



THE SECRETARY OF HEALTH AND HUMAN SERVICES

WASHINGTON, D.C. 20201

JAN 10 2017

[REDACTED]

Dear [REDACTED]:

Thank you for your request on behalf of yourself and co-petitioner [REDACTED] for an administrative review of the March 6, 2013, determination not to add a class of employees from General Steel Industries, Granite City, Illinois to the Special Exposure Cohort (SEC), established by the Energy Employees Occupational Illness Compensation Program Act of 2000 (EEOICPA).

Pursuant to 42 CFR § 83.18(b), and because you filed a challenge to this determination, a panel of three U.S. Department of Health and Human Services' (HHS) personnel, independent of the National Institute for Occupational Safety and Health (NIOSH), was appointed to conduct an administrative review. The panel has now completed its review of your challenge.

After reviewing the administrative record in this case, the panel concluded that: (1) HHS substantially complied with the regulatory procedures set out in 42 CFR part 83; (2) the decision contained no evidence of factual error and was supported by factually accurate information; and (3) there were no errors of fact or in the methods of evaluation, or omission in the principal findings and recommendations of NIOSH and the Advisory Board on Radiation and Worker Health. In summary, the panel concluded that your challenge to the March 6, 2013, decision is without merit, and they have recommended no change to that decision to deny adding a class of General Steel Industries employees to the SEC.

After review of the administrative review panel's thorough report, I have decided not to revise the March 6, 2013, final decision. I am enclosing a copy of the administrative review panel's final report, which I hope you find helpful. I am sending an identical copy of this letter to [REDACTED] your co-petitioner.

Sincerely,
Signature on File

Sylvia M. Burwell

Enclosure



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DEPARTMENT OF HEALTH & HUMAN SERVICES

December 14, 2016

The Honorable Sylvia Burwell
Secretary of Health and Human Services
Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, DC 20201

RE: General Steel Industries Special Exposure Cohort Administrative Review Panel

Dear Madam Secretary:

On March 6, 2013, as authorized under the Energy Employees Occupational Illness Compensation Program Act of 2000 (EEOICPA), 42 U.S.C. § 7384g, the Secretary of the Department of Health and Human Services (HHS) at that time Kathleen Sebelius (the Secretary), determined that the following class of employees does not meet the statutory criteria for addition to the Special Exposure Cohort (SEC):

All individuals who worked in any location at the General Steel Industries site, located at 1417 State Street, Granite City, Illinois from January 1, 1953, through June 30, 1966, and/or during the residual radiation period from July 1, 1966, through December 31, 1992.

Pursuant to 42 U.S.C. § 7384g(b), a class may be designated for addition to the SEC if the Secretary determines, upon recommendation of the Advisory Board on Radiation and Worker Health (the Board), that: (1) it is not feasible to estimate with sufficient accuracy the radiation dose that the class received; and (2) there is reasonable likelihood that such radiation dose may have endangered the health of members of the class. The basis for the Secretary's decision in this case was that it is feasible to estimate with sufficient accuracy the radiation doses encountered by employees at the General Steel Industries (GSI) site; accordingly, a determination of health endangerment was not required.

In a letter dated April 14, 2013, [REDACTED] (collectively petitioners), requested a formal administrative review of the decision to deny SEC status to the class of employees from the GSI Atomic Weapons Employer (AWE) site. This letter is included as Appendix A.

EEOICPA implementing regulations at 42 CFR § 83.18(a) provide that, in order to contest a final decision by the Secretary to deny adding a class to the SEC, a challenge "must include evidence

that the final decision relies on a record of either substantial factual errors or substantial errors in the implementation of the procedures” set out in 42 CFR part 83. The petitioners’ appeal letter sets out many allegations regarding the “HHS Determination Concerning a Petition to Add Members to the Special Exposure Cohort under the Energy Employees Occupational Illness Compensation Program Act of 2000: Determination Concerning a Petition for Employees from General Steel Industries, Granite City, Illinois” (HHS Determination), and concludes by stating that “we believe this long record of significant errors forms a compelling basis for recommending the HHS Secretary reverse her denial of GSI SEC-00105.”

Because of this challenge and pursuant to 42 CFR § 83.18(b), the Secretary appointed a panel of three HHS personnel, independent of the National Institute for Occupational Safety and Health (NIOSH), to conduct an administrative review and provide recommendations concerning the merits of the challenge and the resolution of the issues contested by the challenge. The undersigned, Steven L. Simon, PhD, Pataje G. Prasanna, PhD, and David R. Cassatt, PhD, comprise that panel. Our collective expertise includes health physics, radiation exposure, radiation biology, dose assessment and dose reconstruction, and radiation risk analysis.

We were charged with conducting an administrative review of the HHS Determination not to add a class of GSI employees to the SEC, which included reviewing the data and information that formed the basis of the decision. In conducting our review, pursuant to 42 CFR § 83.18(b), we examined the views and information submitted by the petitioners in the challenge, the NIOSH evaluation report, the report containing the recommendations of the Board, the recommendations of the Director of NIOSH to the Secretary, information presented or submitted to the Board, and the deliberations of the Board prior to the issuance of its recommendations. Since 42 CFR § 83.18(a) prohibits petitioners from introducing any new information or documentation, our review was based entirely on the administrative record in this case, as described above.

