THE ADVISORY BOARD ON RADIATION AND WORKER HEALTH
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
CENTERS FOR DISEASE CONTROL AND PREVENTION

Summary Minutes of the Forty-sixth Meeting
May 2-4, 2007

The Forty-sixth Meeting of the Advisory Board on Radiation and Worker Health (ABRWH or the Board) was held May 2 through 4, 2007 at The Westin Westminster in Westminster, Colorado. The meeting was called by the Centers for Disease Control and Prevention's (CDC) National Institute for Occupational Safety and Health (NIOSH), the agency chartered with administering the ABRWH. These summary minutes, as well as a verbatim transcript certified by a court reporter, are available on the internet on the NIOSH/Office of Compensation Analysis and Support (OCAS) web site located at www.cdc.gov/niosh/ocas.

Those present included the following:

Board Members: Dr. Paul Ziemer, Chair; Mr. Mark Griffon; Dr. James Melius; Ms. Josie Beach; Mr. Bradley Clawson; Mr. Michael Gibson; Mr. Mark Griffon; Dr. James Lockey; Ms. Wanda Munn; Mr. Robert Presley; Dr. Genevieve Roessler; Mr. Phillip Schofield.

Designated Federal Official: Dr. Lewis Wade, Executive Secretary.

Federal Agency Attendees:

Department of Health and Human Services:

CDC Washington: Mr. Jason Broehm

NIOSH/OCAS: Dr. Christine Branche, Mr. Larry Elliott, Dr. Sam Glover, Mr. Stuart Hinnefeld, Dr. Gregory V. Macievic, Dr. James Neton, Mr. LaVon Rutherford, Dr. Brant Ulsh.

Office of General Counsel: Ms. Liz Homoki-Titus, Ms. Emily Howell.

Department of Labor: Mr. Jeff Kotsch

Department of Energy: Ms. Libby White

Contractors:

Dr. Arjun Makhijani, Dr. John Mauro, Sanford Cohen & Associates (SC&A).

Congressional Staff: Ms. Jeanette Alberg (Senator Wayne Allard), Ms. Carolyn Boller (Congressman Mark Udall), Ms. Deb Detmers (Congressman John Shimkus), Mr. Jonathan Epstein (Senator Jeff Bingaman), Mr. David Hiller (Senator Ken Salazar), Mr. Bill Holer (Congressman Ed Perlmutter), Ms. Michele Jacquez-Ortiz (Congressman Tom Udall), Ms. Erin Minks (Senator Ken Salazar), Mr. Robert Stephan (Senator Barack Obama), Mr. Jason Thielman (Congresswoman Marilyn Musgrave), Ms. Portia Wu (via telephone for Senator Ted Kennedy).

Members of Congress: Senator Barack Obama (via telephone), **Senator Ken Salazar** (via telephone), **Congressman John Shimkus** (via telephone).

Other Participants: (See Registration)

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Wednesday, May 2, 2007

Opening Remarks

Dr. Paul Ziemer, Board Chairman, Opened the meeting and reminded guests, Board members, and others to register attendance in the registration book. He also indicated there was a sign-up sheet for members of the public who wished to speak. **Dr. Ziemer** noted the activities of the Board members and thanked them for their extensive time and effort.

Dr. Lewis Wade, Designated Federal Official, announced there was a quorum present and added his thanks to the Board for their service. He observed this was the beginning of a period where SEC petitions would be a big part of the work.

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NIOSH PROGRAM UPDATE

Mr. Larry Elliott,
NIOSH/OCAS

Mr. Elliott began by referring to a teleconference meeting in which he had advised that the dose reconstruction program and SEC petition processing program at NIOSH were in resource-limited straits. He

explained contracting support would be scaled down across the board. He added the Battelle contract ending at the end of May would not be renewed, and that the ORAU contract due to expire September 11 could be maintained at current levels only through May. ORAU would virtually stop work in July. He noted that support to the Board work would diminish dramatically as the July meeting approached with no new funds available until fiscal year '08.

Mr. Elliott outlined that as of April 25th this year DOL had forwarded 23,871 claims. Of that number, 83 percent (19,834) had been completed and returned to DOL. There were 17,800 returned with dose reconstructions, 599 pulled by DOL for various reasons, and 1,391 being considered for eligibility to the Special Exposure Cohort. This left 16 percent (3,813) at NIOSH for dose reconstruction or SEC claim processing. **Mr. Elliott** added one percent (224) was administratively closed, and 57 of the claims were reopened for additional work or upon receipt of the OCAS-1 form, and then forwarded to DOL for a decision.

Mr. Elliott continued that of the 17,884 dose reconstructions sent back to DOL, 28 percent (4,934) were greater than 50 percent and found to be compensable while 72 percent were less than 50 percent probability of causation and therefore denied.

Mr. Elliott presented a graphic of the probability of causation for all claims with completed dose reconstructions.

In his presentation **Mr. Elliott** made special note of older claims, commenting that of the 3,813 claims remaining at NIOSH for dose reconstruction, 42 percent (1,586) are one year or older. He continued that of the first block of 5,000 (the oldest) claims, 66 are awaiting dose reconstructions; 4,358 have final dose reconstructions returned to DOL; 55 were administratively closed; 246 were pulled back by DOL; 172 are being considered or have been found eligible for the Special Exposure Cohort; 24 have dose reconstruction reports with claimants for the OCAS-1 form; and 79 have been returned by DOL for additional work.

Mr. Elliott presented graphics illustrating progress of all the claims, both by tracking number and by quarter.

Addressing reworks, **Mr. Elliott** indicated DOL had requested some level of rework on 2,197 claims, of which 1,810 have been completed and returned.

Mr. Elliott reminded the assembly that upon receipt of a claim from Department of Labor, NIOSH asks Department of Energy for all available relevant exposure monitoring information for that claim. Currently there are 667 outstanding requests, with 44 greater than 60 days.

There is a 30-day follow-up with DOE as to where the request stands, and any circumstances or problems that may be associated with the delay. He noted NIOSH doesn't see any trend associated with those older than 60 days.

Addressing Battelle activities, **Mr. Elliott** indicated two Technical Basis Documents had been approved, one for uranium metal processing and one for uranium refining processes. Sixteen site-specific appendices will accompany these. He pointed out the contract had been awarded to address claims from Atomic Weapons Employers, which were not receiving adequate attention. The fruits of Battelle's labor is being seen now.

Reporting on SEC petitions, **Mr. Elliott** observed 88 petitions have been received. Thirty-nine have been qualified for evaluation and 17 classes have been added. Eight petitions are currently under development, and 36 petitions did not qualify. Under the 17 added classes, 1,391 claims are being considered and four sites have been identified for 83.14s.

Mr. Elliott explained Program Evaluation Reports are the result of a changing procedure or methodology which, by regulation, requires review of all previous dose reconstructions that were found to be non-compensable. He discussed briefly the ten Program Evaluation Reports which have been completed, making note of Revision 2 of the Bethlehem Steel site profile since it was scheduled to be discussed during this meeting. There were seven previously compensable claims now shown to have a POC less than 50 percent. There were also three claims that would go over 50 percent as result of the changes. DOL has been advised and will decide how to handle those claims.

With Rocky Flats on this meeting agenda, **Mr. Elliott** also mentioned the effect of the Rocky Flats Neutron Dose Reconstruction Project data had been found to have made no change in the 88 non-compensable claims.

Mr. Elliott defined Program Evaluation Plans and listed the six which have been issued. He stated there are many Program Evaluation Reviews ahead.

Mr. Elliott indicated the conflict of interest policy has been fully implemented and referred everyone to the web site.

Mr. Elliott announced that Special Exposure Cohort ombudsman **Ms. Denise Brock** and counselor **Ms. Laurie Ishak Breyer** have started to organize SEC outreach meetings. The first is to be held May 23 and 24 in Idaho Falls, Idaho. The purpose of the meetings is to discuss and guide potential SEC petitioners through the process.

Mr. Elliott reviewed the distributions of the probability of causation for the facilities to be addressed at this meeting. There have been 1,210 Rocky Flats claims received from DOL; 123 are active now, 21 have been pulled back by DOL, and 1,066 dose reconstructions have been completed. Department of Labor has found 76 percent of the dose reconstructed claims to be non-compensable and 34 percent to be compensable.

Moving to Bethlehem Steel, he said NIOSH has completed 97 percent of the 740 claims; 42 claims remain active, three have been pulled, and 695 dose reconstructions have been completed. Fifty-five percent have been non-compensable and 45 percent compensable.

He continued that at Los Alamos National Lab 848 claims have been received, 145 remain active, 236 have been pulled back, and 467 dose reconstructions have been completed. Of those completed, 79 percent are non-compensable and 21 percent compensable.

At Chapman Valve 74 dose reconstructions have been completed on the 127 claims, with 64 percent non-compensable and 36 percent compensable. At W.R. Grace 35 DRs have been completed, with 26 percent having been found non-compensable and 74 percent found compensable.

Mr. Elliott didn't have the numbers broken down for the slide on Sandia National Lab at Livermore, although there are 34 completed DRs from the 79 sent from DOL. There was no chart available for Dow Chemical, but two of 118 claims had been reconstructed with both being compensable.

Discussion Points:

- Will the budget issue result in layoffs at NIOSH;
- Will the budget issue affect Battelle;
- The contract ends in May and there is no money to continue it.

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DOL PROGRAM UPDATE

Mr. Jeffrey Kotsch,
Department of Labor

Mr. Kotsch explained the DOL program is divided into two parts. Part B deals with cancer, chronic beryllium disease, beryllium sensitivity, silicosis and RECA claims; and it is these that to which NIOSH dose reconstructions are related. He reported the DOL statistics for Part B indicating they are a snapshot as of April 25th and that, due to idiosyncracies, his numbers don't match those of NIOSH exactly.

He also explained the other portion of the program, Part E, deals with toxic exposures and provided some statistics related to those claims.

Mr. Kotsch reported that, to date, DOL has issued $2.5 billion in compensation, $1.9 billion in Part B, with $1.4 billion being in cancer claims, $229 million for RECA, and the remainder for chronic beryllium and silicosis type cases. He further reported that $636 million are Part E awards and $142 million are medical benefits on those claims.

While providing statistical information **Mr. Kotsch** explained the process: Cases are in DOL for initial development of the case, then passed along to NIOSH for dose reconstruction. After dose reconstructions are returned by NIOSH, DOL district offices recommend decisions. The recommended decision is provided to the claimant, who may waive objection or ask for a review and/or hearing. DOL Final Adjudication Branch renders a final decision.

Mr. Kotsch reported that as of April 25th there were 27,710 cases with final decisions, with 10,073 approved and 17,097 denied. He then provided the statistics related to reasons for the denials.

Mr. Kotsch stated there were 23,864 referrals to NIOSH and provided the statistical information for status of the referrals. He explained that some numbers don't agree with NIOSH's and he doesn't exactly know why.

Mr. Kotsch continued by covering the statistics for the 1,183 cases withdrawn for SEC review, providing the statistical information for compensation in NIOSH dose reconstruction cases and SEC cases.
The number of cases, dose reconstructions, approvals, and the amount of compensation paid relative to each of the sites to be discussed at the meeting was included in **Mr. Kotsch**'s presentation.

Mr. Kotsch remarked that NIOSH had told DOL and DOE that they had information from worker interviews regarding potential enriched uranium at the Chapman Value site prior to the covered period. He stated a letter was in the final signature phase asking NIOSH to provide the available documentation so DOL and DOE could determine whether the covered period should be expanded.

He followed that he was asked to bring up the PEP for evaluation of insoluble plutonium compounds, which recently went up on the NIOSH web site. DOL determined there were about 1,000 cases in process that are potentially affected, and the decision had been made to remand those to NIOSH for a rework. He added that another 7,000 claims previously denied were potentially affected, and DOL would work with NIOSH to get each case evaluated by NIOSH. **Mr. Kotsch** explained that on the PERs

and PEPs DOL will develop a bulletin to implement the impact in the field, then send those back for reworks. He observed that is the shape of things to come, a source of recurring work for both NIOSH and DOL.

Discussion Points:

- Clarification as to whether the $97 million paid on added SEC cases shown on the slide included the original SEC classes.

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DEPARTMENT OF ENERGY REMARKS

Ms. Libby White,
for Mr. Glenn Podonsky,
Chief of Health, Safety and Security
Department of Energy

Ms. White commented that Mr. Podonsky wanted her to convey his high priority of ensuring the Department provides support to this program. Some activities toward that end were enumerated. They included:

- Work to secure funding for continued response to requests in a timely manner;
- Resolve issues regarding transmission of official use only information;
- Working to make sure sites understand they can submit identified information and need to do so in a timely manner;
- Working with New Mexico Congressional delegation, Los Alamos Lab, and Los Alamos Medical Center to plan for DOE to take possession of records;
- Working with Hantavirus expert on decontamination protocol;
- Working on a radiation sampling plan utilizing plans used in the past.

Ms. White mentioned that Mound records buried at Los Alamos are a concern. She said there is no detailed index of the records and so it is not known with certainty if there are critical records for which copies are not accessible from other locations.

In closing **Ms. White** reiterated DOE's commitment to the program and the workers served by the program.

Discussion Points:

- Is there is a formal Memorandum of Understating in place where the parties have agreed to delineated roles pertaining to the Los

Alamos records;

- A draft Memorandum of Understanding between the Medical Center and DOE hasn't been finalized due to the question of where the review of the records will be done;
- Can individual claimants get a hold placed on the records;
- If not, after DOE takes possession an individual would be able to make records requests;
- Whether the Mound records are going to be uncovered;
- Until now the Department of Labor has not taken an active role and there will be a need for their assistance in notifying claimants on their rights.

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SUBCOMMITTEE REPORT AND RECOMMENDATIONS

Mr. Mark Griffon,
Subcommittee Chair

Mr. Griffon advised that the subcommittee had passed two motions unanimously and he was bringing them to the Board for consideration. After an explanation of DR guidelines and the motion regarding them, **Mr. Griffon** read the motion into the record.

Dr. Ziemer reminded the Board that a formal recommendation from a committee did not require a second and was on the floor for discussion and action.

Discussion Points:

- The term "DR" should be spelled out as "dose reconstruction" on the permanent record;
- Are there impediments to NIOSH implementation;
- The guides are contractor-prepared instructions to contractor employees, but it doesn't sound onerous.

The motion carried unanimously.

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Following a brief explanation, **Mr. Griffon** read the motion regarding blind reviews into the record.

Indicating this motion does not require a second, **Dr. Ziemer** opened the motion for discussion.

Discussion Points:

- What information will the Board and SC&A would have since they would not have the claimant database;
- The same information which had been available to the original dose reconstructor would be available, along with the library of tools.

The motion carried unanimously.

The wording of the motions from the Subcommittee are included in the Subcommittee minutes and incorporated herein by reference.

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Mr. Griffon reported that the fourth and fifth sets of cases were still in the resolution phase. He noted that in the fourth set there are some cases where NIOSH has agreed to provide more detailed written responses; and in the fifth set SC&A findings and NIOSH's responses are a first crack at resolution. **Mr. Griffon** stated he hoped to close out both the fourth and fifth sets by the next subcommittee meeting.

On the eighth set **Mr. Griffon** explained NIOSH had generated two spreadsheets, one full internal and external and the other random selections, from which the subcommittee had selected 43 cases. They are proposing, with Board agreement, to ask that NIOSH provide more detailed information on those cases, from which 32 cases would then be selected during the Advisory Board phone call on June 12th.

Suggesting it might be helpful for the Board to understand the subcommittee rationale for the selections, **Ms. Wanda Munn** pointed out that statistics from the contractor had shown the Board is off their goals previously set for themselves. There are shortages in review of POC's between 45 and 50 percent, and for work periods beginning in the '60s, '70s and '80s, so they were looking primarily at these items.

Dr. Wade reminded the Board 32 reviews were needed to complete SC&A's 60 for FY '07, with blind reviews were over and above that. The expectation is that during the Board call on June 12th the selection will be finalized and SC&A will have their 60 for the year.

