

Miller, Diane M. (CDC/NIOSH/EID)

From: DanMcKeel2@aol.com
Sent: Tuesday, May 11, 2010 7:52 AM
To: NIOSH Docket Office (CDC); melius@nysliuna.org; Katz, Ted (CDC/NIOSH/OD); jmauro@scainc.com; Neton, Jim (CDC/NIOSH/OD); Hinnefeld, Stuart L. (CDC/NIOSH/OD); josiebeach@charter.net; gnrrslr@frontiernet.net; griffonm@comcast.net; pl.ziemer@comcast.net
Cc: danmckeel2@aol.com
Subject: Dow Madison Public Docket McKeel white paper
Attachments: McKeel_DowDocket_May2010.pdf

May 11, 2010

James Melius, ABRWH chairman and SEC Issues work group chair
Members of the SEC Issues work group (Josie Beach, Gen Roessler, Mark Griffon, Paul Ziemer)
Members of the full ABRWH Board
Ted Katz, CDC/DFO (please distribute to all Board members)
John Mauro, SC&A
Stuart Hinnefeld and James Neton, DCAS/NIOSH
NIOSH Public Docket [NIOCINDOCKET@cdc.gov]

Dr. Melius and all recipients,

Attached is a PUBLIC DOCKET comment on the full range of Dow Madison technical documents and related white papers from NIOSH and SC&A. I apologize that there will, of course, not be an opportunity to review this document prior to, or at, today's SEC Issues work group meeting. However, I did want all of you to be aware of my range of concerns. My views depart substantially from the NIOSH recommendation to deny extending SEC-00079 to cover the residual contamination period through 2007. Rather, I believe the use of surrogate data by NIOSH is so extensive, and the main criteria have not been justified of strict comparability of these surrogate data, that the work group and full Board should vote to approve the SEC extension from 1961 to October 2007. This action would be consonant with Dr. Melius' motion #2 put forth and approved unanimously by the full Board to explore this possibility in May 2007 when the 83.14 SEC-79 for the 1957-60 operational period was recommended to the HHS Secretary. Thank you for considering my concerns and information.

Sincerely,

-- Dan McKeel

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PUBLIC DOCKET COMMENT:
ON THE FORMER DOW CHEMICAL,
MADISON, IL, AWE FACILITY, INCLUDING
NIOSH ADDENDUM 2 TO THE NIOSH SEC-00079
EVALUATION; SC&A REVIEW OF ADDENDUM 2;
APPENDIX C TO TBD-6000
AND THE SC&A REVIEW OF APPENDIX C

SUMMARY: FINDINGS OF DOW SEC-00079
CO-PETITIONER DANIEL W. MCKEEL, JR.

Dow 83.14 SEC-00079 co-petitioner Daniel McKeel has reviewed all of the major technical reports made by NIOSH and the ABRWH technical contractor, Sanford Cohen & Associates (SC&A). He has also participated in the entire SEC process from its beginning more than four years ago to the present time, and makes the following SUMMARY OF PETITIONER FINDINGS comments for the NIOSH Public Docket record.

The petitioner believes these are the overarching and specific findings of fact that must be fully resolved in order for the SEC Issues work group, chair Dr. James Melius, of the Advisory Board on Radiation and Worker Health (hereafter "ABRWH" or "the Board"), to make a just decision on the merits of NIOSH's claim that it can bound all uranium and thorium internal and external doses during the residual contamination period at the former Dow Chemical facility located in Madison, Illinois.

The petitioner strongly disagrees that NIOSH can bound residual period thorium intakes when it was unable to do so for the operational period, a fact that led to the issuance of an 83.14 SEC-00079 for the period 1957 through 1960. Co-petitioner asserts that surrogate data used to calculate thorium intakes during the residual period at Dow Madison has not been sufficiently justified and has not been subjected to SC&A formal scrutiny of proper application of the Board draft surrogate data criteria. Nor have either SC&A or NIOSH applied OCAS-IG-004 surrogate data criteria to Dow Madison, IL, site specifically. John Mauro of SC&A acknowledged that fact during the SEC Issues work group teleconference meeting held February 5, 2010.

Table 1 of the recently submitted March 2010 SC&A draft white paper "Evolution of Dose reconstruction Approach at Dow Madison and Use of Surrogate Data," supports the co-petitioner position that all of the "Dow Madison" operation and residual period data except thoron is surrogate data. These surrogate data have not been fully validated by draft Board and OCAS-IG-004 surrogate data criteria. The draft Board criteria were initially applied to Dow Madison as a test case by SC&A because NIOSH totally lacked individual or site uranium or thorium monitoring data for the Dow Madison IL site. No (zero) Dow Madison film badge data has been produced to date. Nor has proof emerged that a AEC approved radiation safety program even existed at Dow Madison during the operational or residual contamination periods.

The second March 2010 draft white paper, the filename is: scadowappc_resolution.pdf, submitted with the first one on surrogate data assesses whether all Dow site specific issues in APPENDIX C to TBD-6000 have been fully resolved. That document is titled "Resolution of SC&A Findings on Appendix C (Dow

Madison) of Battelle TBD-6000." SC&A concluded: "In summary, SC&A believes that all issues have been resolved or have been transferred for review as generic issues." The co-petitioner believes that transferred for review as generic issues (a) begs the question, (b) postpones the answers, (c) fails to truly address the issues, and (d) is not an adequate conclusion because the issues need to be settled now for Dow Madison so that the SEC Issues work group can make a recommendation on extending SEC-00079 to the full Board. This issue has been dragging on since May 4, 2007, when Dr. Melius' second motion carried unanimously asking the HHS Secretary to help decide the issues related to extending this approved 83.14 SEC to cover the residual contamination period.

The co-petitioner believes that all outstanding SC&A Findings related to Appendix C have been fully resolved. He cites other findings related to Appendix C in this Public Docket submission, that have not yet been fully resolved and should be for the work group to make a fully informed recommendation to the entire Board.

Several examples of added co-petitioner findings related to Appendix C follow:

(1) Neither of Dr. Denise DeGarmo's research information on Dow Madison have been considered by SC&A or the SEC Issues work group of full Board.

(2) Ironically, TBD-6000 Section 7.2, Thorium, remains "Reserved" (blank) years after Rev 0 was released.

(3) Full characterization of the Kelly-Koett Betatron at Dow Madison or the extent and sources used in the NDT room shown on Dow Madison floor plans is but one example.

(4) No one has obtained, or attempted to obtain as far as I know, AEC By-product materials isotopic source licenses or Illinois State radiation device registration records for the Dow Madison, IL uranium-thorium AWE facility as another example of unfinished business the SEC Issues work group, SC&A, NIOSH and DOE have not fully addressed.

(5) Obtaining the complete set of "Livermore" documents that led to Dow Madison being designated a thorium AWE facility on Jan. 8, 2008, has not been accomplished.

(6) References including Harris and Kingsley (1959) and Adsley (1952) cited by SC&A as fully characterizing uranium metal operations at AWE facilities *miss a crucial point* that could affect uranium and thorium intakes significantly. That is the fact that many uranium and thorium metal facilities included vacuum hoods in their machining facilities over extrusion presses. This aspect is not covered in TBD-6000, either.

That procedure was not done at Dow Madison according to testimony from every knowledgeable worker who was interviewed about this point. Obviously, the dust load generated and inhaled during the operational and residual periods (due to resuspension and falling from the rafters) would be greatly increased by not having vacuum hoods to collect the uranium and thorium dust from hot extrusions of the radioactive metals. This factor has been completely neglected in calculating intakes. The Co-petitioner is not aware of any data that NIOSH or SC&A have produced that is related to the relative exposures from hooded and extrusion presses not equipped with vacuum hoods.

(7) As mentioned later in this narrative, MCW-1416 documents there were nine uranium gamma phase extrusion campaigns at Dow Madison during the operational period rather than two as claimed by SC&A in their review of Appendix C. Thus SC&A and NIOSH have considered only 2/9 or 22% of the potential dust load that might have accrued from the nine experimental gamma phase extrusion experiments. The FUSRAP Army Corps of Engineers (USACE) closeout report in 2000 did note extensive comingling of uranium and thorium dust in the rafters of Building 6 above the Dow

Madison extrusion presses. The USACE survey was confined to Building 6 based on the erroneous assumption that all Dow Madison thorium alloy manufacturing and machining was for commercial purposes. DOE did not release the Livermore documents and decision that Dow Madison was an AEC thorium AWE facility until January 2008 eight years after the uranium cleanup was completed. Pangea Group, who conducted the D&D decommissioning and thorium license termination work at Dow Madison, found extensive thorium metal all over the Dow Madison building complex including the 5 building (Castings) and the 7 building rolling mill.

The Specific McKeel Dow SEC-00079 Co-Petitioner Findings:

1. **The co-petitioner believes that ABRWH draft and OCAS-IG-004 NIOSH surrogate data criteria were improperly applied by NIOSH and not challenged as such by SC&A.**

More specifically:

(a) The use of Dow Bay City film badge data, when none (zero) existed for the Dow Madison facility, was not justified at all except to characterize the two facilities as "similar."

ABRWH chairman Paul Ziemer noted 2/5/10 during the SEC issues work group meeting that such discrepant work practices as having a film badge program at the Bay City Dow plant but not at the Dow Madison, IL, plant, are significant and should be factored into the assessment of whether or not surrogate data was properly applied. SC&A should have cited this lack of justification of site comparability as a Finding in their reviews of NIOSH Addendum 2 and Appendix C. Note, nor is there any Dow uranium or thorium bioassay data or neutron dose actual data or calculations.

(b) The use of Surrogate general air sampling data from subsequent owner Conalco in the 1980s as a valid indicator of conditions at the Madison site from 1961-2007 is not justified or proper in the petitioner's view. No information on Conalco production processes has been placed in the Dow SEC-00079 record to the co-petitioner's knowledge.

(c) The Silverstein 1956 and 1957 reports are not based on Dow Madison data even though Dr. Silverstein was nominally the official Radiation Safety office at that site. No workers have testified they were aware of Silverstein's role at the Madison plant, nor could they confirm his presence there at any time. The workers did testify that Silverstein's diagram of the Dow Madison "pot room" was inaccurate and must have been a schematic of another facility such as the Bay City plant. Dow Madison had ten [10] pots, whereas the diagram shows but seven [7]. The Silverstein and Stein reports fail to mention the almost daily thorium and magnesium related pot room fires, explosions and blow outs that are amply documented in worker testimony from four meetings held during 2006 and 2007.

(d) The use of surrogate data issue at Dow Madison should also be examined by the Surrogate Data ABRWH work group that is also chaired by Dr. Melius. This has not been done, nor have surrogate data criteria been formally applied to the data used by NIOSH to conclude it can calculate thorium and thoron intake doses during the residual contamination period.

(e) The co-petitioner has raised this finding and related issues repeatedly during Board presentations on SEC-00079 and with the work group without them

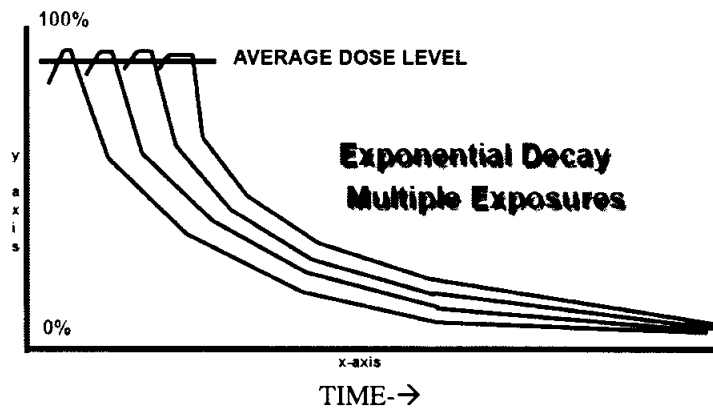
being resolved to his satisfaction. McKeel has not been given an Appendix C issues resolution matrix (as of 2/5/10).

NOTE: During the 2/5/10 SEC Issues work group meeting, the issue arose about use of surrogate data in SC&A's review of Appendix C. The facts were inaccurately stated by both SC&A and NIOSH: (1) use of Bay City, MI Dow film badges were not mentioned, (2) Conalco air sampling data use was not mentioned, and (3) the statement was made that "the only surrogate data was use of uranium data from TBD-6000." The statement was patently untrue and, frankly, was unfortunate to have been placed into the public (transcript) record.

2. The suggestion by SC&A and NIOSH that exponential decay is the correct approach for both uranium and thorium during their respective residual periods is ***not scientifically valid*** for thorium even though use of a theoretical exponential decay curve may constitute adherence to the letter of EEOICPA. The Pangea license termination and decommissioning reports clearly show that residual thorium, where commercial and AEC related thorium cannot be separated, were present throughout the Dow building complex as late as 2006. Thorium-magnesium alloys, including HK31A and HM21A, some of which was used in AEC nuclear weapons, was being continually manufactured at the Madison site during the 1970s, 1980s and early 1990s and was thus being continually replenished.

According to NIOSH officials at the 2/5/10 SEC Issues work group, EEOICPA mandates that NIOSH perform dose reconstruction during the residual period only for radioactivity from the operational (AEC contract period). The confounding issue at Dow Madison is that Dr. Denise DeGarmo has presented evidence to DOL she believes proves the AEC thorium HK31A alloy production period of a temper product made only at Dow's Madison, IL, plant extended beyond 1960. She averred she had definite proof of this, including an extended period AEC contract with the Dow Madison, IL, facility specifically. The specifically tempered alloy of HK31A that Dr. DeGarmo's research disclosed was, according to her, used in nuclear weapons in preference to all other HK31A differently tempered steel products. DOL was not persuaded about this fact, which petitioner McKeel intends to appeal.

If Dr. DeGarmo should prevail and the Dow Madison covered period is extended, NIOSH would thus need to calculate multiple "start" points for exponential decay as well as multiple overlapping exponential decay curves that would result in an average level near the peak values at the start of each exponential decay cycle. Evidence from AEC R&D report MCW-1416 issued in August 1958 proves that Dow Madison conducted at least 9 uranium extrusion campaigns for MCW and the AEC. Thus sound science is counter to language inserted into the original Act by those who framed the legislation, as interpreted by NIOSH. (see diagram below)



3. Appendix C and Addendum 2 do not account for external or internal doses for the massive amounts of thorium sludge (more than 800 rail cars full) that was placed into the 40 acre lot behind the Castings Division building at the Dow Madison facility in the 1950s, 1960s up until 1973. That period of time spans both the current operational and part of the residual radiation contamination periods as defined by NIOSH in its periodic report to Congress. Conalco also contributed to the “back 40 acre” thorium sludge accumulation at the Madison site, as both parties participated in paying for the massive 1992 ERG cleanup and removal to Envirocare in Utah. Dow Madison workers testify they shoveled this thorium sludge onto trucks and spread it on the 40 acre site behind Building 7 (Castings), thereby incurring exposures that were not calculated by NIOSH or addressed adequately by SC&A in any of their technical reports.
4. The five SC&A findings on NIOSH Appendix C have not been closed out in a formal dispute resolution process that was signed off on by the SEC Issues work group and full ABRWH. NIOSH mentioned “comments we have provided” at the 2/5/10 SEC Issues work group meeting that have not yet been shared with competitor McKeel.
5. NIOSH and SC&A primary technical reports and reviews fail to cite a key AEC technical report—MCW 1416—that defines more specifically than any other the experimental uranium extrusion campaigns carried out at Dow Madison on behalf of Mallinckrodt Chemical Works Uranium Division (MCW) and the Atomic Energy Commission (AEC) between 1957 and 1960. The information in this and related AEC reports describing the first six Dow extrusion campaigns for MCW should be incorporated into TBD-6000, Appendix C of TBD-6000, and the NIOSH evaluation report and two addenda of SEC-00079 evaluation that should in turn be addressed in reviews of those reports by SC&A.

Reference: The full citation for **MCW-1416** is: Mallinckrodt Chemical Works Uranium Division, AEC Research and Development Report, Restricted Un/Declassified Data, Report Number: **MCW-1416**, Subject Category: Technology - Feed Materials (hl-3679, 22nd Ed.): PROCESS DEVELOPMENT QUARTERLY REPORT, PART II - PILOT PLANT WORK, edited by John Nelson, issued August 1, 1958. Chapter V - GAMMA EXTRUSION OF DINGOT METAL, pages 37-80, by T. N. Dean and W. E. Ellerman, begins as follows: “I. Summary: Four gamma extrusion development campaigns are

reported, one from the program at BBC, Adrian, Michigan, and **three** from the program at Dow Chemical Co., Madison, Illinois. The Dow extrusion campaigns are 7, 8 and 9 in a series [emphasis added].

[NOTE 1] *SC&A mentions two uranium extrusion campaigns took place at Dow Madison during the SEC period of 1957-60, whereas MCW-1416 Chapter V describes in detail three in a series of at least 9 such experimental R&D campaigns. (see SC&A review and NIOSH/Battelle Appendix C to TBD-6000). The SC&A report should be corrected and MCW-1416 cited as the reference source basis for making this important correction a key technical report used for guidance in performing dose reconstructions at Dow Madison. Appendix C also serves as a surrogate full site profile for this facility. Thus, it is important that Appendix C be as accurate as possible.*

Also of note are statements on pages V-37 and V-38 of MCW-1416 summarizing the Dow Madison work to the effect that **radiographic inspection** was made of the extruded billets.

*Page V-37, seventh campaign at Dow, item 3 states: "An unusual flow pattern, similar to " r e v e r s e pipe, was revealed by **radiographic** inspection of a billet partially extruded with a uranium follower block."*

*Page V-38, eighth campaign at Dow, item 4 states: "A billet composed of one-inch-thick slices welded together was extruded for a study of the flow pattern of gamma uranium by **radiographic** examination."
[emphasis added]*

It was not stated where the radiographic examinations were performed, but the observation raises anew the possibility that the Kelly-Koett Betatron workers describe at Dow Madison as part of the NDT facility shown on plant drawings was used for this purpose. Alternately, the extruded billets could have been examined radiographically with the 24 Mev government-owned Allis-Chalmers Betatron at the adjacent General Steel Industries (GSI) EEOICPA site in Granite City, Illinois. The two sites were connected by a rail system.

[NOTE 2] *The gamma phase extrusion at Dow Madison was performed on uranium dingots, a patented MCW single step process for produced ingots (dingots = direct ingots). The petitioner has pointed out to NIOSH and the Board on several occasions, but has been ignored, that Dow Madison and General Steel Industries used dingots, not ingots derived from remelted derbys, in their AEC contract work for MCW Uranium Division. Dingots had a different thickness of Mg-fluoride crust and trace alloy composition, may have exhibited a different Putzier effect (accumulation of Th-234 in the "crop" areas), and were sufficiently different from two step ingots as to be included in TBD-6000, and its Appendix BB (GSI specific) and Appendix C (Dow specific). Other AWE and DOE facilities used MCW type uranium dingots. Both the MCW Destrehan Street downtown St. Louis and Weldon Spring Feed Materials plant in St. Charles County produced uranium dingots as well as two step ingots for uses such as fuel elements in the Hanford reactors.]*

**PART 1. DAN MCKEEL'S 2008 COMMENTS ON THE NIOSH 2ND ADDENDUM
TO THE EVALUATION REPORT OF DOW MADISON SEC-00079 ISSUED
6/03/08**

[1] The Board considered the initial Dow SEC-00079 on May 4, 2007 rather than 5/3/07 as stated in the second addendum. The presentation was scheduled for May 3, 2007 but had to be pushed back a day because other agenda items ran overtime on May 3. This error should be corrected as readers will be directed to the wrong ABRWH transcript. Examination of the May 3 and 4, 2007 ABRWH face meeting transcripts will bear out this assertion.

[2] NIOSH claims they can reconstruct thorium doses during the residual contamination period at Dow Madison that is now defined as 1961 to 2006.

I would make four preliminary pertinent comments as to why I strongly disagree with NIOSH's position:

(a) The Addendum #2 does not state why NIOSH now asserts they now can reconstruct thorium internal and external doses when the SEC Class already made into law was based on the fact that NIOSH could not accurately bound the thorium and thoron doses between 1/1/57 and 12/31/60. Exactly what new information has emerged since publication of the initial NIOSH Dow ER should be explicitly stated. The Board should meticulously examine and clarify this glaring disparity between the initial SEC evaluation report of April 2007 and this second addendum of June 2008.

(b) The ending date of 2006 for the **Dow residual contamination period** date is based on a March 2008 e-mail from Pangea Group. The text of this e-mail is not reproduced in the report that is cited in the References section on page 12 (Cushman, 2008, Email concerning Madison Site, Matt Cushman, Pangea Group, March 5, 2008; SRDB Ref ID: 41940). It isn't even clear who the sender is. Mr. Elliott failed to inform me that he had contacted Pangea Group and I have not had a chance to review this e-mail. Beyond those considerations, former Dow, Conalco and Spectrulite workers have told me repeatedly that IEMA remediation and license termination/decommissioning work continued through 2007, at least. Therefore I challenge 2006 and suggest 2007 or 2008 are more consistent with worker input I have received.

(c) Mr. Elliott also failed to inform me of the many data capture records NIOSH has obtained about Dow that are listed in the Data Capture Table beginning on Page 14 of the Addendum 2 Dow report issued 6/3/08. The SRDB now contains 256 records (p.16 of 34) related to Dow Madison according to this 6/3/08 Addendum. No effort was made by OCAS to inform the petitioner of this material. I am also interested in whether/if, and how long, this complete set of Dow Madison material has been available for review on the O drive by the Board and by SC&A?

(d) Much of the "Dow Madison" air and process monitoring data applies to other Dow facilities in Bay City, Michigan, and perhaps elsewhere. The cited monitoring data is not convincingly documented as applying specifically to Dow. The criteria being developed by the Surrogate Data working group under Dr. Melius are not being applied to this analysis, the validity of which may therefore be challenged. Mr. Elliott and Mrs. Breyer at OCAS/NIOSH repeatedly told me and the Board they had no radiation monitoring data for the Dow Madison site.

[3] **References, pages 11-13**

- The **References** section includes crucial documents, the nature of which was not

disclosed by Larry Elliott in his comments to the Board (ABRWH) or to me, the lead Dow petitioner. Mr. Elliott had stated to me he had contacted “the State of Illinois” and “Dow” but would not be more specific or provide these letters to me or to Robert Stephan of Senator Obama’s staff when requested to do so. Rather, Mr. Elliott required I go through the FOIA process. Surprisingly, I learned when I finally saw the 2/4/08 Velasquez IEMA letter that Mr. Elliott’s 2/4/08 inquiry letter to IEMA had *apparently* been copied to Senator Obama (see attachment). This copy was never brought to my attention. Why would it not be appropriate to send a copy to the lead co-petitioner as I asked for following the 4/17/08 original NIOSH report?

The May 21, 2008, CDC FOIA 08-00862 response letter postmarked 6/02/08 (12 days later) and received by me between 6/4-5/08 included only a single response document, a letter to Mr. Velasquez at IEMA dated 2/04/08. Part of page 2 is redacted out and marked (B)(5), citing 5 U.S.C. 552(b)(5) “inter-agency or intra-agency memorandums or letters which would not be available by law to a party other than an agency in litigation with the agency.” I believe this citation is vague as to exactly what is being withheld and I plan to appeal.

By context it appears this has to do perhaps with a previous request from Mr. Elliott’s office that IEMA had denied. See Addendum to comment [3] after the following paragraph.

This was surprising since Mr. Elliott and Mr. Turcic at DOL have always claimed to me that all agencies have complied with their letter requests as a reason DOL has not invoked, or been asked by NIOSH to invoke, section 7384w of EEOICPA to subpoena records but once in the entire history of the program. The CDC 5/21/08 FOIA response letter notes it is in response to my FOIA requests dated 3/30/08 and its 5/16/08 extension. The CDC letter does not state that (a) the faxed requests were both clearly marked as expedited FOIA requests, (b) that the 5/16/08 request expanded the scope to include Mr. Elliott’s letter to Dow and to any other inquiries he or his office made (such as the e-mail to Pangea Group that is in the References on page 12), and (c) that I also asked for any and all documents OCAS/NIOSH had received in response to their inquiries to the State of Illinois, Dow and others about the Madison site thorium operations. As a result I need to file an Appeal to address these failures of the CDC 5/21/08 response to follow FOIA rules. The basis will be that CDC FOIA Office ignored and did not address major parts of the May 16 request. They erred in not furnishing all of the requested documents and in not citing one of the nine allowable FOIA exemptions that would make this failure to produce records or cite specific exemptions acceptable under FOIA.

Co-petitioner did appeal the redacted (b)(5) passage in FOIA 2008-00562 to William R. Hall, Assistant Secretary in PSC/HHS, agreed with McKeel and reversed the redacted passage. Secretary Hall’s letter did not contain the unredacted response as was promised, forcing McKeel to write again to get the deleted passage. The deleted passage contained the startling statement that IEMA legal counsel believed that NIOSH lacked “the authority” to request their records. Again, the solution would have been for NIOSH to have requested that DOL use the Section 7384w subpoena power to obtain the necessary records.

[4] page 23 of 34, **Attachment 2: Reconstruction of Dose Resulting from Intake of Residual Thorium at Dow Chemical from 1961 through 2006.** The section 1.0 **Introduction**, opening paragraph states as follows:

“Dow Madison supplied the Atomic Energy Commission (AEC) with both materials and services from January 1, 1957 through December 31, 1960. Among these materials and services, Dow Madison provided magnesium-thorium (Mg-Th) sheets and plates to Mallinckrodt and other AEC facilities. The DOE has stated that in 1957 and 1958 Dow Madison supplied the AEC (via the Mallinckrodt site) with Mg-Th plates and sheets, and that during the 1957 and 1958 time period, these types of plates and sheets were used in atomic weapons (DOE, 2008).”

- Glenn Podonsky’s Jan. 8, 2008 letter on page 2 states that thorium alloys of the type contained in the 1957-1958 Mallinckrodt purchase orders were produced at Dow Madison from **1956 to 1969 that were used in atomic weapons**. This 11 year difference makes a significant difference. Thus directly relevant information from DOE-HSS findings were omitted from the Addendum #2 Dow ER report. Please refer to item #5 and EXHIBIT 2 as well.

[5] SC&A has not had a chance to review this second Dow ER addendum by NIOSH. It will be premature if the Board votes on the SEC-00079 extension because of this. Also, McKeel as lead SEC presenter will not possibly have time to review the many heretofore unknown or disclosed to him References that are cited on pages 11-13. I need time to review the records before making my presentation to the Board in defense of extending SEC-00079 to cover the residual contamination period. I have also prepared a letter to be mailed 6/7/08 to DOE-HSS (Glenn Podonsky and Pat Worthington) seeking correction of errors and omissions in the revised Dow Madison site facility database description.

SUMMARY

1. The overall conclusion of the Addendum #2 issued 6/3/08, that NIOSH can reconstruct thorium dose, is at marked variance with the original SEC 79 evaluation dated 4/17/07. The rationale is obscure.
2. The report misleadingly characterizes monitoring data, especially air monitoring, almost none of which is actually from Dow Madison facility, as being collected at that facility. NIOSH has zero film badge or bioassay monitoring data for Dow Madison workers.
3. The characterization of the melting room in Castings (workers refer to it as the “Pot Room”) is inaccurate according to former workers who state it contained ten, not six, 6,000 pound capacity pots. The facts that these pots gave off huge amounts of fumes and smoke and that frequent fires and explosions occurred in the pot room were not mentioned as potential sources of thoron inhalation, nor were those inhalation and ingestion doses adequately bounded. No sample thorium DRs were done. Only 3 DRs have ever been completed at Dow Madison by NIOSH/ORAU. This markedly weakens their claim that full sufficiently accurate DR is possible.
4. Many important documents, and indeed the very existence of them, was withheld from the lead co-petitioner by NIOSH and not produced through the expedited FOIA process (I partly redacted document was produced after two months) who must now defend extending the Dow SEC-00079 petition beyond 1961 to the Board on June 24-26,

2008 in St. Louis. This is unfair and inequitable.

5. The fact that Glenn Podonsky's 1/8/08 DOE-HSS letter to DOL and NIOSH stated that thorium production at Dow Madison occupied the 1956-1969 time period is omitted in the second Dow Addendum.

6. SC&A, who reviewed the original NIOSH SEC-00079 ER report, has not yet reviewed the first or the second NIOSH addendum reports. This should be a requisite before the Board votes on the SEC extension.

PART 2. DOW MADISON SEC-00079 CO-PETITIONER
DANIEL W. MCKEEL, JR., MD, FINAL COMMENTS
ON DOW SEC-00079 RELATED TECHNICAL
REPORTS BY NIOSH AND SC&A

1. The Dow Bldg 6 extrusion presses had no vacuum hoods to vent uranium and thorium dust away from operators and bystanders. TBD-6000 doesn't address this issue that could affect extrusion press exposures significantly. TBD-6000 should provide guidance for the different doses delivered to operators and bystanders from vacuum hooded and not hooded extrusion presses.

2. The SEC issues work group, SC&A and the full Board have not yet addressed the two DeGarmo packets submitted to DOL seeking extension of the coverage period. Those documents are relevant to Dow thorium operations, its AEC contract, and the specific types of thorium alloys that Dow Madison produced that were used in nuclear weapons. Thus, the material is not just related to the covered period. Besides that, Dr. DeGarmo and members of her research team presented the material in the packets to the Board on two occasions complete with handouts. Also, NIOSH confirmed 2/5/10 it had the DeGarmo material and had placed it in the SRDB where SC&A has access to it (made as a definite statement).

- DOL has concluded the DeGarmo documents they received on two occasions do not merit changing the covered period. However, the use of the specific temper HK31A alloy that Dr. DeGarmo claims was manufactured at Dow Madison and was used in nuclear weapons by AEC was not examined in sufficient detail by DOL based on the co-petitioner's reading of Rachel Leiton's (DEEOIC Director at DOL) January 2010 letter to Dr. DeGarmo. The petitioner requests the Board should task SC&A to examine all the DeGarmo material including her Board handouts on two occasions, for the reasons stated above. This review should include the two DOL Rachel Leiton response letters to Dr. DeGarmo (March 2009 and February 2010).

3. DOL should be requested to assist NIOSH, ORAU, DOE, the SEC Issues work group and SC&A to capture all pertinent Dow Madison records from DOE, NRC, Dow headquarters in Michigan, Spectrulite, and the Illinois Department of Public Health. NARA acknowledged that a box of Dow Madison records was missing when John Ramspott visited the Chicago facility. Those missing records should be sought as well. Dow headquarters lawyers reported to then Senator Obama's IL staff they held 10,000 Dow Madison records at the Midland, MI headquarters. Petitioners asked but were not granted permission to peruse those records that were assembled for the massive class action lawsuit that Rocky Flats (RF) neighbors won in 2009 against Dow and Rockwell International as prime Rocky Flats contractors from, respectively, 1951-1975 and 1976 to

RF plant decommissioning in this decade.

- Records sought should include radiation device records for the Dow NDT facility Kelly-Koett Betatron device, and pertaining to any AEC inspections carried out by IDPH and the AEC/NRC at Dow Madison 1957-2007. Source term and sealed source records should also be sought. **DOL should be asked to employ the EEOICPA Section 7384w subpoena power if necessary.** Data capture teams should visit those sites in person if necessary as they have done for other sites throughout the history of EEOICPA. It is clear that not all Dow Madison thorium and thorium-magnesium alloy records have been aggressively sought and duly captured. Such records would include shipping manifests to and from Rocky Flats, that numerous Dow Madison workers testified did happen,. These records include the complete set of Livermore records DOE used to establish Dow Madison as a thorium AWE site.

**PART 3. DOW MADISON SEC-00079 CO-PETITIONER
DANIEL W. MCKEEL, JR., MD, COMMENTS
ON**

**“A FOCUSED REVIEW OF OPERATIONS AND THORIUM EXPOSURES
AT THE DOW CHEMICAL COMPANY MADISON PLANT”
Contract No. 200-2004-03805
Task Order No. 5
SCA-SEC-TASK5-0057**

1. **DOCUMENT “sca-t5-57-r0a.pdf”** is a 66 page technical report, SCA-SEC-TASK5-0057, dated August 24, 2007. The chief author is Charles (Chick) Phillips working under SC&A Task Manager John Mauro. There are many errors and inaccuracies, as well as inappropriate, not fully justified *or acknowledged* use of surrogate data regarding thorium operations in this document that should be addressed and corrected to be fair to Dow Madison claimants and potential class members. For instance, area and HK31 surface radioactivity monitoring data and Casting Division “pot room” descriptions from other dissimilar Dow Chemical plants in Michigan (such as Bay City) were attributed to be data collected at Dow Madison in Illinois without any valid justification or being subjected to either draft Board or NIOSH OCAS-IG-004 surrogate data criteria. **The key AEC-MCW technical reports on at least nine (9) “gamma phase extrusion campaigns” at Dow Madison were not included in this report.**

- An example of one such egregious error occurs on page 5, when the Introduction begins “*The law firm of SimmonsCooper filed an SEC petition,*” which is NOT TRUE. This mistake is one unintended consequence of the flawed policy of NIOSH/CDC/HHS in always redacting SEC petitioner names from its OCAS website. SC&A should have access to the unredacted petition. SEC-00079 is an 83.14 petition that was initiated by NIOSH. SimmonsCooper had nothing to do with filing the petition. Mr. was the 2nd “litmus case” selected *by NIOSH* to be the main Dow Madison petitioner, and Daniel W. McKeel, Jr., M.D., the author of this DOCKET comment, was authorized by Mr. to be his SEC-00079 co-petitioner and submitted Form A to that effect.

2. On page 6 SC&A makes the following statement in support of NIOSH being able to reconstruct uranium doses at the Dow Madison facility (bold emphasis added):

*With respect to exposures to uranium, SC&A concurs
with NIOSH’s conclusion that uranium exposures to*

*workers during uranium operations and exposures to residual uranium subsequent to the termination of uranium operations at Dow Madison can be reconstructed in a scientifically valid and claimant-favorable manner. The basis for this conclusion is our understanding that the nature of the **uranium operations that took place at Dow Madison during the covered period was similar to the uranium metal-working operations that took place at numerous other DOE/AWE facilities.** We have reviewed numerous reports addressing these types of operations, including the reports by Harris and Kingsley (1959), Adley et al. (AEC 1952), and documentation in support of the Site Profile for Simonds Saw and Steel ORAUT-TKBS-0032 (ORAUT 2005) and the recently issued Site Profiles for Atomic Weapons Employers that Worked Uranium and Thorium Metals (Battelle-TBD-6000 2006). We believe that these reports, taken in combination, are **comprehensive** in describing the range of operations and the range of exposures that workers might have experienced during uranium metal-working operations at DOE/AWE facilities during the early years. **We believe that the material contained in these reports can be used to place plausible upper bounds on the uranium exposures experienced by workers at the Dow Madison facility.***

(2a) The co-petitioner strongly disagrees with the validity of this statement. With respect to AEC uranium contract work, Dow Madison and its neighboring, contiguous Illinois AWE site, General Steel Industries (GSI), had a special working relationship with nearby, across the Mississippi River, Mallinckrodt Chemical Works (MCW) Uranium Division facilities at both Destrehan Street, St. Louis, and at the DOE Weldon Spring plant in Missouri's St. Charles County. That is, the uranium metal that Dow Madison workers extruded and the uranium rods they straightened undoubtedly consisted in part or wholly of uranium metal obtained by the patented MCW one-step dingot (direct ingot) process.

(2b) John Ramspott and Dan McKeel in their material submitted to the Board, the SEC Issues and TBD-6000 work groups and to SC&A, to former Director Larry Elliott at OCAS/NIOSH, and to the NIOSH PUBLIC DOCKET have repeatedly stressed the differences between MCW uranium dingots and two step ingots. (see REFERENCES 1-3). The TBD-6000 only began assessing the technical adequacy of TBD-6000 in late 2008-2009 and this effort is still underway. Section 7.2 on thorium is still reserved (that is, blank).

(2c) Compared to two-step derby uranium ingots, one-step MCW dingots had a less even thickness Mg-fluoride outer crust that had to be machined away to exposed the inner pure uranium core. Dingots often were alloyed with trace amounts of other metals to impart better dimensional stability under stringent heating conditions in the Hanford production reactors. AEC finally went

back to ingots and dropped the work with dingots for use in fuel rods for dimensional stability reasons. NIOSH has not factored in this crust or alloy components in Dow Madison uranium dose calculations. And the literature that Mr. Phillips cites on page 6 of 66 does not refer to any of the key MCW dingot patents or related literature pertinent to dingot uranium alloys, top cropping, lathing or other necessary operations that is well documented in AEC-MCW quarterly technical reports. NIOSH does not have a clear picture of exactly what types of uranium were sent from MCW and processed at Dow Madison. Nor does TBD-6000 contain this important information concerning differences between MCW one-step uranium dingots and uranium ingots formed by remelting derbys.

(2d) The literature cited by Phillips fails to document the effect of the extrusion presses used for AEC uranium contract work at Dow Madison not being fitted with vacuum hoods. Dow worker affidavits and outreach meeting testimony attests to the fact that Dow Extrusion Division presses were NOT hooded. This would result in far higher breathing zone concentrations of inhalable uranium fumes and metal particulates of an uncharacterized mean diameter size distribution.

In summary, NIOSH has not thoroughly characterized the several uranium metal source terms at Dow Madison, especially MCW patented dingots, and has not allowed for exposures to inhaled uranium dust from using extrusion presses that lacked vacuum exhaust hoods. That this effect occurred is evidenced by the 2000 FUSRAP (USACE) report at Dow Madison that showed uranium and thorium dust commingled in the rafters above the extrusion presses.

3. This report preceded the revelation by DOE that led to the designation of Dow Madison as AWE based not only on thorium but also on thorium production for nuclear weapons. The key document was a letter dated 1/08/2008 by DOE HSS Director Glenn Podonsky to Peter Turcic, Director of the DEEOIC office at US Department of Labor (DOL). This action rendered as outdated and incorrect the statement found at the top of page 7 of 66:

“During the period 1957 through 1960, and presumably before and after that period, Dow (and successor owners of the plant) produced magnesium alloys containing thorium for commercial customers^{1,2}”

In retrospect, the Army Corps of Engineers FUSRAP team had erred in not cleaning up the Dow thorium in 1999-2000 based on the erroneous perception that all Dow Madison thorium production before and after 1957 to 1960 was commercial. The co-petitioner and the SINEW working group met with St. Louis USACE District top officials in June 2006 in an unsuccessful effort to set the record straight on Dow thorium operations being partly AEC related. This was based on worker testimony. At that time DOE had not been forthcoming about possessing the “Livermore” documents that supported use by the AEC of Dow Madison Mg-thorium plates being used in nuclear weapons. Dr. McKeel had urged DOE to obtain such documentation since beginning to support Dow Madison workers in 2005.

- It must be noted here that Dr. Denise DeGarmo’s research on extending the covered period at Dow Madison had not yet been presented to the Board or NIOSH. Also, Glenn Podonsky’s 1/08/08 letter stated that thorium alloy plate was used in nuclear weapons through 1969. Dr. McKeel urged NIOSH, the Board, the SEC Issues WG, and SC&A to request that DOL subpoena authority in Section 7384w to obtain access to the 10,000 Dow Madison records that Robert Stephan, aid to then Senator Barack Obama of IL, discovered from in-house (Ellen Ahearn) and outside counsel (David Bernick) were held at Dow corporate headquarters in Midland, MI. This record collection apparently was assembled as part of the

Rocky Flats “neighbors” class action lawsuit against prime contractors Dow Chemical (1951 to 1975) and Rockwell International (post-1975). The initial verdict was against Dow and Rockwell.

**PART 4. DOW MADISON SEC-00079 CO-PETITIONER
DANIEL W. MCKEEL, JR., MD, COMMENTS
ON TWO SC&A WHITE PAPERS RELATED TO DOW SEC-00079
POSTED ON THE DCAS WEBSITE 4-16-2010**

1. **DOCUMENT “sca-dowdsd DRevolution.pdf”** is a Sanford, Cohen & Associates (SC&A) draft White Paper technical document. The report traces changes in NIOSH dose reconstruction policies and the use of surrogate data at Dow Madison. The document was not transmitted to Dr. McKeel by the DFO, the NIOSH SEC Counselor, SC&A or the SEC Issues work group or the full ABRWH, The co-petitioner first became aware of the white paper by receiving a “DCAS Update” e-mail notification on the posting date. *He was surprised not to have remembered hearing that such a white paper had been tasked by Dr. Melius’ SEC Issues work group at any previous meeting.*

2. **DOCUMENT “sca-dowappc resolution.pdf”** is a Sanford, Cohen & Associates (SC&A) draft White Paper technical document that purports to show that all major SC&A and NIOSH Findings regarding Appendix C to TBD-6000 have been resolved. The document was not transmitted to Dr. McKeel by the DFO, the NIOSH SEC Counselor, SC&A or the SEC Issues work group or the full ABRWH, The co-petitioner first became aware of the white paper by receiving a “DCAS Update” e-mail notification on the posting date. *He was surprised not to have remembered hearing that such a white paper had been tasked by Dr. Melius’ SEC Issues work group at any previous meeting.*

Dow Madison SEC-00079 co-petitioner McKeel comments on both March 2010 draft white papers from SC&A were made on pages 1 and 2 of this document.

Respectfully submitted as a PUBLIC DOCKET request, May 11, 2010,

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