The documents upon which we relied most heavily in our review of the appeal in accordance with 42 CFR §§ 83.18(a) and (b) are:

1. SEC Petition Evaluation Report, Petition SEC-00105 (October 3, 2008) (GSI Evaluation Report).
2. Site Profiles for Atomic Weapons Employers that Worked Uranium Metals, Battelle-TBD-6000, Rev. 0 (December 13, 2006) (Battelle-TBD-6000).
3. Site Profiles for Atomic Weapons Employers that Worked Uranium Metals—Appendix BB General Steel Industries, Battelle-TBD-6000 Appendix BB, Rev. 0 (June 25, 2007) (Battelle-TBD-6000 Appendix BB).
4. Radiation Exposures Covered for Dose Reconstructions under Part B of the Energy Employees Occupational Illness Compensation Program, OCAS-IG-003 (November 5, 2007) (OCAS-IG-003).

5. Review of 'Site Profiles for Atomic Weapons Employers that Worked Uranium and Thorium Metals-Appendix BB: General Steel Industries,' Battelle-TBD-6000, Appendix BB, Rev. 0, S. Cohen & Associates (April 2008) (SC&A 2008).
6. Battelle-TBD-6000 Appendix BB General Steel Industries, Dose Estimates for Portable Radiography Sources, Dave Allen, (August 2011) (NIOSH White Paper).
7. Dose Reconstruction from Occupationally Related Diagnostic X-Ray Procedures, ORAUT-OTIB-0006, Rev. 3 (December 21, 2005) (ORAUT-OTIB-0006).
8. GSI Employee Interviews (August 21, 2006) (August Transcript).
9. GSI Employee Interviews (October 9, 2007) (October Transcript).
10. R.S. Landauer Jr. and Co. Film Badge Dosimeter Reports from GSI Employees (1964-1973) (Landauer Reports).

In summary, pursuant to 42 CFR § 83.18(b), we considered whether HHS substantially complied with the regulatory procedures set out in 42 CFR part 83 and whether the Secretary's final decision was supported by accurate factual information. We also reviewed the principal findings and recommendations of NIOSH and the Board. As detailed below, we have concluded that the petitioners' challenge is without sufficient merit to recommend any change to the HHS Determination to deny adding a class of GSI employees to the SEC.

Structure of this Report:

Preliminarily, the panel notes that the petitioners' appeal letter sets out 44 specific "key error categories," almost all of which include multiple sub-points. As an administrative review panel, we are concerned about providing a full and satisfactory response to the petitioners, and we believe their concerns are legitimate and serious and deserve full attention. Accordingly, during our deliberations, we carefully reviewed and analyzed the petitioners' lengthy appeal letter, although, in our view, many of the allegations are overlapping and at times, difficult to understand and lacked clarity. In addition, the letter raises numerous issues that fall outside the scope of this panel's charge, as they are unrelated to the factual evidence or implementation of the procedures that NIOSH and the Board are required to follow. For example, the petitioners claim that NIOSH, the Board's contractor, S. Cohen & Associates (SC&A), and the Board expressed personal legal animus towards the petitioners, made derogatory comments toward the petitioners, deliberately misrepresented facts or caused delays, and many such claims.

Although we cannot answer the questions raised in the petitioners' appeal letter that are outside the scope of our review, we have attempted to respond to those questions that are within our purview. For those points that raise issues related to procedural errors that are within the scope of our review (e.g., that NIOSH, the Board or SC&A failed to locate certain records or consider all incidents, failed to send all material to the NIOSH Director or the Secretary, made improper Board motions, or otherwise failed to comply with the procedures specified under 42 CFR part 83), we have carefully considered these and concluded that HHS

substantially complied with the regulatory procedures set out in 42 CFR part 83. For those points that raise issues related to factual errors that are within the scope of our review, we have carefully considered these and concluded that they all generally fall within the categories listed in the HHS Determination. Accordingly, Section A of this report provides a point-by-point analysis of the HHS Determination, and Section B of this report sets out the conclusions of the panel.

Section A. Point-by-Point Analysis of the HHS Determination

A memorandum to the Secretary from the Director of NIOSH, dated February 14, 2013, states that “NIOSH determined that the available monitoring records, process descriptions, and source term data are sufficient to complete individual dose reconstructions for the evaluated class of employees.” Accordingly, in that memorandum, NIOSH recommended that the Secretary approve and sign a determination not to add the class of GSI employees to the SEC. That recommendation was based, in large part, on the GSI Evaluation Report, which evaluated the feasibility of completing dose reconstructions for all individuals who worked in any location at the GSI site, located at 1417 State Street, Granite City, Illinois, from January 1, 1953, through June 30, 1966, and/or during the residual radiation period from July 1, 1966, through December 31, 1992.

The HHS Determination, signed by the Secretary on March 6, 2013, forms the basis for the comments in this section. The specific points made in the HHS Determination are listed below (in bold text); the review panel’s analysis and conclusion follows each point (in plain text).

- i.) **The principal sources of internal radiation doses for members of the proposed class include inhalation and ingestion of uranium dust from handling uranium metal, fission and activation products from handling and examining the uranium following X-ray operations, and activation products from steel castings handled and examined following X-ray operations.**

In agreement with NIOSH, the administrative review panel concludes that there was a low potential for producing elevated air concentrations of uranium at the GSI site since no cutting, machining, or abrading of uranium was done. Battelle-TBD-6000 and Battelle-TBD-6000 Appendix BB indicate that the GSI’s uranium work process is reasonably similar to the “slug production” process in that both involve the handling of solid uranium metals. Since no uranium metal-working took place at GSI, the Battelle TBD-6000 values are conservative and form the basis for the conclusion that representative air sampling data associated with uranium slug production at Atomic Energy Commission (AEC) facilities reasonably bound internal exposures for members of the proposed worker class evaluated. GSI Evaluation Report at p. 22.

It is known that non-AEC operations took place at the same time as AEC operations at

GSI for the purpose of detecting internal flaws in castings using X-rays. That process could potentially induce some activation in the steel, which would possibly be ground out, resulting in radioactive dust. Here again, Battelle TBD-6000 and Battelle TBD-6000 Appendix BB provide an internal dose scenario that provides a bounding estimate of the dose from inhaling steel activation products. *Id.* at p. 23.

- ii.) **NIOSH evaluated the potential exposures from possible intakes of radioactive material at GSI based on air-monitoring data from other facilities for the operational period. Internal exposures from the residual period were estimated by modeling the resuspension of surface contamination levels to determine airborne levels that would bound intakes for GSI.**

Bounding of internal dose at GSI was accomplished by using measurement data from other AEC facilities that conducted uranium slug production operations. Those data were clearly more conservative since slug production at those facilities included machining uranium, unlike procedures at GSI which did not.

Other concerns raised were about doses potentially received from fission and activation products produced from photonuclear reactions from the high-energy X-rays of the Betatron and fission products. Exposure scenarios based on well-understood principles of physics indicate that internal dose from activation products would have been negligible. SC&A 2008 at p. 54.

To bound fission product doses, conservative assumptions were made including the assumption of increasing uranium intake 1% to account for the differences in biokinetic models between uranium and the fission products, resulting in a conservative over-estimation. To estimate the internal dose from fission products the uranium intake was assumed to be 1% higher than that listed in Tables 7.8 and 7.9 of Battelle-TBD-6000. In addition, the energy ratio is a conservative assumption. Moreover, uranium will continue to deliver dose long after the first year while fission products will continue to decrease due to elimination from the body and radioactive decay. GSI Evaluation Report at p. 24.

Internal dose estimates from Fe-53 (steel activation product from photo-neutron reactions) were found to be negligible. Battelle-TBD-6000 Appendix BB at p. 5.

Internal dose estimates for the residual time period were based on resuspension of settled contamination during the operational period. For GSI, the internal dose received during the residual contamination period was bounded by estimating a surface contamination value created during the operational period, and, from that, estimating a resuspended air concentration of uranium. *Id.* at p. 10.

This panel agrees with the NIOSH evaluation that concluded that internal dose reconstruction for personnel working during the operations period at the GSI site is feasible based on using a bounding estimate of uranium intakes from air sampling data at other AWE uranium handling facilities. This panel also agrees that it is appropriate to bound residual period doses based on a calculated maximum surface contamination and an associated airborne radioactivity exposure scenario. The panel agrees with NIOSH's conclusion that the methods described in Battelle-TBD-6000 and Battelle-TBD-6000 Appendix BB provide reasonable approaches to conservatively bound internal doses for all members of the class under evaluation. GSI Evaluation Report at p. 24.

- iii.) **A principal source of external radiation doses for members of the proposed class was from activities associated with the Betatron machines. Based on workers' film badge doses and modeled exposures using Monte Carlo techniques, NIOSH has determined that it is possible to plausibly bound external doses associated with the evaluation of uranium and steel using the Betatron.**

Activities associated with the Betatron machines were a potential source of external dose. The exposure could have been received directly from the uranium ingots or from radiation escaping the shielded area (such as by skyshine or by directly penetrating the shield wall), from irradiated steel alloys that were activated by photo-neutron interactions caused by the high-energy X-rays, and from the uranium metal which included fission and activation products caused by photo-neutron interactions. Finally, there were sealed radiography sources and a portable X-ray unit.

For purposes of determining the feasibility of bounding external doses, NIOSH obtained film badge data from the Landauer Reports that included records for all workers employed as radiographers at GSI between 1964 and 1973. Radiographers are the maximally-exposed group of workers based on their potential exposure to various sources including skyshine during operations, direct exposure to uranium ingots before and/or after X-ray operations, and exposure to activated steel after X-ray operations.

Exposures varied over time, with 1964 to 1966 (monitored time period) considered to be the period with highest potential annual site exposures because of a new higher-energy Betatron received in 1966 – resulting in two operational Betatrons. Evidence from GSI employee interviews indicates that during this period, X-ray operations increased. August Transcript at p. 41. The radiographer film badge data from 1964 through 1966 appears to legitimately bound the photon radiation doses for other time periods since this was the period of greatest X-ray activity.

GSI operators indicated that the new Betatron had a much greater X-ray output

compared to the older machine (250 R/minute versus 100 R/minute). *Id.* at p. 45. Hence, NIOSH assumed that the dose received by operators after 1963 would bound any dose received prior to 1963, and the available film badge data could be used to estimate the pre-1964 dose. This conclusion is reasonable.

As noted, sealed radiation sources were also used for radiography at GSI, as well as a portable X-ray unit, though these sources were apparently used infrequently by the same staff that operated the Betatrons. GSI Evaluation Report at p. 26. Here again, the external dose to the X-ray and sealed source radiographers is conservatively bounded by assuming they received the same dose as Betatron operators, the maximally-exposed work group.

In terms of availability of film badge data, primarily only radiographers wore film badges, starting in 1964. GSI Evaluation Report at p. 28. Although there were unmonitored employees who worked with materials recently X-rayed in the Betatron building, the dose to the unmonitored employees would be bounded by assuming that they received the same dose as the Betatron operators, if not lower doses. These clearly conservative calculations were supported by two models: SC&A 2008 at p. 39 and Battelle-TBD-6000 Appendix BB at p. 8.

As noted by NIOSH, potential exposure of other unmonitored employees could have come from three sources:

- a. Radiation received from the Betatron building by employees working in elevated locations above the height of the Betatron building shield wall;
- b. Radiation received from the Betatron building by employees working in close proximity to the Betatron building but at ground level; or
- c. Radiation received while in close proximity to a sealed-source radiography unit used in other portions of the facility.

GSI Evaluation Report at p. 26. For elevated locations, SC&A developed two scenarios, the first based on statements by a former GSI employee indicating that he performed maintenance on the roof fans of the Betatron building twice per year for approximately 20 minutes per fan (October Transcript at p. 8) and the second for the period from 1963 through 1966 and pertaining to individuals working on the roof of Building #10 (*id.* at p. 6). For the first of these two, given the dose rates above the shooting room and the maintenance time and maintenance schedule, the annual dose was estimated to be 417 mrem/year which reasonably bounds the dose. GSI Evaluation Report at p. 27. For the second of these two scenarios (those working on the roof from 1963 through 1966), it was possible using simple geometry to determine that for an X-ray taken with the Betatron in the center of the shooting area, the

unshielded beam would be at least 10 feet above the roof line of Building #10 and pass through at least one foot of concrete. At the edge of the roof, the beam would pass through the entire 10 feet of shielding. *Id.* Based on an unshielded dose rate calculated for the roof of 208.5 mrem/hour (SC&A 2008 at p. 16), the increased distance alone would reduce this to approximately 11.2 mrem/hour, also giving a bounded dose. GSI Evaluation Report at p. 27. Finally, NIOSH estimated that the radiographers in the control room would receive a higher dose; thus, doses to radiographers estimates would bound this dose scenario. *Id.*

The second category above referred to possible exposure of employees not associated with radiography, but outside the Betatron buildings at ground level. Exposure models used claimant-favorable assumptions. SC&A 2008 at pp. 13-15, and Battelle-TBD-6000 Appendix BB at pp. 7-8. For example, in one model it was assumed that the Betatron was located near the entrance of the building pointed at the railroad tracks. That position could only occur if the Betatron head was “flipped” (SC&A 2008 at p. 38, October Transcript at p. 3), however, this was apparently only possible after the AEC contract period ended. *Id.* For exposure models assuming the Betatron was located at the center of the building, measured dose rates in the control room, a restroom, and outside the building were used with occupancy factors as discussed by NIOSH. GSI Evaluation Report at p. 27. Using those, employees outside the Betatron building at ground level would be exposed to the same level of radiation as the Betatron operators during the X-ray examination. Therefore, the dose to employees outside of the Betatron (at ground level) can be bounded by the radiographers’ estimated dose. *Id.*

The third category above refers to potential external radiation exposures from the use of sealed sources or a portable X-ray unit. These sources were apparently not used frequently and the large cobalt-60 source (80 Ci) was always used in the New Betatron building. Indications are that all sources and the portable X-ray machine were used by radiographers and that all radiographers wore film badges (from 1964 to 1973). The radiographers themselves would likely be the most exposed individuals from these sources.

One additional scenario was considered. The cinderblock room had no ceiling, possibly allowing for someone working on the 40-foot-high roof of Building #6 (above this cinderblock room) to be exposed. Dose rate at that location was reasonably estimated assuming a point source and a reduction in intensity determined by the inverse of the square of the distance from the source. The dose to employees working above the room more than 27 feet from the source can be bounded with the radiographer film badge readings. *Id.* at p. 28, SC&A at p. 17. The overall finding which seems reasonable to this panel is that radiographer film badges can be used as

bounding estimates.

Beta dose could also be bounded using the methodology presented in Battelle-TBD-6000 Appendix BB. In that scenario, the beta exposures would result from handling the uranium ingots and could be bounded by overestimating the exposure time after X-ray operations to be 30 minutes. Battelle-TBD-6000 at pp. 3-4. Conservative assumptions about steel-handling time would clearly give conservative dose estimates. Neutron dose, as is the norm, was significantly less than the photon dose and, as in other facilities, could be determined from the photon-to-neutron ratio.

The last exposure scenario is for radiation emitted from residual uranium contamination. In this scenario there is no potential for flakes of uranium since there was no cutting or grinding involved. GSI Evaluation Report at p. 28. Consequently, surface uranium contamination was modeled from airborne concentration values, with the latter bounded by operations that involved mechanical manipulation of the uranium. For those cases, the bounding estimate for external dose could be established using calculations provided for the residual period. *Id.* at p. 29.

In summary, the panel agrees that there are sufficient data and the modeling techniques are reasonable and justified to bound external doses associated with the exposures to radioactive uranium and steel handling as well as Betatron operations.

- iv.) **Additional sources of external exposure were associated with radiography operations. Using source strength and distance, radiographers would determine the exposure time necessary to expose film to produce a valid X-ray. NIOSH, using similar techniques, can estimate the dose to the radiographer and others that may be in the vicinity. This technique provides reasonable approaches to conservatively bound external doses.**

Additional sources of external radiation included all known sources of radiation at GSI that are not associated with Betatron machines. Sealed radiography sources and portable X-ray units were used for X-raying components at the facility. NIOSH White Paper at p. 2. This comprehensive document compiled the known facts about each source and exposure scenario and dose to worker categories that were potentially exposed. GSI used two radium (Ra-226) sources of 500 mg, which is approximately equivalent to 500 mCi of activity, until 1962. In 1962, those sources were replaced by two Co-60 sources of 0.26 Ci and 0.28 Ci. On occasion a 50 Ci Ir-192 source and a 10 Ci Co-60 source were also used at the St. Louis testing facility. *Id.*

All additional sources of radiation, source strengths, exam frequencies and scenarios to perform radiographic examinations, potential personnel exposure scenarios have been

satisfactorily described in the NIOSH White Paper. These sources were used infrequently; however, when they were used, they were operated by the same radiographers who operated the Betatrons. While NIOSH was not able to find any records of external monitoring data prior to 1964 for GSI employees, personnel monitoring data for the years 1964 through 1973 were available to NIOSH, and were used in the evaluation of bounding external doses. Landauer Reports.