There followed a discussion of blind reviews and their selection with no resolution of the question. **Dr. Wade** pointed out the issue could be discussed again on June 12th, moving toward selection of blind cases at the July meeting.

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Working Group Reports

Dr. James Lockey, Chair
Workgroup on Non-qualifying SEC Petitions

Dr. Lockey reported that the working group met on November 9th and on March 28th, and that the group's findings and recommendations had been finalized. The recommendations are to make the process more accessible and user friendly to the population being served.

Dr. Ziemer confirmed Board members had a copy of the report, offering a reminder that this comes as a recommendation from a workgroup and constitutes a motion for approval. He asked if the Board wished to hear all the individual recommendations, or question on specific points.

Dr. Ziemer sought and received confirmation from NIOSH that the recommendations are not so difficult they won't to be able to implement them. In fact, NIOSH offered their agreement with the recommendations and remarked they are already being implemented.

As Chair **Dr. Ziemer** asked the Board to endorse the workgroup's recommendations by an affirmative vote.

The motion carried by unanimous vote.

Dr. Ziemer thanked the group and declared their work done.

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Robert Presley, Chair
Workgroup on Nevada Test Site

Mr. Presley reported that the workgroup had met twice sent the last Board meeting, once in person and then on a conference call. He stated they were in the process of grouping some of the issues into subgroups. He continued SC&A had agreed with NIOSH's presentation on the resuspension model, with a few modifications. There had been an ongoing problem with people not wearing badges, which **Mr. Presley** indicated the workgroup understood to be a site-wide problem which would be dealt with as a site-by-site issue. He also mentioned there was a problem getting interviews passed to SC&A and back.

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Mr. Mike Gibson, Chair
Workgroup on Savannah River Site site profile

Mr. Gibson reported the group had not had other meetings as they were waiting for notes taken during the classified records examination to be returned after review by the classifier. **Mr. Griffon** added that it was apparent the database seen was not the one they thought they were going to see. He said it was not a completely successful trip so there is a path forward sorting out the concern over the database.

Dr. Ziemer asked whether this is going to be an ongoing problem with the Savannah River Site with clarification that another trip might be needed, with a limited additional classified review.

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Dr. James Lockey, Chair
Workgroup on Conflict of Interest Policy

Dr. Lockey reported that the workgroup had its first meeting scheduled for May 11th.

Dr. Wade observed that the Board has procedures for dealing with members who have conflicts, but has not dealt with whether a conflicted member can be on a workgroup related to the site. He said it might be something for this workgroup to look at.

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Ms. Wanda Munn, Chair
Workgroup on Procedures Review

Ms. Munn reported that her group had not yet met, but expect to do so by early June.

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Comments from Senator Barack Obama (via telephone)

Senator Obama reminded the meeting that he had expressed support for the Dow Chemical workers in Madison, Illinois to the Board in September. He continued that his office, as well as that of Congressman John Shimkus and other members of the Illinois delegation and the Southern Illinois Workers group, had invested hundreds of hours of investigation into what went on at the Dow plant. He commended NIOSH for recommending to the Board that the workers should be

compensated, and urged the Board to approve the Dow SEC petition without delay.

He further urged the Board to extend the coverage period from 1957 through 1960, to 1957 through 1998, indicating that the Department of Energy had produced no document to establish why the covered facility description was drawn the way it is.

He added he wished to touch on the same issue he addressed in December at Naperville, that of timeliness. He hoped for changes that provide closure to workers as quickly as possible.

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Working Group Reports (continued)

Ms. Wanda Munn, Chair
Workgroup on Blockson Chemical SEC

Ms. Munn pointed out that the site profile was withdrawn for revision and that the working group could not continue until the document was in hand for SC&A review. **Dr. Neton** added that the site profile was in draft form and should be ready for release in a week or so. **Ms. Munn** indicated the working group would convene as soon as the document was in hand, and SC&A had promised a very rapid review turnaround.

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Mr. Brad Clawson, Chair
Workgroup on Fernald site profile and SEC petition

Mr. Clawson reported that since this workgroup was expanded to include review of an SEC petition, SC&A had created a new matrix which NIOSH has not yet been able to review. He asserted that as soon as they had, the working group would convene.

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Mr. Mark Griffon, Chair
Workgroup on the LANL site profile and SEC petition

Mr. Griffon stated that this workgroup had yet to convene, but expected to meet in May or June.

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Dr. Genevieve Roessler, Chair

Workgroup on the Linde Ceramics site profile

Dr. Roessler reported her working group had met March 26th. She said the biggest item discussed had been 700 newly-found bioassays. She continued that NIOSH and ORAU would work with these to develop a new exposure model. NIOSH and ORAU will also look at the use of a geometric mean distribution versus the 95th percentile values. She indicated she was not sure there could be another working group meeting before the next Board meeting.

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Mr. Mike Gibson, Chair
Workgroup on Worker Outreach

Mr. Gibson reported that this working group had not yet scheduled a meeting.

A discussion followed concerning potential workgroup efforts.

- The group charter was open-ended but included review of the existing outreach program, worker input into site profiles, and whether the input impacted site profiles and dose reconstruction processes;
- It's important for this group to meet quickly, as this task could be a real challenge relative to not only what is being done but what difference it is making is being reviewed;
- A starting point might be the database on the NIOSH web site which contains worker outreach comments and resolutions;
- The challenge is to do some brainstorming and set forth a road map on how to go about the task as a first step.

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PUBLIC COMMENT PERIOD

Dr. Ziemer opened the public comment period by announcing that it was being videotaped by CBS and the *Denver Post On-Line*. After introducing various Congressional staffers present, he explained the purpose of the Advisory Board. **Dr. Ziemer** emphasized the Board is advisory and they make no determinations on dose reconstructions or SEC petitions, but their input merely informs their advice to the Secretary of HHS. He added the members do not work for any agency, but are appointed by the President of the United States.

As explanation for why the Board had recently established a 10-minute time limit for comments from individual members of the public, **Dr. Ziemer** noted the agenda set aside the hour between 5:00 and 6:00 p.m.

for that purpose, yet there were 30 people wishing to speak. He committed the Board to staying to hear everyone, but asked the public to stay to the end, as well, and to be cognizant of others.

The comments of individual speakers can be found in their entirety on the NIOSH/OCAS web site located at www.cdc.gov/niosh/ocas. The following is a list of members of the public who spoke.

Ms. Kay Barker, ANWAG; Dr. Charles Milne, claimant representative; Mr. Richard Olds, claimant; Ms. Terrie Barrie; ANWAG; Ms. Judy Padilla, claimant; Mr. Robert Carlson, claimant; Ms. Laura Schultz, claimant; Mr. Kevin Newby, claimant; Mr. Walter Mobley, claimant; Mr. Ron Buffo, claimant representative; Mr. Dennis Romero, claimant; Mr. Larry Pazier, survivor claimant; Mr. Larry Rands, claimant; Ms. Phillip (Cheryl) Meany, Rocky Flats worker and claimant representative; Mr. Ron Abila, claimant; Mr. Jack Weaver, Rocky Flats worker; Ms. Hannah Marschall, Rocky Flats worker; Ms. MaryAnn Rupp, survivor claimant; Ms. Yvonne Garrimore, survivor claimant; Mr. Don Sabec, claimant; Mr. Michael Logan, claimant; Ms. Cheryl Hewitt-Ballou, claimant representative; Ms. Diane Jensen, claimant; Mr. Dennis Vigal, claimant; Mr. Jerry Mobley, claimant; Ms. Liz. Huebner, claimant; Mr. Henry Mosley, claimant; Ms. Donna Quinlan, survivor claimant; Mr. Lessie Britton, claimant; Mr. Richard Gaffney, Rocky Flats worker; Ms. Margaret Ruttenber, research scientist; Ms. Joan Norman, claimant; Ms. Marie Bowie, survivor claimant.

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With no further business to come before the Board, the day's meeting concluded at 9:00 p.m.

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Thursday, May 3, 2007

Dr. Ziemer opened the second day of the meeting by asking participants to register their attendance, and reminders of documents available in the room including the agenda and Rocky Flats-related materials. He announced there were a number of SEC petitions to deal with and copies of those are available as well.

Dr. Wade joined in the welcome, announcing that Board member **Ms. Josie Beach** was conflicted with regard to the Rocky Flats petition and would remain seated in the audience during the Board's deliberation on that issue.

The planned schedule, as outlined by **Dr. Ziemer**, is a presentation by

NIOSH on the petition evaluation report, following which the petitioners will make statements. There will be opportunity for members from the Congressional delegations to comment, and a report from the Board working group, following which the Board will deliberate on the material. He reminded the assembly that the Board's final product is a recommendation to the Secretary of HHS and that the Board does not determine whether there will be a class added to the SEC. It simply makes a recommendation, the Secretary passes along or makes an official recommendation to Congress, and Congress ultimately makes the decision in the process.

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ROCKY FLATS SEC PETITION

NIOSH Evaluation Update

Dr. Brant Ulsh,
NIOSH

In an update for the benefit of those who may not remember and for Board members who are new since the original RF evaluation report a year ago, **Dr. Ulsh** explained the original proposed class included all United Steel Workers employed between 1952 and 2005, and NIOSH expanded it to all workers during those time periods.

Dr. Ulsh noted that the primary source of information for dose reconstruction is dosimetry records, both internal and external. He announced there are over a half-million results in terms of internal dosimetry, primarily urinalysis. The number of external dosimetry results is more difficult to pin down. There are over 230,000 external dosimetry totals, but that number has to be multiplied by the number of exchange cycles, which translates to over a million individual external dosimetry results.

NIOSH has access to an extensive records collection at the Department of Energy's Mountain View facility. They have interviews with former workers. To date NIOSH has received roughly 1,207 cases from DOL for dose reconstruction, of which they have completed 1,061.

In reviewing his earlier presentation **Dr. Ulsh** noted that the original petition outlined seven bases, four of which qualified the petition for evaluation. Those were exposure to highly insoluble plutonium oxides, inability to link exposures to specific incidents, periods of inadequate monitoring, and that in earlier years there were people at risk of neutron exposure who were not monitored.

Since NIOSH presented the evaluation report in April of 2006, the Advisory Board referred the matter to a working group which embarked on an extensive, comprehensive investigation of the petitioners' concerns, the biggest of which was data integrity and completeness. Another was coworker data, radionuclides at RF other than uranium and plutonium, and early neutron doses.

Dr. Ulsh explained the position NIOSH presented a year ago remains the same today, that they have the ability to conduct dose reconstructions with sufficient accuracy. Acknowledging the unpopularity of that conclusion, **Dr. Ulsh** remarked that at the end of the day they're faced with making compensation decisions based on an SEC designation or dose reconstruction, and what is owed to the claimants is an answer to the question of whether their cancer was a result of the radiation exposure received at Rocky Flats. Only through dose reconstruction can that question be answered.

Discussion Points:

- A number of cases have been cited where individuals have zeroes or minimal dose values which reflect the dose was below detectable limits, but there is some limit to the device and so the agency assigns a number above zero to account for the fact the dose may not really be zero;
- RF workers allege they were told not to wear their badges, so is there a way to account for that on individual dose reconstructions if the person makes that allegation;
- NIOSH has explained their logic as to why they don't believe that situation systematically compromises the ability to do dose reconstruction, but if they are aware of a situation where it might have happened, there are coworker distributions that could be applied if necessary;
- Earlier a petitioner had mentioned the vaults were near the office area, so how is that handled;
- If a worker was not monitored, there are methods in dose reconstruction to evaluate where the person worked, their potential for exposure, and there is coworker data available to assign the 50th percentile if they were exposed intermittently or the 95th percentile if they were routinely exposed to radiation;
- A million individual results were mentioned and the question was raised as to how many individuals were employed at RF between 1952 and 2005, and how many should have been monitored;
- The million monitoring results to how many monitoring records per employee;
- What forms the basis for determining when employees should and should not have been monitored;

- A clarification that coworker data is not the substitution of one coworker's information for that of one who has no information, but rather a specified percentile (50th or 95th) of all the workers who were monitored on site;
- How NIOSH makes the determination of when exposure may have occurred;
- How NIOSH accounts for exposures to mixtures of radionuclides when the dosimetry is for only one;
- How accurate are the job cards being used to reflect a person's job history;
- How NIOSH handles some of the trades or guards who may have been assigned to a particular area or building, yet the nature of their work could cause them to be moved around.

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Petitioner Response

Ms. Jennifer Thompson,
Petition Spokesperson

Ms. Thompson announced **Mr. Tony DeMaiori**, former president of the Steel Workers and primary agent for the petition, is working out of town and not available for the meeting. **Ms. Thompson** provided background on her work history at Rocky Flats beginning in 1991. She thanked the Board, the community and the Colorado Congressional delegation for their work and support.

Ms. Thompson contended the process itself is not feasible and, even if the science were perfect, the process does not deliver timely, accurate dose reconstructions. She indicated the major points she would address were timeliness, fairness, feasibility, the law, and what is the right thing.

Having reiterated the primary factors of the petition, **Ms. Thompson** asserted that while the law required NIOSH meet certain deadlines, they failed to do so throughout the process. The petitioners, however, were required to meet all of their deadlines or run the risk of having the petition thrown out. **Ms. Thompson** asserted records retrieval has been difficult for workers, severely hindering their ability to defend their case during the claim process. **Ms. Thompson** reported that members of the Congressional delegation have four times asked NIOSH to grant the petition a fair and timely review, but have been unsuccessful in securing that.

Ms. Beach's exclusion from deliberations as a conflicted member of the Board was contested by **Ms. Thompson** in that NIOSH had expanded the

class so that it is no longer a steel worker petition. She claimed a double standard on conflict of interest, preventing members of the Board from participation but relying on experts with conflicts of interest.

Ms. Thompson discussed the fact that dose reconstruction has been called an inexact science, noting not all people doing dose reconstructions have degrees in health physics. She asserted a belief that the process leads to a situation of non-feasibility.

Ms. Thompson cited another claimant who was denied three times and then finally had a claim approved based on inaccurate records because he kept at it. She contended other workers haven't had the financial or physical strength to continue the process.

Raising the issue of high-fired oxides, **Ms. Thompson** discussed why the petitioners do not believe the issue has been resolved. She cited findings from SC&A reviews and expressed concerns about neutron dose, missing records, zeroes, gaps in internal dose data, adequacy of the coworker model, thorium dose reconstruction ability, lack of independent verification on use of the Neutron Dose Reconstruction Project (NDRP), perceived errors in the site profile, and the effect of the radioactive cocktail of plutonium in combination with chemical exposure.

Ms. Thompson asserted that continuing work by the working group, unresolved issues, changes in the site profile, new Technical Information Bulletins, and other changes are indications that it is not feasible to accurately reconstruct dose and, for that reason, the petition should be granted.

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Colorado Senator Ken Salazar

Senator Salazar addressed the Board by telephone, commending the Board for its work and expressing his support for approval of the petition. He described the basis upon which Congress had created the Special Exposure Cohort, indicating that his call is to expressly request, as a U.S. Senator on behalf of his colleagues in Congress, the Board approve the petition.

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Mr. Jerry Harden

Mr. Harden, former president of United Steel Workers Local 8031 and 37-

year Rocky Flats employee, discussed the 38th anniversary of the 776 building fire and the second anniversary of his initial appearance before the Board to plead for SEC status for Rocky Flats workers. He declared the program was well-intentioned, but mismanaged and has provided windfall profits for contractors, intellects, bureaucrats and attorneys while providing only token relief to the workers.

Mr. Harden discussed the Uranium and Transuranium Registries and the donations of organ and tissue samples from DOE radiation workers, citing related examples of mismanagement of the Rocky Flats plant by DOE and contractors.

*** * ***

Mr. Jack Weaver

A long-time Rocky Flats employee, **Mr. Weaver** spoke as a subject matter expert acknowledged by DOE and others. He provided his work history at Rocky Flats and discussed his training and the lack of protection or explanation of a need for protection, the chemicals worked with and inhaled because of the lack of respiratory protection or monitoring. He discussed film badges, change frequency, the fire in 1969.

Mr. Weaver described the full-face respirators at that time were old World War II gas masks with particulate filters. He remarked on the materials processed and the amount of material, discussing americium and the separation process.

Mr. Weaver explained that in August following the May fire, he was informed he was over the five rem limit for exposure and after that he had a body count every six months and a urinalysis every six weeks, every one of which came back high in plutonium and americium, as it would still do today.

Commenting that there were great people who worked at Rocky Flats and did a wonderful job maintaining the integrity of the armed services so the country could stay free, **Mr. Weaver** declared it a shame that those people have not been treated with the dignity they deserve. He asked that the Board listen to all the presentations and comments, and vote in favor of approval of the petition.

*** * ***

Mr. Bill Brady

Mr. Brady, law professor at the University of Denver's Sturm College of Law, represents cancer victims and others exposed to toxic substances.

Mr. Brady spoke of one of his clients, the claimant Charlie Wolf, describing Mr. Wolf's claims and types of cancers for which he had been denied three times, providing Mr. Wolf's educational background and work history. Holding a master's degree in nuclear engineering, **Mr. Brady** reported Mr. Wolf had worked at Savannah River, Rocky Flats and Fernald as a project engineer manufacturing plutonium triggers.

Mr. Brady described how a review of Mr. Wolf's employment records had disclosed errors such as showing him still employed at one facility three years after he'd left. Looking at other records **Mr. Brady** reported he found numerous calculation errors, mathematical errors, and chemicals that had never been factored into Mr. Wolf's dose reconstruction. He discussed Mr. Wolf's exposure potential and the dosimetry types and placement, finally resulting in a hearing in front of the DOL Final Adjudication Board. **Mr. Brady** read into the record a portion of the finding from that hearing.

Mr. Brady remarked that risk assessment and causation conclusions, when relying on irrelevant, irrational, inaccurate evidence, is little more than junk science, likening it to the contemporary phrase of garbage in/garbage out.

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Ms. Michelle Dobrovolny

Ms. Dobrovolny commented she was 42 years old, sick, and had been denied six times. She had watched many of her family members who'd worked at Rocky Flats die one after another, and currently has a brother sick with berylliosis.

Remarking that everything she felt needed to be covered had been covered by others, **Ms. Dobrovolny** wanted to remind the Board as they made their decision that it was going to affect those people who had died, those in the process of dying and those who may face those same consequences in the future. She observed that sometimes the calculations of the smartest people don't apply, but that it's simple common sense.

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Mr. Mark Danhauer

Mr. Danhauer explained he started working at Rocky Flats in early 2002, worked a year, and shortly thereafter went into kidney failure and found he had non-Hodgkin's lymphoma. Remarking he was 41 years old and totally disabled, **Mr. Danhauer** described he had so much chronic pain

nobody can figure out what to give him anymore. He spoke of the financial devastation of his continued severe illness, and the emotional devastation of being unable to provide for his family and being supported by his wife. He asked the Board to realize that this affects so many people, even down to the grandchildren.

* * *

Ms. Thompson thanked the Board again and asked that they consider the law, ignore the politics, look into their hearts and do the right thing by approving the petition.

* * *

Congressional Delegation Comments

Ms. Jeanette Alberg,
Senator Wayne Allard's staff
Mr. David Hiller,
Senator Ken Salazar's staff

Ms. Alberg read into the record the first portion of a letter from the Colorado Congressional delegation. She noted that all nine members of the delegation had signed onto the letter, stressing the bipartisan aspect, because the decision is not about politics but about being fair to the people of Rocky Flats.

Mr. Hiller read the conclusion of the letter, which is available in its entirety on the NIOSH/OCAS web site, www.cdc.gov/niosh/ocas.

* * *

Ms. Carolyn Boller,
Congressman Mark Udall's staff

Ms. Boller commented on having had the honor of working with Rocky Flats workers for 15 out of the last 20 years. She explained she's heard all the stories, has heard from DOE and site managers, who all confirm there are no records. She urged that the full petition be granted.

* * *

Mr. Jason Thielman,
Congresswoman Marilyn Musgrave's staff

Mr. Thielman, speaking on behalf of the Congresswoman, requested that

the petition be approved. The Congresswoman had reminded him that the workers of Rocky Flats had put their health on the line for the security of the nation. He expressed his belief that the substance of the law demands these people and their families be treated with the respect they deserve for their commitment and dedication to the country.

* * *

Mr. Bill Holer,
Congressman Ed Perlmutter's staff

Mr. Holer addressed the assembly, explaining that while he didn't have the history of some of his colleagues, he had participated in several workgroup meetings and was impressed with the quality and professionalism. He noted that the Congressman was in full support of the recommendation in the delegation letter and, since taking office, had worked closely with several Rocky Flats workers seeking relief under the provisions of EEOICPA.

* * *

Ms. Erin Minks,
Senator Ken Salazar's staff

Ms. Minks spoke on behalf of other Congressional aides tasked with working with their constituents during these processes, and thanked the Board and working group members for working with them as they participated and attempted to understand the process and interpret for their constituents in the audience. She commented that, having worked as a caseworker with members of the audience, she has learned there are different layers to the story of the site, different chapters, different patterns of monitoring and this program needs to have that affirmation to go forward to substantiate what the petitioners are talking about.

Acknowledging there is no easy answer to the process, **Ms. Minks** indicated that was understood.

* * *

Dr. Ziemer offered the observation that one of the struggles of the Board is to address these same kinds of issues all over the country by this same group of 12 people. He explained what is seen at Rocky Flats is the same thing at Savannah River and Hanford and Oak Ridge Y-12, the same sorts of issues. He noted a lot of time and energy had been put in by the Rocky Flats workgroup as they tried to be diligent about

determining what information exists because they are obligated by the law to look at that. The Board is also obligated to consider the issue of timeliness, and that is another struggle, realizing that the timeliness issue is countrywide and they're trying to deal with multiple sites simultaneously as they handle that issue.

Another required responsibility is to look at the NIOSH evaluation report, and the Board receives help from their contractor so that they get a basically independent look at it. **Dr. Ziemer** reminded the assembly the Board consists of a mix of individuals, with not all being technical, and so they rely on that outside help.

Dr. Ziemer explained that when that is done, not everybody will see things the same way. Then the Board has to face the issue of sorting out the views from NIOSH, the contractor, their own individual views, and the viewpoints of the constituents.

He remarked that the workgroup has looked very hard at the NIOSH evaluation report and worked very closely with the contractor to evaluate the data at the site, its validity, extent in terms of adequacy, missing data, et cetera. **Dr. Ziemer** explained the Board recognizes this has taken time and the time issue comes as an overriding issue. At some point a decision has to be made, and that point is upon the Board now.

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Workgroup Report

Mr. Mark Griffon,
Workgroup Chair

Mr. Griffon introduced the workgroup members, **Ms. Wanda Munn**, **Mr. Robert Presley**, and **Mr. Mike Gibson**. He reported there have been 12 workgroup meetings, 19 conference calls, with technical calls in between workgroup meetings. Minutes were kept for all the calls and the workgroup agrees with NIOSH that they certainly looked into the issues as completely as they could.

Through the course of the workgroup process a matrix was developed to follow their progress, and **Mr. Griffon** indicated there have been probably nine iterations of it with the final one, dated April 30, being available to the public. It detailed a total of 38 items, some with sub-items, and explained this was the workgroup's way of tracking what was being reviewed and whether it had been resolved.

Mr. Griffon added several items fall into broad categories and today he

would touch on those, not necessarily every matrix item.

A list of approximately nine items covered by the workgroup was presented, not necessarily in any priority order. The issues he enumerated and discussed in detail were the question of super S, which was examined for an extended period of time; external and internal data completeness, which had a variety of subgroups, all of which were discussed in detail; the neutron data for 1952 through 1970; the Neutron Dose Reconstruction Project doses. Addressing the data reliability question, **Mr. Griffon** indicated his one slide did not do service for what the workgroup went through in looking at data reliability, or what the petitioners provided in terms of affidavits and testimony, even up through last night and this morning.

Mr. Griffon noted the workgroup made every effort to capture all the issues, go through the petition and include all those in the matrix and cover those issues, many of which fall into the broad category of data reliability. He called attention to a block of issues on the matrix which are specific issues brought out in the examination of data reliability.

A lot of time was spent on the issue of other radionuclides, and some of the significant ones were americium, neptunium and several others, resulting in a finding that NIOSH had sufficient individual records or other information that they could bound doses for those other radionuclides. Thorium, **Mr. Griffon** reported, was more of a problem and took longer in assessing. Although the workgroup has not seen proof of principle on the thorium reconstruction, but there is a strong impression that NIOSH does have process-specific data that would be applicable and could bound doses for those thorium workers.

Internal dose has a coworker model. Based on the current claimant files there is only a limited number of individuals where the coworker model will be required to assess internal dose. The data completeness review supported that conclusion. There were urinalysis records the workgroup felt were sufficient to construct internal doses.

The coworker model is based on a database called HIS-20. In the workgroup analysis they found some discrepancies between raw data and that electronic database, and NIOSH concedes that fact. However, they found all upper bound values they were able to check seemed to be in the database. NIOSH is acknowledging limitations and will rely only on the 95th percentile or the upper bound of the data used for coworker dose assessment. The workgroup considers that a reasonable approach.

Adequacy of lung counting data was discussed, with the conclusion that NIOSH will not rely solely on lung counting data but will rather rely

on urinalysis data.

Specific questions were raised on the decommissioning and decontamination period, another situation where a Technical Information Bulletin was developed during the time the workgroup was meeting. This extended the coworker model out through the D&D period and a similar approach would be used regarding the 95th percentile. Given those two factors, the workgroup believes it is a bounding approach.

The external gamma and external beta models the workgroup concluded seem adequate for reconstructing dose. Some of the models also talk about neutrons, and that issue has been separated out because there are some remaining concerns on the neutron monitoring.

Mr. Griffon remarked that some of the conclusions are focused on the adequacy of the Neutron Dose Reconstruction Project data, which is a complicated issue to discuss. The issue was divided into different time periods because there were different factors to consider in specific time periods. He discussed the period 1952 through 1958, and **Mr. Griffon** described and explained the proposed method for dealing with the neutron dose for that time.

He discussed the back-extrapolation of a ratio developed from 1959 is applied backwards into the earlier years and described the concerns about that approach.

The next time period of 1959 through 1964 was discussed, which indicates many of the highest exposed workers were still not measured for neutron exposures. Many of those workers have notional doses assigned, and there are the same questions about the proposed ratios and whether it's appropriate for bounding the doses. The strength in this time period is that there is a lot more measurement data, and there are some independent measurements to support the ratios at that time.

In the period 1965 through 1968, data supports a belief that most of the highest exposed workers seem to have been measured, there are film badge measurements. It still has the question of a building-wide neutron-to-photon ratio being assigned to individual workers, and there is still the question of whether that average is appropriate for every worker.

The last subgroup is 1969 and 1970, which has a higher number of original films which were not recovered. The NDRP recovered films and reread a number of them for inclusion to do a better estimate of dose. For this period a lot of the original films were not or could not be recovered so there is more missing data and more notional dose.

The one issue which was consistent through all those time periods was the use of the neutron-to-photon ratio, a building-specific central estimate of that ratio to estimate neutron doses. NIOSH has indicated they have within the NDRP data information that they could possibly use something other than a central estimate for the ratio, more like a 95th percentile approach.

Dr. James Neton, Associate Director for Science in OCAS, joined the discussion to announce NIOSH has a total of 87,000 neutron measurements that were reread for NDRP, most of which are in the 1959 through 1970 time period. He explained how NIOSH would be able to use that information to bound the neutron doses for workers in the 1959 forward time periods.

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Discussion Points:

- Was the April 30th report from SC&A made available to the petitioners and the general public;
- Privacy Act issues with the report required a legal review;
- The workgroup process carries an intent to get a report to all petitioners and Congressional staffers a month in advance of a meeting;
- This report was published in two parts, the latest of which was completed in the last few days;
- It isn't fair to the people trying to address the issues to not have the information, and there needs to be a better process for distributing reports;
- The 52 cases sampled for a review of the data integrity issue hardly seems to be an adequate number;
- The statistical sampling was a very broad-mesh sampling, not designed to reveal gaps in monitoring for individual radionuclides and not designed to yield statistically valid information on gaps for individual job types;
- Although there were no systematic problems found, how are the individual discrepancies identified and handled;
- There is no perfect method to detect those problems, but different approaches were used to examine whether there was a system-wide problem on all the concerns that were raised in open testimony or as part of the petition;
- If a claimant raises an issue in an individual dose reconstruction, that might be treated differently;
- In a case where a person doesn't have the information to support an

in-depth investigation, it has to be taken on a case-by-case basis;

- Will NIOSH follow its usual policy and go back and recalculate dose reconstructions for people with completed DRs who may be affected by changes in certain aspects of the dose reconstruction or site profile update;
- Clarification of the areas where NIOSH has not demonstrated the ability to do adequate dose reconstructions;
- NIOSH has not yet provided the workgroup a demonstration they can conduct dose reconstruction in the manner they believe is possible for both thorium and neutrons in the period 1959 through 1970, as well as the pre-1960 Building 81 uranium workers for external dose;
- Does the workgroup have conclusions or a position on ability to reconstruct dose for the period beyond 1970.

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Dr. Ziemer outlined four Board's options: To accept or agree with the NIOSH evaluation; to disagree with the NIOSH evaluation and, in effect, state that doses cannot be reconstructed with sufficient accuracy and therefore recommend inclusion in the Special Exposure Cohort. A third option would be to extend the process further to tie up some loose ends that clearly exist, but which may continue to occur; or the fourth option of subdividing the petition and saying part of this is straightforward and we feel an SEC inclusion is clear and part of it is not. He suggested the Board may want to consider it for a while and come back later prepared to make a motion.

By Board consensus, **Dr. Ziemer** recessed deliberation to allow individual Board members an opportunity to collect their thoughts and continue afterward with deliberations on the Rocky Flats petition. He noted that the other agenda items would be adjusted accordingly.

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Before recommencing deliberations, **Dr. Ziemer** read into the record a hand-delivered letter from Colorado Governor Bill Ritter endorsing the letter from the Colorado Congressional delegation and supporting the Rocky Flats petition. That letter is available in its entirety on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

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A motion was made and seconded to approve the petition for people exposed to neutrons from 1952 through 1958, with a second recommendation to conduct further review on the three earlier issues of neutron exposure from 1959 to 1970,

exposures in Building 81, and thorium and related nuclide exposures in some areas of the facility.

There was a clarification that, if the motion passed, the recommendation would be for the earlier group immediately and be framed in the standard language for the Secretary. The second part would result in a postponement for approximately a month in order to answer the questions and be ready to address those three issues at a meeting to be held in June.

There was further clarification that the first part of the motion was relative to monitored or should have been monitored for neutron exposures.

Discussion Points:

- The Board has adopted a procedure of passing a motion in principle and then reviewing it over the evening and consulting with the Department of Labor as to how the issues might be adjudicated, which would be appropriate here;
- A key workgroup argument was that there were few actual records available in the early time period just because few people were monitored for anything, so why specify neutron exposures;
- If the vote is going to be delayed on the post-1958 cohort to ask for proof of principle from NIOSH, shouldn't directions be clear with respect to what the Board will and will not accept from NIOSH as proof of principle;
- Should that not be a basic part of the motion;
- Clarification that the workgroup did not find a deficiency with bioassay data for early time periods, but there was very little neutron data so the time period is targeted on neutrons;
- This class would be restricted to individuals in certain locations for whom neutron monitoring should have been or was provided, but would not include others on the site during that period if they were not in identified areas;
- It would help DOL in their adjudication for the location information to be as specific as possible;
- The phraseology "monitored or should have been monitored" was a more workable approach in most instances for DOL than a building by building issue;
- A proposal to offer a more fleshed-out motion tomorrow that would be more specific about the second part of the motion;
- An opinion expressed that the motion should be more broad than specifying certain buildings because a lot of claimants are doing this on behalf of family members who have already passed on and

they won't know the specifics of work areas;

- An opinion expressed, speaking against the proposed motion, that NIOSH had had ample time to determine the scientific validity of the exposures, used people who are conflicted to put together the evaluation report and, in the spirit of the legislation, it's time to vote on the petition;
- A call for the motion to be repeated;
- Clarification of the issue surrounding Building 81 with exposure to thorium in certain areas;
- A call for the availability of Board members to meet face-to-face on June 12 as specified in the motion, rather than a teleconference;
- A need to have the information available to petitioners and all interested parties in advance of more than a day before the meeting;
- NIOSH called for a clarification on the second portion of the motion for a better understanding of the product being requested on the three issues before they made a commitment about having a report finalized by the June 12 date;
- Unless NIOSH knows what the Board wants, they would be reluctant to commit to a timetable and, unless it is spelled out, the Board has just added uncertainty to the system.

Dr. Ziemer called for a sense of the Board in support of the motion to know whether to table the motion and get the wording defined for action the following day.

By consensus, a vote was called on the motion, which carried by a margin of 7 to 3.

Dr. Ziemer announced refined wording will be in a form to go forward to the Secretary and will be presented tomorrow for a final review, and will recommend that the 1952 through 1958 time period class become part of the Special Exposure Cohort; further it will recommend proof of principle on the identified items be provided, basically within a month, and that the Board would commit to voting up or down on the rest of those time periods at that time.

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On behalf of the petitioners, **Ms. Thompson** expressed her dissatisfaction in that the petitioners wanted a vote on the petition as a whole, and remarked it is clear that the law is not being followed. She declared the delay unacceptable to the people who are dying and that this has gone on long enough.

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Dr. Ziemer announced that following the wording review tomorrow the Board will plan when they will meet again and make an effort to have the meeting again in Denver in one month.

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Mr. Harden spoke on behalf of the petitioners to make a request they have a chance to rebut the information presented today, and commenting that this has developed into a charade, observing that it's long overdue that "the intellects" be put in their places.

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Dr. Ziemer clarified for an unidentified member of the audience that the entire post-1958 period is open; the three issues on which the Board asked for additional clarification does not constitute a recommendation that they not be included. That will be voted on in a month.

An observation was made that when the Act was passed it was a laudable effort to recognize and provide some compensation for people injured in the nuclear production industry, but it was a patched-together law. Over the years NIOSH, SC&A, the Board and petitioners have tried to work with the law, but there are parts that don't work. It has created conflict and frustration and is time-consuming. Parts of the law need to be streamlined and fixed.
This is a bipartisan issue because plants were spread throughout the United States. It's understandable that people who worked side-by-side and whose probabilities of causation result in approval for one and denial of the other are frustrated and upset. But Congressional people need to step forward and represent the rest of the workers in the industry throughout the United States to streamline and update the law to make it user friendly.

The Board and people in NIOSH and SC&A are doing everything they can to get the work done. They're constrained by a law that gives them 180 days to do things that could take years, and it has caused conflict and needs to be changed.

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BETHLEHEM STEEL SEC PETITION
NIOSH Evaluation Report

Dr. Sam Glover,
NIOSH

Dr. Glover presented the NIOSH evaluation report for SEC Petition 56 concerning Bethlehem Steel. He described the facility, its location and numbers of employees, noting that at issue is only the facility at Lackawanna, New York, a rolling mill added in 1947. **Dr. Glover** provided photographs of the facility and rolling mill, discussed the time frame and Hanford's need to have metallic uranium rolled into rods which could be put into the reactor for plutonium production.

Background leading up to an AEC contract with Bethlehem Steel to improve rolling pass schedules on a continuous rolling mill was described by **Dr. Glover**, as well as the goals of that program.

Dr. Glover reported the petition was submitted in March of 2006 and qualified in August. The evaluation report was issued in February of 2007. The petition requested a class definition of millwrights, welders, electricians, bricklayers, carpenters, all maintenance, testers, rollers, supervisors, crane operators, hookers, cleanup crews and grinders who worked in the 10-inch bar mill and blooming mill from years 1949 to 1952.

NIOSH modified the class and evaluated all Atomic Weapons Employer personnel at the Bethlehem Steel operation who were monitored, or should have been monitored, for exposure to uranium during uranium rolling activities at the Bethlehem Steel Lackawanna, New York facility from January 1, 1949 to December 31, 1952.

Dr. Glover reviewed the sources of available information for the evaluation process, which included site profile documents for Bethlehem Steel and Simonds Saw and Steel; Technical Information Bulletins, outreach and town hall meetings, telephone interviews with former workers, the site research database, documentation and evidence submitted by the petitioners, a site profile review, Board and working group meetings. He discussed the availability of dosimetry data and reported that the NIOSH/OCAS claims tracking system indicated there were 732 cases meeting the class definition which had been forwarded by the Department of Labor for dose reconstruction. There are completed dose reconstructions on 634 of those cases.

The various bases for the petition were provided by **Dr. Glover**, approximately 13, which included that the amount of uranium rolling could not be done in a 10-hour day; work areas could not have been cleaned in one day; workers wore contaminated overalls, et cetera.

Dr. Glover moved into a discussion of the radiological operations at the facility; where the material originated and what operations took place; documentation and interviews on practices. He discussed the

rolling period, the air monitoring data, and then discussed similar information from Simonds Saw and Steel and how it was being used to supplement the information from Bethlehem Steel.

Because there is no bioassay or external dosimetry data available for the facility, this is a modeled analysis. The Health and Safety Laboratory, and later Fernald, conducted air and surface radioactivity monitoring during various rolling activities and the data have been evaluated with the information collected at Simonds Saw and Steel for rollings in the '49 to '50 time period.

Simonds Saw and Steel was one of the largest suppliers of rolled uranium for Hanford, and in October of '48 had not implemented recommended changes by the Health and Safety Laboratory. Air monitoring data occurred before they made changes and is available, and included additions of ducts and grading and other materials which makes the exposures higher than later on, so the Simonds data was used from one day, the October 27th, 1948 rolling.

Dr. Glover discussed cobble cutters, ingestion, inhalation and ingestion during residual contamination, the basement area below the rollers, external sources of exposure, direct contact dose, residual contamination for external dose, contaminated clothing, occupational medical dose and the six sample dose reconstructions completed to show doses and probability of causation. They covered several cancer types, employment periods and cobble-cutting activities.

NIOSH evaluated the petition using the guidelines established in 42 CFR 83.13, and **Dr. Glover** explained the two-pronged test of feasibility and likelihood of health endangerment. NIOSH found the available monitoring records, process descriptions, and source term data are adequate to complete dose reconstructions with sufficient accuracy for the proposed class of employees, and the health endangerment determination is therefore not required.

Discussion Points:

- Clarification on a point in **Mr. Elliott**'s presentation the previous day on the unusual appearance of the Bethlehem Steel distribution graph;
- The legal basis for utilizing data from other sites.

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Petitioner Response

Mr. Ed Walker

Mr. Walker commented by telephone about the fact that he had worked there for 40 years and knew the conditions in the plant, and that NIOSH didn't realize what the workers went through. **Mr. Walker** questioned the use of surrogate data from Simonds Saw.

Discussion Points:

- Feasibility of not taking any action until the legality of surrogate data is discussed by the General Counsel's office;
- That issue is on the agenda for the following day and there is no need to take action on this petition today.

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Congressional Comments

A letter from the New York Congressional delegation was read into the record by **Mr. Jason Broehm** from CDC Washington. The letter was from **Senator Hillary Rodham Clinton**, **Senator Charles Schumer**, **Representative Brian Higgins**, **Representative Thomas Reynolds** and **Representative Louise Slaughter** urging approval of the petition for Bethlehem Steel.

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Congressman John Shimkus from Illinois made a telephone statement to the assembly in support of the Dow Madison SEC petition. He particularly addressed the validity and credibility of worker affidavits and the period for residual contamination through 1998.

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LOS ALAMOS NATIONAL LABORATORY SEC PETITION
NIOSH Evaluation Report

Dr. Gregory V. Macievic,
Health Physicist, NIOSH/OCAS

Dr. Macievic reported the petition was submitted on behalf of a class of employees initially defined as workers of LANL working in all Technical Areas from 1943 to 1979. The number of claims for Energy employees potentially meeting the proposed class definition criteria is 657.

Dr. Macievic reiterated that the process is two-pronged, established by EEOICPA and incorporated into 42 CFR 83.13. The first issue is feasibility of estimating radiation dose of individuals within the

class with sufficient accuracy, and the second is a reasonable likelihood that such dose may have endangered the health of members of the class.

Noting that Los Alamos is unique in that areas of the site are production-like and others are laboratory-like, **Dr. Macievic** indicated there are over 75 Technical Areas which are primarily concerned with nuclear weapons development, testing and related activities. He outlined some of the biomedical studies, experimental applications, fission products studies, et cetera, and the covered employment period which begins in 1943 at the opening of the site and continues to the present.

Dr. Macievic discussed the functional areas of activity relevant to the class ranging from weapons development and testing, reactor development, waste treatment and disposal, and residual contamination from strontium-90 RaLa post-July 1963. He enumerated the various radionuclides of concern, which included alpha doses, beta/gamma doses, and neutrons from plutonium production, operating reactors, criticality experiments, et cetera.

Moving to the information available for dose reconstruction, **Dr. Macievic** summarized that routine monitoring provides the basis for external radiation exposures, though relevant data are not available from which an estimate of all radionuclide source terms can be developed.

As to internal environmental exposures, no data were provided for years prior to 1970. There is information from 1970 to 1975, but no developed methodology exists. External environmental exposures are available through area film badge monitoring data post-1975.

Dr. Macievic referred the Board to Table 7-10 of the evaluation report, which displayed the internal exposures to plutonium, uranium, tritium and polonium, which NIOSH believes can feasibly be reconstructed.

A summary was presented of LANL data deficiencies, broken down by the periods 1943 to 1949, 1950 to 1969, 1970 to 1975, noting additionally that air sample data is not available for all years of operation and is deficient for fission products and some exotic radionuclides. Although new data has been found, it is intermittent and non-inclusive for all areas.

Dr. Macievic observed that LANL required chest X-rays on an annual basis, which provides a basis for adequate reconstruction of medical dose using protocols from complex-wide TBDs.

In an overview of the petition **Dr. Macievic** noted that the petition provided information and affidavit statements to support the petitioners' belief that accurate dose reconstruction over time is impossible for all workers at LANL working in all Tech Areas from 1943 to 1975. That was based on insufficient data, records do not exist, and lack of bioassay data. The petition was qualified in August of 2006.

The NIOSH conclusions, which appeared on the previously-mentioned Table 7-10, broke down the feasibility findings for the petition by source of exposure, whether reconstruction was feasible for internal and external, and by periods of time. The health endangerments conclusions were that NIOSH has determined members of the class were not exposed to radiation during a discrete incident likely to have involved levels of exposure similarly high to those occurring during nuclear criticality incidents, but that some workers in the class may have accumulated chronic exposures sufficient to have endangered their health.

Dr. Macievic also read the proposed class definition, which was for all employees of the DOE or DOE contractors or subcontractors who were monitored, or should have been monitored, for radiological exposures while working in operational Technical Areas with a history of radioactive material use at the Los Alamos National Laboratory for an aggregate of at least 250 work days during the period from March 15, 1943 through December 31, 1975, or in combination with work days within the parameters established for one or more other classes of employees in the SEC.

Addressing a change from the wording on his slide, **Dr. Macievic** explained that it had excluded several Technical Areas, and NIOSH determined that in the past they had only designated areas for inclusion in a class definition. So the listing of the exclusions was removed and an addendum was made where all the Technical Areas included in the class are enumerated. This means any TA not listed could be looked at for potential inclusion in some other class or some other proposal to see if SEC is required.

In its recommendation NIOSH finds it cannot reconstruct doses for members of the proposed class with sufficient accuracy for the period March 15, 1943 through December 31, 1975, and the likelihood for health endangerment exists.

Dr. Macievic went on to discuss issues that are to be resolved in the revised site profile and will deal with mixed fission products, mixed activation products, a determination of processes associated with americium and the relationship with plutonium handling, and will include a further review of actinium-227, curium-244, neptunium-237,

thorium-232 and 230, and protactinium-231. The recommendation is that the class in the petition time frame be added now rather than delay, and that NIOSH can reopen the petition or present an 83.14 recommendation if further evaluation warrants.

* * *

Petitioner Response

Mrs. Harriet Ruiz

Ms. Ruiz spoke on behalf of the petitioners, thanking the Board and NIOSH for their work and for everything they do on behalf of SEC petitioners. She read into the record a letter from the Honorable Ben Lujan, Speaker of the New Mexico House, who is a petitioner with her. That letter is available in its entirety on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

* * *

Mr. Andrew Evaskovich

Mr. Evaskovich spoke as a petitioner, indicating he is a guard at LANL and a representative of the International Guards Union of America Local Number 79. He indicated certain Technical Areas needed to be evaluated to be included in the class, and showed a variety of photographs and maps, discussing technical reports that say radionuclides were in those areas.

He discussed a major expansion of the Laboratory from 1951 to 1953, with the addition and construction of 14 Technical Areas. **Mr. Evaskovich** presented historical photos of areas as they changed.

* * *

Congressional Comment

Mr. Jonathan Epstein,
Senator Jeff Bingaman's staff

Mr. Epstein addressed the Board by telephone, thanking NIOSH for the excellent technical work they have done, but asked that everyone keep in mind the big picture of what Los Alamos did, the unique experiments. He observed that since all of this started in the early '40s time frame when much of the inhalation dose equipment wasn't available at the time, he felt NIOSH got it right.

* * *

Ms. Michele Jacquez-Ortiz,
Congressman Tom Udall's staff

Ms. Michele Jacquez-Ortiz spoke to read into the record a statement from the Congressman thanking NIOSH and supporting the petition. That statement is available in its entirety on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

* * *

Additional Petitioner Response

Ms. Wallace (no first name given)

Ms. Wallace spoke by telephone endorsing the other speakers' comments. She also commented on the frustration of where DOL and NIOSH overlap, and the difficulty in figuring out who was in charge of what.

* * *

Unidentified

This speaker expressed deep appreciation for the behind-the-scenes work with NIOSH and **Mr. Elliott**.

* * *

Board Discussion

Dr. Wade reported two Board members are conflicted on the LANL site. **Mr. Phillip Schofield** is already seated in the audience and the other, **Dr. John Poston**, was not in attendance.

Discussion Points:

- Clarification of Table 7-10 slide to the final conclusion slide;
- This class is defined as it is because it cannot be distinguished which employees are exposed to specific radionuclides, they're over so many areas and time periods;
- For certain individual cases there are specific radionuclides that can be reconstructed, but in general the complete dose for individuals in all areas cannot be reconstructed;
- Why the cutoff at 1975;
- The petition was submitted for a period up to 1975;

- There are issues on the table after 1975 for timeliness and, to complete the petition through the time period requested, the evaluation was completed but has been left open and NIOSH has committed to evaluating those other issues past 1975;
- The issues that should be resolved in the revised site profile are issues that continue beyond 1975;
- Clarification of Table 7-8;
- The degree of confidence in the information in the Table 7-10 on the time periods involved;
- Clarification that the Technical Areas shown on the slide for the class definition are to be removed from the definition language.

* * *

A motion was made and seconded to accept the NIOSH recommendation, with the final wording for submission to the Secretary to be approved during the following day's business.

The motion carried unanimously.

* * * * *

W. R. GRACE SEC PETITION
NIOSH Evaluation Report

Mr. LaVon Rutherford,
SEC Health Physics Team Leader
NIOSH/OCAS

Mr. Rutherford presented the evaluation report, explaining it had been submitted under Section 83.14 by a petitioner whose dose could not be reconstructed by NIOSH. The petition evaluation considered a class of workers similar to the petitioner. The evaluation process evaluated the questions of feasibility of dose reconstruction and likelihood of health endangerment to members of the class.

Mr. