **3/28/12** TBD-6000 WG meeting (soon after the 3/15 meeting), as it was drawing close to the adjournment time, summarily rushed through the GSI SEC issues matrix and assigned many unresolved SEC issues to become Appendix BB issues (McKeel 5/21/12 e-mail to Ted Katz and the Board). Although other WG members did not strenuously object, the closing session of this WG meeting was exceedingly disorganized. There was little discussion over important SEC issues as to why they suddenly, after years of deliberation, could become

Appendix BB issues. There was general agreement in this WG, and by other ABRWH WGs, that the distinction between SEC and site profile matrix issues is often blurred and there is considerable overlap between them.

It was clear to the co-petitioner Dan McKeel, who participated in this 3/28/12 TBD-6000 WG meeting by phone, that the chairman was rushing to "clear the decks" of troublesome SEC issues. **The first SEC issue was whether GSI deserved an SEC for the first 10 years. That issue was not voted on *per se* by the full Board. We consider this SEC-to-Appendix BB rushed transfer to be a striking negligent error of commission and factual distortion that inured to the detriment of GSI SEC-00105 potential class members.** The petitioners hope the review panel will read this part of the transcript and will agree with our assessment that Dr. Ziemer and NIOSH failed to spend sufficient time deliberating on these highly important SEC-00105 matters. Instead, Dr. Ziemer, with the concurrence of other WG members and NIOSH, improperly transferred unresolved GSI SEC findings to the unresolved Appendix BB SC&A findings matrix (latest version is dated 11/26/12) and thereby forced a premature WG vote on SEC-00105. **This maneuver had a major determining effect on the final negative outcome, that is, for the TBD-6000 WG, at its 11/28/12 meeting, to recommend denial by 2 to 1 of the first ten years of the GSI SEC-00105 petition.**

(12) **Failure to weight eye witness worker testimony properly.** GSI workers believe, and the petitioners strongly agree with them, that their eye witness testimony was weighted by NIOSH, the Board and SC&A, too low unless their testimony agreed with a position held by the agencies. The workers refer to this deplorable but common practice as "cherry picking." Two notable examples of such worker testimony denigration can be noted here as examples:

(a) **Six GSI radiographers testified they either assisted or operated an 80 Curie cobalt-60 gamma source at GSI between 1964-1966.** The AEC GSI 1962 license No. [**12-8271-1**], first obtained in 1962, was not amended to show an 80 Curie Co-60 source as being purchased at GSI until 1968 (amendment 8). However, TBD-6000 WG chair Paul Ziemer acknowledged to GSI site expert , on the record [TBD-6000 WG 10.12.10, page 92, line 13, through page 94, line 8], that he was aware that sealed sources often arrived at his university, Purdue University, that were not re-licensed for some months or years. Despite this acknowledgement, the TBD-6000 work group Board members and SC&A members never insisted that NIOSH calculate external Co-60 80 Curie doses during the GSI operational period years 1964-1996 as the petitioners assert should have been done. We regard this as another major negligent NIOSH omission error.

(b) Six GSI former workers gave affidavit testimony that GSI owned and used its own Iridium-192 source. A GSI 1968 AEC license amendment document, that was part of NRC FOIA 2010-0012, stated that "***this facility is licensed for iridium-192 and cobalt-60.***" Yet, NIOSH, the Board and SC&A decided to cherry pick one of these workers testimony (, **see NIOSH Error #13**) and accept the part about his 18 quarter monitoring summary report, yet reject his testimony about the Ir-192 GSI owned sealed source.

(13) **Uncritical acceptance of unconfirmed GSI management statements about the GSI radiation safety program.** At the end of deliberations, before they voted to recommend supporting NIOSH's recommendation to deny SEC-00105, NIOSH possessed only four pieces of real data for the GSI radium era that extended from 10/1/52 through December 31, 1962. These data included: (a) a film badge summary from one worker ( ) that covered 18 quarters; (b) some knowledge of two Ra-226 NDT gamma sources but no actual monitoring data from them, (c) a letter signed by , and , in the GSI By-Products material license NRC FOIA 2010-0012 material, that alleged AEC safety limits had not been exceeded for 25 years and the average badge

readings never exceeded 25% of the limits; and (d) a belt object worn by a GSI Betatron operator (Mr.) shown in a 1953 GSI magazine that SC&A interpreted as a film badge. GSI workers and petitioners stated was more likely a GSI identification (ID) badge worn by company officials as well as Betatron operators and general workers. Mr. concluded the belt object he had first brought to everyone's attention was an identification badge rather than a film badeJge (formal retraction e-mail dated 6/04/12).

The petitioners challenge the validity of company management statements for several compelling reasons: 1) the postulated 25 years worth of pre-1963 film badge data was never found by DOE or NIOSH; 2) workers could not identify the film badge vendor (Only Landauer was identified and proven for the 2084 Nov. 1963 through 1973 film badge program), (c) did not appear in lists of GSI company officers of Board members in 1961 and 1962 annual reports, which should have been the case if he really held the titles of VP and General Manager on the AEC 1962 license (raises the question is this akin to "grade inflation?"), (d) we have Internet evidence that had departed from GSI in the 1950s and was employed by a Canadian steel company, thus casting doubt on his accurate knowledge of the past 25 years of GSI radiation safety program history; and (e) the AEC did not regulate radium sources or Betatrons or 250 KVP industrial x-ray units in the United States before 1963; (f) GSI company literature stated that radiographers were tested annually for proficiency, a "fact" GSI Betatron and Co-60 radiographers uniformly denied was true; and (g) there is absolutely no hard evidence of a film badge or radiation safety program of any kind at GSI from 1952 through 1962 when the radium era ended.

(14) **NIOSH hiding captured data that caused the GSI operational period period start date to be changed in 2013 from 1/1/53 to 10/1/52.**
NIOSH held the October 1952 document at least 11 months after ORAU capture before notifying DOL. These data were discoverable by DOE from the inception of EEOICPA 2000 and should have been part of the original site description in the DOE facilities database. The key information, IL.28-5 (1993), was in the FUSRAP Considered sites database and the 1994 sanitized DOE RHPG database kept by FOIA officer Amy Rothrock at DOE Oak Ridge operations office, the long time repository for MCW EEOICPA records.

(15) **Failure to bound all source terms with sufficient accuracy before the full Board voted on 12/11/2012; violates OCAS-IG-003:**
(a) Two 250 KVP industrial portable x-ray machines;
(b) **Radon gas** from two potentially leaking Ra-226 sealed sources;
(c) GSI owned large (80 Curie) cobalt-60 source 1963-66, as testified to by six GSI radiographers.
(d) GSI owned Iridium-192 gamma source;
(e) American Steel Ir-192 source used by badged GSI radiographers;
(f) Leakage from the two Betatron heads and chronically activated internal Betatron components;
(g) Rebound (scatter) photons and neutrons from chronically Betatron irradiated, high Mev concrete walls of the two Betatron buildings (Carroll REF)
(h) American Steel 1 million KVP x-ray source used by badged GSI Betatron operators and radiographers: sent by management to do this work, being paid to do so by GSI. Three worker affidavits confirm.

Comment: The petitioners admonished NIOSH and the TBD-6000 work group that all of the above GSI source terms must be assigned definite doses with sufficient accuracy under OCAS-IG-003. Repeatedly these valid admonitions were ignored by NIOSH and Dave Allen and SC&A in their white papers posted under Docket 140 on the DCAS website. Not being able to demonstrate to the

Board that all sources can be bounded with sufficient accuracy is integral to the SEC 83.13 and 83.14 petitioning process. Petitioners believe that two negligent, egregious, omission and commission error were therefore made by the NIOSH (Error 1) and the Board Error 2, below) that should have led to an SEC being assigned to GSI years ago.

- **ERROR 1. The petitioners assert that NIOSH failed to do bound all of the above source doses, and more, for all of the above sources, before the final SEC-00105 vote was taken on December 11, 2012.**
- **ERROR 2. The petitioners strongly further assert that ABRWH Chairman Dr. James Melius and TBD-6000 work group chair Dr. Paul Ziemer, acting in concert, thus also erred in acting prematurely to bring SEC-00105 to a final conclusive vote at the December 11, 2012, Knoxville, TN meeting. At that time, NIOSH and SC&A were in broad disagreement on final external and internal doses to be assigned during the radium era (1953-1962) and during the residual period, without having in place a definite method to determine inhalation intakes of airborne uranium.**

(16) **Deliberate misrepresentation of the facts about the benefits if AWE sites being awarded an SEC.** David Allen addressed the Board before its final SEC-00105 vote on 12/11/12 in Knoxville, TN.

[See EXHIBIT 6, annotated 12/11/12 ABRWH transcript: Melius pages 321,322,327; Ziemer pp 328-329; Allen pages 326-327]

(17) **Deliberate misrepresentation by DCAS (Dave Allen) and TBD-6000 WG members Beach and Ziemer to full ABRWH on 12/11/12 that all GSI workers would be assigned 12 to 15 REM dose per year under the "highest dose" exposure scenario (not true for Appendix BB Rev 0).** David Allen of DCAS addressed the Board before its final SEC-00105 vote on 12/11/12 in Knoxville, TN. Dr. Ziemer and TBD-6000 WG/Board member Beach echoed these same falsehoods.

[See EXHIBIT 6, annotated 12/11/12 ABRWH transcript: Melius page 281 "have data"; Allen pages 326-327; Ziemer 328-329]

(18) **Deliberate SEC delays caused by prioritizing SEC work based on political heat (GSI assigned a deliberate "low" by Board DFO).** David Allen of DCAS addressed the Board before its final SEC-00105 vote on 12/11/12 in Knoxville, TN. Board DFO Ted Katz was encouraged by **DCAS Director Stuart Hinnefeld in a 12/19/10 e-mail obtained through FOIA** to prioritize various sites with active SECs according to ***"political interest"*** or ***"heat."*** "General Steel" (GSI) was assigned a priority by Mr. Katz of ***"low,"*** while the Texas City Chemicals site (SEC-00088), on which Dan McKeel is also a SEC co-petitioner, was assigned the highly derogatory priority of ***"never mind."*** Texas Congressman Pete Olson had written to the Surrogate Data work group advocating for TCC workers and SEC-00088, for example. This type of prioritization was insulting to this well intentioned US Congressman and has no valid place in SEC deliberations.

The petitioners strongly believe that such use of "political heat" prioritization is improper and offensive to the spirit and letter of original Congressional intent in enacting EEOICPA 2000. We contend this quoted passage betrays a mindset at NIOSH and DCAS, held also by the DFO, that explains in part why the GSI Appendix BB and SEC-00105 have been handled as a "low priority" matter both in amount of effort expended to gather missing GSI data, and with respect to processing these key documents (Appendix BB, SEC-00105) in a timely way. Our present concern harks back to the Illinois delegation letter to NIOSH Director John Howard in 2005 (see Error 1a).

(19a) **Dave Allen and DCAS/NIOSH's use of the "throw them a bone" method to confuse SC&A and work groups from fully investigating NIOSH dose reconstruction methodology.** David Allen of DCAS made this very concerning statement in e-mails dated 12/19/10 to "Timothy D. Adler" that were obtained through the FOIA process and were circulated by the Hooker Electrochemical petitioner, and by ANWAG on its eecap.org blog.

(2) The other e-mail thread was even more disturbing. It was related to the issue of using surrogate data at the Hooker Electrochemical site and occurred during late 2009. Dave Allen outlined his "throw them a bone" strategy this way..

I quote from his e-mail dated 12/19/09 found on page 4 of the FOIA file that was obtained by the Hooker petitioner and forwarded to ANWAG and distributed it to me:

"To: "

From: David Allen

SUBJECT: Good Hooker reading

BODY OF MESSAGE: (quote) The truth is my intent is to "throw them a bone" strategy. Basically, give SC&A an obvious point to pick on so they will. Often. they stop once they find one. At that point, I walk in to a WG meeting and agree 100% with all their hits and let WG members try to figure out how they are going to make it an SEC when there is total agreement.(end quote)

I plan to include this information in my SEC-105 appeal for I believe the same deplorable tactic has been used repeatedly during the deliberations on GSI Appendix BB to TBD-6000 and during the decision process on SEC-00105." (end quote)

These revealing e-mails resonated with the GSI petitioners because Dan McKeel has seen Mr. Allen employ the same tactic during Board and TBD-6000 work group meetings where GSI SEC-00105 matters were being discussed. The ABRWH at its March 12, 2013 had a 20 minute discussion about their "serious concerns" over Mr. Allen's conduct. DCAS Director Hinnefeld allegedly expressed his consternation at Mr. Allen's behavior and allegedly vowed that such behavior would not be tolerated in the future. Terrie Barrie, leader of ANWAG, has filed a complaint with the HHS Inspector General over the matter.

(19b) **There is added evidence that Mr. David Allen of DCAS engaged in another highly questionable practice.** This behavior came to light in e-mail correspondence David Allen carried on with DCAS colleagues Dr. James Neton to the effect that he drafted two sets of justifications defending use of surrogate date sources at Hooker Electrochemical AWE site. The URL link for this 3.28.12 ANWAG blog is:

http://eecap.org/PDF_Files/ANWAG/2013-2-18_ANWAG_%20IG.pdf

Much to our dismay, we found that we were in error. David Allen, health physicist responsible for the review of the Hooker Electrochemical SEC petition, also engaged in what we think is irresponsible activities.

On April 1, 2011, Mr. Allen sent an email to Dr. James Neton, advising him that he had written "a new Surrogate Data Justification for our own records (that won't go to the WG.)" This would be the Board's Work Group for the Hooker Electrochemical SEC petition. We question why two Surrogate Data Justification reports were developed but only one was presented to the Board's Work Group.

The petitioner's believe this matter is so serious that Mr. Allen's contributions to TBD-6000 work group and ABRWH presentations and discussions, and all his contributed white papers, should be disqualified. We further believe that Allen's disqualifications should nullify (abrogate) the Board's final vote to recommend denying SEC-00105 to the HHS Secretary on 12/11/12.

Together, errors 16 through 19 above that the GSI SEC-00105 petitioners can definitively attribute to Mr. Allen and to DCAS, the agency which condoned this behavior by Mr. Allen for years, should be *sufficient reasons in and of themselves for HHS Secretary Sebelius to reverse her decision to deny GSI SEC-00105*.

(20) **Improper use of surrogate data at GSI that conflicted with Board SD criteria.**

(a) Dave Allen had e-mail correspondence with Dr. James Neton of NIOSH that he constructed two surrogate data analyses for Hooker Electrochemical, only one of which was given to the Hooker work group (see Error #19b, above). Mr. Allen used airborne uranium surrogate data at GSI that was strongly challenged at first by SC&A at the **8/12/12** TBD-6000 WG meeting and by the GSI petitioners. SC&A's Dr. Robert Anigstein's 7/16/12 white paper titled "**Review of the use of surrogate data for estimating uranium intakes at General Steel Industries**" found the NIOSH surrogate data failed to meet 4 of 5 Board SD criteria.

Allen then added additional surrogate data of the same type that caused the petitioners to have similar concerns about stringent justification of processes and source terms. SC&A, for unclear reasons, then reversed position, and agreed that all 5 Board SD criteria had been met by the "new" NIOSH dataset as revised and modified by SC&A. Petitioners believe this was a factual error of commission.

Specifically, Allen cited uranium slug and derby data. Uranium slugs and derby Ur metal were not subjected to Betatron NDT inspection at GSI. None of the Allen surrogate sites performed Betatron NDT of uranium, or even had Betatrons to perform such activities. Thus, the GSI MCW uranium underwent Betatron 24-25 Mev x-ray bombardment for at least 8 hours (Not 1 hour as Mr. Allen claimed; see following affidavit #2).

Betatron operator 's 7/7/06 GSI outreach meeting testimony (basis for GSI affidavit 2) posted on the DCAS website was as follows:

> pp 15-17; 31
> Probably about 1965, they sent some slices with a waxy coating on it for us to x-ray on the midnight shift. They came into the old Betatron building on flatcars. A couple of nights later they sent some small ingots. We had to use three different films to shoot them because of the exposure and the variation of thickness. We divided the slices up into four shots and backed it up with lead, and pointed the Betatron straight down. It took a lot longer than a normal piece of metal that you were shooting. There were four exposures and each exposure took a couple of hours (7/7/06 Meeting Transcript, pp. 15-17) There was some type of identification on them that we wrote from that ingot onto the shot sheet. They were x-rayed in both the new and old Betatron buildings. I operated back and forth, but most of mine was in the old Betatron building.

Petitioners showed conclusively that 24-25 Mev energy levels of Betatron photon and neutron energy caused enhanced fission of natural U-238 as well as photon activation with generation of daughter activation products. Mr. Allen continued to insist that his surrogate sources, similarly to GSI, only handled "cold uranium." Petitioners challenged this designation for GSI

Betatron irradiated MCW uranium-238, citing DOE ORNL long time research into x-irradiation molecular and structural damage to uranium and other materials **[REF: G.D. Kerr et al. A Brief History of the Health and Safety Division at Oak Ridge National Laboratory. Ch. 3. Accelerating Projects. Radiation Effects in Materials: Cultivated at Oak Ridge. July 1992].**

(21) **Failure of NIOSH to bound Ra-226 doses inside of the Bldg. 6 radiography room.** Dave Allen and DCAS/NIOSH gave no excuse at the TBD-6000 WG 11/28/12 and 2/21/13 meetings for not performing this dose assessment that is required of them under OCAS-IG-003 guidance. That guidance for dose reconstructors states that all radiation source terms must be determined with sufficient accuracy during the AEC operational period at AWE sites. This is another NIOSH negligent omission error.

(22) **Failure of SC&A to verify NIOSH bounding of Ra-226 dose outside of the 6 Bldg radiography room because they believed this scenario was "unlikely."**

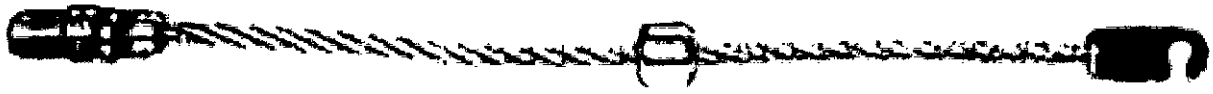
(a) GSI radiography supervisor testified that both Ra-226 and both Co-60 small (less than a Curie each) sources were used "all over the plant, including buildings 6 and 10." Other worker testimony also alluded to this having taken place.

- **Petitioners regard this as a NIOSH factual error and a commission error in ignoring Mr. 's eye witness testimony.**

(23) **Failure of Board, SC&A and NIOSH for 3-4 years to recognize and act upon the fact that GSI "plumb bobs" were Ra-226 NDT sealed sources that leaked and generated radon gas.** The GSI stolen plumb bob testimony emerged during GSI worker affidavit/outreach meetings that SINEW arranged at SimmonsCooper law firm and in Collinsville, IL, during 2006 (7/7, 8/11, 8/21, 8/22). Given former Board chairman and now TBD-6000 work group chair Dr. Paul Ziemer's record of publications and Board comments about dangers of leaking radium sources, the petitioners believe the mere mention of a stolen GSI plumb bob in 2006 in GSI worker affidavits should have alerted both NIOSH and Dr. Ziemer and the Board, and through DR. Ziemer SC&A, that the term plumb bob, used correctly, is synonymous with a radium sealed source. Ra-226 plumb bobs were known to be used during the 1930s and 1940s with the fish pole technique to perform industrial nondestructive testing radiography (see ORAU Museum online article). Sealed source terms referred to as "pills" were more likely to be Cobalt-60 or Iridium-192 or Cs-137 (see another ORAU Museum online article). ORAU references are:

1. To Radium plumb bob and fish pole NDT method, the URL is: http://www.orau.org/ptp/collection/Sources/radiumradiog.htm (pages)

2. To the cobalt-60 pill and "pig tail" connectors, the URL is: http://www.orau.org/ptp/collection/Sources/industrial.htm (1 page)



(begin quote) *These types of sources have been responsible for a number of radiation injuries (including deaths). A typical accident scenario involves the pigtail detaching from the crank-out cable and being left behind at the job-site. Later, someone not knowing what it is picks it up and possibly takes it home. Early industrial radiography sources, like those shown above, carried no indication that they were radioactive or dangerous. As such, this type of mistake was all too easy. Pigtails with the old "eye and hook" connectors (lower image) were particularly prone to detaching and being lost.* (end quote)

of St. Louis Testing Labs provided testimony that a GSI

overexposure Co-60 incident occurred in the Bldg. 6 NDT room in 1965. This date was corroborated to Mr. by . The source became disconnected and lay open for 16 to 24 hours. Mr. was called in by GSI to fix the problem, which he did. However, according to Mr. 's knowledge, GSI kept the dangerous hook-and-eye Co-60 "pill" connectors from 1964 through 1973 when plant operations creased. The GSI managers thus ignored AEC NDT safety guidelines. This is added evidence of a very lax and ineffective radiation safety program at GSI during 1964-1973 under . It was who headed the new GSI #2084 film badge program after the GSI Eddystone Division moved in 1963 to the GSI Illinois Commonwealth Division in Granite City, IL.

(24) **Failure of NIOSH to locate GSI film badges for 10/1/52 through 1962.** To the best of the petitioner's knowledge, based on the official GSI SEC-00105 written record, NIOSH made absolutely no effort to obtain the missing film badge records from other film badge vendors besides Landauer, for the 1952 through 1963 periods, before Landauer GSI film badge program #2084 was first initiated in November 1963. **Petitioner's regard this as an error of negligent omission of the highest order.** It is a primary mission of NIOSH and their contractor ORAU to attempt to recover monitoring data at all AWE and DOE sites under EEOICPA. As mentioned, they have the powerful §7384w subpoena power invested in Dept. of Labor, the lead EEOICPA agency, at their disposal. Yet NIOSH, again to the petitioner's knowledge, ever used this tool to obtain missing GSI film badge data.

SEC-00105 co-petitioner McKeel did pursue two FOIA requests to NRC (2013-00142/191) to obtain the NCC 1962 and St. Louis Testing Laboratories 1964-1973 By-Products material AEC licenses. McKeel hoped that, as in the case of the GSI 1962 Co-60 license material, the responsive documents would reveal more source information, perhaps including the vendor who furnished the "AEC/NCC" gamma photon dose summary for 18 quarters before November 1963. That report had the words "Atomic Energy Commission" at top and "Nuclear Consultants Corporation" at the bottom of the page.

Also, Dan McKeel sent the TBD-6000 WG a spreadsheet of several dozen USA film badge vendors. He also sent the same WG information that NCC had been purchased and absorbed by Mallinckrodt Chemical Works. Thus, MCW records would be a logical place to search for NCC film badge records. NIOSH never undertook such a search for NCC film badge data to the best of my knowledge. In fact, NIOSH never acted on any of this information. Whatever investigation on the matter was done by SC&A, neither NIOSH nor SC&A produced any other film badge data than the Landauer data Dan McKeel alerted them to in the first place. This is another negligent omission error.

(25) **Failure of NIOSH and DOE to locate any GSI shot records, NDT reports or check lists MCW required of film readers, calibration records, leak test records, air sampling data, Betatron dose monitoring data, or radon data.** The information in Error (24) is pertinent here as well. NIOSH through ORAU and the §7384w DOL subpoena power tool should have vigorously pursued GSI uranium NDT related records with DOE at ORO, and also Mallinckrodt private records, including corporate information about the acquisition of NCC assets including film badge records data. This was a serious NIOSH/ORAU error of negligent omission.

(26) **No real (measured at the site, surrogate, or from the scientific literature) GSI-generated data was available to validate Betatron computer models, using MCNPX and ATILLA code, for photons, x-rays, beta (electrons) and neutrons (see Error #27] during the operational period.** The values generated by code were simply listed in Tables as facts by Dave Allen and DCAS and by SC&A in their technical papers. On many occasions, including in

person extensive discussion at the 3/15/12 TBD-6000 WG meeting, Dan McKeel stated that peer reviewed journals insist on having experimental, that is real measured, data to validate computer models. McKeel further asserted and still maintains that models and measured data should agree with one another within 10 to 20%. The closest agreement between NIOSH and SC&A Betatron external dose photon models was 200% with many comparisons being much larger. Early SC&A and NIOSH computer models differed from film badge readings by 12 to 15-fold. DCAS then "normalized" the Betatron computer models to agree with film badge readings. SC&A did not condone this type of methodology and stated so on the record. This issue is still not resolved to this day. Given the striking degree of variance between NIOSH and SC&A computer values and the film badge readings for radiographers, the **petitioners assert that NIOSH made a very serious COMMISSION ERROR in accepting computer model values that were not validated by actual measured (real) data from the same modeled sources.**

(27) **No relative biologic effectiveness determined experimentally for GSI neutrons (RBE can vary between 2 and 20).** NIOSH at first claimed in the SEC-00105 evaluation report, on page 30, they had GSI photon-to-neutron ratio data "in place." SC&A agreed with the co-petitioner that this was not true. Neutron fluxes were not measured by film badges or directly (Bonner spheres) from the Betatrons or other sources at GSI. The MCNPX assumptions for NIOSH/SC&A modeled RBE values were not addressed at all to my knowledge.

(28) **NIOSH concluded that New Betatron external photon, neutron and beta doses, by extrapolation, also bounded Old Betatron doses without actual measurements of photons, beta or neutrons for either facility.** Petitioners contest this decision, and they have pointed out the two facilities and machines were not structurally and electromechanically not identical. Details have been provided in the form of photographs and worker affidavits and floor plan drawings. NIOSH has stubbornly denied this evidence. Petitioners regard this as a particularly egregious omission and negligence error by NIOSH that has adversely affected GSI claimants and potential SEC Class members.

(29a) **Board member Griffon resigned from TBD-6000 work group, and was so uninformed GSI basic documents that he stated on 12/11/12 that he was assessing the FUSRAP 1993 remediation report in "real time" (read "first time for me").** This performance is emblematic of the petitioner's contention the ABRWH members not on the TBD-6000 work group, and even past members thereof, gave no indication they had read McKeel's, NIOSH's or SC&A's large numbers of GSI technical papers that are evident on Docket 140. Few, if any, questions were asked of him at GSI full Board meetings in September and December 2012 prior to the final SEC-00105 vote.

(29b) **On 12/11/13, the petitioner's learned for the first time that Board member Bradley Clawson, according to his testimony, had been an NDT radiographer "for 10 years."** Yet the TBD-6000 work group never sought his advice as a consultant or a participant in any of their 15 meetings. Petitioners regard this failure to get consultative advice from Mr. Clawson as a most serious negligence error of omission that contributed to the denial of SEC-00105.

(29c) Fourth present TBD-6000 work group member Dr. John Poston missed an unusually large numbers of meetings and parts of GSI related meetings to the extent his contributions to WG deliberations in 2011 and 2012 were limited.

(30a) **Final dose "bounding" assignments were not established with clarity by the end of the 2/21/13 TBD-6000 work group meeting on GSI Appendix BB issues that should have been clarified before the full Board voted on 12/11/12.**

Richard Miller, formerly with the Government Accountability Project (GAP), once noted to Dan McKeel that "bounding" was a "construct" of NIOSH's Dr. James Neton, and was not part of the language of EEOICPA 2000. Mr. Miller is now a Congressional staff person and is very knowledgeable about the legislative history of EEOICPA 2000.

(30b) **The use of the word "such" in §7384n(c,d) of the EEOICPA 2000 Act, according to Richard Miller, in a statement he made to the ABRWH on 2/11/2010, precludes the use of surrogate data in determining SEC outcomes and for use in NIOSH dose reconstructions. NIOSH and HHS OGC disputed this contention.** The petitioners agree with Mr. Miller's view, and believe NIOSH has made a most serious COMMISION ERROR at GSI in relying primarily on surrogate data such as TBD-6000 and OTIB-0070 to determine inhalation doses, and OTIB-9 to determine ingestion doses, during the residual period at GSI from 7/1/66 through 12/31/92. None of these data have been subjected to rigorous scrutiny under the Board or NIOSH (OCAS-IG-004) surrogate data criteria. (See McKeel views cited on page 11 of 17, Docket 194 comment dated 03/09/10 on NIOSH Ten Year Plan). The relevant excerpt follows:

Surrogate Data

1. Dan McKeel and SINEW support the position on use of SD of Richard Miller and the bipartisan, bicameral Congressional working group that was expressed to the ABRWH at their regular meeting on February 11, 2010. That is, that language in Section 7384n subsections (c) and (d) of EEOICPA make the use of SD for facilities that have no (zero) monitoring data to be illegal. HHS, NIOSH and the Board should suspend all such use of SD until the legal situation is clarified as to which opinion—HHS OGC or that of the Congressional working group—should prevail. The need to do this is urgent.

2. The legal opinion of HHS OGC that allows NIOSH to use SD for facilities that lack monitoring data, that attorney Emily Howell told the ABRWH on 2/11/10 does exist in writing, should be released for public scrutiny and be reviewed by an independent legal authority such as the Dept. of Justice. [Note: *Dan McKeel has been told that GAO attorneys have asked to be recused from rendering any such second (backup) legal opinion on the NIOSH ruling because doing so would exceed their statutory authority.* Richard Miller suggested to the Board on 2/11/10 that Congress might follow this pathway.]

(31) **Co-petitioner McKeel's 38 white papers to the TBD-6000 work group and full Board were not sent to NIOSH Director Howard or to HHS Secretary Sebelius with the Board's recommendation letter dated 1/31/13.** Ted Katz in a 2/14/13 e-mail told Dan McKeel the Board transcripts would convey the petitioner's view. That statement was not true because the TBD-6000 WG and full Board never discussed most of the McKeel papers. They usually listened to his 10 minute presentations and asked him few, if any, questions thereafter. Full ABRH & WG transcripts confirm these facts.

- McKeel's 39th paper, his transcription of the 2/21/13 TBD-6000 WG meeting and comments thereto, as well as a full ABRWH McKeel bibliography was not allowed to be transmitted to NIOSH Director Howard or to HHS Secretary Sebelius before the final decisions on SEC-105 were rendered. Petitioners view this as a mistake that caused their viewpoints and concerns not to be adequately represented. (see related SEC00105 error 32)

(32) **The SEC review process is faulty because hard copies of all 15 TBD-6000 WG transcripts were not provided to NIOSH Director Howard and to HHS**

Secretary Sebelius. The petitioners plan to file FOIA requests to obtain the materials that were provided to Dr. Howard and HHS Secretary Sebelius along with the ABRWH letter dated 1/31/13 notifying them of the Board recommendation to uphold NIOSH and to deny SEC-00105. McKeel addressed his concerns in a Public Comment at the ABRWH 3/12/13 meeting in Augusta, GA.

(33) **GSI radiographers wore GSI film badges to operate and perform NDT inspections on GSI castings at American Steel using their 1 million KVP x-ray machine and Iridium-192 sources.** This 2006 outreach meeting GSI worker affidavit testimony showed that the categorical statement that GSI radiographers badges were not always kept in the Betatron buildings and "were never worn outside" is not true. NIOSH failed to this date to model or bound with sufficient accuracy either of the American Steel sources as the petitioners assert they should have done as an SEC-00105 issue and to be complaint with OCAS-IG-003.

(34) **The TBD-6000 WG ignored and failed to act on chairman Ziemer's revelation on 10/12/10 that radium sealed sources often leaked, the reason that leak tests were mandated, and that radium daughter products including RADON gas were given off.** We know that NCC and SLTL both allegedly performed leak tests for GSI in 1962-1966 and perhaps thereafter. NIOSH never produced those records. **NIOSH also never bounded RADON doses at GSI despite knowing about this added source probably being present.** The TBD-6000 WG never discussed this RADON matter after the October 12, 2010, meeting despite the fact that chairman Paul Ziemer's C.V. has a number of citations of papers he co-authored about radium sealed sources, radon, and the dangers therefrom.

Dr. Ziemer made another Board comment about leaking Ra-226 sources (Reference: TBD-6000 work group transcript 12/16/2009, page 137:

137

CHAIRMAN ZIEMER: Okay, thanks 1
Dan. We appreciate that input. Let me also 2
mention, I think you talked about, also, leak 3
test records and things like that, and I think 4
**I would certainly be interested myself in what 5
they found there, particularly since they 6
apparently had radium sources. And radium 7
sources, historically, have been notorious for 8
leaking, and that would be very interesting to 9
learn what they found on those radium sources.** 10

Source:
Transcript - Centers for Disease Control and Prev

www.cdc.gov/niosh/ocas/pdfs/abrwh/2009/wgtr121609.pdf

The petitioners regard NIOSH ignoring and not calculating radon doses at GSI during the radium era (1952-1962 as a most serious SEC00105 error of omission. Given the chair's own research in this area, we regard the delay in recognizing and acting on the radon issue at GSI to constitute negligent

violation of OCAS-IG-003 guidance. NIOSH has historical trouble developing valid radon intake models (Blockson Chemical, Texas City Chemicals SECs).

(35) **NIOSH's SEC Counselor and DFO failed to keep the GSI SEC primary petitioner in the notification loop for meetings and new white papers in a timely way for months and years during the SEC-00105 Board and WG deliberations.** The GSI petitioner had to keep reminding the NIOSH SEC Counselor of this fact. The express primary mission of the Counselor is to assist SEC petitioners. The DFO sent Dan McKeel co-petitioner many documents that were not also copied to the primary SEC-00105 petitioner as they should all have been. We regard this as a serious omission error.

(36) **NIOSH failed to do further research and investigation on radiation overexposure incidents as mandated by 42 CFR §83.9.**

(a) 1953 stolen plumb bob recovered one week later in October 1953 incident;

(b) 1965 (two affidavits) Co-60 in Bldg 6 radiography room and incident where the pill became disconnected outside of the "pig" lead shield. The badge recorded a dose of 38 REM.

Note: This incident was first called to McKeel's attention in a letter from Landauer's in 2006. SC&A and Bob Anigstein later claimed that the high 38 REM dose had been marked retracted on Landauer's report, but this alleged "fact" was not documented by putting the marked report on the written record as it should have been [also see error 37]

(37) **Dr. Robert Anigstein of SC&A improperly consulted with his colleague at SC&A, , a former Landauer , about Error 36a.** In turn, Mr. allegedly contacted Landauer and produced "evidence" the petitioner's never saw *in toto*. Dr. Anigstein presented to the TBD-6000 WG that these highest two GSI doses, including the 38 REM a worker ( ) received in one quarter dose, were later retracted by GSI workers to their supervisor, and that Landauer had so marked these records. The petitioners believe this 38 REM high dose is valid based on information we know about the ~1963 or 1964 overexposure incident involving a disconnected and out of shield Co-60 source in the Building 6 radiography room. Supervisor had to call in of St. Louis Testing to reconnect the source and replace it inside the lead shield. WE believe the dropped and later recovered film badge actually received the recorded dose. In this sense, the value of 38 REM in one quarter was not a mistake and should not have been retracted. Mr. never placed his complete evidence about this event on the record. and McKeel interviewed about this overexposure incident several times. NIOSH did no further investigation of the incident as they are mandated to do under 42 CFR §83.9.

Ms. did not mention this fact to McKeel when he contacted her much earlier than the SC&A revelation. Petitioner's therefore challenge this SC&A "evidence of highest dose retraction" as unsubstantiated, and being false, and improperly obtained, and as not being released publicly on the official record in full (secrecy, lack of transparency, false information). The SC&A Anigstein- evidence was not placed *in toto* on the official record to be corroborated from other sources. The petitioners were given improperly redacted, alleged retraction letters. Dan McKeel and know the main individuals involved are all deceased and thus are not protected by the Privacy Act of 1974. The petitioners have frequently brought this fact to the attention of NIOSH and the CDC/ATSDR FOIA office, and the HHS OGC lawyers who assist the ABRWH, all to no avail (see **Error 03**).

Source document reference: TBD-6000 work group transcript dated 10/14/2009, pages 102 through 137. Thorough discussion of the retracted film badge reading that SC&A and Dr. Anigstein claim was after June 30, 1966 in

the 1969 or 1970 time frame. McKeel pointed out that several hundred Bldg. 6 workers were potentially exposed to a Co-60 unshielded source for 16 to 24 hours. Two GSI workers put the Bldg. 6 overexposure incident date as occurring in 1965-66, a major unresolved discrepancy.

38. **NIOSH never modeled external doses in the busy outside area at GSI that lay between the Old and New 24-25 Mev Betatrons. This was an SEC error in and of itself.** That is, Betatron doses beyond the containment building confines were not modeled, nor did any GSI monitoring survey data of this area survive to the present time. Workers testified that periodic radiation surveys of outdoor areas surrounding the Betatron facilities were conducted. None of this monitoring data is extant.

In addition, the following facts should be noted about this confluence area between the Betatrons: David Allen and DCAS assumed the distance from the Old Betatron building at GSI (*circa* 1951) to the closest building was 1000 feet. The petitioners demonstrated that this "fact" was incorrect, an error, by producing a large and detailed 1957 engineering drawing (2-D map) of the entire GSI complex in 1957. had obtained this map in a visit to the present operator of a business on a portion of the GSI site (Granite City Pickling Warehouse). The map was presented to the TBD-6000 WG, in person by and McKeel, at its 3/15/12 meeting in Cincinnati. The map demonstrated several important new pieces of GSI information:

(a) The Old and New Betatron buildings were only 300 feet apart. The 1957 map showed the two Betatrons and railroad tracks running into them and in the space between the two NDT buildings. This fact was confirmed by the scaled map and by former worker affidavits. Those affidavits indicated that a number of different job categories of workers worked in that outdoor space. These job categories included a yard crane operator, railroad engineers and switchmen (yard men), and others. The area was quite heavily traveled every day.

(b) The closeness of the two Betatrons has to be viewed together with a sign on the OBB that read "Do not approach this building within 100 feet." Dan McKeel had taken photographs, which he provided to the TBD-6000 work group, from a site visit he had made with SINEW members on September 26, 2006. This means that radiation zones surrounding the two GSI Betatron facilities extended to within 100 feet of each other;

(c) had contributed other photographs that showed cars and rail tracks next to Building 10 and the New Betatron. In addition, a main road at GSI traveled by all workers ran through this narrow 300 foot space between the two Betatron buildings;

(d) St. Louis Testing Laboratories in the 1963-68 time frame used a large Co-60 source outside the GSI New Betatron near Building 10. This was a large casting, and according to took several days to perform isotope NDT radiography. This specific type of activity had been denied by the Illinois Dept. of Health for GSI to use their own 80 Curie Co-60 source due to safety concerns. Petitioners view this particular activity as an overexposure incident as defined in 42 CFR §83.9, requiring further research by NIOSH in addition to worker affidavits.

(39) **Lavon Rutherford and NIOSH never told the TBD-6000 work group or the full Board how many individuals would be potential class members with and without presumptive cancers if SEC-0015 were awarded.** Dan McKeel had to remind Mr. Rutherford that such information had been presented at Board meetings in his regular "upcoming SEC" presentations. McKeel asked why this was not done for GSI SEC-00105? McKeel was flabbergasted and appalled when the answer came back, "this is not my responsibility," an absurd and duty shirking, demeaning to NIOSH, response. It should be noted the TBD-6000 WG never asked for these SEC-00105 class member data, either. Mr. Rutherford

eventually did provide some SEC class membership numbers to Dr. McKeel, but these numbers were not put on the record at work group or ABRWH meeting presentations including SEC Updates by Mr. Rutherford. **Petitioners regard this as another NEGLIGENT OMMISSION ERROR FOR GSI SEC-00105.**

(40) **ABRWH Chairman James Melius erred on December 11, 2012, by making a single motion for the Board to take only one vote for the entire GSI operational and residual periods (1953-1992). Moreover, he omitted having the vote extend to the entire operational period that by then included Oct. 1, 1952 to December 31, 1952.** This was a negligent commission error in the petitioner's view. The Board votes on the operational residual periods separately in the majority of adjudicated SECs. The TBD-6000 work group on 11/28/12, had divided its votes on SEC-00105 into three periods that corresponded with the GSI first ten years (the radium era 1953-1962), the rest of the operational period through June 30, 1966, and the residual period from July 1, 1966 through December 31, 1992. Petitioners believe the same vote scenario should have been followed by the full Board. Dr. Ziemer deferred to Dr. Melius on this matter. Petitioners assert the Melius final SEC-00105 vote motion to consider 1953 through 1992 was driven by expediency rather than by TBD-6000 work group precedent as the vote should have been.

(41) **Improper Privacy Act of 1974 redactions, including deceased individuals, of FOIAs and Public Comments and white papers:**

(a) Private information on known deceased workers redacted.

(b) Deceased persons are excluded from PA 1974.

(c) NRC does not redact 1,016 pages of FOIA/PA 2010-0012, while NIOSH heavily redacts same material.

(d) John Vance of DOL by accident transmits e-mail to McKeel with unredacted personal private information on a claim from a person who is unknown to McKeel; Vance claims no PA violation because claimant is deceased.

(e) Experienced SimmonsCooper (SC) law firm attorneys drafted PA 1974 and HIPAA waivers (releases) that SINEW sent to CDC/NIOSH for GSI workers who provided affidavits, specifically so their names and jobs would not be redacted and so that SINEW could review their Landauer film badge data; HHS/CDC/NIOSH summarily rejected these perfectly legal waivers saying we do not honor "universal waivers." The meaning of this term is unknown to SC attorneys and to Dan McKeel.

Petitioners believe the declination by CDC of SC medical and PA waivers was improper and amounted to censorship. The redactions that resulted interfered with interpretation of information gleaned from deceased persons and from workers with valid SC waivers (HIPAA medical and Privacy Act releases). Petitioners and SINEW repeatedly stated to NIOSH that deceased persons are not protected by the Privacy Act of 1974. CDC/ATSDR FOIA office and Docket Offices ignored this fact, stating that family member considerations led them to redact deceased persons names routinely in meeting transcripts and GSI Docket 140 documents.

(42) **In the entire GSI SEC-00105 full Board and TBD-6000 WG deliberations, the Iowa Army Ammunition Plant (IAAP) SEC that involved four radiographers who worked in the 1948-1949 period failed to be considered.** Petitioners believe this was a major omission error because this particular SEC was precedent setting for how the ABRWH handled SECs involving NDT radiographers with similar jobs to the GSI Betatron operators. [Transcript may be found at URL: http://www.cdc.gov/niosh/ocas/iop.html#SEC: ABRWH-31 7/5/05, pp 160-67]

(43) **TBD-6000 work group (WG) member Dr. John Poston missed many crucial WG meetings 2010 through 2012, and was absent at the final vote on 12/11/12.**

His serious conflict of interest problems with family members doing DR is on the record (see , comment on NIOSH Ten Year Review, Docket 194).

(44) **We close this request with a compelling and serious sense of uneasiness that the SEC-00105 TBD-6000 work group deliberations have a dark "secret" force that has been operating behind the scenes at NIOSH and the Board and SC&A since before October 2010.**

Allen (2011, section 6.1) justified his calculated annual dose of 3,573 mrem to the radiographer by noting that it was equal to 24% of the pre-1958 annual dose limit of 15 rem, and 30% of the quarterly limit of 3 rem in effect in 1958. He notes that this is consistent with the following statement made by GSI in its application to the AEC for the renewal of its byproduct material license submitted February 14, 1963:

> *Up to this time February 1, 1963 no formal written tests have been given. . . . During this period the exposure limits published by the A.E.C. at the applicable time were followed. They were never exceeded and averaged under 25%.* (NRC 2009a)

However, there is no documentation to substantiate this statement. There is no mention of any film badge dosimetry program until 1962, when GSI first applied for an AEC byproduct material license. Allen (2011, section 6.1) cites statements by former workers regarding the use of self-reading pocket dosimeters (SimmonsCooper 2006, pp. 54, 110; Rynders 2006b, p. 23). The workers in question were [redacted] and [redacted]—Mr. [redacted] started work at GSI in early 1964,[1] while Mr. [redacted]'s first film badge dosimetry report was for the week of 2/24/1964. Thus, neither of them were at GSI during the radium era and their statements regarding dosimeter use cannot be applied to that earlier period. The previously cited statement from the license renewal application is in contrast to the following, excerpted from the original AEC license application: "To date, we have used quite satisfactorily two 500 mg radium sources. These have been used with a fish pole technique with *little radiation exposure* [italics added] to our personnel." (NRC 2009b) "Little radiation exposure" is not consistent with exposures up to the then-permissible limit.

As this passage illustrates, as recently as September 15, 2011, SC&A still believed Allen's use of the GSI administration's statements about AEC limits not being exceeded were not believable. Reference source: Text on Page 7 of 21, SC&A "White Paper: Review of NIOSH White Paper - GSI" (2/15/11).

Before then, during 2010 TBD-6000 WG meetings, SC&A's John Mauro had vigorously asserted to the TBD-6000 WG and Board on several occasions that a GSI SEC for the 1953 to 1962 period appeared to be inevitable due to the lack of necessary monitoring and process information, including uranium source information (no MCW P.O.s). Then, to the chagrin of the petitioners, NIOSH was allowed, even encouraged by the Board, to **rewrite all of its GSI methods and proposed ten new models** in David Allen's "Path Forward for GSI" new program introduced in October 2010. He did this because both NIOSH and SC&A computer models were far apart from each other and disagreed sharply with the Landauer program #2084 film badge data. It was clear that Allen and DCAS were determined to force their models to jibe with the GSI Landauer film badges.

The time it would take to achieve this goal, McKeel argued for the petitioners, was **unreasonable** given that NIOSH had already unsuccessfully tried multiple methods to bound all doses with sufficient accuracy.

The need for 10 new NIOSH methods in the Allen Path Forward for GSI proposal, we further argued, was strong proof that it was infeasible for NIOSH to bound all internal and external GSI doses for all class members with all types of cancers with sufficient accuracy. Therefore, the proper TBD-6000 work group and full Board action was to recommend an SEC for all years in October 2010. We still believe that position was scientifically defensible and reasonable for the SEC petitioners to take in the fall of 2010 two and a half years ago. Dan McKeel pointed out this DCAS Path Forward new effort would greatly prolong revising Appendix BB Rev 0 (June 2007) for years. He urged the WG to recommend an SEC for GSI at that time (October 2010) and not allow any further NIOSH revision of failed DR methods. No one listened.

The following SC&A commentary on page 7 of 21, in September of 2011, is diametrically opposed to positions that Drs. Anigstein and Mauro of SC&A have taken more recently in 2012 leading up to the final ABRWH SEC-00105 vote on 12/11/2012. SC&A is commenting on Allen's NIOSH information, as follows:

(a) **Re Exceeding AEC limits *"...there is no documentation to substantiate this statement."***

(b) ***"There is no mention of any film badge dosimetry program until 1962..."***

(c) Re: **"little radiation exposure": *"Little radiation exposure" is not consistent with exposures up to the then-permissible limit."***

By December 2012, before the final SEC-00105 Board vote, all these caveats and concerns that SC&A firmly held in October 2010 had completely vanished, magically, like the wind, with no actual changes in the factual basis for the SC&A or NIOSH positions having taken place.

It must be said here, the GSI SEC-00105 petitioners, site experts, claimants and the many denied potential SEC class members, feel there has been a backroom. non-transparent "accommodation" among the full Board and the TBD-6000 members, SC&A and NIOSH leadership. We cannot pin this down further, however, there is a strong sense we are being unfairly manipulated to fit another hidden agenda. We know GSI deserved an SEC in 2005 and still does today. The ANWAG complaint to the HHS IG in 2013 bolsters our suspicion.

No site has more input in the way of written documentation from the petitioners, site experts and former workers, that has been bestowed on the Board, NIOSH and SC&A, than has been the case at General Steel Industries. As voluminous as our information is, we believe the administrative review panel should make an earnest effort to go through all of our work group testimony: Attachment A: 15 meetings on TBD-6000, GSI Appendix BB, and SEC-00105; our many ABRWH meeting formal Public Comments starting in 2005, our SEC session Powerpoint® presentations to the Board, especially the one on 3/15/12 we made in person to the TBD-6000 work group, our 5 worker outreach transcripts from 2006 and 2007, and the 41 McKeel white papers about GSI, 2 42 CFR 83 SEC Rule comments, and 7 Docket 194 NIOSH McKeel comments on the NIOSH Ten Year Review (see Attachment B). **Every one of those papers deals with a lengthy record of factual, scientific, personal bias, censorship, and procedural errors we believe were made by NIOSH, the work group, the Board and SC&A starting in 2005 and continuing even today.**

In summary, collectively, we believe **this long record of significant errors forms a compelling basis for recommending the HHS Secretary reverse her denial of GSI SEC-00105.** The petitioners and those we represent thank you for your consideration.

"When there is error, may we have truth"
- British Prime Minister Margaret Thatcher
Inaugural address

References:

1. Kuttemperoor, Vincent Z. Photon activation of materials subjected to Betatron radiography. Material Evaluation (1974), July issue: pp. 153-156

2. Kuttemperoor, Vincent Z. Photon activation of alloys and elements used in industrial parts requiring high-energy x-ray radiography. Materials Evaluation. (1975), May issue, pp. 113-119

Respectfully Submitted,

Patricia Jeske 4/14/13

Petitioner Patricia Jeske Date

Dr. Daniel McKeel 4/14/13

CO-petitioner Daniel McKeel Date

Note: See attached formal signatures on following page

List of Exhibits and Attachments

EXHIBIT 8.1 IL SENATOR ROCHARD DURBIN LETTERS TO ABRWH 2007 and 2009
EXHIBIT 9.2 IL CONGRESSIONAL DELEGATION to NIOSH DIRECTOR HOWARD 2005
EXHIBIT 10.3 DR. TO ABRWH (February 2, 2007)
EXHIBIT 11.4 MCKEEL [MARCH 11, 2012] status report on David Allen's DCAS [Section B. Path Forward for GSI"] WHITE PAPER to TBD-6000 work group (October 2010)
EXHIBIT 12.5 MCKEEL MARCH 15, 2012, Powerpoint® to TBD-6000 work group
EXHIBIT 13.6 DM ANNOTATED 12/11/2012 TRANSCRIPT, ABRWH final vote SEC-00105
EXHIBIT 14.7 MCNPX mesh VALIDATION PAPER (MCNPX agrees with measured data within ± 2.7-5.4 percent for a modeled cesium-137 source)
EXHIBIT 15.8 GSI site expert revised opinion that 1953 belt object was a GSI identification badge rather than a Landauer film badge
EXHIBIT 15.9 Landauer letter dated 2/05/2007 to Dan McKeel stating regulatory radiation limits that applied to GSI prior to 1963
EXBIHIT 15.10 Board member Wanda Munn testimony at 11/5/10 ABRWH meeting

ATTACHMENT A TBD-6000 work group folders with transcript files on CD-ROM

ATTACHMENT B Listing of Dan McKeel GSI related white papers in Docket 140, SEC Rule Docket 42 CFR 83, and Docket 194 (NIOSH Ten Year Program Review)

Signature Page

Jeske-McKeel SEC-00105 Administrative Review request

Patricia K. Jeske 04/06/2013

Patricia K. Jeske (formerly Coggins) Date
SEC-00105 original petitioner

Daniel W. McKeel, Jr. 4/14/2013

Daniel W. McKeel, Jr., M.D. Date
SEC-00105 co-petitioner

Sincerely,

Daniel W. McKeel, Jr., M.D. /Daniel W. McKeel, Jr.

Full GSI petitioners current contact information:

Daniel W. McKeel, Jr.

Patricia K. Jeske (formerly Coggins)

EXHIBIT 1

GSI SEC-00105
Administrative Review

Illinois Senator Richard Durbin
2007 and 2009 letters to
the ABRWH
Regarding GSI SEC-00105
and Related Matters

United States Senate

WASHINGTON, DC 20510

May 3, 2007

The Advisory Board on Radiation and Worker Health
ATTN: Paul L. Ziemer, Ph.D
Professor Emeritus
School of Health Sciences
Purdue University
West Lafayette, Indiana

Dear Dr. Ziemer:

Thank you for your kind consideration of this matter before the Advisory Board on Radiation and Worker Health. I appreciate your consideration of expanding the class to cover workers employed during the "residual period" (up through 1998).

I have met with the workers who provided the Board affidavits and have listened to their stories. Especially in this case, where there is little documentation to challenge their accounts, I hope that you will give the affidavits their full consideration.

In addition, I am hoping for a prompt resolution of this matter and these workers' claims. The SEC process has been pending for months and due to the health and age of many of the workers, it is imperative that the Board promptly consider the merits of the case.

Thank you for permitting me to raise these issues. I appreciate your service on this Board.

Sincerely,

Dick Durbin

Richard J. Durbin
United States Senator

RICHARD J. DURBIN
ILLINOIS

COMMITTEE ON APPROPRIATIONS

COMMITTEE ON THE JUDICIARY

COMMITTEE ON RULES
AND ADMINISTRATION

ASSISTANT DEMOCRATIC
LEADER

United States Senate

Washington, DC 20510–1304

332 DIRKSEN SENATE OFFICE BUILDING
WASHINGTON, DC 20510-1304
(202) 224-2152
TTY (202) 224-8180

230 SOUTH DEARBORN, 38TH FLOOR
CHICAGO, IL 60604
(312) 353-4952

525 SOUTH EIGHTH STREET
SPRINGFIELD, IL 62703
(217) 492-4062

701 NORTH COURT STREET
MARION, IL 62959
(618) 998-5812

durbin.senate.gov

December 3, 2009

Dr. Paul Ziemer
Advisory Board On Radiation and Worker Health
Washington, DC 20002

Dear Dr. Ziemer:

I am writing on behalf of my constituents who were employees of General Steel Industries (GSI) in Granite City, Illinois during the period of 1951 through 1973 when the plant closed. My staff has met with many of these employees and has documented their stories.

In 1953, GSI had a contract with the Department of Energy to x-ray uranium ingots and other castings. This contract continued until 1966. Employees at the plant were not told what was being x-rayed and many have told my staff that if they had known they would have quit their jobs. Years later, the EPA did two Superfund cleanups of the site. Numerous employees who worked at the site developed cancer. Many applied for compensation through the Energy Employees Occupational Illness Compensation Program and were denied.

There is currently a pending case requesting Special Exposure Cohort for the General Steel site which would give my constituents who were harmed by exposure to radiation at the plant compensation for their illnesses. I strongly urge you to grant this request for S.E.C. as quickly as possible as many of these people have extremely serious health problems. If you need additional information regarding this matter, please contact Bill Houlihan in my Springfield office at 217-492-4062.

Thank you for your prompt attention to this matter.

Sincerely,

Richard J. Durbin
United States Senator

RJD/ad

cc: Ted Katz
The Honorable Kathleen Sebelius

EXHIBIT 2

GSI SEC-00105
Administrative Review

Letter from Two IL Senators and Two IL Congressmen to NIOSH Director Howard Regarding a GSI SEC and Other Related Matters (Date 8/08/2005)

Subj:	**John Howard response from Nov 2005**
Date:	Wednesday, July 12, 2006 3:32:06 PM
From:	DanMcKeel2
To:	deb.detmers@mail.house.gov, robert_stephan@obama.senate.gov
cc:	DanMcKeel2,

Deb and Robert --

To your knowledge did Director John Howard of NIOSH ever respond to this November letter signed by Illinois Senators Obama and Durbin and Congressmen Shimkus and Costello? Could and I please get a copy of Dr. Howard's response?

We are preparing a letter to Dr. Howard concerning the non-response to our Elliott 3/31/06 letter and concerning the Battelle subcontract secrecy issues. We will also mention the major difficulty we have experienced getting any response from Peter Turcic and his staff regarding our 4/7/06 letter. We need to alert Dr. Howard that from our perspective the EEOICPA program is not working at many different levels.

I plan to send a copy of the Howard letter to Cindy Blackston of the Hostettler subcommittee, which, as you know, exercises oversight and legislative control over EEOICPA funding. That subcommittee had Dr. Howard testify March 1, 2006. It was Howard who first alerted me to the fact that Linde got an expedited "self-identified" section 83.14 SECs. Linde and 4 others with 83.14 SECs are being processed under the Battelle one year contract (TO-16) that ends October 2006. Dow and GSI are under the same contract, task order 16. We want a status report now, prior to the end of the contract, so we can have some meaningful input into the site profile, dose reconstruction and 83.14 SEC selection processes for out two Illinois sites. I have communicated all of this to the newly appointed SEC Counselor at NIOSH, Laurie Ishak.

I have recently communicated to Donald Shalhoub, ombudsman for Part E, the problem of 80 Part E claims being submitted to DOL from GSI and Dow, which are classified as AWE only (non-DOE) sites and thus claimants are ineligible for Part E compensation.

Thank you -- Dan McKeel 7/12/06

TEL:
FAX:

Congress of the United States
Washington, DC 20510

August 8, 2005

Dr. John Howard, MD, MPH, JD, LLM
Director, National Institute for Occupational Safety and Health
Hubert H. Humphrey Building
200 Independence Avenue, SW
Room 715H
Washington, DC 20201

Dear Dr. Howard:

We are writing to express our serious concerns regarding the claims made by former federal Nuclear Weapons Program employees from the General Steel Industries, Inc. (aka Granite City Steel) plant in Madison, Illinois.

As you may be aware, our staffs are investigating these employees' claims that they may have been exposed unknowingly to harmful chemicals or substances. If this is the case, these employees should be considered for compensation under the federal Energy Employees Occupational Illness Compensation Act (EEOICA).

We understand that this matter was discussed at a public meeting in Granite City, Illinois on May 9, 2005. Although we appreciated your office taking the time to meet with the former General Steel workers, their spouses, and their survivors, the meeting raised far more questions than it answered. In fact, these former workers and their families have told our staffs that they found the presentation to be difficult to understand, disorganized, and wholly unsatisfactory in addressing their concerns.

As part of our continuing investigation into this important matter, we have prepared the following questions regarding actions taken by the Department of Labor (DOL) and/or the National Institute for Occupational Safety and Health. For any questions that you or your designee is not able to answer, we ask you to provide the name, title, and department of the person who could provide such information.

(1) How many employees worked at the General Steel site in Granite City while worked was performed on the Nuclear Weapons Program for the date General Steel began work for the AEC and the date you believe all workers were no longer exposed to potentially harmful chemicals or processes?

(2) What is the date that you believe workers were no longer potentially exposed to harmful chemicals or processes?

(3) What, if any, safety measures has the Department of Labor or any other investigating agency determined were implemented during the lifecycle of nuclear weapons program work performed at the General Steel site for the Atomic Energy Commission (AEC) in Granite City? Do you have any knowledge of safety measures being used after official work on the nuclear weapons program ended?

(4) Do you have information on the number of former General Steel workers who have suffered a cancer for which they could receive compensation under the EEOICA? If so, please provide this information.

(5) At the Granite City meeting, Grady Calhoun, Health Physics Team Leader for NIOSH indicated that NIOSH was unable to resolve General Steel claims because it did not have the data necessary to complete a dose reconstruction, from which determinations could be made to assist NIOSH and the Labor Department in processing the claims. As of your reading of this letter, how many claims have been received by the Department of Labor from former General Steel workers?

did not have data for DR...

a. Please provide information on the status of each of these claims, including the date the claim was received and whether the claim was approved.

b. Of the claims received thus far in your office for which a determination has not been made, when does the Department of Labor anticipate such a determination being made?

c. Has any data been received to date from any source which would be helpful in completing a dose reconstruction? If so, please describe in detail the data received and from whom you received it.

d. What specific steps has your office taken to date to obtain such data? What specific steps does your office plan to take in the future to obtain the data needed for dose reconstruction and from what sources you are attempting to obtain it?

e. Are you currently waiting for any additional information in order to complete a dose reconstruction? If so, when do you anticipate receiving such information?

f. To your knowledge, are there other potential sources of data that are not cooperating with your office, or any other federal office, to provide information which might be helpful in completing a dose reconstruction? If so, please provide information about the non-cooperating individuals or organizations.

(7) Several former workers of General Steel indicated after the Granite City meeting that DOL has denied claims from workers who were not able to provide your office with their medical records within a 30 day time period. This policy seems to be unfair, and we request you consider revising it.

g. What is the rationale for this policy?

h. How many claims have been denied for this reason throughout the United States and specifically from General Steel?

i. Does DOL have any plans to revise this policy?

We ask that you provide responses to these questions by September 4, 2005. In addition, we request that DOL declassify and release all documents related to work performed at the Dow Chemical facility in Madison, Illinois.

Thank you in advance for working with us on this important matter.

Sincerely,

Senator Barack Obama

Senator Richard J. Durbin

Congressman Jerry Costello

Congressman John Shimkus

EXHIBIT 3

GSI SEC-00105
Administrative Review

Milwaukee School of Engineering (Retired)
Professor and Physicist

Testimony (2/7/07) to ABRWH Regarding His 1974-75 Seminal Published Work on 25 Mev Betatron Activation of Industrial Castings and Related Dangers

(Sponsored by Southern Illinois Nuclear Energy Workers [SINEW])

Start page 127, line 22
DR. ZIEMER: Oh, well, you're pretty hardy today, okay. You might do better than I do. Here's -- Vincent, are you on the line now?
MR. : Yes -- yes, Dr. Ziemer.

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DR. ZIEMER: Yeah, welcome. You may proceed with your comments.
MR. : Okay, thank you very much, Dr. Ziemer. As -- my name, as I stated before, is and I'm calling from Brookfield, Wisconsin. I understand that this is a meeting of the Advisory Board on Radiation and Worker Health. I also understand that there are members that -- in this meeting from NIOSH, ORAU and Board auditors and there are also members representing the Department of Labor and also there are members of the public. Thank you very much for taking my call. Let me introduce myself and give you my background. I was a professor of physics at the Milwaukee School of Engineering from 1968 to 1978. Before that I was teaching physics and math at Lakeland College in Sheboygan, Wisconsin. While I was at Lakeland College I had the opportunity to work on a nuclear reactor at the (unintelligible) National Lab in Chicago. I use to take the students with me to participate in various types of student experimentation at the reactor,

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(unintelligible) National Lab. In that process I got interested in what is known as the neutron activation, and later on when I came to Milwaukee School of Engineering in 1968, I continued to take interest in nuclear reactor experimentation and the process of neutron activation. I also had opportunity to go to (unintelligible) Nat-- excuse me, Oak Ridge National Lab in Tennessee. I also had participated in other types of scientific activities at the Texas A&M University, Kansas State University and other universities in the midwest. When I became professor of physics at Milwaukee School of Engineering, I came across the 25 million electron volt Betatron that the school used to do industrial radiography. And at that time I became interested in what is known as the photon activation and I started to compare photon activation with the neutron activation. And needless to say, since I had the 25 million electron volt Betatron at the Milwaukee School of Engineering, I started to learn more and more about it and I started to understand the

phenomenon of photon activation in more detail than what I originally wanted to do. (NOTE: During the following portion of Mr. 's statement an unidentified person was also on the line. He seemed to be unaware his comments were audible. This could have affected the accuracy of the transcription as two people were speaking simultaneously.) In that process I discovered that when industrial radiography is done using 25 million electron volt Betatron, there is a tremendous amount of radiation used in both industrial parts. I became very curious about finding out the level of activity that is induced, and also what effect it might have on people who handled these industrial parts. And in -- in -- in that regard, I did a lot of experimentation and -- and in 1974 I published a paper, which is titled "Photon Activation of Materials Subjected to Betatron Radiography." The conclusion of that paper, which was published in 1974, was that not too much attention was given to the sample that is being radiographed by this powerful X-ray machine, and so I pointed out the fact that there could be some

health hazards associated with activation of these materials which are being radiographed to determine if there are any (unintelligible) inside. That was in 1974. That paper was followed up with another paper which is referred to as "Photon Activation of Alloys and Elements Used in Industrial (unintelligible) High Energy (unintelligible) Radiography." In that paper I went into more details about the activation that I noticed in different types of industrial parts that were radiographed. Now keep in mind that some of these industrial parts were very sizeable. It ranged in size from -- for example, one pound, ten pounds to castings that weighed a couple of tons. And these parts were exposed to several thousand Roentgens of radiation and in some cases the exposure lasted several hours to a couple of days. And (unintelligible) situations where phantom castings were exposed to radiation and after I published these two papers, these people who were working there were aware of the radiation (unintelligible) in it and as (unintelligible) of that, especially when they knew that there was a nickel in -- in

these alloys, they waited at least a day or a
- day or two to go near the sample that was just radiographed

because, as you know, nickel becomes radioactive and the half-life of the isotope that's produced is approximately 36 hours. So anyone will say that if you have 36hour half-life, you may want to wait at least a couple of those half-lifes to go near it. Well, anyway, after I published these two papers, I became convinced that most of the workers that are doing this type of radiography may not -- may not know the extent of the activation and that if these people come across these material and handle them without knowing that they are radioactive, and then later on they try to store these in a place before it is shipped to wherever they came from, and when it goes to the places where they are shipped to, they might polish it, grind it, and in that process if still there is a residual radioactivity left -- which I believe that -- that there are, if they grind and polish, they might be ingesting radioactive dust. And if they ingest radioactive dust, as most of you know, all of you know, that presents, in my

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opinion, a health hazard situation. And so with these things in mind, in 1976 I submitted an application to NIH, which subsequently went to NIOSH, and the purpose of that grant was to ask for some money to help me further -- further evaluate and understand the process of activation that happens in these industrial -- industrially radiographed parts. Well, the result of my application was that initially NIOSH refused to fund it, but I had a further discussion with NIOSH officials and then they decided that there are merits in my application, therefore they agreed to fund this application. But it never funded. Now during those years I was still pursuing the activation process and as a result of my two publications, I was invited to participate in two international conference on the application of photon activation in trace element analysis, and these conferences were sponsored by IAEA, International Atomic Energy Agency, headquartered in Vienna, Austria. So I participated in one conference in Vienna and another conference in (unintelligible) France, and what they did was to look at the trace

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element analysis of human hair using photon activation. There were -- if I remember correctly, there were 15 scientists from all -- all over the world, and I myself had the privilege of representing the United States in that -- in those two meetings,

and we talked about all the different techniques used by different scientists in analyzing trace elements in human hair. And later on the following year I was invited to participate in a -- in a conference in a similar fashion which was to be held in Tokyo, Japan, but by that time I had changed my line of work from being a scientist and trying to split atoms into trying to split land. Personally I'm a land developer and a builder, and I practically lost interest in radiation and the effect of radiation in -- in biological samples since I was trying to establish my expertise in. And in 19-- excuse me, in 2006, on or about -- on or about the end of August, I had two very interesting letters from two people from St. Louis. One is a Dr. Daniel McKeel. I'm sure most of you might know who this person is. And then there was another

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letter from , who wrote to me regarding them finding my publications and I asked them why and how they came across my paper, and then they talked about the people who are doing work at the (unintelligible) in Illinois and in St. Louis, and they talked to me about almost 800, 900 people who have become cancer patients and they have tried to relate their sickness to the fact that these people worked in these industrial places where they heavily used Betatrons, 25 million electron volt Betatrons, to radiograph uranium ingots. Well, that made me think about what I did 34 years back and the fact that I had sent this application to NIOSH and asked for a grant to further investigation what I found out in 1974. And this is how this process started with me and since August of 19-- excuse me, August of 2006 I've spent a considerable amount of time looking through my own papers. By the way, by the end of 1978 when I left the Milwaukee School of Engineering and went into real estate, I had a total of seven publications and a large chapter that I wrote with several other scientists from the United States, and this

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appears in the *Handbook of Clinical Laboratory Science* and this also appears in the Nuclear Medicine section of the book. So I started to review all of these things and I started to think about actually what might have happened with the radiation workers at General Steel Industries. And I was told that these people were working on uranium ingots and these samples were irradiated several times with several thousand Roentgens of

radiation from Betatron. And with my previous work I -- I started to get so concerned about these people because from my own experience, my thinking was that if -- and example is they radiated -- the radiation from that 25 million electron volt Betatron, my reaction is that I don't want to be near those exposed materials at least for a half an hour because as -- as is very well known, the most prominent reaction that happens is the gamma (unintelligible) reaction. And if you look in the periodic table, just about every element in the periodic table gets activated by gamma (unintelligible) reaction to some level or another.

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But the question is that when you look at the massive casting that contains the different elements, and when you expose them to different amounts of radiation, there is considerable amount of radioactivity in this, especially in the first several hours. And those people who never knew that this was happening and they -- they went near it and handled it with their hand and they move it and store it and shipped -- (unintelligible) it and polished it, my concern was that these people might have been exposed to tremendous amount of radiation over a period of time. And as all of you know, radiation effect is a cumulative effect. And if it happens once or twice in your lifetime or a couple of ti-- well, you know, at different times in your lifetime, that is not significant. But for those people who are in and out of the facilities and around the Betatron five days a week, 52 weeks a year in 30 years, my thinking was that it was very significant and it might have caused some damage and -- and this was my concern in 19-- 1974 and that's the real reason why I -- why I applied to NIOSH for grant to

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study this, but it was -- it never happened. Now I know that there are lot of centers in the United States where they are concerned about explosion of a small dirty bomb by terrorists and things like that, and lot of people are looking at the effects of that kind of a bad happening. And my belief is that -- now when you expose, for example, an alloy consists of nickel and copper and other elements for a substantial amount of time, there's a lot of radiation coming out which is the same sort of radiation comes out of a -- a small dirty bomb, but the level of radiation might be different. But I'm not here to say that I know exactly the type of radiation coming from such a situation,

but it -- they're somewhat comparable, in my opinion. That's my opinion, that unfortunately this was not studied before and now I know that there are several centers where they are studying it. But anyway, the bottom line is that I believe that there is substantial amount of radiation coming from all these industrial parts that are being radiographed. I personally had an experience three -- three or four weeks back

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when Dr. Mc-- McKeel and and myself visited a facility where they have a very, very old Betatron and they were radiographing industrial parts and I refused to be in the Betatron room before radiography and after radiography because, as you know, that Betatron itself presents a radiation -- because, you know, the parts that are in the machine itself, they have been activated several times in several years and I believe that there is radiation coming from a source of leak and the material itself and the reflection from the floor and reflection from the roof. There's all kinds of radiation coming out of that, so I myself refused to be in that room, especially when I know that this is a 45, 50year-old machine that has been operating day in and day out. So I believe that this is a situation that has to be looked into and the workers at GSI who worked there for several years, I don't know to what extent they were aware of these, but it is my belief that -- isn't -- that it is fair to them for this group of experts chaired by Dr. Ziemer is looking into it so that these people

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can be compensated if the Board decides that they have been exposed to radiation in the service of the nation because most of these industrial parts were radiographed and these parts went into all kinds of nuclear governments for the government and I believe that, you know, there was a considerable amount of radiation that came out of this. Now Dr. Ziemer, it's very interesting that after I got the letter from Dr. McKeel and , I -- I talked to and said , I believe that the same phenomenon happens in medical -- medical (unintelligible) that are around all over the country, and I said , I don't have the time to look into it, but why don't you do some research. And he came up with a paper where Dr. Ziemer and another health physicist from Columbia University School of Medicine has published the same type of activation seen in (unintelligible) materials around (unintelligible). And

I was so surprised to see that because the same findings were published by me 30 years back about the fact that these materials that are exposed to radiation become radioactive and the

fact that Dr. Ziemer himself wrote this paper is (unintelligible) of findings that I came up with this material 30 years back. So my observation in this regard is that these workers that worked in these places might have been exposed to a lot of radiation without their knowledge. So I -- I'd like to answer any questions if any of the radiation member-- member committees have any questions. **DR. ZIEMER:** Okay. Thank you very much, Dr. . Let me see if any of the Board -- oop, hang on. Thank you very much. Let me ask if any of the Board members do have questions for Dr. . **MR.** : Okay.

(No responses) **DR. ZIEMER:** Okay. Well, we thank you. We're going to hear from one of your colleagues now, from , and 's here in person. You're welcome to stay on the line and hear 's remarks and then Dr. McKeel will follow

--end--

EXHIBIT 4

GSI SEC-00105
Administrative Review

McKeel White Paper to
TBD-6000 Work Group
Dated March 11, 2012

Section B is a Status Report
on Ten New NIOSH DR Methods
as Outlined by
Allen (DCAS) in his "Path Forward
for GSI" Proposal (October 2010)

Docket 140 General Steel Industries:
Addendum #1 to 2-28-2012 Submission

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

March 11, 2012

A. Comments Concerning NRC FOIA 2010-0012 Document ML093451450.pdf Dated November 4, 1968, and the New Betatron Lead Shielded Door:

Background and Introduction

This submission to Docket 140 for General Steel Industries ("GSI") AWE site located at 1417 State Street in Granite City, Illinois, should be considered an ADDENDUM to my Docket 140 submission posted on the DCAS website on 2/28/12.

As noted in the previous critique, David Allen in his January 2012 white paper on GSI Betatron Operations, cites evidence from 1971 and 1968 that the new Betatron facility had a lead shielded door to the railroad tunnel entry and exit point. He cited NRC FOIA 2010-0012 evidence from documents that co-petitioner McKeel had gotten from the NRC and first brought to the attention of the ABRWH, its TBD-6000 working group, NIOSH and SC&A. The point was made in the Dan McKeel 2/28/12 critique that 1968 and 1971-72 dates were *after* and *outside of* the covered period ended at GSI on 12/31/1966. The fact of a lead shielded double leaf door in the New Betatron facility, even if it were true, would therefore have *no bearing* on the SEC-00105 NIOSH defined class. Nor, we argue, would it have any bearing on GSI dose reconstructions, because the EEOICPA Act and OCAS-IG-003 mandate that NIOSH consider *only non-AEC work related sources* such as the GSI Betatrons *within* the 1953 to June 1966 GSI covered period of time. I argue against accepting that lead shielding was ever in place (DCAS).

Addendum document NRC ML9093451540, features are as follows:

1. The PDF document is a letter from at GSI to Isotopes Branch, Division of Materials Licensing, US Atomic Energy Commission, Washington, DC 20545, and is dated November 4, 1968.

2. The last page of the PDF is numbered "Page 4" but the file consists of only three pages. Therefore, one page is presumed to be missing. A copy of the file PDF file I downloaded from the NRC website on 3/4/12 is therefore attached to and made part of this Addendum document.

3. Mr. identifies himself as "Manager of Quality Control" in the November 4, 1962 letter that is on GSI letterhead. Of note, and for the record, the address block for this letter is:

"Castings Division, 1417 State Street, Granite City, Illinois. 62040.
618 • GL 2-2120."

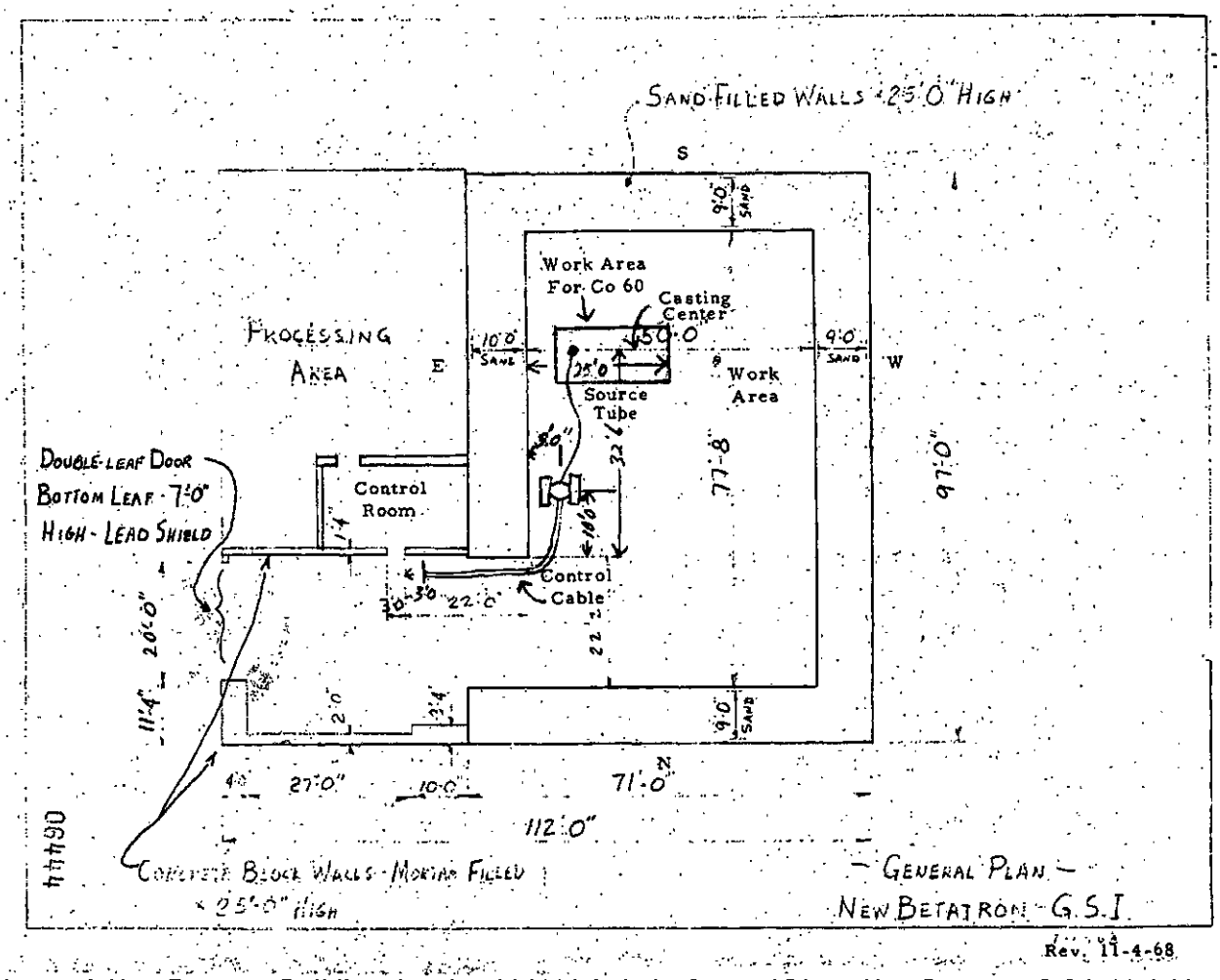
McKeel previously learned from and at RS Landauer that Mr. was head of the GSI film badge program that started in 1964 under Mr. direction.

4. Page 2 of the November 4, 1962 -GSI to -AEC letter is a drawing of the GSI New Betatron building that is reproduced here on page 3 of this document. The drawing has the following features: (a) Many of the legends are typed, while the annotations are hand drawn and lettered; (b) this is a two dimensional floor plan only; there are no side wall elevations shown; (c) of most direct relevance to this Addendum is a hand lettered annotation along the middle of the left that reads:

"Double-Leaf Door
Bottom Leaf - 7'0"
High - Lead Shield"

Note there is no drawn representation of the door or the lead shield itself. There is simply a wavy line and arrowhead pointing to a space that is spanned by a hand drawn "{" type of bracket; (d) the door area is at the end of a 27 ft. long area bounded by walls that are described as "Concrete Block Walls - Mortar Filled 25'0" High"; (e) area (d) is different from the area labeled as (typed in) "Work Area For Co 60" that is bounded by walls three of which as annotated as "9'0" Sand" and one wall designated as "10'0" Sand" (outer dimensions "97'0" by 71'0"), an area that is described overall as having "Sand-Filled Walls 25'0" High; (f) the area labeled "Control Room" and the concrete block wall of the tunnel on the same side are shown as being thinner than the opposite

tunnel concrete block wall. The control room door that Mr. and Dan McKeel have provided photographs of from 2006 to be a thin steel door was drawn as such. (g) the Co 60 source control cables passed through the thin wall next to this door.



Legend. New Betatron Building drawing 06444 labeled --General Plan-- New Betatron G.S.I. 11-4-68

Note the source is drawn as being controlled by a 22'0" long cable, and the source is shown with two apparent side wheels, as has been testified by many GSI workers who said they *used an 80 Curie GSI Co-60 during the last 3 years of the covered period* (1964-66). The idealized position of a casting (Co 60 NDT target) is shown.

NIOSH or SC&A have presented no evidence that the lead shield ever existed on the New Betatron exit/entry door to the railroad track tunnel. Separate McKeel and September 2006 photographs and 1992 ORNL-DOE cleanup photos clearly show the New Betatron door to be double-leaf with vertical metal ribs on the lower door panel and *no lead shielding.* The worker affidavit testimony is

unanimously to the contrary, that there were no lead shields at anytime for the *Old and New* Betatrons, including years 1968 to 1973 when GSI was still operating.

B. Status of the David Allen and DCAS Path Forward Initiative for or GSI

Background and Introduction

By October 2010 the TBD-6000 work group had been deliberating about revising Appendix BB to Battelle TBD-6000 for three and a half years. The work group also had been discussing the NIOSH evaluation report for GSI SEC-00105 for a full two years by then. SC&A had reviewed both documents and issued numerous, only partially resolved formal Findings related to each of them. The work group was scheduled to convene its next meeting on October 12, 2010.

In a move that was a total surprise to co-petitioner McKeel, just prior to the upcoming work group meeting, David Allen and DCAS issued a white paper document dated October 2010 and titled "A Path Forward for GSI." In it, the unresolved Appendix BB and SEC-00105 SC&A Findings were "explained away" by stating the issues would be addressed in a new "Path Forward" plan by NIOSH. Very importantly, this document proposed to develop "new exposure models" that would "consolidate" all of the new information provided to NIOSH from the past years.

One section of the October 2010 Path Forward document **explicitly indicated that six (6) unresolved *SEC issues* would also be addressed. This SEC evaluation issue review has not materialized in the ensuing 16 months**. Specifically, the following passage was part of the October 2010 Allen Path Forward for GSI proposal:

[quote Oct. 2010 white paper on SEC path forward here]

Page 8 of 9 (begin quote)

> **Evaluation Report Issues**
> The chairman of the working group also asked that issues 1, 2, 3, 5 and 6 from the Evaluation Report review be addressed.
>
> **Issue 1** – SC&A pointed out that several incidents were verbalized by workers and without film badge data, other incidents could be unknown. The handling of incidents is discussed in the Co_60 section of the path forward. A preliminary review indicates a consistent frequency through the years that monitoring data is available.

Issue 2 – SC&A pointed out that betatron operators removed their badges when leaving the betatron building but scenarios exist where they could have been exposed outside that building. The path forward addresses developing new exposure scenarios based on all the information that has come to NIOSH since the appendix was approved.

Issue 3 – SC&A indicated that the amount of uranium work is unknown prior to 1958 and that there is no record of the type of radiography sources used at GSI. The path forward addresses developing new exposure scenarios based on all the information that has come to NIOSH since the appendix was approved. This includes information about the radiography sources used at GSI.

Issue 5 – SC&A indicated there is no agreement between the appendix model and the film badge results. The path forward addresses developing new exposure models and reconciling them with the film badge data.

Issue 6 – SC&A points out again that there are other exposure scenarios not addressed in the appendix. The path forward addresses developing new exposure scenarios based on all the information that has come to NIOSH since the appendix was approved and using those scenarios to revise the dose estimates.

(End quote)

Then, a specific list of NIOSH "deliverables," that is work products that (presumably) would meet the October 2010 Path Forward goals emerged. That schedule is reproduced below. The second major thesis of this petitioner section is that **all ten new models have *not been* fully covered in the ensuing David Allen and DCAS methods white papers dated October 2011 covering GSI portable sources and dated January 2012 covering GSI Betatron operations**.

[list the 10 proposed exposure models here]

In a message dated 5/16/11 12:38:19 PM, pl.ziemer@comcast.net writes:

I have now received word that the following items will be delivered to the Work Group as shown in the schedule below:

1. Develop exposure model for Ra radiography 7/29/2011
2. Develop exposure model for St. Louis Testing radiography 7/29/2011
3. Develop exposure model for portable x-ray radiography 7/29/2011
4. Develop exposure model for Co-60 radiography 7/29/2011
5. Develop exposure model for New Betatron 12/30/2011
6. Develop exposure model for Old Betatron12/30/2011
7. Develop exposure model for air activation from betatron 12/30/2011
8. Develop exposure model for uranium activation from betatron 12/30/2011
9. Develop exposure model for steel activation from betatron 12/30/2011

10. Reconcile dose estimates with dose records 12/30/2011
[McKeel note: *I have added numbers for future reference*]

We will need to allow some time for SC&A to review the materials, so I will expect to have the Work Group meet in late August to consider the July 29 deliverables on the list.
Regards,
Paul Ziemer

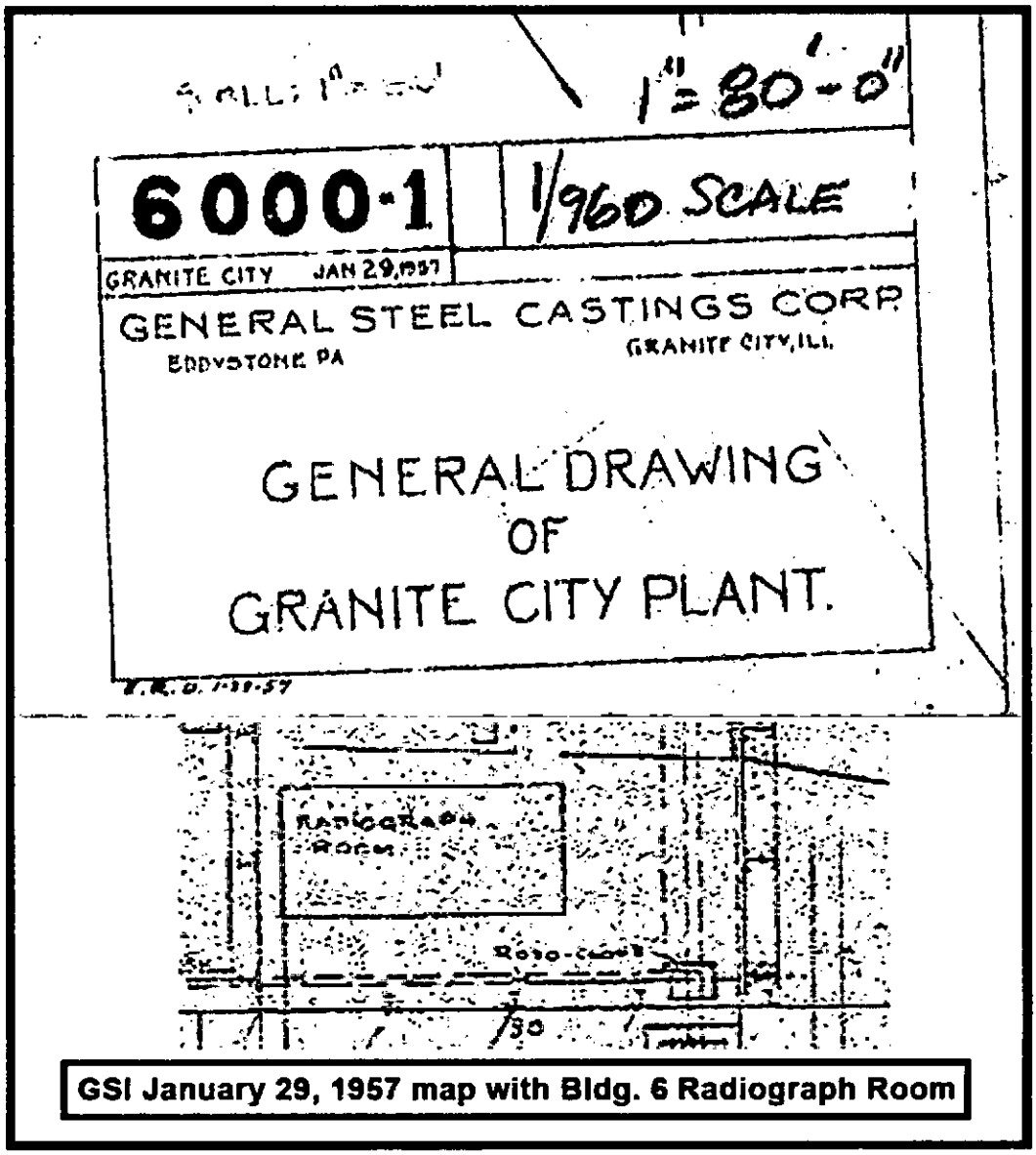
Co-petitioner McKeel assumed therefore that ten separate new white papers would follow, each one addressing one of the ten exposure models. It was not clear whether the ten new models would address only Appendix BB issues alone, or would they also address SEC unresolved issues. Mr. Hinnefeld's response made it very clear the ten models addressed only Appendix BB. Further, he stated that NIOSH had "no plans" at that time to reissue its evaluation report and recommendation to deny SEC-00105 for GSI.

The question then arises, did NIOSH actually deliver these ten new models in the David Allen October 2011 and January 2012 white papers that followed? The answer is "No, not completely." While the October 2011 Allen white paper does address models 1 through 4 inclusively to some extent, NIOSH failed to adhere to their own guidance OCAS-IG-003 and calculate all doses with sufficient accuracy for all workers in all jobs at GSI as is *required* by the Act and by OCAS-IG-003.

The specific requirements not fulfilled by the October 2011 paper are as follows:

Model #1, Radium-226 radiography. We first show by existing former worker affidavit testimony and new evidence to be presented in section C of this addendum that the Radium-226 NDT work occurred both inside and outside the 6 building "Radiograph Room" that is clearly shown on a newly obtained and detailed 1957 GSI plant map. The Radiograph Room was modified in June/July of 1962, and thereafter was referred to in the GSI AEC by-products license material from the NRC (McKeel FOIA 2010-0012) as the "Building 6 radiography facility." The Radiograph Room within bldg. 6 on the 1957 GSI general map and the Bldg. 6 Radiography facility of 1962 and later vintage were the same structure with temporal modifications.

The new 1957 GSI map was obtained from the current owner of 6 building by site expert in March of 2012. See map title block and Radiograph Room Bldg. 6 reproduced below:



LEGEND. From General Map of General Steel Castings, Granite City, IL Plant 1957

Second, evidence cited in section A proved that the inner steel shielding, entry door, and (possibly) reinforced concrete block walls, were not put in place in the 6 building radiography facility until June/July 1962, with the advent of an impending GSI source term license from the AEC for two 0.5 curie Cobalt-60 NDT gamma sources.

Therefore, it becomes apparent that isotope operators of the two Radium-226 sources who used the fishpole technique during and prior to 1962 were not protected by lead or steel plate shielding in the 6 building inner Radiography facility/room as David Allen states repeatedly they were in his recent white papers. The precise date the inner concrete building radiography facility was built is not known, but the evidence cited above indicates it must have been there as of January 1957. A now deceased supervisor at GSI ( ), who is well known to the Board and to SC&A and NIOSH, stated that radium was used for NDT examination of railroad car trucks "before the AEC x-ray work was started," which was in 1953. We can as a result of this statement infer that the inner GSI building 6 radiography facility may have existed in some form, that was modified after June/July 1962 when Co-60 replaced Ra-226 for NDT work at GSI, through the entire GSI covered period (1953 to June 1966).

Model #3. Develop exposure model for portable x-ray radiography.

The Allen October 2011 white paper does not fulfill "all" and "must" criteria to calculate doses with sufficient accuracy for the three industrial roughly 250 x-ray machines known to exist during the covered period at GSI. NIOSH has no basic knowledge of which workers or how many workers used these machines a,d how often and for what specific purposes. Hence, they could not, and did not, calculate external doses for the portable x-ray units. This failure to calculate is both an Appendix BB and OCAS-IG-003 all and must issue, and a SEC-00105 issue.

Model #4. Develop exposure model for Co-60 radiography.

NIOSH and Allen did model exposures for the two small Co-60 gamma sources, and excluded from the model the "large" 80 Curie Co-60 source that at least six GSI former workers said in affidavits was used by them and owned by GSI in 1964 through 1966. NIOSH gave greater weight to the AEC source license GSI obtained in 1968 that was part of NRC 2010-0012 in the documents that co-petitioner McKeel first obtained by the FOIA mechanism. McKeel, site expert and Betatron operator eye witnesses thus all support the presence of an 80 Curie GSI-owned Co-60 NDT gamma source that must be addressed for the covered period 1964-66 under OCAS-IG-003 and

be included in total dose assigned using Appendix BB as primary guidance for dose reconstruction.

Exposure models #5 through #10 were supposed to be addressed in the second Allen white paper dated January 2012. Again, the question arises, were all six models actually delivered? Again, the answer in the co-petitioner's view is NO, they were not.

Model #5. Develop exposure model for New Betatron.

The January 2012 Allen white paper deals almost exclusively with the new Betatron. Essentially he admits not having any actual monitoring data for the New Betatron except the R/min of the donut tube. There is no New Betatron Building radiologic survey data that reflects actual operation of the 25 Mev X-ray machine during uranium or steel castings NDT work.

Previously both NIOSH and SC&A used different computer codes to simulate Betatron photon doses. NIOSH used Attila code and SC&A used MCNPx transport modeling code. The results disagreed both qualitatively as to peak dose years and quantitatively as actual dose delivered. Most importantly, both estimates diverged from Betatron operator film badge readings for 1964-66, the only real data available to test the validity of the modeled data, by 10 to 12-fold as was reviewed at the November 2010 TBD-6000 work group meeting. Inexplicably, Mr. Allen fails to include those disparate and divergent dose estimations in the January 2012 analysis.

Instead, Mr. Allen choses to compare film badge readings to an irrelevant gamma survey made by non health physicist, non-certified GSI radiographers in 1971 using an 80 Curie GSI cobalt-60 source. The petitioners believe this analysis is not in any way germane to *Betatron Operations*. Besides that, the analysis falls outside the covered period. We know certain modification were introduced in the New Betatron building in 1968 and 1971, including replacement of the roll-up steel door with a double leaf door guarding the railroad tunnel leading to Building 6.

In the October 2010 Allen "Path Forward For GSI" document, on page of 9, Mr. Allen makes the following statement concerning the 80 Curie Co-60 source:

(start quote)

> From the above information some fundamental concepts can be expressed, which can be applied to modeling exposure at GSI. This includes:

> (portion omitted...)
>
> The 80 Ci Co_60 source was purchased after the end of the contract period in 1966 and so **exposure from this source is not covered under EEOICPA.** (***emphasis added***)

(end quote)

Thus in this section of the October 2010 document Mr. Allen negates the validity of using the same Co-60 source he proposes using to model New Betatron radiation fields in the Path Forward. This is self-contradictory and scientifically unsound approach, and the petitioners believes the 1971 large C0-60 source modeling should not be allowed as a substitute for developing a new, more accurate model of the New Betatron 25 Mev x-ray source that has a widely different energy output spectrum in the emitted beam, a wildly different beam contour (narrow for the Betatron, nearly-spherical for the Co-60 source. Also, 15% of the Betatron beam is neutrons whereas no neutrons are emitted from a pure Co-60 source. The two sources are thus quite dissimilar.

The petitioners believe the fact that Mr. Allen's inability to develop a new model for the GSI New Betatron is a direct acknowledgement that such doses cannot be reconstructed with sufficient accuracy, and should be regarded as strong evidence for overturning NIOSH's recommendation to deny SEC-00105.

In addition, Mr. Allen has used the flawed assumption that the New Betatron double leaf door contained a 7 ft. high lead shield on the lower panel that was in place during the covered period. The petitioners have shown in this critique and its two addenda there is no evidence the lead shield was in place. To the contrary, DOE/ORNL photos in 1991 and petitioner and site expert photos from September 2006 show that no lead shield was in place on the vertical ribbed steel double door.

Between 1964 and 1966, the exit tunnel containing the New Betatron railroad tracks running into 10 building was enclosed by a red steel roll up door that we have shown photographs of as having been *moved* by 2006 to close off the break area entry from the New Betatron where the railroad tracks entered 10 building. Thus, the modeled scenario Mr. Allen uses for the New Betatron was not valid for the relevant covered period (1963-66) when the New Betatron was employed at GSI doing AEC uranium NDT work.

Model #6. Develop exposure model for Old Betatron.

No new or revised exposure model for the GSI 24 Mev Old Betatron particle accelerator was developed or presented in the Allen-DCAS January 2012 as was supposed to be delivered as a work product by the October 2010 Allen Path Forward for GSI document. The last line on page 30 indicated that doses from the New Betatron would be considered to be bounding. However, this statement by itself surely does not constitute a "new model." Nor is it reasonable to equate the Old and New Betatron machines or buildings with one another. They were built ten years apart for example by different contractors. The Old Betatron facility and machine are known from GSI 1951-52 Board minutes McKeel and obtained from the Missouri Historical Society in St. Louis that the Old Betatron building, the unit itself and other GSI equipment and buildings were "government owned." The government, we learned, tried to give the Old Betatron building and x-ray unit to GSI, but the Board refused to accept this gift. In contrast, the New Betatron building was owned by and built in 1963 by GSI.

NIOSH has no (zero) actual monitoring data of any kind, external (film badges, air or area monitoring, neutron data) or internal (urine uranium bioassays) for Old Betatron operations during the 1953-63 covered period of operations before the New Betatron was moved from the GSI Eddystone Division to Granite City, Illinois. TBD-6000 is insufficient to make these calculations due to the "unique nature of GSI," as was first admitted by former OCAS Director Larry J. Elliott in a letter mailed to the dated September 2005.

We also know that the two Betatron buildings differed from one another structurally as did the two Allis-Chalmers built Betatron particle accelerators including the output of the donut tubes as documented by a Betatron service person and paid consultant under contract to NIOSH. It is NIOSH's responsibility to prove by written documentation that the Old and New Betatron facilities and machines were identical in order to divest the EEOICPA implementing agency of the necessity of characterizing delivered external and internal and skin doses from each machine in their own facility and separately from one another. This was not done in the January 2012 Allen-DCAS GSI white paper.

NIOSH has also not adequately factored in leakage radiation and internal component activation, apart from the electron target, from the unshielded industrial 1952 era Allis-Chalmers 24 to 25 Mev Betatrons. The petitioners provided peer reviewed journal articles that proved such leakage and activation pathways exist that have been essentially ignored in NIOSH and SC&A technical reports. McKeel outlined these additional sources of Betatron dose in detail in his critique and review of Appendix BB which is posted on the DCAS website under NIOSH Docket 140 for GSI. The NIOSH rebuttal to the McKeel critique is also published in the same place.

Again, OCAS-IG-003 requires that doses from all radiation sources must be determined with sufficient accuracy for dose reconstruction purposes. The ten new exposure models, including model #6, were expressly targeted at revising Appendix BB. Apparently, judging from the fact that NIOSH failed to deliver a new exposure model for the GSI Old Betatron in the January 2012 Allen-DCAS white paper, the petitioners conclude that NIOSH was unable to determine doses from this source with sufficient accuracy. This is an SEC issue that argues for the Board approving SEC-00105. It also argues for NIOSH needing to revise and change its recommendation to from denial to approval of SEC-00105.

Model #7. Develop exposure model for air activation from betatron.

An exposure model was presented to be considered by the Board and SC&A.

Model #8. Develop exposure model for uranium activation from betatron.

This work product, a new exposure model for uranium, utterly fails to take into consideration, that is ignores, almost all of the newer information the petitioners, site experts and former GSI radiographers workers provided to NIOSH, the TBD-6000 work group and full Board, and to SC&A beginning in 2005 with the GSI work book. Some of the new facts that NIOSH failed to incorporate into a new uranium exposure model, or into Rev 1 of TBD-6000 for that matter, are as follows:

(a) We produced evidence that both the Destrehan Street and the Weldon Spring Feed Materials Plant operations of the Uranium Division of Mallinckrodt Chemical Works ("MCW") delivered not only "Betatron slices" to GSI but also, at various times intact uranium-238 ingots and dingots (derby melt process, single step ingot process patented by MCW).

(b) We produced written and photographic evidence that the major purpose of NDT activities contracted by the AEC and MCW to GSI was examining intact ingots and dingots to precisely delineate the interface between the outer magnesium-hexafluoride "crust" left over from the heating "bomb" and the underlying pure uranium. The crust had to be removed by vertical lathes and the pure uranium core was very valuable. NIOSH and SC&A both presume, incorrectly without nay refutation of our evidence, that the sole uranium NDT work at GSI was done to slabs and slices to define structural voids and fractures. This is not the case.

(c) NIOSH has neglected to calculate exposure scenarios for all the various people who had to handle the 3,000 pound 18 inch diameter by 2 foot long ingots and dingots on the way to the Old and New Betatron facilities. The paths and amount of handling uranium slabs and ingots and dingots differed between the two Betatron facilities.

(d) NIOSH has not delineated all of the types of personnel who handled the uranium that included chainmen, rail road operators, workers near the transport path and storage locations (that themselves are not precisely known), and personnel who stored the materials at GSI (the uranium and shots records and x-ray film was not returned to MCW immediately).

(e) NIOSH has no shot records, shipping manifests, and x-ray reports for GSI uranium NDT records. All it possesses is a set of MCW-AEC to GSI purchase orders that cover 1959 through the end of the covered period in 1966. These are insufficient to establish with any degree of accuracy the magnitude of the GSI uranium source term.

(f) NIOSH has produced no records and no scientifically defensible assessment of the uranium source term at GSI for years 1953 through 1958 of the covered period.

(g) NIOSH has no way to determine the percentages of the MCW uranium work that was done in the Old versus the New Betatron facilities. As stated above, it is inaccurate to merely state that doses from uranium in the two facilities were the same. This fact has to be proven and it has not been by NIOSH to date.

(h) Precisely how NIOSH accommodates the fact that recycled uranium (RU) with transuranic elements such as neptunium was used at Weldon Spring after 1962 is not made clear in the January 2012 Allen-DCAS white paper.

(i) MCW-Weldon Spring produced ingots and dingots from various uranium alloys that have not been accounted for in dose models produced to date in either Appendix BB Rev 0 (June 2007), the recent Allen white papers, or in TBD-6000 Rev 1.

(j) Mr. Allen's January 2012 GSI white paper does not adequately account for the medium (days) and longer lived fission products that 24-25 Mev Betatrons produce in uranium as documented by peer reviewed journal articles and book chapters the petitioners and site experts have provided to NIOSH, SC&A and the Board.

Model #9. Develop exposure model for steel activation from betatron.

Mr. Allen continues to underestimate the medium (days) and longer-lived radioisotopes formed when >10 Mev photons activate various types of steel. Chapters and papers on steel activation by Milwaukee School of Engineering physicist who addressed the Advisory Board about this topic, have been entered into the official record. The paper by Guo and Paul Ziemer shows that medical Linac particle accelerators that generate similar photon energy spectra to Betatrons also activate metal surgical instruments. Both types of scientific literature establish the presence of numerous activation radionuclides with half lives longer than NIOSH uses to define the impact of steel casting activation.

The NIOSH dose estimates thus underestimate the dose to workers throughout the GSI plant who handled the activated metal castings. The dose to Betatron operators and layout men from the high nickel content x-ray film cassette steel are also underestimated by NIOSH in a claimant unfavorable way. These underestimates need to be corrected.

Model #10. Reconcile dose estimates with dose records.

The petitioners challenge NIOSH's methodology and analysis as being scientifically flawed for several reasons that follow:

(a) The film badge records are too limited to be representative of the entire GSI work force. The Landauer dataset, according to NIOSH and SC&A, consists of film badges from 89 Betatron and isotope workers, all male and all working in just one job, radiographer." Even for the Radiographers the film badge dataset is not inclusive of Magnaflux operators. The GSI work force ranged between about 1200 and 4000 workers, with a significant number (10 to 15% at least) of the work force being female.

(b) Allen states that Landauer provided NIOSH with 114 "control room badges" that can be used to set limits for external exposure from the New Betatron. Elsewhere in this critique we show that there never were any "control" badges stored in, or exposed in, the true Betatron control room/s (there were two of them, Old Betatron and New Betatron) that are where the Betatron operating console was located and used to control the Betatron "cameras" in the shooting room next door. As we show in Section D, through a clear drawing provided by GSI Betatron operator , and confirmed by affidavit testimony from two of his colleagues who handled the film badges, the film badges when not in use were actually stored away from the console control room in an office (film badge location/position #1) and even farther from the shooting room (film badge rack position #2). Thus the 114 "control room badge" rading are not representative at all of the true console control room as Mr. Allen states in his October 2010 nine page "Path Forward For GSI" original white paper.

(c) NIOSH lacks a valid pedigree for the GSI film badge data. They are unaware of the details of the film badge distribution and collection processes. They do not know who shipped the film badges to Landauer. There is no proof that Landauer film badge reports were kept at GSI, or if they were, exactly where they were kept. All such GSI company records related to the GSI film badge program have been destroyed or lost.

GSI co-petitioner McKeel wrote this on page 10 of his 7/29/09 critique of the NIOSH evaluation report of GSI SEC-00105:

> [32] p. 21 of 39, Section... Pedigree of General Steel Data mentions "... *data quality, credibility, reliability, representativeness, and sufficiency.*"
> *a) NIOSH-Landauer GSI film badge data 1964-66 are not quality data as the measurements are confined to periods Betatron workers (0.3% of work force) spent in the Betatron facilities, credible (no feedback from supervisors so workers did not trust their supervisors or management about the badge readings), reliable (no evaluations of this factor), representative (89 of 3000 workers = 0.3% of a single job class in 1964 were badged) and data was lost or destroyed for other Betatron and isotope only 1953-63 workers, who as a class were the only GSI workers who were monitored individually part of their work period.* (end quote)

(d) Dan McKeel, SEC-00105 co-petitioner, first contacted Landauer and talked to two employees who informed him about the existence of some GSI film badges thirteen

(13) months before NIOSH obtained their GSI dataset from Landauer in January 2009. McKeel obtained only fragmentary quarterly data. However there were two especially high badge readings from two GSI Betatron operators that were called to McKeel's attention by the researcher who found the GSI badge records at Landauer. She noted the highest badge reading, for (deceased, not protected by the Privacy Act of 1974), "was obtained in a short period of time." Later, SC&A reported they had evidence to show the two highest GSI film badge reports had been retracted. However, despite our requests, NIOSH never produced these unredacted records or shared their GSI film badge dataset. One of the men, now alive, stated recently he was not aware of having gotten a high badge reading, but wondered why GSI advised him to seek medical attention after he left their employ. See Section D for more details.

Petitioners, site experts, and GSI Betatron workers have provided evidence that the highest GSI badge reading occurred during an incident with the small Co-60 sources that probably did overexpose a badge that was dropped and left overnight near the exposed source. However, it is also likely, from the details of the incident we know about, that the worker himself was also overexposed to an unknown dose.

(e) Betatron workers contend their badges did not detect all of their dose, and hence it is unfair to use them to define the upper limit of dose, because workers routinely removed their badges when working in parts of the GSI complex other than the two Betatron facilities. NIOSH contends the badges limit Betatron external photon doses. The GSI badge reports from Landauer do not report beta or neutron doses.

(f) New Betatron worker testimony has recently been given that film badges with high readings were sometimes deliberately destroyed. It is unknown how often these badge destruction events took place. Apparently there was some perception that disgruntled workers might be "playing games," as the reason the badges were destroyed and probably were never delivered to Landauer to be read and recorded. Section C of this Addendum contains more details.

(g) The petitioners challenge, and do not accept, that comparison of a cobalt-60 source that Mr. Allen states was disallowed under EEOICPA, with film badges constitutes a valid scientific "reconciliation" of the disparate NIOSH and SC&A modeling results to date. Most persons would say the film badge readings must be representative

and agree ±10% with the computer models to be considered reconciled. This threshold has not been met.

Section C. Miscellaneous Addenda to the main critique.

(a) **GSI owned Ir-192 source term.**

More documentation has been obtained from GSI Betatron supervisor Gillum Burgess (deceased) on the GSI owned Ir-192 gamma source. The petitioners believe emphatically that NIOSH, SC&A, the TBD-6000 work group and the Board have ignored extensive eye witness GSI worker testimony that GSI owned and used an Iridium-192 source, that was different from the St. Louis Testing Ir-192 source that David Allen describes in his January 2012 GSI white paper on Betatron operations. The new information identifies the GSI Ir-192 as 10 to 20 Curies:

[& e-mail exchanges about GSI Ir-192 source here]

From: >
Date: *November 1, 2006 5:53:05 PM CST*
To:

Subject: Fwd: Operations Document reply
The large castings were processed only in the old betatron ***except for the pipes which were x-rayed using Iridium anywhere necessary, but not routine except in primarily in the end of 10 building and sometimes in building number 9****. The only Co60in my time was the small "pill" in six building west end up against the foundry core truck aisle on the west. (emphasis added, end quote)*

replied by e-mail to :

Iridium

From:
To: danmckeel
CC:

Subject: Iridium

Date Sun, Mar 11, 2012 9:07 PM

Legend. E-mail from to Dan McKeel transmitting the e-mail message text shown on next page 18.

(begin quote)
Dr. Dan-Just a reminder that the Iridium info about the (GSI) 10-20 Curie Iridium and one-quarter Curie Cobalt-60 (sources) came from , Mountain Grove, Mo. started in the fall of 1963, at GSI, worked in Magnaflux, then moved up to Isotopes. He periodically worked in 6 building with Iridium and Cobalt, shooting corner shots on rail truck frames. He also worked steady midnights with at the old betatron while they were going to school. stated that Iridium was the weaker source, penetration wise, and that it would take 2-4 hours, using Cobalt to penetrate 2 inches of steel. later worked at Magnaflux Co. and worked all over the world with radiation.
(end quote)

Note the new affiant refers to a 10 to 20 Curie GSI owned source that was routinely used to inspect railroad car trucks in the 6 building Radiograph room (*aka* Radiography facility).

(b) **Additional neutron sources at GSI, especially from concrete activation.**

Site expert and the petitioners have submitted scientific articles by Carroll and others that show that chronic Betatron bombardment with >10 Mev photons and neutrons, such as occurred in the GSI Old and New Betatron facilities, cause prolonged activation of concrete and the production of significant secondary long half-life exposure that results in additional worker exposures. The following e-mail provides details:

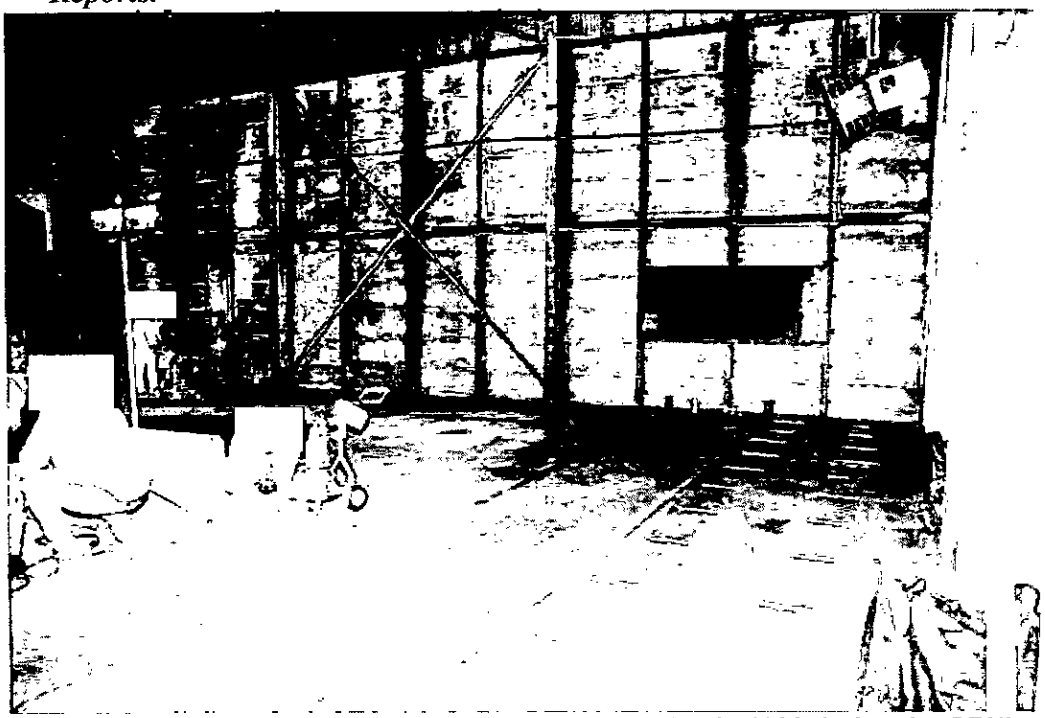
[concrete and neutrons e-mail here]

From:
Subject: Re: Elements are missing. Should they be?
Date: July 10, 2009 10:51:12 AM CDT
To: DanMcKeel
2 Attachments, 537 KB Save Slideshow

The missing elements are :
*"trace amounts of stable **Europium, Cobalt, and Cesium** that are normally present in concrete in concentrations of a few parts per million, or less, by weight". (quotes from the Dr. Carroll Article) According to Dr. Carroll's Article, they then become Isotopes, **See Below,** please note the Half-life years too, considering the GSI*

workers went into the Betatron Vault in 5s ! (SC&A Report below) .
The men always mentioned dust. Anyone who has been around concrete also knows that is a ongoing problem as well.
The proper, and I believe required procedure would be "to be claimant favorable" and use the correct era, timeframe concrete formulas, as described in the published article. OR Provide documented proof that the elements mentioned did not exist at GSI.
PLUS:
Per the FUSRAP Cleanup data:
Concrete was "Scalped" from the Old Betatron, and removed because of levels of radiation still existing ***(in 1993)*** *concern.*
That concrete was taken "in barrels I believe," to an approved disposal site. Why remove concrete if there was no problem?
That was not free. Surely the extent of radiation would be on record.
OR is the concrete still available ?

DOE at GSI Cleanup----Note all of the concrete.
"Concrete Scalping" is actually mentioned in the Cleanup Reports.



Legend. Inside of concrete walled New Betatron Building in 1992 during the ORNL DOE cleanup. Railroad tracks run diagonally across the photo. Portions of the 25 Mev Betatron x-ray beam directly and chronically irradiated the concrete.

More information about concrete activation products is given on page 19.

The concrete neutron activation radioisotopes are identified in the Carroll paper as follows:

Isotope	Reaction	Half-life	Principal ((’s MeV (%)
152			
Eu	151Eu(n,()152Eu	13.4 y	0.122 (37%), 0.344 (27%)
	0.779 (14%), 0.96 (15%)		
	1.087 (12%), 1.11 (14%)		
	1.408 (22%)		
154			
Eu	153Eu(n,()154Eu	8.5 y	0.12 (38%), 0.72 (21%)
	1.00 (31%), 1.278 (37%)		
60			
Co	59Co(n,()60Co	5.27 y	1.17 (100%), 1.33 (100%)
134			
Cs	133Cs(n,()134Cs	2.065 y	0.57 (23%), 0.605 (98%)
	0.796 (99%)		

It can be seen that some of these isotopes would add to the dose that Betatron building operators and assistants, electricians, railroad operators, chainmen handling castings, and others working inside the facility would receive. As such, these doses, even if small, must *all* be accounted for by NIOSH in dose reconstruction. This aspect needs to be addressed in a revised Appendix BB.

(c) **Radon in GSI buildings and above- and below ground tunnels has not been factored into NIOSH internal dose calculations.**

GSI, similar to many nuclear weapons facilities such as the Linde Ceramics plant in New York, had an extensive system of underground tunnels and conveyor belts as well as above-ground exit and entry rail tunnels to the Old and New Betatron facilities. The above ground tunnels were how uranium and castings were transported into the GSI Betatron facilities for NDT examination. Chainmen and train operators and Betatron workers would surely be exposed to such radioactive radon gases. Workmen in other parts of the GSI building complex (foundry, sand plant, buildings 6 through 10, etc.) could also have been exposed to atmospheric radon.

Various maps and drawings of the GSI tunnel systems exist. To our knowledge, neither NIOSH nor SC&A have conducted any research about radon flux at the GSI site.

To our knowledge, no radon monitoring data exists for GSI and no radon model for GSI has been developed by either NIOSH or SC&A.

Based on experience at sites such as Blockson, Texas City and Linde, radon exposure at GSI must be assumed and must be dose reconstructed to comply with the Act and with OCAS-IG-003 dose reconstruction internal NIOSH guidance.

(d) **New affidavit evidence that no "control" film badges were ever kept in the true Old or New Betatron console control rooms.**

David Allen in his original October 2010 Path Forward for GSI paper spoke about "control room film badges" (emphasis added), as follows on page 2 of 9:

(quote)

> *Film badges were exchanged weekly and kept in the New Betatron building when the operator was not present. Also,* ***control room badges*** *were included for a number of periods. The last* ***control room badge*** *was issued for the week of January 31, 1966 through February 6, 1966. The film badge report indicted this badge had been issued starting in November 1963 and never exceeded 10 mrem in a week. Therefore, whatever combination of radiographic exposure scenarios used to model doses from betatron operations must result in no more than 10 mrem in the* ***control room*** *in 168 hours (1 week).*

(end quote)

Note that David Allen in his October 2010 report clearly refers to control room film badges in the GSI "New Betatron building." He does not explicitly state whether there were separate sets of control room badges from the Old Betatron building. Nor does he state explicitly that the Landauer film badge records NIOSH obtained distinguished the location—New or Old Betatron Building—where the purported "control room" badge set of 114 badges was stored, nor does he state which actual building was being monitored.

Note also that uses his concept of "control room badges," which this sections shows is an inaccurate assumption of fact, to limit the *"...doses from betatron operations must result in no more than 10 mrem in the* ***control room*** *in 168 hours (1 week)."* In light of the fact that, as will be shown in section D subsection (e), that control room badges were not actually kept in the GSI true Betatron console control rooms, this limitation of dose is based on a false factual premise. Therefore, it must be revised to maintain NIOSH's oft-stated position of being *claimant favorable* in all its scientific

assumptions. This construction of the facts is the opposite, claimant adversarial by limited assigned external photon dose.

two former GSI workers who handled the GSI film badges on their way to Landauer refute the idea that any film badges were ever kept in the console room, the true control room, where the actual Betatron control console was located. Those same two badge handlers, in fact state categorically that they do not believe control badges were kept. The obvious conclusion is that someone in GSI management fabricated the 114 film badges and sent them to Landauer to be recorded as control badges. As stated, *NIOSH does not have a complete, validated film badge data pedigree for any GSI worker during the covered period.*

[control film badge affidavit here]

(begin quoted e-mail)

Subj: control badges location and existance
Date: Friday, March 9, 2012 10:14:17 AM
From:
To: danmckee
cc:

Dr. Dan— and were basically saying they knew of the function of the badges and where they should be kept-not that the control badge was definitely there!
& stated " there were no control badges in the film badges they handled.— saying emphatically, "there was no control badge in the film badges I handled.
I spoke with who first worked the film badge and secretary job under and -all three-being-deceasea-ana-all-inree-serving as Betatron in that progression. These were basically the people handed the film badge data by was promoted from secretary and film badge handler to film reader and foreman. , followed through the same line of promotion. The jobs were considered company!
In speaking with , stated " there was film badges for all Betatron And Isotope personnel, and a few badges for visitors, but NO Control Badge! This was also verified by
Film Badge location from 1953-1963—I don't know of the location.
Film Badge location 1964-11/66---New Betatron—Location one showing on the diagram—later moved to location 2-again showing on diagram.
I never saw any Control Badge in the actual Control Counsel Room(control room) in the Old Or New Betatron at any time as long as I worked there. The film badges were always stored in the areas I designated by diagram.

24 & 25 MEV Betatron & Magnaflux Operator—GSI 11/63 to 11/66

(end of quoted e-mail)

The following map of the New Betatron building by former GSI Betatron operator shows the locations of the true console control room and that both areas #1 and #2 were film badges were moved and stored between 1964-1966 were farther away from the Betatron skyshine compared to the true console control room.

[New Betatron map with FB locations here]

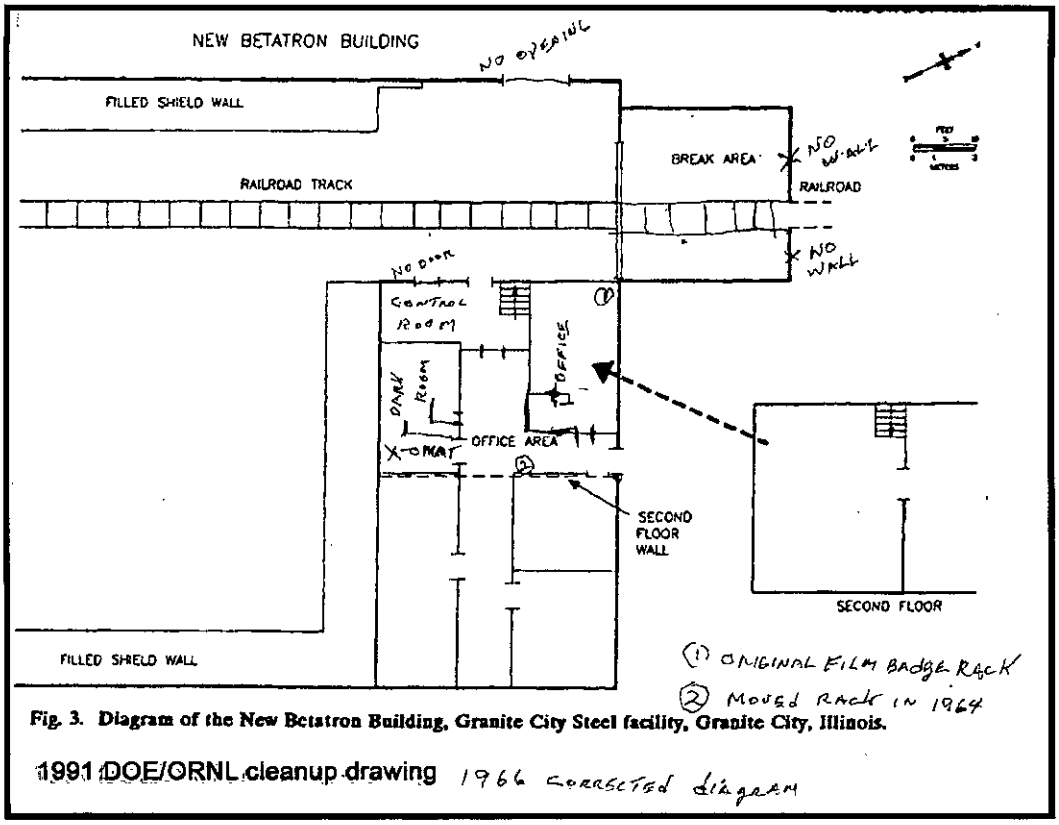


Fig. 3. Diagram of the New Betatron Building, Granite City Steel facility, Granite City, Illinois.

LEGEND. New Betatron building drawing by ORNL/ DOE 1991 during the GSI cleanup. Map has been annotated in red to show the true situation that existed 1964-1966 with GSI Radiographer film badges stored in locations (1) and (2)away from the Betatron operating console area marked "control room" on this diagram. Source JTD 3/12.

(e) **New affidavit evidence that some GSI film badges were deliberately destroyed in the 1964-66 covered time period.**

Recently obtained testimony from multiple former GSI Betatron operators and supervisors challenges the pedigree (validity and integrity) of the Landauer GSI 1964-1966 film badge data during the end of the covered period. There was no film badge data for the 1953-63. Workers state that (a) some badges with high readings were discarded.

Here is the affidavit that backs up the foregoing analysis of facts:

[destroyed film badge affidavit]

Subj: Film Badges
Date: Friday, March 2, 2012 8:37:45 PM
From:
To: danmckeel
cc:

(begin affidavit quote)

3/2/12 2nd proof reading
Dr. Dan—I have been concerned about information concerning exposed film from film badges stated to me by an individual whose job it was to put new film in the individual badges once a week and monitor the film badge system We were having breakfast in Maryville, Illinois at the Red Apple.
Different individuals were talking about the old days at General Steel. The subject came up of film badges worn by the Betatron Personnel, and this individual that handled the film badges blurted out—"if a film on the badges was exposed and they didn't think it was legitimate, we just THREW THE FILM AWAY"! I some months later heard this same individual make the very same comment to me over the phone! At the Red Apple, when this person made the comment, (I was sitting right next to him), I asked him point blank—"HOW DO TYOU KNOW THE DIFFERENCE BETWEEN A LEGITIMATE EXPOSURE AND A CONTRIVED ONE!" I heard statements TWICE, on two different occasions, from this person. I dislike reporting this and do not like to incriminate anyone, but I believe they were Ordered to do this. I understood, by the comments, that this was an accepted procedure. I surely believe that my Betatron fellow operators who have died of Cancer, would like for me and expect me to report this. MY question is---
-If the film badge system was monitored in this fashion, how could we say we were dealing with any kind of accuracy with the records?
I also knew another operator who had a high reported dose, that was on his records! I talked to his individual and asked him if he knew of this exposure? He told me "That he was never informed of the exposure, and wondered, upon leaving GSI, why they kept badgering him to take a physical, even after leaving their employment!"
I SWEAR THESE STATEMENTS TO BE ABSOLUTLY TRUE AS IHEARD THEM> I question any and all validity of the film badge records, because I believe them to be definitely MANIPULATED! I AM Willing to Take a Lie Detector Test if YOU WILL!

24 & 25 MEV Betatron & Magnaflux Operator
—General Steel Castings

(end affidavit quote)

Several notable facts emerge from this affidavit that deserve further emphasis:

(1) The affiant poses a reasonable question: if badges were destroyed arbitrarily, then how does NIOSH rely on using these film badge data from Landauer as a gold standard for delimiting doses at GSI.

(2) The affiant direct testimony about the GSI Betatron worker with the second highest film badge reading is also important. The statement is this person was never told about and therefore did not know that his badge had showed an elevated dose reading. Yet SC&A claims that Landauer received a retraction letter from the person's supervisor that by this testimony, must have been done without this person's knowledge or agreement. Since the unredacted GSI letters to Landauer have not been made available to the petitioners and others most knowledgeable about these events—i.e., the direct eye witnesses—the veracity and authenticity of the alleged GSI dose retraction letters to Landauer cannot be verified independently. The GSI petitioners, advocates and former workers challenge the validity of the GSI "highest dose" retraction letters on these grounds. We urge NIOSH and SC&A to investigate further, and not to accept the retraction letters at face value.

(f). Dan McKeel found that Dr. was alive, gave his address and phone to SC&A, and urged that he be interviewed to find out first hand about the radiation safety program he advised to be put in place at GSI at the time of the initial AEC cobalt-60 sources application in 1962. Dr. was of Nuclear Consultants Corporation (NCC) that advised GSI and did a radiologic survey of the 6 building Radiography facility in 1962. That report was part of the McKeel NRC 2010-0012 FOIA material. A call was made by SC&A and some information was obtained, but McKeel and David Allen were not included as they had been on two recent GSI worker interviews as agreed to by NIOSH and the TBD-6000 work group and DFO.

This was a mistake in the petitioner's view, and an excellent opportunity to retrieve valuable first-hand data on GSI source terms, safety program, and the building 6 Radiography facility was lost. It remains unclear whether many of the "on paper" aspects of the GSI-NCC proposed safety program, including yearly written tests for Radiographers, were administered. The weight of current testimony is the written safety and technical proficiency tests <u>were not</u> given or taken. Many of the NCC safety program guidelines are now known not to have been followed. An example is the instruction that crane operators had to get permission from the main safety officer whenever they were to bring a casting into the inner 6 building Radiography facility. There is abundant worker testimony this did <u>not happen</u>.

Section D. Attribution of scientific contributions of workers, site experts and petitioners, a negative comment on NIOSH scientific etiquette:

It is important to call attention in the written record to the fact that NIOSH has frequently minimized, ignored, or failed to cite the scientific contributions to the revision of Appendix BB and the deliberations on SEC-00105 for the former GSI workers, claimants, site experts and petitioners. The same has occurred in some SC&A GSI document reviews as well.

Mr. Hinnefeld, his predecessor and OCAS Director Larry Elliott, or David Allen, or anyone at DCAS for that matter, have never formally acknowledged that GSI co-petitioner Daniel McKeel was the initial source of their knowledge about GSI film badge data residing at Landauer, or the existence of 1,016 pages of GSI isotope source information, that was provided in response a McKeel FOIA request to NRC (2010-0012). When McKeel transmitted the NRC FOIA 2010-0012 request to the Public Docket 140, he inserted a paragraph that provided suitable attribution for this major contribution. That paragraph follows:

[insert NRC FOIA attribution language here]

Attribution of NRC FOIA/PA 2010-0012 in Technical Papers and Reports:

❑ [8] This material should be attributed as follows (the complete paragraph should be included) when cited or used in part or whole in ABRWH or work group documents, or by NIOSH, DOL or SC&A:

> "*This material was provided directly to the ABRWH by Daniel W. McKeel, Jr., M.D., SEC-00105 co-petitioner, on 12/12/09. The documents were obtained from the Nuclear Regulatory Commission (NRC) via FOIA/PA 2010-0012 submitted by Dr. McKeel. NRC waived research and copying fees based on the premise these documents would be shared widely with the public on behalf of GSI workers and claimants. The records were provided to Dr. McKeel by NRC in their entirety, unredacted, with nothing having been withheld or removed. It would be inappropriate for such documents to be redacted by HHS, CDC or NIOSH. NRC noted that these documents had not been released previously under FOIA.*"

Full reference/literature citation: McKeel DW Jr. "Summary: Thirty seven documents related to AEC sealed source Byproduct Materials licenses 1962-1974 to General Steel Industries, Inc., of 1417 State Street, Granite City, Illinois." NRC FOIA/PA 2010-0012 received November 23, 2009. Pages 1-1016. [Please use this in all technical publications]

Source URL: http://www.cdc.gov/niosh/ocas/pdfs/d140/mckeel.pdf

(end quote here)

Despite my admonition that redaction by NIOSH would be inappropriate given that NRC redacted nothing in the FOIA 2010-0012 materials provided to Dan McKeel, NIOSH nevertheless redacted many names in the above OCAS website posting, including those of people known to be deceased in the FOIA index McKeel provided to them.

No one has honored this request and properly acknowledged the initial source of the 1,016 pages of GSI source term information that NRC later posted on its website.

Nor have the OCAS/DCAS sections of NIOSH ever formally acknowledged the numerous contributions of site expert to their understanding of GSI operations. To our knowledge, the elegant GSI workbook provided by and his wife (now deceased) to *all* members of the ABRWH, to NIOSH and to SC&A has (a) not been included in the DCAS SRDB, and (b) has not ever been acknowledged in the way it should have been to the This 2005 work book document contains visual data and information that has not been, but should have been, incorporated into many GSI related NIOSH technical documents. McKeel and continue to provide the TBD-6000 work group, NIOSH and SC&A with information that was available to them in the GSI work book as early as 2005.

Many GSI workers believe their information has been "cherry picked" by the Board, NIOSH and SC&A. That is, when information can be manipulated or used to support the NIOSH, Board or SC&A's position, it is used. However, helpful information to the workers they themselves or from persons acting on their behalf, that the workers believe is equally valid, is ignored or suppressed or minimized. Among the many examples that could be cited:

(a) GSI workers believe their film badge data is incomplete and is not representative of their full radiation doses;

(b) GSI workers, site experts and the petitioners do not accept SC&A and NIOSH analyses and "evidence" that the highest GSI film badge readings were false and should have been retracted as proposed by SC&A based on secret interviews they held with Landauer employees who now worked at SC&A (biased sourcing of information),

(c) GSI workers believe that radiation overexposures due to incidents were not carefully recorded in NIOSH technical reports and were not given sufficient weight in NIOSH's reaching the conclusion that SEC-00105 should be denied;

(d) The GSI community resents the fact that NIOSH will not acknowledge to primacy of eye witness, former worker testimony, as carrying greater weight than some written documents that convey information favorable to the company. There is a widespread perception, based on extensive personal experience and eyewitness observations, that GSI possessed and used an 80 curie cobalt-60 source and a 10 to 20 curie iridium-192 gamma source for NDT activities during the covered period. NIOSH relies on a GSI cobalt-60 license information to put the start date for using the same source at 1968, beyond and outside of the covered period that ended in on December 31, 1966.

Respectfully submitted:

Daniel W. McKeel, Jr., M.D.
GSI SEC co-petitioner

Addendum 2: McKeel Critique on the Allen-DCAS January 2012 White Paper on GSI Betatron Operations

by Daniel W. McKeel, Jr., M.D.
March 9, 2012

GSI SEC-00105 co-petitioner Dan McKeel received the following e-mail message from Ted Katz, DFO for the ABRWH, in his AOL Inbox on March 9, 2012 at 3:35 PM.

Item [1] -- E-mail message received from Ted Katz 3-09-2012:

From: tmk1@cdc.gov

CC: DanMcKeel

CC:

CC: eky1@cdc.gov

Subject: TBD 6000 WG meeting

File: AgendaTBD-6000WG3-15-2012.doc 28K

Date: Fri, Mar 9, 2012 3:35PM

Dear Dan and John:

I've just been on the phone with Paul and online with SC&A. Paul is concerned that the quantity of information associated with the latest NIOSH GSI paper, including your review (Dan) and the upcoming SC&A review, make it quite possible that the meeting next week will not be sufficient – that we are likely to need a follow-up meeting, which Paul has asked me to schedule for as soon as possible following –in March if possible. So I have sent a request to the Board members and staff for possible dates, so that we can meet as soon as possible if need be. I'll let you know once I have a date. Furthermore, the SC&A review will not be delivered to the Board until Sunday and will have to be PA-cleared Monday for delivery to you and I have asked that the clearance be completed as early as possible on Monday. If the lateness of the SC&A report proves a hindrance, that too would be addressed by a follow-on meeting, as would a more thorough SC&A review of your latest materials.

Just want you to be aware of these late developments. I've attached the meeting agenda.

--Ted

Item [2] -- replied to Mr. Katz by e-mail on 3/9/2012 and Dan McKeel replied to Ted Katz, Josh Kinman and Dr. Ziemer on 3/9/112 at 11:09 PM as follows:

Dear Ted and Dr. Ziemer,

I also appreciate this feedback. However, I must express my dismay that Dr. Anigstein, by the lateness of his SC&A review, has once again placed us all in an awkward position. I have to leave to drive the 170 miles to St. Louis from on March 13, and John and I will drive to Cincinnati to arrive March 14. So the lateness of Bob's PA cleared report will guarantee that and I have had no time to prepare a rebuttal. Re: "if the lateness of the SC&A review proves a hindrance," it definitely impairs the work of the work group and, indirectly, of the full Board as well in coming to closure on the Appendix BB revision and a work group decision on SEC-00105.

This continual last minute delivery of long-scheduled SC&A work products related to the GSI site is unfair to the GSI claimants whom we represent and to the GSI former workers who have spent so much of their time providing good, accurate and new information to NIOSH, to the TBD-6000 work group, to the full Board, and to SC&A. As we have repeatedly stated, it is really the job of NIOSH and DCAS to do the necessary background work to assemble accurate information for their GSI technical reports. SC&A is tasked to review what NIOSH proposes in the ten new exposure models for revising GSI Appendix BB. It was Bob Anigstein who asked that the upcoming meeting be scheduled as late as March 15 to give him plenty of time to complete his review of the January 2012 David Allen and DCAS white paper on GSI Betatron Operations.

and I still plan to attend the Thursday, March 15 work group meeting in person.

-- Dan McKeel 3/9/12

--

In a message dated 3/9/12 9:32:33 PM, writes:

(quote)
Thanks for the update.

(end quote)

[3] <u>McKeel reaction to the Katz 3/9/12 TBD-6000 work group feedback</u>.

(a) The agenda Ted sent 3.9.12 is reproduced below:

ABRWH
Work Group on TBD-6000
March 15, 2012
8:30 a.m. EDT
Cincinnati Airport Marriott Hotel

Conference Phone: 866-659-0537
Participant Code: 9933701

AGENDA

Note: Lunch break at 12:00 noon. Adjournment no later than 3:00 pm.

1. Roll Call and Call to Order (Ted Katz and Paul Ziemer)
2. Introductory remarks and review of Agenda (Paul Ziemer)
3. Overview of NIOSH White Paper on doses from Betatron operations at GSI (Dave Alan)
4. SC&A review of NIOSH White Paper on doses from Betatron operations at GSI (Robert Anigstein)
5. Petitioner's comments and review of NIOSH White Paper(s) and other issues related to the SEC Petition for GSI (Dan McKeel)
6. Discussion on all SEC issues
7. Work Group recommendations on SEC Petition for GSI
8. Adjourn

McKeel comment after reading the agenda on 3/9/12: This agenda does not make it clear that the Allen ("Alan" is a misspelling) October 2011 white paper (GSI portable sources, discussed at the previous work group meeting) and the January 2012 (GSI Betatron Operations) Allen white paper, only address Appendix BB.

As was stated in the preceding section B, Mr. Allen has not yet addressed the SEC issues that were stated to be addressed in the original "Path Forward for GSI" document of October 2010. A TBD-6000 work group recommendation to deny the SEC, thereby sustaining the NIOSH position, would be inappropriate without finally resolving all outstanding SEC issues. Although Mr. Allen indicated he would do so in the ten new models, the two deliverables have not addressed SEC issues *per se*, only Appendix BB dose reconstruction issues. Stuart Hinnefeld, the current DCAS Director, made it crystal clear to Dan McKeel the ten new NIOSH models would only address revising the June 2007 Rev 0 version of Appendix BB to Battelle TBD-6000 (next page).

DCAS Director Hinnefeld's responses dated 8/9/11 to McKeel questions about the purpose of the ten new NIOSH exposure models follows, for the written record:

Subj: RE: Status of GSI new exposure models, reply
Date: Friday, August 19, 2011 9:33:21 AM
From: hls8@cdc.gov
To: DanMcKeel , tmk1@cdc.gov
cc: eky1@cdc.gov, pl.ziemer@comcast.net, melius@nysliuna.org, low0@cdc.gov

Dr. McKeel,

Answers to your questions below from DCAS's perspective, are provided in the text after each question. As always we will attempt to answer any questions you have as the process proceeds.

Stu Hinnefeld

From: DanMcKeel
Sent: Wednesday, August 17, 2011 10:46 AM
To: Katz, Ted (CDC/NIOSH/OD); Hinnefeld, Stuart L. (CDC/NIOSH/DCAS)
Cc: DanMcKeel ; Kinman, Joshua L. (CDC/NIOSH/DCAS); pl.ziemer@comcast.net; melius@nysliuna.org; Wade, Lewis (CDC/NIOSH/OD) (CTR)
Subject: Re: Status of GSI new exposure models, reply

Ted Katz and Dr. Ziemer and Director Hinnefeld,

Paul, in light of Ted's answer, could you please tell me when SC&A was tasked to review the ten NIOSH "Path Forward" white papers (exposure models) for GSI?

I am also very confused at this point about the status of the TBD-6000 work group and GSI SEC-00105. These new exposure models are presented as "white papers." The initial white paper in the current Path Forward series by David Allen of DCAS was titled "Battelle TBD-6000 Appendix BB General Steel Industries, Dose Estimates For Portable Radiography Sources," and was dated August 2011. I note this is the second white paper that David Allen has produced about GSI portable source terms. This second paper is 35 pages long. If succeeding white papers are of equal length, and if they are all incorporated into a revised Appendix BB, the resultant technical document would be an unworkable 350 pages in length.

I can't see the exact purpose of the new work products that I thought were to address SEC-00105. Over 94% of all GSI claims sent to NIOSH for DR have already been completed based on Appendix BB, Rev 0. The logical result of an updated Appendix BB will be a flood of requests to DOL to reopen claims that were denied based on Rev 0. Appendix BB has no direct relationship to SEC-00105 except, as I have repeatedly stated, the fact that NIOSH feels it must revise ten Appendix BB methods is a tacit admission that Rev 0 was inadequate for DR purposes. NIOSH essentially acknowledges that at the time the SEC-00105 evaluation report was issued and presented to the Board, they were unable to reconstruct doses for all class members in the SEC with sufficient accuracy. This SEC co-petitioner, GSI site experts and former workers have all testified repeatedly that Appendix BB was scientifically flawed from the outset and should not have been used for dose reconstruction purposes at GSI.

These observations result in the following three questions that I address to both Dr. Ziemer and to Stuart Hinnefeld:

1. Are these 10 new NIOSH methods (white papers, exposure models) destined to be part of a revised Appendix BB that supplants Rev 0 released in June 2007? I assume that a REV 1 of Appendix BB will have to be created after the SC&A findings on the ten new models/series of white papers are all

resolved. It is difficult to understand why NIOSH chose not to issue a REV 1 of Appendix BB rather than approaching the project as ten separate white papers.

The exposure estimates for the 10 radiation exposure pathways (4 in the current white paper and 6 to come later) are intended to become part of the revision to Appendix BB. Because of the deliberative nature of the process followed by the working group, NIOSH anticipates considerable discussion of the various topics covered in the white papers. Once all the issues are resolved with the working group, the concepts described in the white papers will be incorporated into a revision of Appendix BB.
NIOSH believes that it would be counterproductive to issue changes to a Technical Basis Document in a piecemeal fashion. When a revision occurs, the dose reconstructions for some claims have to be redone but many of those will produce an estimate that still does not result in a probability of causation greater than 50%. This process would result in some claimants having to repetitively go through dose reconstruction, only to receive a denial letter each time. Further, the technical approach described in the recent white paper resulted in exposure estimates for non-betatron related exposures that are below the estimate prescribed in revision 0 for most workers in most years.

2. Mr. Hinnefeld has indicated to me in the past that NIOSH has no plans to issue a revised GSI SEC-00105 evaluation report. Is this policy still the operative one?

NIOSH still has no plans to revise the GSI Evaluation Report. If our research reaches a point that we believe a significant route of exposure cannot be reconstructed, we will revise the Evaluation Report accordingly.

3. How will ten new NIOSH exposure model white papers that are somehow tied to Appendix BB advance the mission of the TBD-6000 work group to make a recommendation to the full Board on SEC-00105?

The updated exposure estimates for the 10 exposure pathways are an attempt to revise the methodology based on all the information and issues raised since revision 0 of Appendix BB was approved. This is intended to help the working group resolve issues by consolidating information and updating analyses. After careful consideration of the concepts and approaches described in these white papers, the working group can hopefully reach an informed decision on NIOSH's ability to reconstruct dose with sufficient accuracy at GSI.

In summary, it is not clear to me where the Path Forward initiative for GSI is eventually heading. I now see at least 1 to 2 years of work ahead. This analysis confirms and extends my predictions at the 10/12/2010 TBD-6000 work group meeting. My perception is reinforced that the NIOSH Path Forward new models will significantly delay reaching a final decision on GSI SEC-00105. Resolving the SC&A findings and issuing Rev 1 of Appendix BB will furthermore significantly delay reopening denied GSI claims. The pathway is patently not claimant favorable in my view.

Sincerely,

--Dan McKeel 8/17/11

In a message dated 8/16/11 12:11:41 PM, tmk1@cdc.gov writes:

Josh – Would you please take care of the notifications that Dr. Mckeel requests.

Dan – SC&A may have been tasked at the May Board meeting but I couldn't say for certain; in any event, they are tasked with reviewing them. Their reviews will be PA-cleared and supplied to you.

--Ted

From: DanMcKeel
Sent: Tuesday, August 16, 2011 12:34 PM
To: Katz, Ted (CDC/NIOSH/OD)
Cc: DanMcKeel ; Kinman, Joshua L. (CDC/NIOSH/DCAS); Hinnefeld, Stuart L. (CDC/NIOSH/DCAS); pl.ziemer@comcast.net
Subject: Re: Status of GSI new exposure models

Ted,

I asked and was promised as a courtesy that I appreciate to receive notification about delivery of the GSI exposure models (white papers) as soon as the work group receives them from NIOSH. I ask again to please inform me about the title of each new white paper (exposure model) as the work group receives it. That applies to the remaining three models/white papers that were scheduled for delivery on 7/29/11.

I understand my copy must be PA-cleared and note, again, that this should be a short process, as I can't imagine NIOSH creating a technical document that has to be redacted. All four models were supposed to be delivered to the work group by July 29.

Can you please tell me when and where SC&A was tasked to review this series of white papers? I'd like to read the transcript. Please also request SC&A to have their reviews PA cleared as quickly as possible so I can receive that input as well. I sincerely hope and expect to see my copy of both the four PA cleared white papers and the respective SC&A reviews well before the next scheduled TBD-6000 work group meeting on Sept. 20th.

Thank you -- Dan McKeel 8/16/11

In a message dated 8/16/11 11:14:07 AM, tmk1@cdc.gov writes:

Dan – We've received at least one white paper already, which is being PA-cleared. SC&A is already

tasked. --Ted

Daniel W. McKeel, Jr., MD

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

Co-petitioner McKeel's summary and conclusions:

There is considerable overlap between what NIOSH, the Board and SC&A consider to be "dose reconstruction ("DR") issues" as distinct from "SEC issues." To my knowledge, a clear bright line has never been drawn between them on the written record by anyone. That is, there is no clear existing definition of what are "dose reconstruction issues" or what are "SEC issues."

Both DR and SEC issues involve establishing radiation doses using a variety of techniques other than direct measurements of actual radiation doses that are delivered to individual workers with defined jobs working in discrete, defined areas of an AWE or DOE nuclear weapons facility. Those methods involve derivative techniques such as use of surrogate data, use of "co-worker" models, use of computer models lacking real data as validation, and mathematical contrivances such as the "photon-to-neutron ratio." All of these methods are used where real radiation measurement data is unavailable for individual workers with a known job and known, established exposure parameters.

Both DR and especially SEC indirect dose calculation methods involve tremendous degrees of uncertainty. Although "certainty analysis" has become a subspecialty area of modern statistics, formal uncertainty analysis is rarely applied to NIOSH radiation dose calculations.

The SEC rule states that NIOSH, in order to deny an SEC petition, must establish that it can calculate a dose for "each and every member" of an SEC class. Thus even SEC class "bounding doses" are individualized to a certain extent. The actual wording of the EEOICPA act, and the 83.1-3 governing final rules for dose reconstruction and SEC petitions are inexact in many areas, so the definition of precisely where DR issues end and SEC issues begin is vague and indefinite at the present time (March 2012).

Nevertheless, DCAS Director Hinnefeld's 8/19/11 answers to Dan McKeels questions about the purpose of the ten new NIOSH exposure models that are covered in the preceding October 2011 and January 2012 white papers on portable GSI sources and GSI Betatron operations leave no doubt these models were developed primarily to

revise Appendix BB. Mr. Hinnefeld states unequivocally that NIOSH has "no plans" to [2]revise its evaluation report on the GSI SEC-00105 petition. No new indication has emerged since Mr. Hinnefeld's responses were delivered to Dan McKeel in August of 2011.

Finally, as covered in the original McKeel Allen January 2012 critique and Addendum numbers 1 and 2, the specific SC&A Findings that were stated by NIOSH to be covered by the Path Forward for GSI have not been adequately resolved. Dan McKeel's prediction in November 2010 that the consideration by the TBD-6000 work group of the Allen/DCAS GSI Path Forward would extend deliberations for months or years has been borne out. The 3/9/12 e-mail from Ted Katz to Dan McKeel and indicates that yet another work group meeting may be needed to consider all of the NIOSH, SC&A and petitioner information about GSI. Although holding that meeting in March was mentioned as a goal/possibility, as this is written no definite date has been established. Important SC&A Findings about both Appendix BB and SEC-00105 remain to be resolved. It also remains unclear when the TBD-6000 work group and the full Board may vote on the GSI SEC.

Respectfully submitted,

Daniel W. McKeel, Jr., M.D.

EXHIBIT 5

GSI SEC-00105
Administrative Review

McKeel SLIDE Presentation
to the
TBD-6000 Work Group
on 3/15/2012

A Comprehensive Summary
of GSI SEC and Appendix BB
Matrix Issues Defined by SC&A
(SEC-00105 Petitioners Positions)

GSI Petitioner's Presentation

March 15, 2012, TBD-6000

Work Group Meeting

- Daniel W. McKeel, Jr., M.D. -

Path Forward For GSI

- David Allen white paper: **October 20, 2010** **disallows use** of 80 Curie Co-60 NDT source
- Proposed new exposure models, based on GSI information from outside sources, to revise Appendix BB Rev 0 (**June 2007**)
- 13 SC&A Findings on Appendix BB Rev 0 *and* 5 of 6 SC&A Findings on SEC-00105 NIOSH evaluation report **October 2008** to be addressed

Path Forward Work Documents

- Dr. Ziemer e-mail outlines ten new NIOSH GSI exposure models (**5/16/2011**)
- First 4 models in David Allen-DCAS **Aug. 2011** white paper on GSI portable sources
- Last 6 models in David Allen's **Jan. 2012** white paper on GSI Betatron operations
- The five (5) SEC issues go unaddressed

Petitioner Concerns - 1

- Old Betatron model is grossly inadequate; Old and New buildings and x-ray units *are not* the same
- New Betatron model uses 1971 data for 80 curie Co-60 source that is not allowed under EEOICPA to validate film badge readings from 1964-1966
- OCAS-IG-003 not adhered to: Old Betatron, GSI owned 10 to 20 curie Ir-192 source, (2) 250 KVP portable industrial x-ray units doses not defined
- **No radon model** for GSI extensive underground campus wide tunnel and conveyor belt networks

GSI Ir-192 Source - affidavit 1

From:
Date: *November 1, 2006 5:53:05 PM CST*
To:
danmckeel
Subject: Fwd: Operations Document reply
The large castings were processed only in the old betatron except for the pipes which were x-rayed using Iridium anywhere necessary, but not routine except in primarily in the end of 10 building and sometimes in building number 9. The only Co60in my time was the small "pill" in six building west end up against the foundry core truck aisle on the west. (emphasis added, end quote)

GSI Ir-192 Source - affidavit 2

(begin quote)

Dr. Dan-Just a reminder that the Iridium info about the (GSI) 10-20 Curie Iridium and one-quarter Curie Cobalt-60 (sources) came from , Mountain Grove, Mo. started in the fall of 1963, at GSI, worked in Magnaflux, then moved up to Isotopes. He periodically worked in 6 building with Iridium and Cobalt, shooting corner shots on rail truck frames. He also worked steady midnights with at the old betatron while they were going to school. stated that Iridium was the weaker source, penetration wise, and that it would take 2-4 hours, using Cobalt to penetrate 2 inches of steel. later worked at Magnaflux Co. and worked all over the world with radiation.

(end quote)

Dying Man Declaration-1
Iridium-192 GSI Source

The attorney son of GSI Radiographer "R.W." (deceased) filed this formal affidavit on November 25, 2006:

"8. My job duty was to X-ray castings with The Betatron. I used 250 KVP Industrial Radiographic Equipment and also x-rayed castings, using Cobalt 60 and Iridium 192. The latter unit was in the Betatron room, was mobile and sat on the floor."

GSI Iridium-192 Affidavit #3

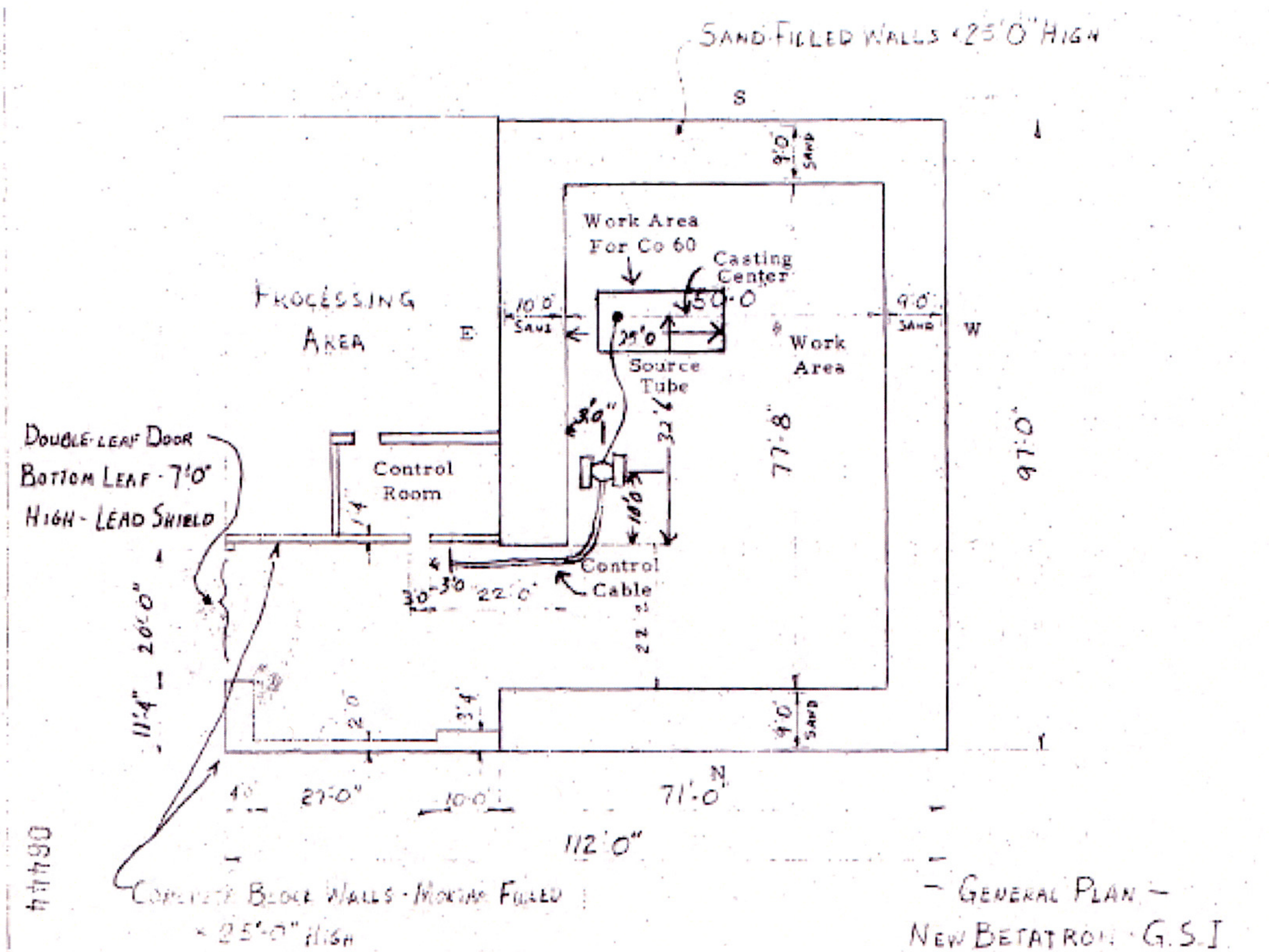
Dying Man Declaration-2

The attorney son of GSI Radiographer "R.W." (deceased) filed this formal affidavit on November 25, 2006:

"Before I had ever heard of the concept of Activation, I explained to my son that after the Betatron was turned off after a "shot" I could still get a radioactive meter reading at the site of the shot. The reading was most apparent from the cone of the Betatron itself... This was a concern because in setting up the shot my back was between the cone and casting... one to two ft. from cone."

Petitioner Concerns - 2

- Modeling of the New Betatron bldg. errs by including a lead shielded double leaf door that GSI Betatron workers state was not there in 1964-66
- DOE/ORNL 1992 and McKeel 2006 photos show a double leaf NBB door, no lead shield and show a ribbon roll up door at the entry of tunnel break area into Bldg. 10



— GENERAL PLAN —

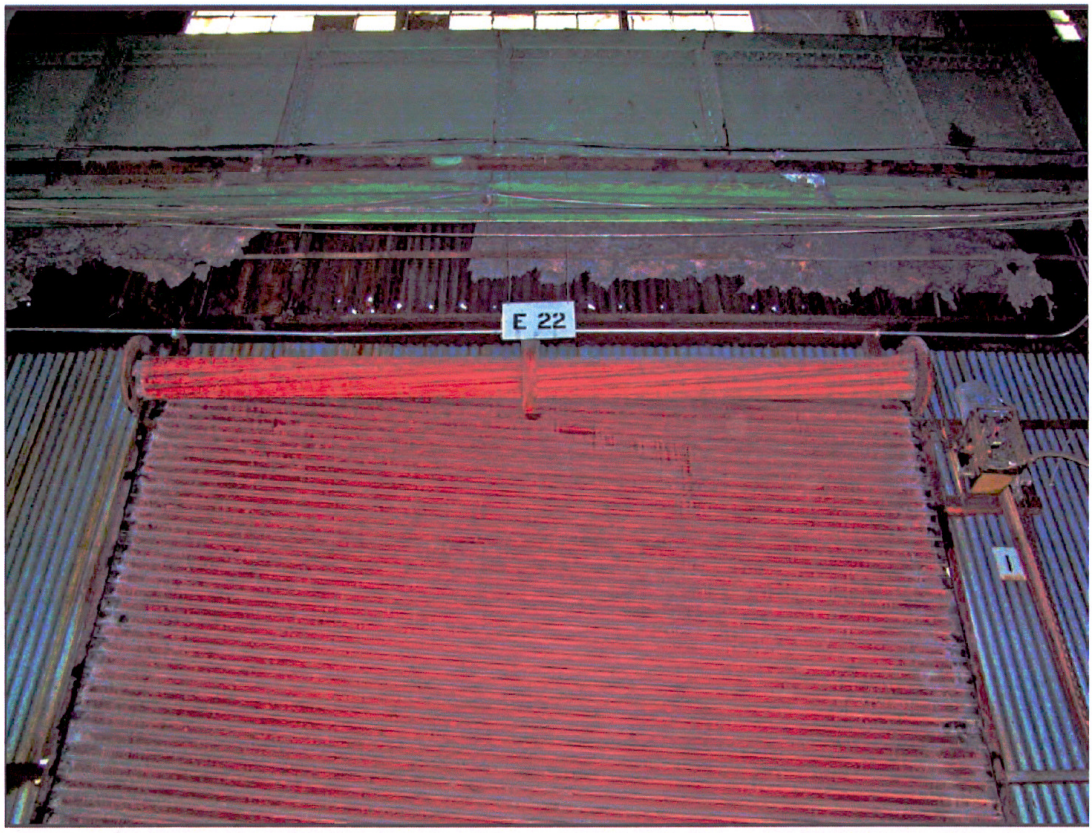
NEW BETATRON G.S.I

Rev. 11-4-68

Double Leaf Metal Door (no lead shield) 2006 McKeel Photo

LEGEND. View from the Old Betatron railroad track tunnel looking out. Photo by Dan McKeel 2006. Double leaf metal door has exposed vertical struts that are not covered by lead shields. Workers confirm no lead shield.

Red Ribbon Roll Up Door at Entry of New Betatron Tunnel
2006 Dan McKeel Photo

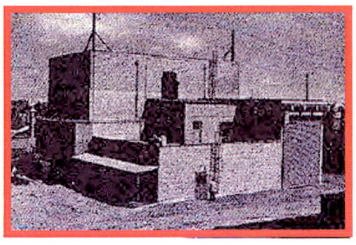


Workers testify this type of door at Old & New Betatrons 1964-1966

Allis-Chalmers Manual Rollup Door

6 The Completed Laboratory

View of the completed laboratory shows the penthouse above the control room and adjacent to the upper wall of the bay. It is constructed of corrugated asbestos cement siding fastened to structural steel framing. Power supply transformers, set on a concrete slab, are housed in a wire enclosure outside the auxiliary rooms; the enclosure is covered by a corrugated asbestos-cement roof. This location is adjacent to the room containing the betatron capacitor racks and switchgear. A steel roll-up door closes the rail tunnel.



Allis-Chalmers BETATRON Building

Testimony 3/13/12 that this ribbon steel door was just recently replaced this year

Concern: No Pre-June/July 1962 Bldg. 6 Ra-226 SC&A Modeling

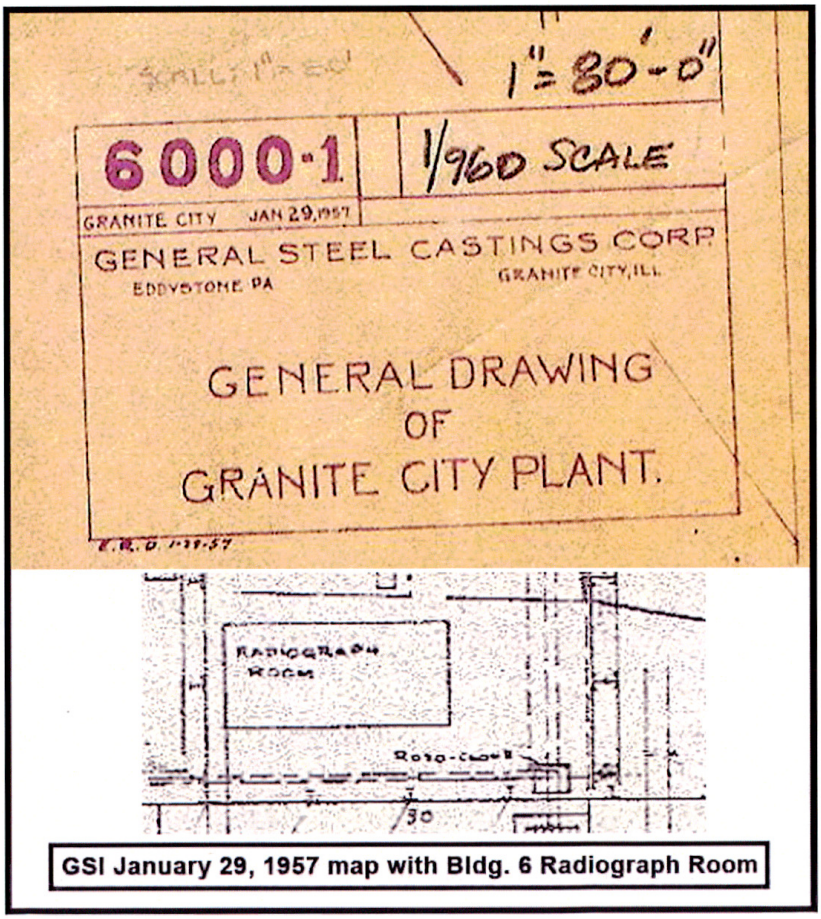
Effective Date:
10/20/2011 Revision No. 0 – Draft Document Description: White Paper: Update on the Use of Sealed Radioactive Sources at GSI Page No. Page 19 of 25
Appendix B MCNP SIMULATIONS OF EXPOSURES FROM 226RA IN NO. 6 BUILDING
Prepared by Robert Anigstein and Richard Olsher S. Cohen & Associates

- We simulated the exposures and dose rates from 226Ra in the radiographic facility in No. 6 Building at GSI using the MCNP5 radiation transport code. The model of the radiographic room was based on a sketch in the GSI application for an AEC byproduct material license (NRC 2009e, p. 31), which is replicated in Figure 4.

Bldg. 6 Radiograph Room 1957

- A new GSI map obtained by conclusively proves the GSI bldg. 6 inner radiography concrete block structure existed on **January 29, 1957**
- Worker testimony establishes that Ra-226 sources were used in this facility for NDT inspection of RR trucks "even earlier than the AEC work," which means prior to 1953

The GSI Building 6 Radiograph Room Map 1/29/57



GSI January 29, 1957 map with Bldg. 6 Radiograph Room

Concern About Konneker 1962 Bldg. 6 Survey

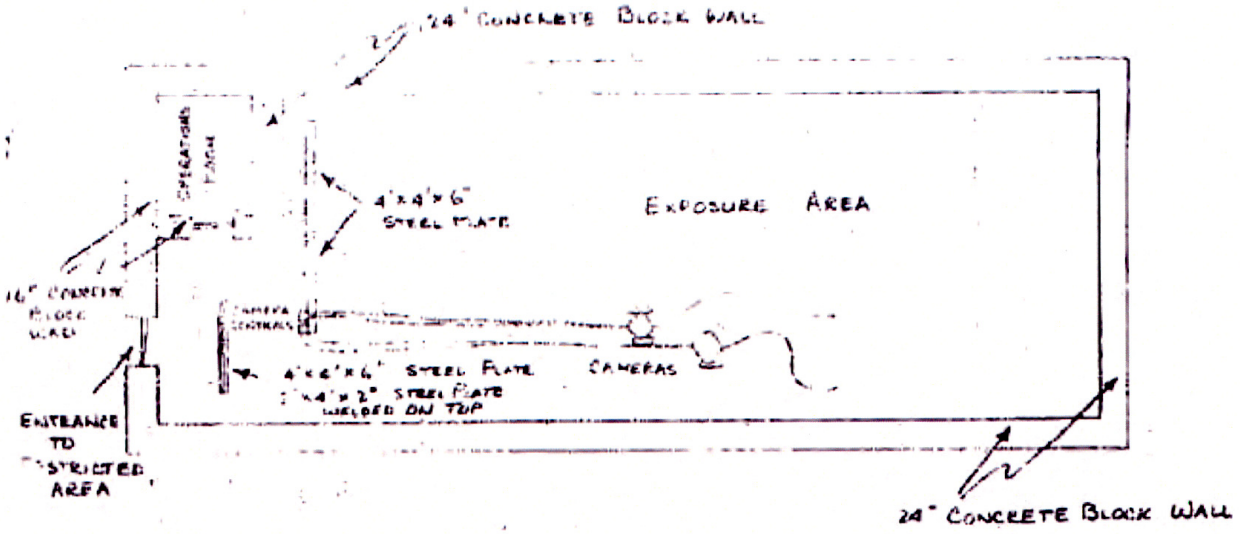
LEGEND. Gondola/cab far left hangs below crane. Catwalk above and hanging hook (arrow) blocks measured Co-60 radiation.

NCC radiologic survey Radiographic Facility

Left: Mass of the Bldg. 6 crane could attenuate Co-60 dose to crane operator and Konneker measured dose on structures above the crane.

1. **Allen 1971 Co-60/MCNPx 1.8 vs 0.2 mR/hr GSI Betatron data = a 9-fold significant difference.**
2. **Question**: ***Why did NIOSH or SC&A not model the Bldg. 6 Co-60 source NCC data w/ MCNPx?***

RADIOGRAPHIC FACILITY
GENERAL STEEL INDUSTRIES
GRANITE CITY, ILL.



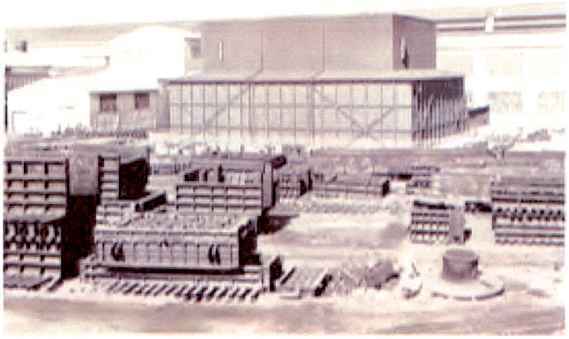
GSI workers dispute 24" walls and Steel shields prior to and after 1962

SHOWS ADDITIONAL SHIELDING ADDED DURING JUNE-JULY 1962.
NOT DRAWN TO SCALE.

8-15-62

Legend added: signature clear with annotation "Shows Additional Shielding Added During June-July 1962."

Underestimated Exposure Paths

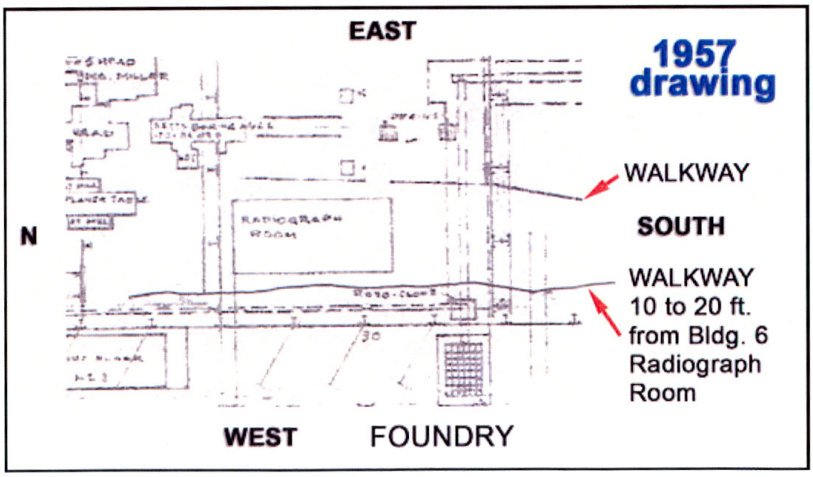


In the area between Betatron buildings.

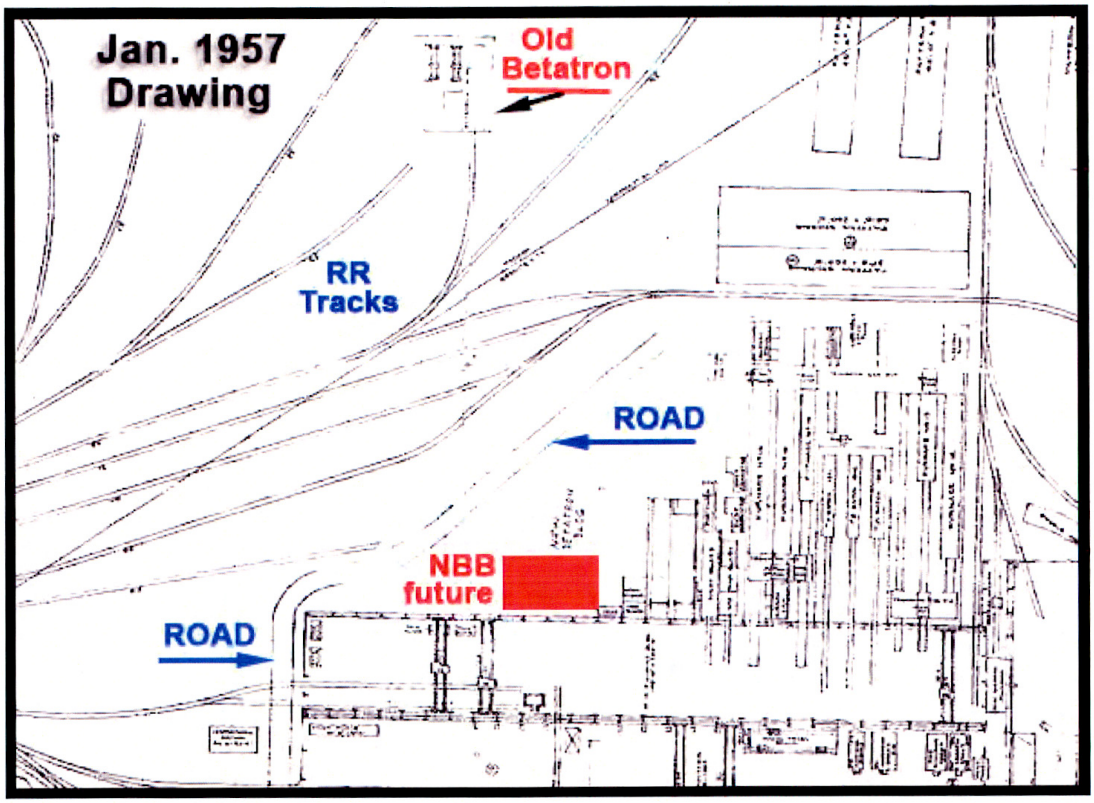
Left. Photo of the GSI New Betatron building and the crowded area between it and the Old Betatron Bldg. This area was busy. A main road used by most workers ran between the buildings.

Many unbadged workers

Bottom. Walkways near Bldg. 6 Radiograph Room were used by many GSI workers on way to and from foundry. Estimated 300 GSI employees worked in this area.



Road & Track Traffic Between Betatrons



LEGEND. Old & Future New Betatron buildings 1957 are spaced 300 feet apart in busy area
Radiation fields extend 100 feet away from buildings based on OBB Sign

Landauer Control Room Badges

- NIOSH and SC&A state Landauer GSI film badge reports include data on 114 "**control room badges**" that Allen uses to limit doses
- Two GSI badge handlers **refute** this fact
- A New Betatron building drawing shows two locations where film badges were racked away from the console control room.

Badged Betatron "Employees"

(begin quote)

All betatron employees wore badges, operators, supervisors, film readers, photographers, darkroom employees, clerks, etc. I recall there were a few extra blank badges for visitors. This was rare that they were used. Film badges were changed every Monday morning. There was never a control room badge that was not worn by a person. (end quote)

This affidavit was recently obtained from the first clerk who handled GSI film badges on startup of the New Betatron operation in 1964. It is clear that not only the Betatron operators and isotope workers were badged.

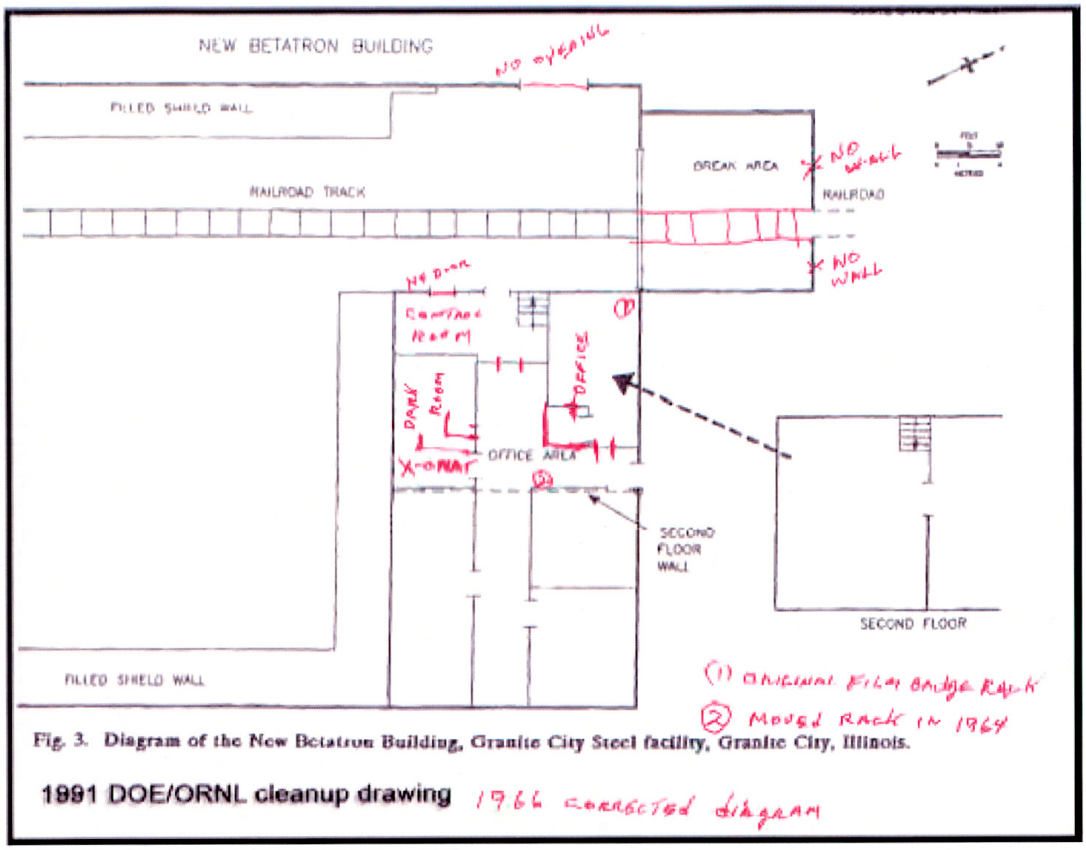


Fig. 3. Diagram of the New Betatron Building, Granite City Steel facility, Granite City, Illinois.

LEGEND. New Betatron building drawing by ORNL/ DOE 1991 during the GSI cleanup. Map has been annotated in red to show the true situation that existed 1964-1966 with GSI Radiographer film badges stored in locations (1) and (2)away from the Betatron operating console area marked "control room" on this diagram. Source 3/12.

Petitioner Concerns - Badges

- A new affidavit attests that GSI badge handlers sometimes destroyed film badges they believed to be spurious. The affiant believes this fact casts doubt on the validity of the entire GSI film badge program
- Further doubt is cast because radiographers wore badges part time, and GSI submitted control room badges that did not exist.

Pedigree of GSI Badge Data is Seriously Flawed & Incomplete

[32] p. 21 of 39, Section... Pedigree of General Steel Data mentions "… *data quality, credibility, reliability, representativeness, and sufficiency.*"

a) NIOSH-Landauer GSI film badge data 1964-66 are not quality data as the measurements are confined to periods Betatron workers (3% of work force) spent in the Betatron facilities, credible (no feedback from supervisors so workers did not trust their supervisors or management about the badge readings), reliable (no evaluations of this factor), representative (89 of 3000 workers out of a single job class in 1964 were badged) and data was lost or destroyed for other Betatron and isotope only 1953-63 workers, who as a class were the only GSI workers who were monitored individually part of their work period. (end quote)

2008 & 2012 Models Disagree

COMPUTER MODELED ANNUAL PHOTON DOSE DURING GSI COVERED PERIOD 1953-1966 (Rem/YR)

DATA SOURCE	2008 BETATRON	2012 BETATRON
NIOSH	1.0-6.3 (App BB) ND[3] (SEC ER)	0.2-.62 var.
SC&A mcnpx	12.4 - 13.6	1.35

DATA SOURCE	2007-2008 OTHERS	2012 LAYOUT
NIOSH	1.73 (App BB) 0.417 [note 1]	1.02-2.03
SC&A mcnpx	[see note 2]	9.20

Note 1: Annual dose assigned to only 1 of 3 non-Betatron worker exposure scenarios in SEC-00105 SEC evaluation report.

Note 2: SC&A review of Appendix BB, 4/21/08 Betatron doses bounded layout men and Co-60 operators which in turn bounded chainmen and all other workers. No actual values given for this large subset of the GSI work force.

[3] ND = not done; no annual dose values given in SEC ER

Conclusion & Summary

- NIOSH and SC&A 2012 MCNPx models disagree with each other and with film badge data and are based on many erroneous assumptions
- Compared to 2007 and 2008 model data, SC&A Betatron operator doses show a **90% decrease** while Layout doses sharply **increase** compared to all NIOSH estimates for non-Betatron workers
- The TBD-6000 work group should vote today to recommend approving SEC-105 to the full Board

Petitioner Contact Information

Respectfully submitted

March 15, 2012

Daniel W. McKeel, Jr., M.D.,

EXHIBIT 6

GSI SEC-00105
Administrative Review

McKeel Annotated Portion of 12/11/12 ABRWH Transcript

Pages 273-344 on the GSI SEC-00105 Final Vote and Related Discussion

GSI FINAL VOTE on GSI SEC-00105
ABRWH MEETING, KNOXVILLE TN, 12/11/2012
-- PAGES 273 through 349 (GSI) --
Annotated by SEC-00105 Co-petitioner
Daniel W. McKeel, Jr., MD
[April 2013]

43 pages |**<== denotes McKeel annotation**

p. 273

DR ALLEN |<==Typo, Allen is an HP, no doctorate degree
The forms of uranium they were |<==Who is "they," surrogate sites?
handling, uranium metal, that they were |<==Who does "they" refer to?
handling and these various air samples
includes slugs, derbies, billets and dingots, |<==GSI no slugs or derbies
and this is a wide range of sizes of uranium |<==Omits MCW Betatron slices
metal.

p. 276

MEMBER CLAWSON: You know, in
following this and trying to keep up with
what's going on with this, and I don't know
who I'd address this to, if it would be to
you, Paul, or what. But what data do we have
from 1953 to 1962, because my understanding
was is that we really had no data out there? |<=True, no GSI real data
MEMBER ZIEMER: For the early
period the reconstructed dose would be based
on modeling. What we do know is we know the |<==NIOSH did not model Ra-226 inside Bldg 6 radiography room: why?
number and activities of the radium sources
that were used for radiography in the early

16
days. We do have information on the betatron
17
in terms of its energy and output, and also
18
the location.

p. 278

8
MEMBER CLAWSON: I guess, you know,
9
and this is just my personal opinion, I'm
10
sitting here looking at we had a 8314 for
11
Patel Energy that came in there and they had a
12
fair amount of data. And I'm looking at this
13
from '53 to '66, which we really have no data,
14
and we're assuming that we've got it right.
15
But as we've found in many of these
16
sites, I guess, I feel really, I was kind of
17
surprised that we didn't have a SEC for these
18
earlier years, '53 to '66. I really, you
19
know, we can put models out there, we can do
20
everything like that. But in my personal
21
opinion all we're doing is taking an educated
22
guess at what was really there.

<==8314 is SEC type 83.14 self-initiated by NIOSH

<==SC&A Oct 2010 argued GSI first 10 yrs SEC inevitable

Page 280

MEMBER CLAWSON: And I appreciate
4
that and I hope you understand after being a
5
radiographer for ten years I know that my
6
equivalent dose, if I wouldn't have had a film
7
badge, they could make an estimate for me but
8
I bet you they would be off by a substantial

<==NOTE: Board NDT expert voted NO to deny SEC-00105

amount because of the unforseen things. The different thicknesses in the metal. The different process.
And you also, when you do radiography, you have a density that you have to match on this. So I'll give you an example of a half inch pipe that, because it's extra, extra heavy wall, would take over 37 shots to be able to do one weld or one spot in it.
So this is my issue that I have and others may not, but I'm sitting here looking at no data for these earlier years, at all, and I see us guesstimating. And I just feel uneasy about it. To tell you the truth I was

<==Odd data, source?
<==GSI Betatrons x-ray image 20 inch thick steel castings
<==No Uran. source data 1952-58

p. 281

really surprised that we didn't have an SEC at least for the earlier years.

CHAIRMAN MELIUS: I would just correct you, Brad, we have data. I think what you're saying is we don't have monitoring data and I think you need to be specific about that.

MEMBER CLAWSON: I stand corrected.

<==Petitioners ask: why did Mr. Clawson make this exact motion?
<==Computer models? no measured GSI source data except 1971 Co-60 source used to model Betatron challenged as invalid
<==No, mislead by unsubstantiated "we have data." What is the data? p.

p. 281

MEMBER BEACH

There's a couple other things about
the safety practices, but Paul already talked
about those so I won't get into those. But
there were questionable safety practices back
in the earlier periods. And there's no

p. 282

validation for that model in the very early
periods.

<==What is "that model?" Which model referred to?

<==KEY point, there is no measured data at GSI to validate Betatron or Ra-226 models

CHAIRMAN MELIUS: Any response from
Dave or Paul?

MEMBER ZIEMER: I don't have any
particular response. I mean part of the issue
on models is how well they do what we're
wanting them to do. And what this model is
intended to do is to do an upper bound, so it
really is a very generous model based on what
sources they had available.
And it's quite true, radiographers
don't have the best safety record anyway. We
know that from experience. And I think over
the years AEC and NRC has had trouble with
radiographers whose practices have often been
questionable.

<==NO! models should agree with and predict measured data ± 10%

<==NO! sufficient accuracy

<==2 Betatron 24-25 MEV;
<==3 Co-60 (one 80 Curie);
<==2 Ra-226 (0.5 Curie);
<==Ir-192; 250 KVP x-ray x2

<==Also true at GSI: AEC 1962 license protocol was NOT used at GSI as written

p. 283

DR ZIEMER:

So SC&A and NIOSH have looked at these models extensively, and Board Members, and we don't all agree on sort of the end point on these things. So there's certainly room for disagreement.

And I'm just saying that to me those models do adequately bound, or if you want to use the term with sufficient accuracy, I believe they're extremely generous to all of the workers and those who were in the plant and do fairly bound what they could have gotten from those early sources.

|<==Why not after 4+ YEARS?

|<==Admits vote is premature

|<==Misleading: adequately bound" and "sufficient accuracy" are not the same

|<==self serving, shows bias

|<==But dose assigned under Appendix BB Rev 0 to 95% of GSI claims assigned are lower; misleading to Board

p. 286

line 5-14: Dave Allen responding to Mark Griffon

MR. ALLEN: We didn't do anything above what, Dr. Anigstein for SC&A did a type of analysis, I think what you're talking about. But we did get information that the facility was power washed and cleaned up at at least two different occasions between the cover period and the FUSRAP Survey and that throws a major monkey wrench in back extrapolate 40 years. That answer your question?

|<==Griffon responds "No"

p. 292

I think Jim Neton maybe had a comment or was going to add?

MR. ALLEN: Yes, I think I can add one thing to that and that is, there is one piece of reality check to the modeling in those earlier years. And that was in a 1962 application for a radioactive material license that GSI submitted.

And in the application they said their past experience, no one had exceeded the limit in effect at the time. And on average they were less than 25 percent of the limit. And that gives you kind of a bound.

<==VP/General Mgr left GSI in 1955 for job in Canada (Google search) not listed as GSI officer 1961-62 ann. report]

<==No records prove this is is true; no badge data at GSI 10/1/52 -> 1962

<==NO, HEARSAY, NO PROOF IS TRUE! "kind of" is not OK sufficient accuracy; misleading to Board

As far as where their normal exposures are, no we don't have the records of

p. 293

MR ALLEN

that but we have the statement in their NRC application. And that is essentially where our model is coming out is between the 25 and the one times of the limit.

<==Based on false premise that unproven monitoring data actually existed.
<==Limit defined where?

MEMBER ANDERSON: So did they do measurements and they're just not available?

MR. ALLEN: Yes, according to -- |<== **Not true**, NO NIOSH GSI measurement records exist!

8
MEMBER ANDERSON: Okay, I'd
9
forgotten that. Yes. |<===Untrue NO DATA, NO FB RECORDS, NO BADGE VENDOR identified

p. 293 ANIGSTEIN, line 19-22, plus **p. 294** lines 1-4

19
statement by the supervisor that they did,
20
that they did ten exposures per shift. That |<==What supervisor (name)?
21
was about the maximum.
22
And the AEC onsite inspector |<==NO onsite AEC inspector ID by workers; license is in error on this point. No corroborating evidence this was true

p. 294 (more **Anigstein**)

1
checked the shot records and he made an entry |<==where is that record?
2
in the site visit report that said that is |<==speculation, no proof
3
correct. He confirmed that ten shots per |not corroborated by workers
4
shift was in fact what they did. |<==Where is this inspection report?
==========end==========
MCKEEL CO-PETITIONER REPORT |<==**Not a single Board question: ignored**!
Talk limited to 10 minutes
by Board chair Melius |<==**SEC time limit applied only to McKeel**
==========

p. 311

5
MEMBER RICHARDSON: I want to go
6
back to the external dose just for a point of
7
clarification. Are there models for external
8
dose or is there a model for external dose?
9
And let's focus on the pre 1964 period.
10
Is there a single model or multiple
11
models?

CHAIRMAN MELIUS: Go Dave.

DR. ALLEN: There were multiple sources of radiation, there are multiple models. There were Radium 226 sources, but they also had the betatron starting in '52, I believe the first one was built.

<==Inconsistent DR and MR; typo: should be MR (HP, no PhD)

<==through 1962 only

<==Didn't say new GSI covered period begins 10/1/1952; <==left out Ir-192, 250 KVP, Co-60 80 Ci

And we also handled several different scenarios as far as the model. One of the reasons we're calling them models, we had the radiographers with the fishpole technic and they described that to us.

<==No validating measured

<== was only one

<==No, "he" not "they" plural

p. 312

But we also had people saying they put up boundaries and where they put the boundaries up. But that they weren't always obeyed, sometimes people walked throughout them.

<==vague, what "people" how many?

<==boundary was tape

<==GSI isotope guys walked away after shot set ups (

So we had a separate model for people working near and walking through the area versus a radiographer out in the plant.

And they also had a radiographer room in

<==roofless, 8 feet tall, crane dropped in castings, no door Bldg. 6 before 1962, NDT room on '57 map

It was a cinder block room. So we have a separate model for when they're

<==Cinder block has **holes**: model is "solid concrete". More radiation through holey cinder blocks by far.

"we" = SC&A, NIOSH did not model

radiographing in that room. | during radium era 1952-1962: why?

MEMBER RICHARDSON: Okay. So you've described a number of exposure scenarios that are highly contextual. And I guess my question is, at the end of the day, for somebody who's a worker at General Steel in a year, are you deriving an estimated value for that work or for that year?

Or are you contended that you can <==typo: "contending"

p. 313 RICHARDSON (cont'd)

place people into amount of time using a fishing pole or on a building at a given elevation? I guess I'm going back for clarifying that. Is there a model for a dose in a year or are there models for scenarios which require you to understand peoples locations and activities?

DR. ALLEN: It ends up being yes and no. We develop models based on several different scenarios from what the previous workers were giving us. And then no, we can't place people in a specific location. | <=or ID radiographers *vs* others

So we were going to choose the highest of those scenarios and give that to | <==**NOT TRUE** in APP-BB Rev 0

everybody. With the exception of
radiographers, those that we know did

radiograph have their scenario, if it were higher. And I'm not sure that is in all situations. In some cases it's the non radiographers that were higher and we would

| Radiographer doses were 10-12 fold higher than film badges in 2008 by both SC&A and NIOSH. The ratio was reversed in 2012.

| **True in 2012 models ONLY**

p. 314 (ALLEN cont'd)

put everybody in that.

| **<== Untrue, there were 2 dose levels App BB Rev 0; non-radiographers were assigned lower dose in all adjudicated denied claims reviewed by SEC co-petitioner Dan McKeel**

MEMBER RICHARDSON: There are scenarios were the external dose for your bounding is higher for a non-radiographer then <=="Then" = than (typo) it is for the radiographer.

DR. ALLEN: Yes.

| No ALLEN quantitation in this discussion

MEMBER RICHARDSON: That's because people were standing, these are people who are above elevations outside of shielding or what were those scenarios?

DR. ALLEN: I think the, the one that comes to mind is the betatron for certain type of shots they did do. The radiographers in the control room had more shielding between them then somebody working in the tin building where the equipment was sent into the

| certain should have defined, what shots?

| <==typo: "tin" - Ten [10] But 10 Bldg. was farther away down a 30 ft. tunnel

building.
18
It was kind of a labyrinth shield |<==No, it was an "L" not
19 |a labyrinth (maze)
design, but they didn't always use it as |did illegal Betatron head
|flips after 1963 ordered
20 |by head of the #2084 GSI
designed. So they could have had more |Landauer badge program
21
scattered radiation coming down that tunnel
22
then the radiographers got in the control |<==typo: "then" = than

p. 315

1
room. |Actually, in 2008 SC&A modeled
2 |highest MCNPX doses in control rm
MEMBER RICHARDSON: And there's a
3
list of radiographers or you, how does a |<==Allen knows DOL cannot ID
|radiographers nor can NIOSH
|do this reliably (Allen Apr. 2013)
4
claimant establish that they were doing that
5
task?
6
DR. ALLEN: Primarily we use the
7
telephone interviews when we conduct a
8
telephone interview for a claimant. But if we |<==Allen elsewhere: CATI
|Radiographer self ID rare
9
don't know then we will go with the highest
10
one. That's been our modus operandi in the |<==**ABSOLUTELY UNTRUE**. Non-
|radiographers got lower doses
11
past on this. |<==**NOT TRUE** using App-BB Rev 0

12
MEMBER RICHARDSON: So in the
13
absence of information, the default is that
14
everybody at the facility, currently under the
15
proposed dose reconstruction strategy is a
16
radiographer, unless there's an exposure |<==2/21/13 TBD6K WG **not true**!
17

scenario which leads to a dose higher then
18
that, that a radiographer would have received?
19
DR. ALLEN: That's how we've been
20
doing it in the past on the existing Appendix
21
BB and that's how we intended to continue. |<==**NOT True**. Proof Mr Allen?
22
MEMBER RICHARDSON: And this

p. 316

1
scenario you were describing was something on
2
the order of 10 to 15 rad per year for the
3
radiographers?
4
DR. ALLEN: No. | | |<==THAT'S WHAT ***SC&A*** CALCULATES: **YES**
5
MEMBER RICHARDSON: I'm sorry,
6
absentee information?
7
DR. ALLEN: I honestly don't recall |<==**UNACCEPTABLE** FOR THIS FINAL VOTE!
8
the numbers. There was so many numbers, but I
9
think that was a bounding one that Bob
10
Anigstein put out there as it couldn't be
11
higher then this at one point. But that wasn't |<==**YES, IT WAS, A FALSEHOOD**
12
the estimate as I recall.
13
MEMBER RICHARDSON: What are the
14
factors that lead that to change? It's
15
basically you're just going to have a value
16
for radiographers per year, right?
17
Because you're assuming the
18
exposure conditions are invariant over this
19
period?
20

DR. ALLEN: Well we are assuming
the exposures conditions change. One of the | <==What change can occur?
other scenarios was actually the X-raying of

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MEMBER RICHARDSON: Okay. But so
now here on this report we're talking about,
so for '53 to '54 are we, again this is just
for clarification. Is the assigned annual
exposure the bounding scenario exposure in the
absence of information, something like 15 rem
for 1953 to '54 and 12 rem for '55 to '62 for
everybody at the facility?
DR. ALLEN: I am sorry, I just
don't remember the number of the top of my | <==**UNACCEPTABLE**, recurrent
head. I don't believe it was quite that high | **<==MUST KNOW THESE DATA at time of a final SEC vote;**

p. 317(b) ALLEN continues...

the uranium versus the X-raying of the steel.
We have a purchase order with the
number of hours a year they worked with that. | **<==No POs 1952- March 1958**
And that varied over the years. So that is
taken into accounting for the external as well
as internal dose.
And I do believe there is other
variance, but there was so many different | <==What other variance? **Must know the facts** as lead HP for GSI SEC and Appendix BB to TBD-6000
things we've looked at for this one. I

couldn't tell you exactly where we are right <==completely UNACCEPTABLE now.

MEMBER RICHARDSON: Okay. But so now here on this report we're talking about, so for '53 to '54 are we, again this is just for clarification. Is the assigned annual exposure the bounding scenario exposure in the absence of information, something like 15 rem for 1953 to '54 and 12 rem for '55 to '62 for everybody at the facility?

DR. ALLEN: I am sorry, I just don't remember the number of the top of my head. I don't believe it was quite that high

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though. It is in the number of rem.

DR. NETON: This is Jim. I mean that's in the ballpark, but this is one of the issues that has SC&A and NIOSH have not come to full agreement on the exact bounding value. That's become what we would consider a Site Profile issue. So at this point it's in that range but the exact value that would be assigned has not been officially determined. Although we both agree that it can be bounded, you just have to decide which set

<==Ballpark not sufficient accuracy: UNACCEPTABLE

<==NOT ACCEPTABLE TO VOTE UPON!

<==BOGUS, IS AN SEC ISSUE

<==SHOULD HAVE BEEN BEFORE FINAL SEC VOTE OCCURRED

<== UNACCEPTABLE; MUST KNOW

of assumptions are more appropriate. So we do
this very often in these Working Group
meetings, where in principle we agree it can
be bounded.
There's enough data there to do
this. But one has to eventual decide which
value is the more bounding.

DOSE, not just say "can be bounded" for final SEC vote.

<==DEFINE "WE"; SAME WAS TRUE OCT 2010 BEFORE GSI PATH FORWARD introduced by Allen

<==4 yrs for SEC is sufficient;
<==**If NIOSH can't bound by now, GSI merits SEC-105 be approved.**

MEMBER RICHARDSON: But we're
bounding at something over a grade per decade?

<==meaning of "grade"? typo?

DR. NETON: Yes, it's in that

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range. I mean it's, and like Bob Anigstein <==What range: nonsense!
pointed out, it is not inconsistent with what

<==not inconsistent, should be consistent and should be sufficient; more than one

we've heard from this person who was a
radiographer, has badge readings and what they <==who is they?
had reported to the NRC and what the exposure
limits were during that time period. <==Source for expossure limits was?
So there were high exposure rates <==define "high" exposure rates
documented, there's no doubt about. So these
are not what I would consider implausible high
doses. They're high, but not implausible
high.
CHAIRMAN MELIUS: Any, Phil, yes.

MR. SCHOFIELD: Yes, if all these different models you have, how do you pigeon hole a person into which model?

DR. ALLEN: Essentially, like I was just saying, we don't. We pick models, scenarios based on what various workers have told us.

If they're worried about some people working on the roof of that building, they're worried about some people may have

p. 320

walked through the boundaries of the radiography, some people may have been working right outside the wall of the radiography room in Building Number 6. So we modeled all these with the intent of picking the highest one <==NOT what WG agreed 2/21/13 knowing we would not be able to place somebody at a particular spot.

CHAIRMAN MELIUS: Any other comments or questions? Yes, David.

MEMBER RICHARDSON: I don't think I've encountered a situation where I would think making an SEC is in some sense, claiming in favorable. I mean that the proposal is to suggest doses that are of such magnitude that I would hope that most cancers would be

compensable given or I mean I could be wrong, but I'm starting to imagine like if somebody works here for ten years and we project a 120 rad to them, that under an SEC you're covering a smaller set of cancers then not.

And have we bounded at such a high level that it's more favorable not to. I just

|<==Board was mislead 12/11/12

|**<==No doses have been set in stone as of 4/12/13 - DWM Jr.**

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hadn't imagined I guess this scenario that we're talking about. And it still isn't clear to me.

We're suggesting that there are people who are not radiographers who have, is that table bounding for the radiographers and yet there are some people who are going to assign higher doses yet, then that 12 to 15 rad per year?

MEMBER BEACH: Yes, it's very generous.

CHAIRMAN MELIUS: First let me answer the, excuse me, let me answer the first question and then you can do the second. First of all, your first question, there are past incidences and I can think of the Bethlehem Steel where essentially and possible Blockson also, where essentially the SEC and the dose

reconstruction method that was proposed was
essentially a wash.
Either one probably would have |<==SEC not a good thing - UNTRUE!
compensated equal numbers. And it might have |<==Where is proof data?

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been different sites and different years and
something like that, but there's nothing
certainty and the exposures of the facility
were high enough potentially that, either one.
And where that line is, is
difficult. And at some point I think, and
Henry pointed out, there are circumstances in
time that we felt that the assumptions being
made were so high that it really wasn't
feasible.
Now in this case they're at least
telling us there's at least some, very limited
data, but some data would say that those are
not unreasonable doses, dose estimates that
we're doing. So do that.
But it can, I mean there's not a
lot of examples like that but there are some.
And we've encountered it before and it's a, I
think we have to sort of go back to then, do
you think that's there possible to do dose
reconstruction, yes. Yes, Paul, I'm sorry.

22
MEMBER ZIEMER: And I just want to

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1
state that I don't think we should make the
2
decision based on the idea that this is high
3
enough so it doesn't matter. It still needs
4
to be based on, is it a reasonable bounding or
5
not.
6
And I think you agree with that. |<==**Dr Ziemer likes to put words in people's mouth and say "you agree"**
7
You're quite right. The miles as I've seen |<=="miles" does not make sense
8
them so far are pretty generous, as I've
9
suggested.
10
And based on that external, there's
11
very little additional contribution from the |<==**Omits RADON from Ra-226 GSI twin sources 1952-1962**
12
internal, regardless of what those values are
13
for the handling of cold uranium. That has
14
almost no impact on the external. |<==**Because Radon gas from Ra-226 leaks was not factored into intake dose**
15
The other things is and it may not
16
be clear but it maybe either, well maybe Jim
17
or David Allen can explain this better. But
18
if I'm a claimant and I come in and I say, I
19
worked these three years, I think David your
20
question was, what do I get assigned as a
21
dose?
22
And if I'm a radiographer there's a

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certain value, but we know that there's other people who handle this stuff that weren't the radiographers and had direct contact. And so they end up getting assigned some pretty substantial doses, were as the radiographers were often in the shielded facility. And at least in the later years had film badges which could be used for at least that part of the operation. They weren't allowed to take their badges out to do other things outside of the betatron rooms however, so there's some work they may have done that was not covered by the badge and that would have to be modeled as well. But I don't know, Dave did you make it clear what you would do? Okay, so I'm a worker, you've learned that I worked in these years, what happens?

<==Untrue; GSI wore badges to American Steel Co. to use their 1 million volt X-ray & Ir-192

<==too vague; 97% & 162 jobs not badged

DR. ALLEN: Well I guess I would do a telephone interview with everybody and they'll generally tell us what type of work they did. And sometimes they know, sometimes

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it's survivors and they don't know.

MEMBER ZIEMER: Say we don't know.

DR. ALLEN: If we don't know then we go through the possible scenarios. We do not know who all the radiographers were in the earlier years, so we had no choice but to assume the worse. Unless we know something else. A lot of time survivors don't know exactly what their loved one did. But they might know they were a lawyer or accountant or something and generally won't give the really high doses to someone like that if you have another scenario. But if we don't know we give them worse case. We always give the benefit of the doubt on those. <==UNTRUE, not based on DRs

CHAIRMAN MELIUS: Dave.

MEMBER KOTELCHUCK: Yes, I partially agree with Paul. It doesn't matter how generous the, our best educated guesses and estimates are. |<==NIOSH admits it does not know all radiographer names

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What I think we have to be able to defend is that if a person is benign, we have |<==? meaning, "person" can't be "benign," typo? meaning?

to be able to say that, we have to be able to
justify if a person is benign. I still fell | <==typo "fell" is feel
it's getting back to Brad's.
That in the absence of reliable
exposure data it seems to me that claimant
favorability would simple say, that in that
early period we should do an SEC. Even though
I believe that the models that have been
developed are well done, internally
consistent, but there just isn't the exposure | **<==Not validated, NOT consistent between SC&A and NIOSH and 2008 compared to 2012**
data there that we can rely on.
DR. ALLEN: Can I make one
statement Dr. Melius?

[McKeel note: **Allen misleading the Board that SECs are bad for Class member claimants begins here**]

DR. ALLEN: Before you make a
decision like that based on claimant
favorability, remember there are quite a few
that are not SEC cancers.
And also remember this is external
dose that we're talking about. There is a

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very good chance that you could be, it could
be non-claimant favorable in this case to not | **<==NOT TRUE, McKeel AWE sites compared 5 with SEC vs 6 no SEC; SEC sites get far more dollars in EEOICPA compensation**

make those early years in SEC.
Basically you end up with a lot of
skin cancers and etcetera that can get dose |<==Where is the proof?
and do get compensated for external dose that
you would be eliminating their source of |<==FALSE reasoning; misleading
external dose in the early years. |<==Repeats LJ Elliot 2006 falsehood
CHAIRMAN MELIUS: So we're not a
either or. We're not trying to figure out
who's going to benefit and so forth.
I would just say one response Dave
to keep in mind, is that both the Act and the
regulations allow for the use of, do not
require that there be monitoring data. And so |MELIUS OUTRAGEOUS! but true
|only for letter of law;

many SECs awarded based on insufficient monitoring data
we have to be very careful about what we base
a SEC on.
And simply the absence of
monitoring data is not an adequate basis, <==But you use it all the time
scientific basis, for that under that act,
under the regulations that we operate under.
And so, enough said. Brad.

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MEMBER CLAWSON: Well my
understanding is, is that this point right
now, which ever way we vote on this we,
correct me if I'm wrong Paul, but the Work

Group and NIOSH hasn't even come up with what doses. I just read SC&A's report and Stu has just commented that, well yes but we haven't agree on this.

<==**Correct**, but they **should have**

So in my opinion right now, we haven't even got the doses that are going to be assigned there.

MEMBER BEACH: Yes we do.

<==**UNTRUE**, please list them. Could not do so either after 2/21/13 TBD6K WG meeting. **VERY misleading to other Board members**.

MEMBER ZIEMER: Actually this is true in many SEC cases where it's been determined that dose can be reconstructed. And so we move the issue from the SEC plate to the, either a Site Profile plate or in the case, Appendix BB. Where it's been agreed that we have a means of calculating it. We may not have come up with the final number, but we have a process for doing it.

<==PLZ please list the many SECs that prove your point (skeptical)

<==**UNTRUE, misleading**

<==**UNTRUE, misleading**

<==**Need the number before the vote. Dishonest science**

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So I don't think this is unusual at all and I think we've done it in many other cases. Perhaps maybe the Chair can help me on this.

<==**Dr. Ziemer needs to support his own statement with specifics**

CHAIRMAN MELIUS: Yes, I think we

have some Site Profile issues going back to
some of the earliest SECs that we approved or
didn't approve and voted on. And Brad, if did
it that way we'd have a large workload and a
lot of people waiting.
So again, I don't think that's a
criteria. And again, I don't want to indicate
whether I agree or disagree with how we should <==You already have.
vote on this SEC.
But I would point out that we have
a recommendation from a Work Group, we have a
lot technical backup information that's been
built up by that Work Group over time. And |<==**Petitioner data largely ignored**
that for those of you that may not agree with
the Work Group's recommendation, I think it's
important that we get on the record,
legitimate issues that would support an SEC if

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that's what you believe.
Because there has to be a
justification for that SEC, because that's
what Dr. Howard will be reviewing in making |<==**DWM must FOIA to see info**
his recommendation to the Secretary. So
there's some burden on us also.
And again, something that we need
to keep in mind. Now again, some of these

questions had been raised and obviously dealt
with, discussed at the workload. |<==Workload or work group?
So I'm not saying there's no other
information there, but from what I've read and
I've read a number of the transcripts and a
number of the White Papers and so forth, we
have a lot of information that's been used to
build and support this information. Mark then
Phil.
MEMBER GRIFFON: Just two points.
And I didn't seem to generate a lot of
traction in my questions on the FUSRAP angle
and I take, just to sort of react to what Paul
said.

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I appreciate that the external dose
is, I think you used the word, the driver in
this situation. I do however have to point
out that often time the way we review these is |<==**OCAS-IG-003 all sources**
that you have to be able to reconstruct all |<==**NIOSH didn't do so**
doses.
So even then the smaller
contributor, the internal dose, we have to be
able to do it. So it likely would be a |<==**NIOSH must prove it can do so**
smaller dose but I think I'm still a bit

concerned of how, whether these numbers make sense. And it is a little, I'm not to even sure of the genesis of the material in the vacuum. I don't know if that was created after scabbarding the floor and collected in the process of the decontamination. I'm sort of review this, that part of it real time. So I'll leave that for now. The other question I had was on the radiography. It seems to me, I'm just getting a

<==Griffon was a TBD6K work group member who resigned

<==Nor does anyone else (DWM)

<== REAL = for "FIRST" TIME

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sense of, back to the question of plausibility of these high doses that are in the model. It seems to me a lot of the, and correct me if I'm wrong, but a lot of this history or the operation seems to be based on the interviews of one individual. And Dr. Anigstein, you reported that he had saved his dose records. Were those dose records consistent with what you're modeling here? Where they anywhere near the range of what you're projecting with these models?

<==Insufficient, not representative

<== had one report that was a summary only

13
You indicated, yes.
14
DR. ANIGSTEIN: We're you talking
15
about --
16
MEMBER GRIFFON: I think you said
17
that the individual that you interviewed, the
18
operator, had a summary of his dose history or
19
something like that?
20
DR. ANIGSTEIN: Yes.
21
MEMBER GRIFFON: I'm asking if they
22
are consistent with the external doses that

p. 333

1
you're projecting with these ten to 15 rad per
2
year?
3
DR. ANIGSTEIN: Well let's see. The
4
criteria, I mean three different. One is a
5
statement that no one exceeded the maximum.

<==This dose was NOT AGREED to by the 12/11/12 meeting

<==GSI VP/General Manager left for Canadian job 1955 NRC FOIA letter is 1962. No data (film badge records or film badge vendor name) supports this statement.

6
The maximum, which implied that
7
somebody might have gotten it. So the maximum
8
in 53 to 54 was 15 rem and after that would
9
have been essentially 12 rem, depending on
10
prior exposure history.
11
The time and motion study based on
12
this man's testimony, I mean his interview
13

information and based on the records of how
14
many exposures there were per shift, would
15
indicate that a typical would be about, I'm
16
going from memory now, let's say ten. Nine
17
and faction rem per year.
18
That was just based on ten
19
exposures per shift holding the stick three,
20
holding the source three feet away. Takes 15
21
seconds to put it in, takes 15 seconds to
22
remove it. So it's counted that.

p. 334

1
So that was the second data. And
2
the third data was his exposure records that
3
he had 9.1 rem over 18 quarters.
4
So we prorate that so it comes out
5
to 2 rem a year. Then you have to make an
6
assumption, did he work 50 days, he could have
7
worked as little 40 days a year or he could
8
have worked as much as a 100 days a year.
9
Meaning, he worked every Saturday
10
and Sunday for 50 weeks or he did maybe 80 <==Guess work, no work records on this person
11
percent of the time one day. So within that
12
range and the reality will be somewhere in the
13
middle, it comes out to something like, and
14
I'm going by memory now, 8 to 20 rem.
15
So all of these are overlapping. So

to my mind that's why I thought it was good
confirmation. And then he said and he
testified he, at first he testified, he stated
that he always had a film badge even though we
don't have, that this was prior to the time
that we had the AEC license.
He said he always had a film badge | **<==But no FB data recovered for the radium era (1952-1962) at GSI**

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when he did this work. And then finally we
have a photograph of a worker in, I say the
actual original magazine.
This is sort of their company
magazine, 1953 and I had the advocate for the
advocates for the workers send it to me, so I | <== **gave it to you**
saw the original. And very clearly there was
a particular worker in 1953, betatron
operator, and he wore what looked, for all
intensive purposes, looked a film badge on his | <==TYPO, "INTENSIVE"
belt.
And I even mentioned even met, the
only thing that you could see is you could see
the dark rectangle and you could see the white
rectangle. And by going through the ORAU's
Museum website of different film badge
configurations at that time, I found one film

badge holder that looked exactly the same | <==Not true. **Didn't mention affidavits and retraction 2011 to say 1953 belt object was ID badge (not a film badge).**

19
shape. | <==**PetitIoners & site expert DISAGREE!**
20
So thus again, confirmation that
21
the in factor, when they said we had records
22
they did in fact have a problem.

p. 336

1
MEMBER GRIFFON: Well and if you
2
can stay up there for one second. That's
3
good, that's actually, I think that's good to
4
see that it at least supports that these
5
higher doses projected were plausible. | **<==but the 1962 license assertion is not proven to be true by film badges**
6
I asked Dave before this question
7
of the contamination in the vacuum. Dr.
8
Anigstein, this is for you still. Yes.
9
DR. ANIGSTEIN: Okay, sorry.
10
MEMBER GRIFFON: The contamination
11
question --
12
DR. ANIGSTEIN: Yes.
13
MEMBER GRIFFON: Dave Allen
14
suggested that you looked at this issue. Of
15
the FUSRAP numbers compared to what is being
16
modeled by the surrogate data, which seems to
17
be coming from several different sites, from
18
all and other sites.
19
DR. ANIGSTEIN: Well the problem

with that is, we did look at the, there were
two surveys done. One in 1989 and another one
in 1993.

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The 1993 was a much more definitive
survey of the floor of the old betatron
building. The new betatron building they said
was clean. They could find nothing above
background.
Which indicates that most, and
that's not unreasonable for two reasons.
According to the purchase orders, so they said
where Mallinckrodt said we will pay you so
many dollars per, at so many dollars per hour
for each period of time to do radiography.
The vast bulk of that work was
before the betatron was built. The new
betatron went into operation somewhere around
the end of 1993, which is also when they start
the Landauer film badge program.
And from that time on there was,
even though they continued until June 30th,
1996 and that's where I have the operation
period they actually were very stingy. They
did not give them very much work.

NO, Old Betatron installed GSI Jan. 1952, when NDT radiography began at GSI

<==TYPO! "1993" is 1963

Most of the work was done earlier |**<=no MCW purchase orders 1952-Mar 1958**

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before the new betatron went into operation.
So it would have had to have been done in the
old betatron building,
And after, even later my personal
opinion is, most likely they did it in the old |**<==Betatron operator**
building because the new one, they were busy |**NDT MCW uranium was done both Old and New Betatron**
doing their steel castings. It was right next
to the building where the castings were. So
it's reasonable that they would have had the
contamination.
It was not possible to connect the
air concentration with the reside on the floor |<==typo "reside = residue
because there was one of the petitioners and
the advocate said, no someone claimed that |<=typo "no someone" not clear
there was a cleanup of that building and |<==petitioners proved cleanups of both old and new Betatrons
therefore any data there it will be
irrelevant.
We actually tried to back
extrapolate and they said no, this would be
irrelevant because there was a cleanup. So
the fact that, however the air concentration
is not the main way the floor got

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contaminated.
Most of the contamination would
come from like chunks of uranium, I would say
flakes of uranium that would simply come off |<==theoretical speculation
during the handling and fall to the floor. And
that become airborne.
So the airborne is not a true |<==speculation, proof?
representation of what's on the floor. So if
you ask, is the surrogate data, the number
that was agreed on for surrogate data
consistent with what was found on the floor?
We haven't actually done that |<==why was this not done?
calculation, but my personally estimate is |<=="personally" = personal
most likely not. If you assume that something
came up into the air, fell to the floor and
that was the only thing.
But if you add the sloughing off of
the uranium, then certainly it would have
accounted for a goodly part. And there was |<=="goodly part" unscientific
also, in addition because this was actually
raised in a discussion earlier today, there
was this vacuum cleaner.

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Now the vacuum cleaner was in the
old building, was most likely used to vacuum |<==Speculation, not fact
up the uranium that had sloughed off. Because

if they were doing radiography of steel
castings, those would not have been oxidized.
Those were fresh castings and there
would probably be very little metal coming
off. So the metal on the floor, if it was
metal, would have been most likely from the
uranium that had been down there during the
earlier years.
And the concentration that was
found inside the vacuum cleaner, means they
took the vacuum cleaner dust and did an
analysis of it. Indicates that it was about
one and a third percent uranium, was 4
nanocuries per gram of U2-38.
And natural uranium is about 334
nanocuries per gram of U2-38. So you're
talking about, is it plausible that the dirt
on the floor would have been one percent
uranium and doesn't seem totally unreasonable.

<==Misleading and untrue; all GSI floors very dusty used larger industrial grade sweepers. Site JWR expert provided photo

<==typo: "U2-38" = U-238

<==typo: "U2-38" = U-238

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Particularly if that vacuum cleaner
was used during the time of the heavy uranium
use. So it would have been put aside and not
needed later. It wasn't that it was reused
everyday to vacuum up whatever dirt there was.
So it's not inconsistent, let's put

<==Speculation, Old Betatron was used for transformer storage, required vacuum work for cleanup. ERROR.

<=Evidence?, untrue!

it that way. That's my only point. Is it's
not implausible, it's not inconsistent. |<==**Petitioners disagree**
And the fact that I reviewed
everyone of the record that Dave Allen had, we
didn't go out and dig up new records but we
reviewed everyone of the records that Dave
Allen had come up with. He came up with seven
sites for operations.
And we didn't even just look at the
ones that he selected, we looked at everything
from that site that was in the nano Site |<==**typo** "nano"=? NIOSH
Research Data Base. And that seemed to be a
very consistent picture of uranium handling
operations. |<=**Petitioners strongly challenged Allen SD**
|**based on lack of stringent justification**
Anytime that we saw a higher |**of GSI processes to surrogate sites**
concentration, the data and the reported

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company had indicated they were doing
something, They had just come out of the
oven.
It was near an operation which
Miles agreed to remove because it was not |<==**Who is "Miles" (typo?)**
applicable where they were taking uranium
slugs and, basically they were making washers,
I'm not quite sure why. But they were
punching holes in uranium discs.

Well that clearly would have been an operation which would create a much more disturbance and would not have been applicable. But the one that we screened down seemed like a very consistent and interestingly enough they formed a very uniformed log-normal distribution. **|<==typo "uniformed" = uniform**

So if you took the 95th percentile of that, the evidence seemed to be there was bounding. **|<==Plausible, sufficient accuracy are REQUIRED**

CHAIRMAN MELIUS: Bob, could you please sum up, okay. Phil, do you have another question or? **|<==Chair appears impatient, rushed**

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MR. SCHOFIELD: Yes, as a matter of fact he just touched on it. Okay, I would assume the betatron operators probably had the highest exposure. **|<==Member ignores the Chair's rudeness**

|<==WRONG! True in 2008 but not in 2012

So are we going to give, with all these different models, are we giving these other people the 95th percentile of the betatron operators or they going to actually going to be 95 percent of one of these models?

DR. ALLEN: One of the things that kind of evens things out is that the castings were often laid out outside of the betatron **|<==Misleading non-answer given**

room. These were, some of these were very
large castings and they would draw out where |<==Big castings were a minority of all NDT shots
there wanted the various X-ray shots to be.
And that was typically going to be
done by somebody familiar if not the A
betatron operator himself. They also would do
this for find and fix and then reshoot bad
spots in these castings. |<==Worker affidavit: ALL layout were radiographers, No "layout" job at GSI
So often this was being done on a
casting that was freshly radiograph by the

p. 344

betatron. The thing different about the
betatron then a lot of X-rays is that it is |<==typo: "then" = than
high enough energy to actually activate steal |<==typo: "steal" is steel
and make it radioactive. It will be
relatively short lived. |<==ABSOLUTELY UNTRUE AND MISLEADING. Activation products some had half lives hours to days
Several minutes for radioactive
iron, but that would be the timeframe that |<==MISLEADING, iron was one component, nickel, chromium other elements activated too
these people would be out there working on
this. And they also had a policy at GSI, not
to wear their film badge out of there betatron
building, into this Number 10 Building.
Because there were a lot of sparks and they
kept burning holes film badges.
So there is a chance these

radiographers were actually exposed more to castings near the tunnel where this betatron might have been. The scatter radiation came down this tunnel to about where they were doing this.

And not to mention, they were working in close proximately to what could have been a radioactive casting for some

p. 345

period of time. And that would have been done at the time when they weren't wearing their film badge.

So essentially much of the higher radiation scenario for non-radiographers ends up being, much of it was also radiographers doing that. So you end up with both of them getting that scenario.

<==KEY: extend period of time; 2 hours is implausibly brief

<==Misleading: App-BB assigned lower dose to non-radiographer personnel at GSI

CHAIRMAN MELIUS: Do the Board Members on the line have any questions? Dr. Roessler --

MEMBER FIELD: No. I don't have none.

MEMBER ROESSLER: No, I don't have any questions here.

CHAIRMAN MELIUS: Okay then, just wanted to make sure we hadn't forgotten you.

Any other Board Member, questions? We have a motion and a second on the floor? Then I guess Ted, call the roll.

MR. KATZ: Let me just be clear about what I'm doing, because we really have

p. 346

three motions, is that correct? Right, we have a motion for the early period and the second period of operation and then residual, is that correct?

<==WG cast three separate SEC votes full Board should vote the same way

<==Robert's Rules ignored, the Work Group motion should have been voted on as Dr. Melius notes here

MEMBER ZIEMER: I only reported what the voting was on the different periods. I think the Chairman can determine whether that's more then one motion or not.

<==Ignores Robert's Rules

MR. KATZ: Okay.

<==Comment is out of order, inappropriate

MEMBER ZIEMER: We voted on two parts of the active period and then on the residual period. So when we have those separate votes I think --

MR. KATZ: All right, so we just need to be clear what we're preceding on.

MEMBER ZIEMER: Whether we have a single motion to cover everything is, I think is the Chair's call.

<==NO, TBD-6000 work group motion prevails

CHAIRMAN MELIUS: Well and the

chair, since the motions are not mutually
exclusive from the Work Group, I think we |<=improper; motions do conflict
should treat this as a single motion. Unless |<==BAD CALL. JUSTIFICATION?

p. 347

somebody wants to divide it.

And essentially we have a motion |<==WG motion inappropriately not
|addressed. Chair acted improperly
for the, to accept NIOSH recommendation that
dose reconstructions, feasibles, sufficient
accuracy for both the operational and the
residual periods. |<==UNUSUAL motion both periods!

MR. KATZ: Okay, so everyone's
clear. And so I need to be clear too.

CHAIRMAN MELIUS: Now it's been
awhile since we looked at Paul's report.

MR. KATZ: Okay, I'm just going to
do this alphabetically. Dr. Anderson?

MEMBER ANDERSON: Yes.

MR. KATZ: Ms. Beach?

MEMBER BEACH: No.

MR. KATZ: Mr. Clawson?

MEMBER CLAWSON: No.

MR. KATZ: Dr. Field?

MEMBER FIELD: Yes.

MR. KATZ: Mr. Gibson, I'm just
checking to see, he's been, hello? Okay, now
Mr. Gibson's absent. Mr. Griffon? |<==Member Gibson resigned the

|day after he voted on SEC-105

p. 348

1
MEMBER GRIFFON: Yes.
2
MR. KATZ: Dr. Kotelchuck?
3
MEMBER KOTELCHUCK: No.
4
MR. KATZ: Dr. Lockey?
5
CHAIRMAN MELIUS: He's gone.
6
MR. KATZ: Excuse me, Dr. Lockey
7
did, he left after the, I think the NIOSH
8
presentation and Dr. Ziemer's presentation.
9
Right, so Dr. Melius?
10
CHAIRMAN MELIUS: Yes.
11
MR. KATZ: Ms. Munn?
12
MEMBER MUNN: Yes.
13
MR. KATZ: Dr. Poston? Dr. Poston,
14
are you on the line? Dr. Poston? Okay, so I'm
15
assuming he's absent. Dr. Richardson?
16
MEMBER RICHARDSON: No.
17
MR. KATZ: Dr. Roessler?
18
MEMBER ROESSLER: Yes.
19
MR. KATZ: Mr. Schofield?
20
MR. SCHOFIELD: No.
21
MR. KATZ: Ms. Valerio?
22
MEMBER VALERIO: No.

p. 349

1
MR. KATZ: And Dr. Ziemer?
2

MEMBER ZIEMER: Yes.
3
MR. KATZ: We have seven yes's, six
4
no's. Is that correct, 13? And absentee
5
Members. So it is unresolved.

<==4 members did not vote during this meeting. DFO Katz collected all votes by the 20th

CHAIRMAN MELIUS THEN PROCEEDED TO HEAR WORK GROUP REPORTS...

==END OF GSI PORTION OF THIS 12/21/13 ABRWH TRANSCRIPT==

EXHIBIT 7

GSI SEC-00105
Administrative Review

Article to Show Agreement Between MCNPX Model of Cesium-137 Source and Real Measured Data Used As Validation (± 2-5%)

[Note: NIOSH and SC&A Did Not Have/Use Measured Data to Validate Their GSI Models]

Vol 88, Suppl 1
February 2005

Operational Topic

Measured gamma ray levels from a ^{137}Cs source were compared to the results calculated by a Monte Carlo computer program.

Dose Mapping Using MCNP5 Mesh Tallies

*Jessica Leone, Mark Furler, Matt Oakley, Peter Caracappa, Brian Wang, and X. George Xu**

Abstract: *Rensselaer Polytechnic Institute has a 69.6 GBq (1.88 Ci) ^{137}Cs source that is used for research, calibration of various instruments, and teaching. Recently it was calibrated using ion chambers. The source and room were also modeled in Monte Carlo N-Particle transport code (MCNP5) to determine if the use of a new feature called mesh tallies produces a dose map in the entire room that agrees with the measured results. The dose rate in the hallway, while the source is exposed, was also calculated. It was found that the dose rates calculated from the MCNP5 are in reasonable agreement with the measured results and theoretical predictions. It was also confirmed that the dose rates where the user often stays during the measurement are well below the annual limits. This project shows that the MCNP5 mesh tallies are useful tool for dose mapping in many operational radiation protection situations. Health Phys. 88(Supplement 1): S31–S33; 2005*

Key words: *operational topic; ^{137}Cs; dose assessment; occupational safety*

* *Rensselaer Polytechnic Institute, Troy, NY 12180.*

INTRODUCTION

Occupational radiation protection requires detailed knowledge of dose rates in the accessible areas surrounding sources of radiation. For fixed sources and simple exposure geometries, this knowledge is easily obtained by a few measurements with an appropriate instrument. However, many nuclear facilities house a variety of different source/shielding configurations, and a detailed survey of the facility may become quite involved. In that instance, it may be advantageous to use a Monte Carlo code to model the sources and to calculate dose rates throughout the facility. Recent advances in Monte Carlo codes help facilitate dose mapping.

Rensselaer Polytechnic Institute (RPI) has a 69.6 GBq (1.88 Ci) ^{137}Cs source that is used for research and teaching in its Nuclear Engineering and Engineering Physics program and for calibration of instruments by the Radiation Safety Office. The source is enclosed in a cylindrical lead shield 37 cm in diameter and 57 cm in length (Fig. 1), and is stored in a locked room (Fig. 2). There is a 4-cm-square window on one side of the source shield that allows the gamma rays to escape when the source is in the "exposed" position. The user of the source normally stays behind the shield in the corner of the room when the source is in the "exposed" position. For longer exposure times the user exits to the hallway.

The calibration curve of the ^{137}Cs source is periodically renewed and a radiation map of the room is obtained using an ion chamber. This paper describes

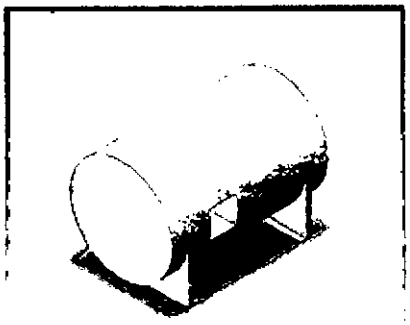


Figure 1. 3D view of the cylindrical housing of the ^{137}Cs gamma source. The window allows more gamma rays to escape when the source is open.

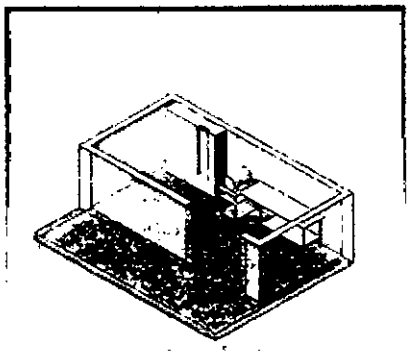


Figure 2. 3D CAD design of the room and the hallway. The source is contained in the cylinder, which sits in front of a measurement bench across from the door.

Jessica Leone and Mark Furler are currently senior students in the Nuclear Engineering and Engineering Physics Program at Rensselaer. This paper is based on their recent summer research with the Rensselaer Radiation Measurements and Dosimetry Group (RRMDG.rpi.edu) led by Dr. George Xu. Dr. Xu's email is xug2@rpi.edu.

EXHIBIT 8

GSI SEC-00105
Administrative Review

Affidavit Testimony by GSI Site Expert That 1953 Belt Object Was an Identification Badge Rather Than a Landauer Film Badge

From:
Subject: I respectfully retract my previous impression that Mr. "belt object" was a film badge.
Date: June 4, 2012 11:38:11 AM CDT
7 Attachments, 4.1 MB (Save) (Slideshow)

I believe these actual GSI Magazine photos and actual worker provided photos prove that SC&A's Report (below) and NIOSH's agreement with ("no proof") a badge / Safety Programs are not confirmed by the "one" GSI worker's ( ) photo (SC&A: Figure 1) below (which I actually provided to everyone) , and the statement in a recent White Paper: "the outline of the film badge and the open window", (10/20/2011 Revision No. 0 – Draft Document Description: White Paper: Update on the Use of Sealed Radioactive Sources at GSI Page No. Page 4 of 25)

As a result of my research, I cannot not state that there is a radiation badge "of any kind" on Mr. belt.
My additional efforts on this important topic was done to find the truth, and point out confirmed facts.
I believe I have done so and as a result of this old and new "evidence":

I respectfully retract my previous impression that Mr. belt object was a film badge. After my additional review, the existence of no "early years" badge reports, no mention of an "early years" badge program in the 1000+ GSI FOIA materials, further discussion with former GSI workers and Managers, and reviewing numerous documented GSI photos, (etc.), I believe the "object" on Mr. belt is most likely an employee ID badge.

The Creccelius Plant ID Photo, and all of these other Betatron worker photos (below) "call into serious and legitimate question" the White Paper "evidence" Re: "the outline and the open window" , Tracerlab film badge illustrated in Figure 2 theory per SC&A and agreed to by others.

(The other DRAFT photos below show Betatron workers who are also wearing tape measures, ID badges, and yes, Landauer radiation badges etc.)
Special note: One photo **#3** below shows a Betatron worker ( ) with an ID badge, tape measure and "NO" visible radiation badge. "He is in The Betatron shooting area". (There are additional "Betatron worker" photos that show NO visible badges.).

The single photo does not prove in any way that there was a film badge program at GSI in 1953.
I believe both NIOSH and SC&A should to also retract their statements to this effect. NOTE: They have no badge data pre 1964: "None".
My question to SC&A and NIOSH and The Board is:
Based on these "new" and previously provided photos, can they be 100% sure is wearing "a film badge on his belt" in 1953?
Yes, No?

Subject: SC&A / Dr Anigstein's / Report-White Paper ("evidence") to the GSI Work Group Re: "early years" film badges at GSI (Re: Safety etc.) .
Effective Date:
10/20/2011 Revision No. 0 – Draft Document Description: White Paper: Update on the Use of Sealed Radioactive Sources at GSI Page No. Page 4 of 25

In addition, Figure 1 shows a photograph of a General Steel Castings (former name of General Steel Industries, Inc.) worker wearing what appears to be a film badge on his belt. Since he appears to be wearing a T-shirt which most likely did not have a pocket, it is quite plausible that he would have worn the film badge on his belt. This photo appeared in a 1953 General Steel magazine (House 1953) and is assumed to have been taken at that time. The outline of the film

badge and the open window resembles the Tracerlab film badge illustrated in Figure 2, which was used in the late 1940s and 1950s. Together, this evidence indicates that film badge dosimeters were used at GSI as early as 1953, which is the first year of the covered period. This lends credence to the following statement made by GSI in its application to the AEC for the renewal of its byproduct material license submitted February 14, 1963:

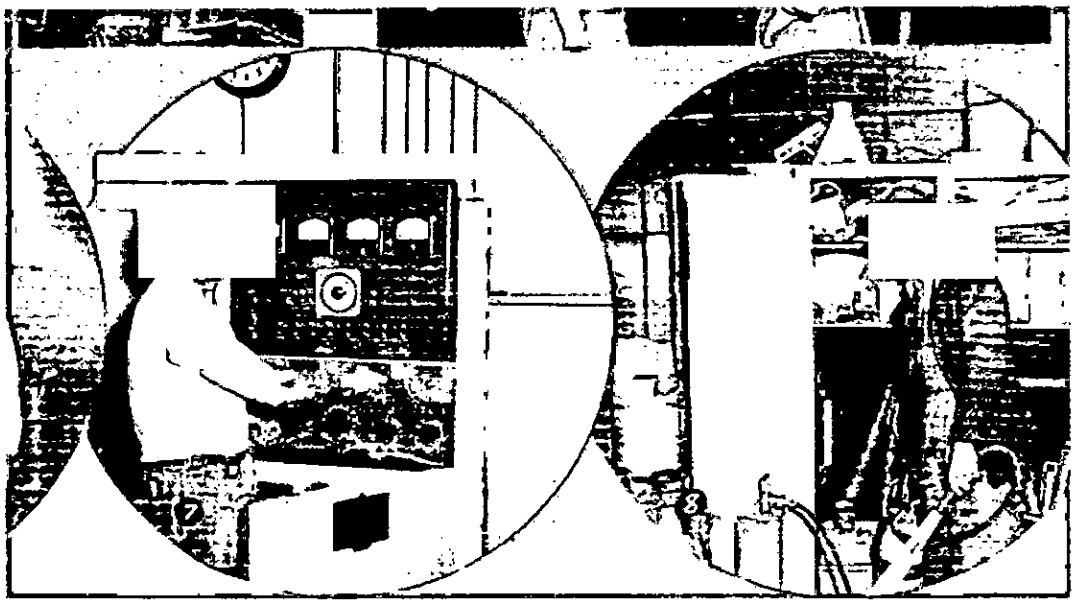
* Up to this time February 1, 1963 no formal written tests have been given. During this period the exposure limits published by the A.E.C. at the applicable time were followed. They were never exceeded and averaged under 25%. (NRC 2009a, p. 26)

* "Up to this time February 1, 1963 no formal written tests have been given. "
(: I do not believe this lack of formal written tests was fully discussed with the Work Group.) GSI workers had said this many times, even in the post 1963 era.

SPECIAL ATTENTION PLEASE:
Dr. Anigstein's total "PROOF": "Together, this evidence indicates that film badge dosimeters were used at GSI as early as 1953, which is the first year of the covered period".
And:
"worker wearing what appears to be a film badge on his belt".
: This is NO real, scientific Proof .
I believe this is simply speculation, a guess at best, based on a fuzzy photo of "something" on one man's belt in 1953 .
Main Factual Point: There are more importantly, no early/ 1953-1963 badge reports. NONE until 1964..... (after the AEC uranium at GSI was almost gone .)

Please review the Dr. Anigstien/ SC&A referenced Report - White Paper: Update on the Use of Sealed Radioactive Sources at GSI Page No. Page 4 of 25 Wm. Greer photo below, along with the "additional" GSI Dir of Personnel's photo . (from a GSI Plant Magazine)
This calls to attention the fuzzy "something" on Mr. belt being a 100% confirmation of a radiation badge and the SC&A statement: "that film badge dosimeters were used at GSI as early as 1953, which is the first year of the covered period. "

From:
White Paper: Update on the Use of Sealed Radioactive Sources at GSI:



car underframe in No. 9 5. Checking the recordings of the Annealing Furnaces in N Bldg. are and

irs

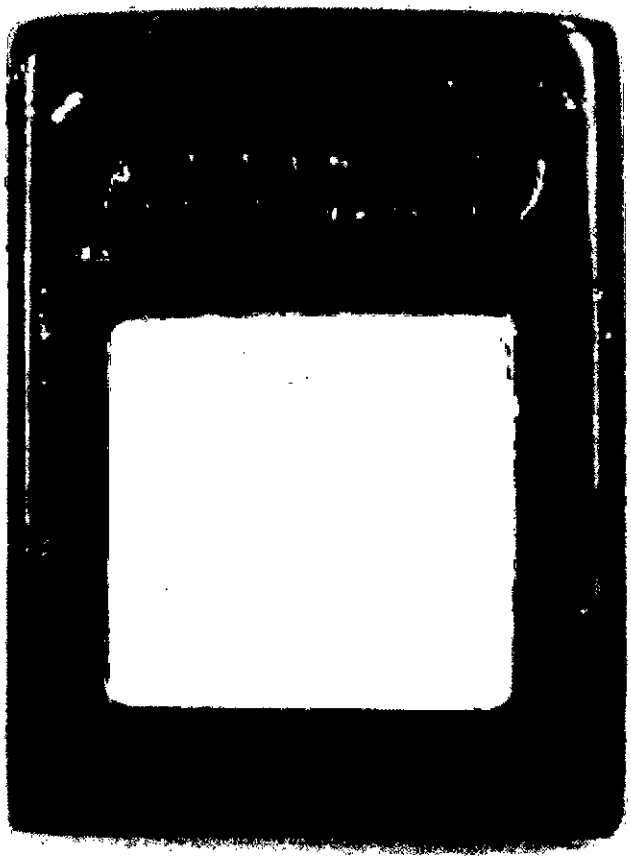
are working on 6. and prepare their spray gl
paint castings.
ippers in No. 4 Bldg., at 7. at the control board in the Betatron Bldg.

Photo below, Tracerlab badge **(Dr. Anigstein):**
This Tracerlab badge "outline", and the open window resembles the fuzzy "something" on Mr. s belt.

Re: White Paper..... "which was used"
"There has never been any mention, by any GSI worker, manager, FOIA documents etc. of Tracerlab. I would consider this "a totally non provable supposition or comparison ", with absolutely NO scientific confirmation or basis of fact at all .

I ask you to correct me if I am wrong on: "There has never been any mention or reference, by any GSI worker, manager, GSI FOIA documents etc. of Tracerlab". .. NONE!
Keep in mind Landauer was mentioned "by Name" in the GSI FOIA materials. (GSI Letters, AEC Applications etc.)
There has never been any mention or reference of Tracerlab".

Ramspott: I believe this SC&A White Paper: statement totally proves my point that no one can be 100% sure what is on Mr. 's belt:
"The outline of the film badge and the open window resembles the Tracerlab film badge illustrated in Figure 2, which was used in the late 1940s and 1950s.



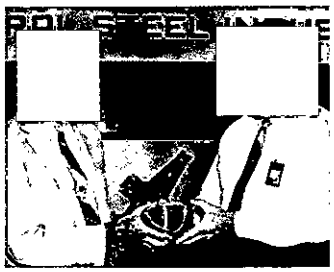
SPECIAL ATTENTION PLEASE

The "outline, and the open window" also resembles Plant ID Badge.

Plant ID Badge looks like Mr. s "something" on his belt .

Check this out, more reason to not jump to any conclusions regarding early years radiation badges at GSI:

So much for the "fuzzy photos of something" Note: the ID Badge) that "looks like a radiation badge, just like the 1953 Greer photo that SC&A uses as proof of a badge program:
(I am very sure there are NO records of Mr. having a radiation badge as .) He did not work with radioactive material in the Admin. Office.
This is Photo is from a GSI Magazine, just like the Mr. 1953 photo was.



of Personnel at the Castings Division, presents P.M.S. with his retirement bowl, following 35 years service at the Castings Division.

P.M.S., receives his retirement bowl from Superintendent—Finishing Department, after 42 years service.

I am also sure you will not find The GSI Director of Personnel on any Landauer List.

"A closer look".

is . (His Plant ID Badge sure looks like Mr. s "something" on his belt.) SEE Mr. BELOW:

Please recall: "**The outline** of the film badge **and the open window**"

Plus

"Together, **this evidence** indicates that film badge dosimeters were used at GSI as early as 1953, which is the first year of the covered period.

Betatron worker Mr. with "something" on his belt in SC&A's Report Re: this 1953 Photo looks like a GSI ID badge or even a tape measure.

Earlier DRAFT material:

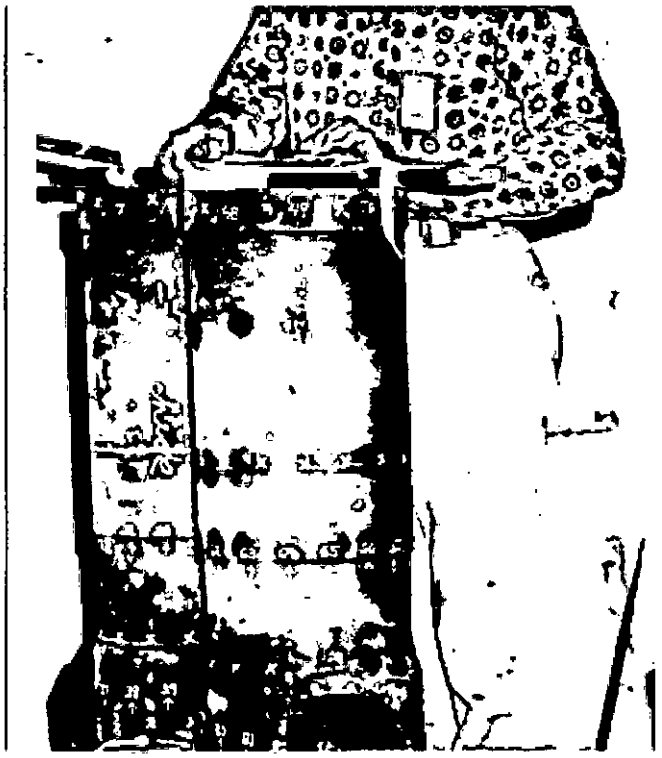
Please see some additional GSI photo "evidence" (DRAFT) below. It supports my position as well. This information was provided to me by former GSI workers Betatron worker, Management, and worker family members. (Much of this material has been available in the s "GSI Work Book" that was provided to The Board, NIOSH, and SC&A "several years ago" ago). I have some additional Work Books available if anyone on The Board would like one. (NIOSH had indicated that it would be on the O Drive. Is it?)

A closer look: Mr. clearly shows "a real" Landauer badge and the tape measure on his belt.

Clearly a tape measure on his belt, Not a radiation badge

A closer look: (ID badge & tape measure on his belt ..... "It looks much like Mr. . . . s something on his belt photo").
Special Note: No visible Landauer radiation badge??????? I do not see one. (this photo "is in the Betatron Building").

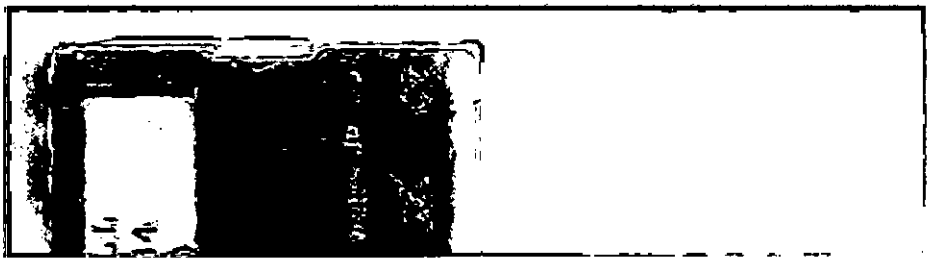
#3



The photo below is R. Landauer radiation badge on his shirt. (see photo 1&2)
The badge's shape etc. also confirms that Mr. (Photo 3) is not wearing a Landauer radiation badge on his belt.
They are totaly different objects. There is NO doubt.

#4

Photo directly Above: A Landauer badge on R. shirt (see photos 1&2) I actually now have Mr. s old GSI / Landauer badge to compare with. (below)



The SC&A Report regarding a 1953 GSI Magazine photo (below). of a "fuzzy something" on a 1953 GSI radiographer's belt, is NOT 100% confirmation by any means.
Is it a tape measure, a ID badge, pocket watch? No one knows for sure. **"No one" also includes myself.**
The GSI workers confirmed the requirement of having tape measures by many workers in the Plant because of the precise nature of their work. EXAMPLE: Betatron shot set ups, metal thickness, distances etc.

I also point out that there are no 1953-1963 radiation badge records, NONE. (nothing until 1964)

Thank you,

EXHIBIT 9

GSI SEC-00105
Administrative Review

RS Landauer Letter to McKeel Reviewing the Radiation Limits That Applied to GSI 1963-73

For Comparison With "A.E.C Limits" Primary Source Reference As Yet Undefined by the TBD-6000 Work Group, ABRWH, NIOSH and SC&A

Subj:	Re: Historical data details reply
Date:	Monday, February 5, 2007 5:13:36 PM
From:	DanMcKeel
To:	
cc:	DanMcKeel

and

My sincere thanks for these excellent data. Rarely these days do I get such clear and straightforward answers. The workers are indebted to you. We will probably request some detailed weekly reports on perhaps up to 4 or 5 of the individuals with film badge data. We need to find out more details about what the men with the highest readings did. It looks like they worked with isotopes, probably the cobalt-60 and iridium-192 sources and did overtime work as Betatron operators.

I will make sure you get paid promptly for your research and copying expenses. Thank you again for the really great way you handled this request to resurrect the past in order to help some people living today.

-- Dan McKeel 2/5/07

In a message dated 2/5/07 4:37:29 PM, writes:

> Hello Dan,
> When we spoke last, you asked me to find the minimum reporting level and radiation exposure limits for the badges that were reported in 1963-1973 for account 2084. I have found this information, with help from Here is what we found.
> For the years 1963-1970, the minimum reporting levels are as follows:
> Xray or gamma: 10mrem
> Hard beta: 40mrem
> Fast neutron: 15mrem
> Thermal neutron: 10mrem
> In 1970, the Fast neutron minimum changed to 20mrem and all other levels remained the same, despite changes in badge types. This information was procured from archived Landauer reports.
> As far as permissable doses, this is what we found:
> Starting in 1958, the dose limit regulations began using the concept of a dose limit beyond one year. In other words, the average dose over a period of years should not exceed an average of 5 rem per year.
> The dose limit specified is 3.0rem/13 weeks. The annual limit is 5(N-18)rem when N=participants age. This information is from the Addendum to the NBS handbook #59.
> The regulation stated above was in place from 1958 until 1988 when the DOE changed the limit to 5rem/year.
> This information was confirmed on a few different websites:
> http://www.nmcco.com/education/facts/history/standards.htm
> http://www.hps.org
> www.ieer.org
>
> Please let me know if you have any other questions.
> Thanks,

Daniel W. McKeel, Jr. MD

EXHIBIT 10

GSI SEC-00105
Administrative Review

ABRWH and TBD-6000 Work Group Member Testimony On Possible Harm to SEC Recipients:

ABRWH 11/5/2010 Testimony As An Example of Anti-SEC Biased Opinion
(See also Exhibit 4, same matter)

kind of situation we're looking at here where you have a small plant, small sources, to begin with, not that much production, a short production time, it's very -- it's disheartening and it's discouraging, and for some of those, it's inaccurate to just simply say that these people, since we can't prove that you were not harmed, we're going to tell

the work that you did.
And they may have been harmed in many ways, but it seems inappropriate to assure people that they were injured by radiation when the fact of the matter is all the science that we have surrounding this kind of operation does not support that conclusion.
But if that's what we're going to do, then that's what we're going to do.

CHAIRMAN MELIUS: Yes. And we -- this is Jim again. And we've talked about this in lots of different contexts, but it's really -- the real issue -- it's a little uncomfortable, I don't think -- is with sort of how to accept a model or whatever.

It's really with the endangerment issue, and the construct, the legal regulatory construct we have is that -- is that essentially endangerment is based on any exposure that lasts 250 days or more, and so

that's what the concern is

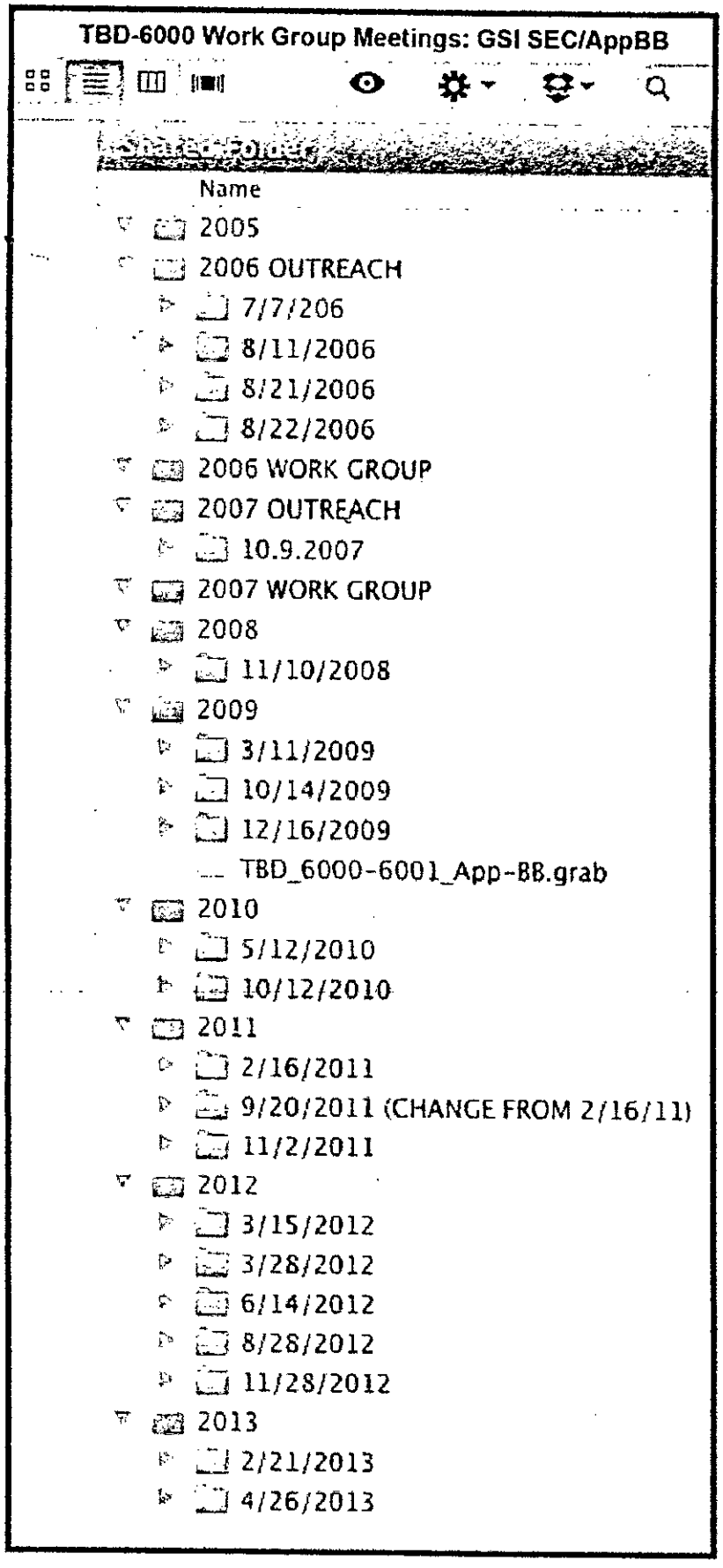
It's, you know, the issue with General Electric, it's an issue with -- in lots of other situations, and I don't disagree with your discomfort on that point.

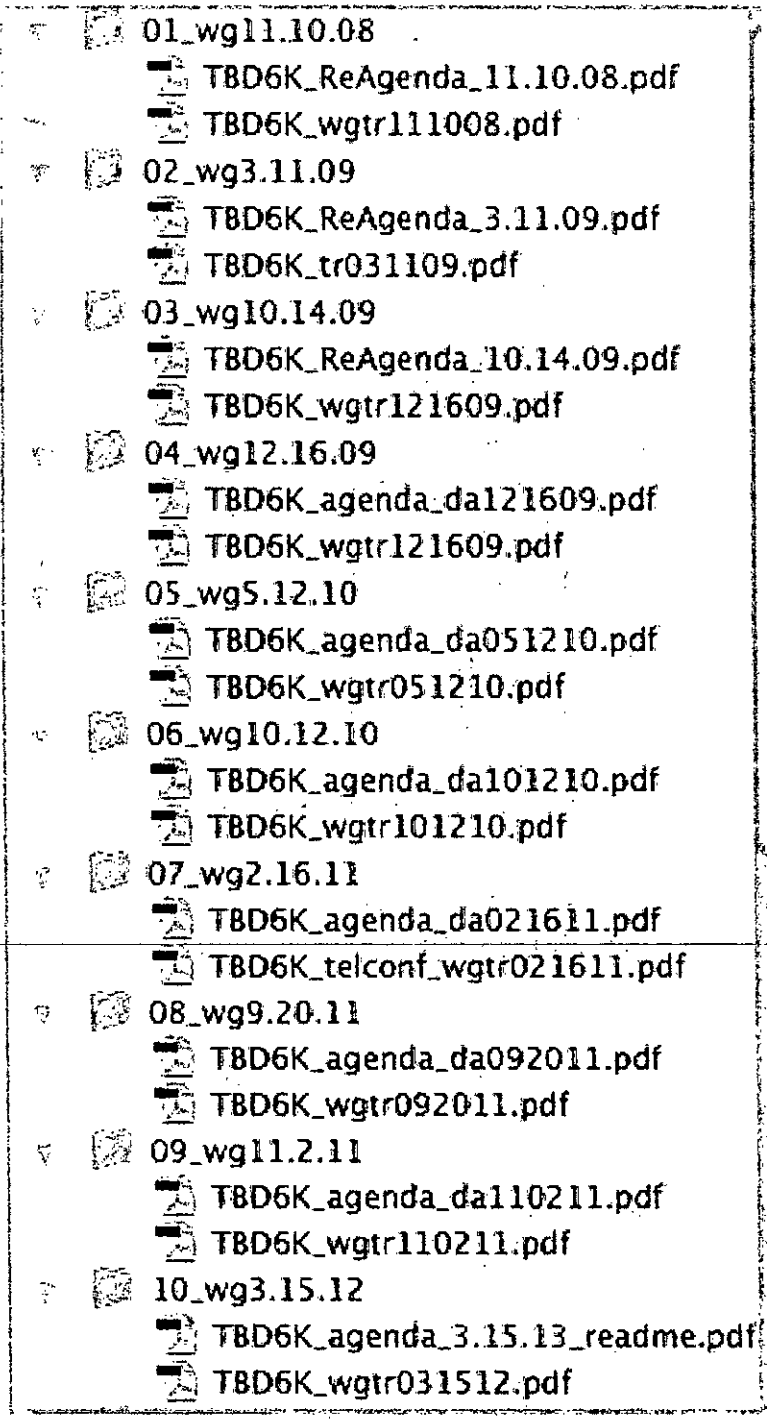
ATTACHMENT A

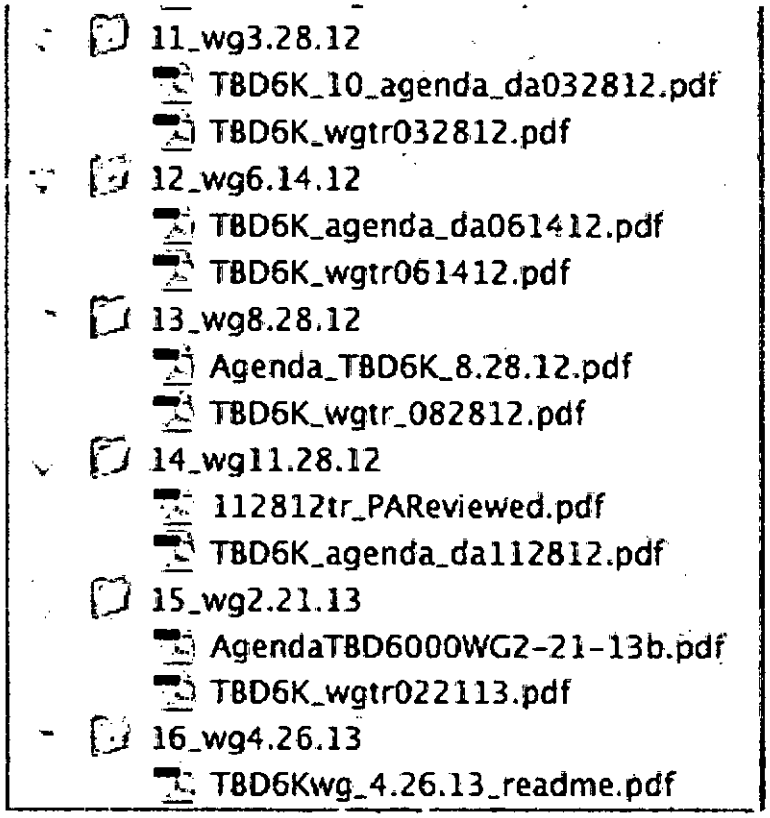
GSI SEC-00105
Administrative Review

Part 1: Folders Index to TBD-6000 Work Group GSI Meetings

Part 2: CD-ROM with folders containing TBD-6000 WG Meeting Agendas and Transcripts


TBD-6000 Work Group Meetings: GSI SEC/AppBB
Name
2005
2006 OUTREACH
7/7/206
8/11/2006
8/21/2006
8/22/2006
2006 WORK GROUP
2007 OUTREACH
10.9.2007
2007 WORK GROUP
2008
11/10/2008
2009
3/11/2009
10/14/2009
12/16/2009
TBD_6000-6001_App-BB.grab
2010
5/12/2010
10/12/2010
2011
2/16/2011
9/20/2011 (CHANGE FROM 2/16/11)
11/2/2011
2012
3/15/2012
3/28/2012
6/14/2012
8/28/2012
11/28/2012
2013
2/21/2013
4/26/2013


01_wg11.10.08
TBD6K_ReAgenda_11.10.08.pdf
TBD6K_wgtr111008.pdf
02_wg3.11.09
TBD6K_ReAgenda_3.11.09.pdf
TBD6K_tr031109.pdf
03_wg10.14.09
TBD6K_ReAgenda_10.14.09.pdf
TBD6K_wgtr121609.pdf
04_wg12.16.09
TBD6K_agenda_da121609.pdf
TBD6K_wgtr121609.pdf
05_wg5.12.10
TBD6K_agenda_da051210.pdf
TBD6K_wgtr051210.pdf
06_wg10.12.10
TBD6K_agenda_da101210.pdf
TBD6K_wgtr101210.pdf
07_wg2.16.11
TBD6K_agenda_da021611.pdf
TBD6K_telconf_wgtr021611.pdf
08_wg9.20.11
TBD6K_agenda_da092011.pdf
TBD6K_wgtr092011.pdf
09_wg11.2.11
TBD6K_agenda_da110211.pdf
TBD6K_wgtr110211.pdf
10_wg3.15.12
TBD6K_agenda_3.15.13_readme.pdf
TBD6K_wgtr031512.pdf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TBD6K_10_agenda_da032812.pdf
TBD6K_wgtr032812.pdf
12_wg6.14.12
TBD6K_agenda_da061412.pdf
TBD6K_wgtr061412.pdf
13_wg8.28.12
Agenda_TBD6K_8.28.12.pdf
TBD6K_wgtr_082812.pdf
14_wg11.28.12
112812tr_PAReviewed.pdf
TBD6K_agenda_da112812.pdf
15_wg2.21.13
AgendaTBD6000WG2-21-13b.pdf
TBD6K_wgtr022113.pdf
16_wg4.26.13
TBD6Kwg_4.26.13_readme.pdf

ATTACHMENT B

GSI SEC-00105
Administrative Review

Daniel W. McKeel, Jr., MD

- **Docket 140** (GSI) Papers
  2007 - April 2013

- **Docket 42 CFR 83** SEC Rule

- **Docket 194** (Ten Year Review)

ATTACHMENT B

Daniel W. McKeel, Jr., MD
GSI SEC-00105 Co-petitioner
Comments and Technical White Papers
to the Special Exposure Cohorts Rule 42 CFR 83
and to NIOSH Dockets 140 (GSI)
and 194 (NIOSH Ten Year Review)
-- (April 2013)

42 CFR (SEC RULE) Docket

[1] Comments from Daniel W. McKeel, Jr., M.D. Comments on Proposed Amendments to 42 CFR Part 83, Special Exposure Cohort Rule. Received on March 23, 2006. PDF 26 KB (6 pages)

[2] Comments from Daniel McKeel, WUSTL. Comments on Proposed Rulemaking SEC and EEOICPA, 4 pp. Received on May 6, 2003.
PDF 333 KB (4 pages)

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DOCKET 140 (GSI SEC-00105) [reverse chronological order]

[1] Comments from Daniel W. McKeel, Jr., M.D., to David Allen (DCAS) Discussion paper: "GSI dosimetry from the 2/21/13 TBD-6000 work group meeting"
(April 2, 2013)
(PDF xxx KB (11 pages)

[2] Comments from Daniel W. McKeel, Jr., M.D. regarding new information on a stolen radium plumb bob source at GSI in 1953
(March 12, 2013)
PDF 200 KB (6 pages)

[3] Annotated transcript of notes submitted by Daniel W. McKeel, Jr., M.D. from the February 21, 2013, meeting of the Advisory Board's Work Group on TBD 6000
(March 12, 2013)
PDF 2 MB (139 pages)

[4] Comments from Daniel W. McKeel, Jr., M.D. regarding GSI SEC Petition SEC-00105
(December 11, 2012)
PDF 1 MB (60 pages)

[5] Comments from Daniel W. McKeel, Jr., M.D. regarding GSI betatron testing
(November 19, 2012)
PDF 2 MB (13 pages)

[6] Comments from Daniel W. McKeel, Jr., M.D. regarding NIOSH/DCAS: Evaluation of Additional Air Sample Data Applicable to GSI
(November 10, 2012)
PDF 4 MB (20 pages)

[7] Addendum 1
(November 10, 2012)
PDF 1 MB (4 pages)

[8] Addendum 2
(November 26, 2012)
PDF 6 MB (9 pages)

[9] Comments from Daniel W. McKeel, Jr., M.D. regarding his presentation at the September 19, 2012, Advisory Board meeting
(September 21, 2012)
PDF 3 MB (14 pages)

[10] Co-Petitioner Daniel W. McKeel, Jr., MD Presentation: General Steel Industries SEC Petition 105
(September 18, 2012)
PDF 437 KB (7 pages)

[11] Annotated transcribed notes submitted by Daniel W. McKeel, Jr., M.D. from the August 28, 2012, meeting of the Advisory Board's Work Group on TBD-6000
(September 2, 2012)
PDF 897 KB (43 pages)

[12] Comments from Daniel W. McKeel, Jr., M.D. regarding NIOSH: Use of Surrogate Data at GSI Response to SC&A Review Dated July 16, 2012
(August 26, 2012)
PDF 4 MB (16 pages)

[13] Addendum
(August 26, 2012)
PDF 1 MB (6 pages)

[14] Comments from Daniel W. McKeel, Jr., M.D. regarding the agenda for the August 28, 2012, Meeting of the Advisory Board's Work Group on TBD 6000
(August 21, 2012)
PDF 54 KB (3 pages)

[15] Comments from Daniel W. McKeel, Jr., M.D. regarding the SC&A Memo: Alternative Model for the Calculation of Uranium Intakes at GSI
(August 5, 2012)
PDF 9 MB (28 pages)

[16] Comments from Daniel W. McKeel, Jr., M.D. regarding the General Steel Industries Special Exposure Cohort Petition-00105
(July 26, 2012)
PDF 589 KB (14 pages)

[17] Comments from Daniel W. McKeel, Jr., M.D. regarding the General Steel Industries Special Exposure Cohort Petition-00105
(July 10, 2012)
PDF 7 MB (24 pages)

[18] Comments from Daniel W. McKeel, Jr., M.D. on David Allen DCAS Memo Dated June 8, 2012 to the TBD-6000 Work Group of the ABRWH in Response to the SC&A Discussion Paper Update on GSI Intake Doses
(June 13, 2012)
PDF 439 KB (6 pages)

[19] Comments from Daniel W. McKeel, Jr., M.D. 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
(June 2, 2012)
PDF 7 MB (26 pages)

[20] Comments from Daniel W. McKeel, Jr., M.D. 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
(June 1, 2012)
PDF 7 MB (26 pages)

[21] Submission from Daniel W. McKeel, Jr., M.D. requesting that technical documents and comments he made between 2/28/12 and 3/28/12 be posted to Docket 140 and sent to the Advisory Board
(May 21, 2012)
PDF 3 MB (4 pages)

[22] Attachment 1: Critique of the NIOSH January 2012 White Paper "Dose Estimates For Betatron Operations"
PDF 7 MB (31 pages)

[23] Attachment 2: Docket 140 General Steel Industries - Addendum #1 to 2/28/2012 Submission
PDF 8 MB (36 pages)

[24] Attachment 3: Corrected Concrete Activation Isotopes, SEC Issues 5 and 6 From the David Allen/DCAS October 2010 "Path Forward for GSI" Report
PDF 4 MB (6 pages)

[25] Attachment 4: E-mail from to DWM 3/22/12 RE: MCNPx code
PDF 858 KB (4 pages)

[26] Attachment 5: 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)
PDF 9 MB (14 pages)

[27] Attachment 6: 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.
PDF 8 MB (12 pages)

[28] Attachment 7: McKeel Petitioner Comments on NIOSH Allen August 2011 and January 2012 Path Forward For GSI White Papers and Addenda to Them
PDF 4 MB (7 pages)

[29] Attachment 8: E-mail from Dan McKeel to Ted Katz - Request to distribute TBD-6000 work group information to full Board
PDF 2 MB (3 pages)

[30] Docket 140 (GSI) Submission from Daniel W. McKeel, Jr., M.D.: presentation to the Advisory Board's Work Group on TBD 6000 on March 15, 2012
(March 17, 2012)
PDF 5.3 MB (29 pages)

[31] Docket 140 (GSI) Submission from Daniel W. McKeel, Jr., M.D.
(March 11, 2012)
PDF 82 KB (1 page)

[32] Docket 140 General Steel Industries: Addendum 1 and 2
PDF 4.8 MB (37 pages)

[33] Docket 140 (GSI) Submission from Daniel W. McKeel, Jr., M.D., regarding the NIOSH January 2012 White Paper on "Dose Estimates For Betatron Operations"
(February 27, 2012)
PDF 2 MB (1 page)

[34] Attachment: Critique of the NIOSH January 2012 White Paper "Dose Estimates For Betatron Operations"
PDF 4.2 MB (24 pages)

[35] Comments from Daniel W. McKeel, Jr., M.D., on a new General Steel Industries related 1978 report: OSHA Regulates Betatrons & Accelerators
(September 6, 2011)
PDF 97 KB (6 pages)

[36] Comments from Daniel W. McKeel, Jr., M.D., on the General Steel Industries SEC Petition (NIOSH SEC-00105)
(July 22, 2011)
PDF 203 KB (4 pages)

[37] Comments from Daniel W. McKeel, Jr., M.D., on the General Steel Industries SEC Petition (NIOSH SEC-00105)
(March 12, 2011)
PDF 3.5 MB (19 pages)

[38] Comments from Daniel W. McKeel, Jr., M.D., on the General Steel Industries SEC Petition (NIOSH SEC-00105)
(February 7, 2011)
PDF 2.7 MB (4 pages)

[39] Comments from Daniel W. McKeel, Jr., M.D., on the General Steel Industries SEC Petition (NIOSH SEC-00105)
(April 26, 2010)
PDF 163 KB (3 pages)

[40a] Comments from Daniel W. McKeel, Jr., M.D., on the General Steel Industries SEC Petition (NIOSH SEC-00105)
(December 12, 2009)
PDF 7 MB (10 pages)

[40b] Note: The documents mentioned in the above comment can be viewed on the U.S. Nuclear Regulatory Commission Web site. (McKeel FOIA NRC 2010-0012: 1,016 pages unredacted)
External Link: http://adamswebsearch2.nrc.gov/idmws/ViewDocBy Accession.asp?AccessionNumber=ML093510887

[41a] Comments on the Site Profile for Atomic Weapons Employers that Worked Uranium and Thorium Metals document, Appendix BB -- General Steel Industries

[41b] Critique to NIOSH of Appendix BB to Battelle TBD-6000 for the General Steel Industries SEC AWE Site (Daniel W. McKeel, Jr., MD submission, name redacted)
PDF 1.1 MB (23 pages) [Note: NIOSH reply follows this report]

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DOCKET 194 (NIOSH Ten Year Review)
http://www.cdc.gov/niosh/docket/archive/docket194.html

[1] Submission to the docket from McKeel (Southern Illinois Nuclear Workers (SINEW); 5/13/10
(pdfs/NIOSH-194/0194-051310-McKeel_sub.pdf) [PDF - 77 KB]

[2] Submission to the docket from Daniel McKeel (Southern Illinois Nuclear Workers (SINEW));
6/4/10 (pdfs/NIOSH-194/0194-060410-McKeel_sub.pdf) [PDF - 13,119 KB]

[3] Submission to the docket from McKeel (Southern Illinois Nuclear Workers (SINEW)) – 7/26/07
(pdfs/NIOSH-194/0194-072607-mckeel.pdf) [PDF - 107 KB]

[4] Submission to the docket from McKeel (Southern Illinois Nuclear Workers (SINEW)) – 7/12/10
(pdfs/NIOSH-194/0194-071210-mckeel.pdf) [PDF - 2.14 MB]

[5] Submission to the docket from Daniel McKeel (Southern Illinois Nuclear Workers (SINEW));
7/31/11 (pdfs/NIOSH-194/0194-073111-McKeel_sub.pdf) [PDF - 2,917 KB]

[6] Submission to the docket from Daniel McKeel (Southern Illinois Nuclear Workers (SINEW));
3/12/11 (pdfs/NIOSH-194/0194-031211-McKeel_sub.pdf) [PDF - 13,886 KB]

[7] Submission to the docket from Daniel McKeel (Southern Illinois Nuclear Workers (SINEW)):
1/21/11 (pdfs/NIOSH-194/0194-012111-McKeel_sub.pdf) [PDF - 2173 KB]

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Footnote 1: This listing does not include Dan McKeel publications to Docket 112 (Texas City Chemicals, TCC SEC-00088: n=3) and to Docket 113 (Dow Madison SEC-00079: n=8)

Footnote 2: Total Dan McKeel postings number 50 from all NIOSH Public Dockets (as of April 2013)