Although 1966 was the end of the operational period, monitoring data are available during the residual period up to 1973. NIOSH has obtained film badge data from the Landauer Reports, which includes records for all workers employed as radiographers at GSI between 1964 and 1973. Based on review of information available to NIOSH, including the available purchase order requisitions and personnel interviews, NIOSH determined that the potential for exposure during 1964 was higher than in any previous year during the operational period at GSI. GSI Evaluation Report at p. 20.

The radiographers are considered to be the maximally-exposed group of workers based on the potential sources for external radiation. Although there are only two years of the dosimetry data for the operational timeframe (1964-1966), the data are representative of the highest doses the radiographers may have received; therefore, the available film badge data from 1964 through 1966 can be used to provide a bounding estimate of the radiation doses received by radiographers over any period of time at the site. *Id.* The external dose received by the radiographers when operating the X-ray unit or the sealed sources was assumed to be the same dose as the dose received when they were operating the Betatron (which is the procedure during which they would be maximally exposed). The panel finds this to be a conservative estimate as described in the HHS Determination. Details of the evaluation and assessment of the dose reconstruction approach is provided in Battelle-TBD-6000 and the NIOSH White Paper.

Some of the unmonitored employees worked in, or with, materials recently X-rayed in Betatron buildings. For other unmonitored employees, potential exposure to external radiation from additional sources of radiation may be due to radiation potentially received while in close proximity to a sealed source radiography unit used in other portions of the facility. Operators indicated that the sealed sources or the portable X-ray units were not used often. GSI Evaluation Report at pp. 27-28. Indications are that the radiographers used all sources and that all radiographers wore film badges (from 1964 to 1973). Thus, radiographers themselves would likely be the most exposed individuals from these sources, since they would always be near the sources during exposure while other employees would only infrequently be exposed as they walked the area. Therefore, radiographer film badges can be used as a bounding estimate. Another potential scenario of exposure related to exposures from these additional sources is due to the lack of ceiling in the cinderblock room. Someone working on the 40-foot-high roof

of Building #6 (above this cinderblock room) could be exposed to radiation without the minimal shielding afforded by the ceiling. Since the source is a point source, the dose rate decreases simply with the inverse of the square of the distance from the source. The dose rate outside the room was modeled as 18 mrem/hour, one meter from the wall. SC &A 2008 at p. 17, GSI Evaluation Report at p. 28. Therefore, the dose employees working above the room can still be bounded with the radiographer film badge readings.

Using the dose methodology described in Batelle-TBD-6000 Appendix BB, the beta dose can be reasonably bounded. This methodology assumes the operators received beta dose exposures from handling the uranium ingots both before and after X-ray operations. The beta dose estimate was bounded by overestimating the exposure time after X-ray operations to be 30 minutes. The operators were assumed to spend 15 minutes within one foot of the ingot and 15 minutes within one meter of the ingot. Batelle-TBD-6000 Appendix BB at pp. 3-4. The total exposure included radiation from uranium as well as the fission and activation products. The time period and exposure rates were conservative enough to bound any beta dose from steel handling operations as well.

In summary, dose estimates related to exposures from additional sources of external radiation were associated with radiography operations. NIOSH concluded that, using the source strength and distance, it can reasonably accurately estimate the dose to the radiographer and others that may be in the vicinity. The panel agrees that this technique provides reasonable approaches to conservatively bound external doses.

- v.) **External dose during the residual contamination period at GSI is limited to the radiation emitted from residual uranium contamination (OCAS-IG-003). With no mechanical manipulation of the uranium (i.e., cutting, grinding, or machining) and no high-temperature applications, contamination can be estimated using data from other sites that worked with uranium metal.**

With respect to the residual contamination period, NIOSH has gathered process and source descriptions regarding the identity and quantities of each radionuclide of concern, and information describing processes through which radiation exposures may have occurred and the physical environment in which they may have occurred as described. External dose during the residual contamination period at GSI is limited to the radiation emitted from residual uranium contamination including surface contamination which is derived (modeled) from airborne concentration values. GSI Evaluation Report at p. 28.

Residual radioactivity period. Based on the purchase orders for Macklinckrodt to X-ray uranium, the AEC-related radiological operations at GSI were completed in 1966. The defined end date for radiological operations was June 30, 1966, and the dates of the residual period are July 1, 1966, through December 31, 1992. A 1989 DOE survey in and around the building in which X-ray equipment was housed, showed that small amounts of residual radioactivity from former operations remained in several discrete areas in the X-ray building in the Granite City facility. Uranium-238 was found in elevated concentrations in debris from an industrial vacuum cleaner, and in dust and debris in several small locations throughout the building. This information can be used to evaluate the radiological exposure sources during the residual radioactivity period at the GSI site. Batelle-TBD-6000 Appendix BB at pp. 10-11.

Radiological Exposure Sources from GSI Operations. GSI performed quality control work for AEC during the 1950s and 1960s, on an as needed basis, which used two Betatron machines to X-ray uranium ingots to detect metallurgical flaws in support of AEC-related activities at the Mallinckrodt Chemical Company. The uranium ingots were cylindrical in shape, 18-20 inch in diameter, approximately 18 inches long, and weighed up to 3000 pounds. At least some of the work was performed on Betatron slices, each of which was an approximately four-inch thick slice taken from the ingot. The quality control work did not include any cutting, machining, or abrading of the uranium ingots; therefore, there was low probability of producing elevated air concentrations of uranium. Therefore, the primary source of airborne contamination was from oxidation and dust particles on the surface of the ingots that became airborne by forces such as air currents and handling activities. *Id.* at pp. 2-3. Internal radiological exposure could occur by means of inhalation and/or ingestion of the following radioactive materials:

- a. Uranium was the primary radionuclide of concern for internal exposure. Uranium oxides form in a variety of ways in metal working plants, including scale formation on hot surfaces and oxidation enhanced by the presence of water. SC&A 2008 at p. 34, Batelle-TBD-6000 at p. 14. Uranium particles could dislodge from the surface and become airborne during handling operations and subsequently inhaled or ingested. Until 1953, most uranium handled in AWE metal working sites was natural uranium. *Id.* at p. 19. Details regarding the relative concentrations of uranium isotopes in the ingots supplied by Mallinckrodt Chemical Company were not available; however, it is reasonable to assume that the ingots consisted of natural uranium given the source of the uranium metal ingots (or dingots). GSI Evaluation Report at p. 16.
- b. Recycled Uranium – Since uranium processed in refineries after 1953 was recycled or contained recycled uranium, it is assumed that the uranium

contained plutonium-239, neptunium-237, technetium-99, thorium-232 and thorium-228. *Id.*

- c. Fission Products. As it was possible for fission products created on the surface of the ingots during Betatron operations to be removed from the surface and become airborne, internal exposure to fission products is considered in evaluation. *Id.*
- d. Activation products. Internal exposure to activation products from the surface of the uranium ingots was considered in evaluation, because it was possible for some uranium to become dislodged during handling operations. Internal exposure from steel activation products was considered because during non-AEC work, metals were X-rayed and the flaws ground out. The grinding activities of activated steel presented a pathway for internal exposure. The inhalation of dust from activated steel did not constitute a significant exposure pathway. SC&A 2008 at p. 34.

In summary, the panel finds that the Secretary's determination in relation to external dose during the residual period at GSI is limited to the radiation emitted from residual uranium contamination is valid, and that there are reasonable means to conservatively bound this dose.

- vi.) **Although no specific information regarding occupational medical dose has been identified for GSI, the dose associated with medical X-ray exams, if required as a condition of employment, can be bounded by using the assumptions in the complex-wide Technical Information Bulletin, Dose Reconstruction from Occupationally Related Diagnostic X-Ray Procedures (ORAUT-OTIB-0006). NIOSH believes this methodology supports its ability to bound the occupational medical X-ray doses for GSI.**

Although no objections regarding the consideration of doses associated with medical X-ray examinations were raised by the petitioners, the panel reviewed the determination of the bounding of medical X-ray exams since this is a factor in the bounding of overall radiation exposure. The bounding of medical X-ray exams is covered in ORAUT-OTIB-006 and the panel has determined that the procedures were appropriately used and that the assumptions are claimant-favorable.

- vii.) **In sum, NIOSH determined that it has access to sufficient site-specific information to either (1) estimate the maximum internal and external radiation dose for every type of cancer for which radiation doses are reconstructed that could have been incurred under plausible circumstances by any member of the evaluated class; or (2) estimate**

the internal and external radiation doses to members of the evaluated class more precisely than a maximum dose estimate.

The HHS Determination was based on the consideration of sources of internal contamination and external radiation exposure. NIOSH recognized, and the panel has affirmed, that individual monitoring records are incomplete; however, 42 CFR § 82.16 describes methods to overcome the limitations of individual monitoring. The HHS Determination describes the methods that were used to set boundaries on the radiation doses during the times when individual monitoring was not available. As described above, these methods included estimates based on monitored procedures at the GSI facility as well as monitoring data from workers performing similar activities at other facilities. The panel affirmed that the bounds were based on conservative estimates that were claimant-friendly and provide reasonable estimates despite the data uncertainties.

As described above, the panel examined the findings of NIOSH as described in the HHS Determination. Radiation exposure could be from internal contamination of radionuclides, external exposure to ionizing radiation from industrial sources or through routine medical procedures.

The panel examined the basis of the findings that internal contamination could be bounded; the panel's findings are presented in Sections i and ii above. For the estimates of process-related internal uranium doses, the bounding was based on a similar plant that carried out processes that were more likely to produce uranium dust. The panel has determined that this bounding based on a process that is likely to result in higher contamination rates is claimant-friendly and satisfies the requirements set forth in 42 CFR §§ 82.18 and 82.19. The panel has also determined that the assumptions made in bounding exposure due to X-rayed steel casings were reasonable and that internal exposure was reasonably bounded. In much the same way, the panel determined that air monitoring data from other facilities that performed more extensive machining than was carried out at GSI reasonably bounded the possible internal contamination of GSI workers.

External exposure could result from operations using Betatron machines and other sealed source and X-ray units, other radioactive materials (which would contribute to residual radiation exposure) and medical procedures. For Betatron operations, exposure levels were bounded by considering the existing data from personal dosimetry carried by radiographers who would reasonably be considered to be maximally-exposed and modeling based on the exposure data and analysis of the particular techniques that were performed. Radiography was also performed using a portable X-ray unit and sealed sources, which were used infrequently. As was the case for the Betatron machines, bounding can be established by using personal dosimetry and modeling

exposure based on machine placement and operation. During the residual contamination period, exposure would be from residual uranium-238. Bounding was accomplished by using data from other sites that used uranium.

The panel examined the data inputs and the modeling that were used to reconstruct the external exposures and determined that the radiation exposures were reasonably bounded and that NIOSH properly used the existing data (as specified in 42 CFR § 82.15) and properly interpolated these data and modeled procedures as specified in 42 CFR §§ 82.16 and 82.17 to bound external radiation exposure. The panel concurred that the assumptions used to bound the estimated exposure were conservative and were favorable to the claimants.

Section B. Conclusion

As a result of our administrative review of this case, we have concluded that:

1. HHS substantially complied with the regulatory procedures set out in 42 CFR part 83.
2. The original decision contained no evidence of factual error and was supported by factually-accurate information.
3. There were no errors of fact or in the methods of evaluation, or omission in the principal findings and recommendations of NIOSH and the Board.

In summary: Based upon our review of the administrative record in this case, this panel believes that the regulatory procedures have been complied with, that credible sources of information have been used as allowed for under EEOICPA implementing regulations, 42 CFR parts 82 and 83, and that the Secretary, NIOSH, and the Board came to reasonable and appropriate conclusions. In short, we have concluded that petitioners' challenge is without merit, and we see no reason to recommend any change to the determination to deny adding a class of GSI employees to the SEC.

Respectfully submitted,

Signature on File

Steven L. Simon, PhD
Dosimetry Unit Head
Radiation Epidemiology Branch
Division of Cancer Epidemiology and Genetics
National Cancer Institute
National Institutes of Health 
Signature on File

Pat G. Prasanna, PhD
Program Director
Radiotherapy Development Branch
Radiation Research Program
National Cancer Institute
National Institutes of Health
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David R. Cassatt, PhD
Program Officer
Radiation/Nuclear Medical Countermeasures Development Program
National Institute of Allergy and Infectious Diseases
National Institutes of Health

Attachment:

Petitioners' Appeal Letter dated April 12, 2013 (excluding exhibits)

[REDACTED]

SEC00105

=====
Transmitted by FAX and U.S. Mail
=====

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, [REDACTED] and the SEC-00105 co-petitioner, [REDACTED]
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 [REDACTED]

letter to Wanda Jones, DrPH
April 12, 2013
Page 2

6. SEC-00105 co-petitioner technical white papers 2007-2013;
7. SEC-00105 co-petitioner and GSI site expert PUBLIC COMMENTS at regular ABRWH meetings Index (2005-2013);
8. Vincent Kuttemperoor 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 Hinnfeld (DCAS Director, NIOSH), dated 3/11/13, sent with the FedEx packet delivered to SEC petitioner on March 18, 2013, and to SEC-00105 co-petitioner 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,

[Redacted Signature]

04/06/2013

Date

[Redacted Signature]

4/14/2013

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 ██████ 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 ██████ did not get FedEx letter from HHS on 3.12.13. Co-petitioner told NIOSH 30 day clock would not start until ██████ got her official HHS notice that SEC-00105 had been denied. The ██████ 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 ██████ first 6 questions via FAX on 4/2/13
Follow up Faxes Jones to ██████ and ██████ to Jones 4/2/13 and 4/4/13; Jones assures ██████ 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 ██████ on 4/4/and 4/5/13
Jones's HHS hard copy reply letters arrive Van Buren P.O. 4/8, 4/9, 4/13/13
██████ SEC petitioner signed administrative review papers to ██████ 4/10/13
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 Congressmen 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 [REDACTED] 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 [REDACTED] 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 [REDACTED] 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.** [REDACTED] 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. [REDACTED] 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 [REDACTED] 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 ([REDACTED] and [REDACTED]) 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 [REDACTED] and [REDACTED] by some NIOSH, ABRWH and SC&A members:

(a) [REDACTED] and [REDACTED] 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 [REDACTED] GSI Work Book in any ABRWH or work group meeting or in the any white paper posted to Docket 140 to my knowledge. Further, [REDACTED] 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. [REDACTED] and [REDACTED] 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) [REDACTED] 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 [REDACTED] 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 [REDACTED] 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 [REDACTED] 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 [REDACTED] attended in person with site expert [REDACTED]

(e) Dr. Robert Anigstein of SC&A on the record stated [REDACTED] missed obtaining the GSI By-Products license on his first try by using wrong site names (not true). [REDACTED] 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 [REDACTED] could be a silent observer at the [REDACTED] interview. Dr. Ziemer and perhaps DFO Ted Katz apparently concurred in this decision. [REDACTED] was principal in the [REDACTED] firm and became a [REDACTED] of [REDACTED] where [REDACTED] taught [REDACTED] as a [REDACTED] with [REDACTED] publications and [REDACTED] funded federal grants from [REDACTED] through [REDACTED] when he retired after [REDACTED] years of service. [REDACTED] 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 [REDACTED]. SC&A, NIOSH and the Board would not have known about [REDACTED] had it not been for [REDACTED] initial research.

(g) HHS/NIOSH: DCAS Director Hinnefeld in his HHS FedEx packet cover letter stated [REDACTED] 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 [REDACTED] 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 [REDACTED] 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 [REDACTED] 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%. [REDACTED] 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 ¹³⁷Cs (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 [REDACTED] 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) Vincent Kuttemperoor 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 Kuttemperoor 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 [REDACTED] confirmed for himself at St. Louis Testing Laboratories on 6/08/07. Dr. Kuttemperoor's Board testimony disclosed that MSOE Betatron operators did not approach activated castings for 1 to 2 days after a shot had been completed. NIOSH erred in 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 [REDACTED] 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 [REDACTED] 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 [REDACTED] 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 [REDACTED] 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 [REDACTED]. 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 ([REDACTED]);
- (g) The date of the GSI stolen Radium plumb bob incident (October 1953). Site expert [REDACTED] 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 ([REDACTED]). 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 [REDACTED], 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 [REDACTED] and [REDACTED] directed NIOSH, Dr. Ziemer and the TBD-6000 work group, and SC&A to interviews with [REDACTED], [REDACTED], to [REDACTED], to [REDACTED], 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: [REDACTED], the [REDACTED] GSI [REDACTED] who [REDACTED] and [REDACTED] during [REDACTED] uranium NDT inspections; [REDACTED] and [REDACTED], GSI [REDACTED] who handled GSI [REDACTED]; [REDACTED], GSI [REDACTED]; [REDACTED], who was employed and worked at the GSI site from [REDACTED] through [REDACTED] as a [REDACTED] and testified about GSI records he personally was ordered to burn by management, and [REDACTED], who testified to site expert [REDACTED] 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 [REDACTED] 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 [REDACTED] 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 ([REDACTED] 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 [REDACTED], 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 [REDACTED], 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 ([REDACTED], see NIOSH Error #13) and accept the part about his [REDACTED] 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 ([REDACTED]) that covered [REDACTED] quarters; (b) some knowledge of two Ra-226 NDT gamma sources but no actual monitoring data from them, (c) a letter signed by **Gordon McMillin**, VP and General Manager, 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 (██████████) 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. ██████████ concluded the belt object he had first brought to everyone's attention was an identification badge rather than a film badge (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) **Gordon McMillin** did not appear in lists of GSI company officers or 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 Gordon McMillin 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 [REDACTED] 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 [REDACTED] 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. [REDACTED], [REDACTED] of [REDACTED], 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 data 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 [REDACTED] 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 [REDACTED] 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 [REDACTED] 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)

[REDACTED] 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 [REDACTED] by [REDACTED]. The source became disconnected and lay open for 16 to 24 hours. [REDACTED] was called in by GSI to fix the problem, which he did. However, according to [REDACTED] knowledge, GSI kept the dangerous hook-and-eye Co-60 "pill" connectors from 1964 through 1973 when plant operations ceased. 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 [REDACTED]. It was [REDACTED] 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 [REDACTED] 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 [REDACTED] "AEC/NCC" gamma photon dose summary for [REDACTED] 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, [REDACTED] 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 [REDACTED] 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, ██████ stated that peer reviewed journals insist on having experimental, that is real measured, data to validate computer models. ██████ 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 ██████, 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.**

██████████, formerly with the ██████████, 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. ██████████ 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 COMMISSION 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, Sarah Ray 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 ██████████ 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 ██████████ 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 ██████████ papers. They usually listened to his 10 minute presentations and asked him few, if any, questions thereafter. Full ABRH & WG transcripts confirm these facts.**

• ██████████ 39th paper, his transcription of the 2/21/13 TBD-6000 WG meeting and comments thereto, as well as a full ABRWH ██████████ 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. [REDACTED] 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 [REDACTED] 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 [REDACTED] and [REDACTED] 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 [REDACTED] attention in a letter from Landauer's [REDACTED] 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, Ed Zlotnicki, a former Landauer VP, about Error 36a.** In turn, Mr. Zlotnicki 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 ([REDACTED]) 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 [REDACTED] had to call in [REDACTED] of [REDACTED] 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. Zlotnicki never placed his complete evidence about this event on the record. [REDACTED] and [REDACTED] interviewed [REDACTED] 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.

[REDACTED] did not mention this fact to [REDACTED] 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-Zlotnicki 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. [REDACTED] and [REDACTED] 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. [REDACTED] 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 [REDACTED] 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. [REDACTED] 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 [REDACTED] and [REDACTED], 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." [REDACTED] 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) [REDACTED] 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 [REDACTED] 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.** [REDACTED] had to remind Mr. Rutherford that such information had been presented at Board meetings in his regular "upcoming SEC" presentations. [REDACTED] asked why this was not done for GSI SEC-00105? [REDACTED] 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 [REDACTED], 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 OMISSION 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 [REDACTED] with unredacted personal private information on a claim from a person who is unknown to [REDACTED]; 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 [REDACTED].

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](http://www.cdc.gov/niosh/ocas/iop.html#SEC:ABRWH-31%207/5/05), 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 Sarah Ray, 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 ██████████ and ██████████—Mr. ██████████ started work at GSI in early 1964,¹ while Mr. ██████████'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, ██████ 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. ██████ 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 ██████ 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,

██████████	4/14/13
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Petitioner ██████████	Date
██████████	4/14/13
<hr/>	
C0-petitioner ██████████	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. VINCENT KUTTEMPEROOR 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 ██████████ 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 ██████████ stating regulatory radiation limits that applied to GSI prior to 1963**
- EXHIBIT 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

 SEC-00105 Administrative Review request



04/06/2013
Date

SEC-00105 original petitioner



4/14/2013

Date

SEC-00105 co-petitioner

Sincerely,



Full GSI petitioners current contact information:



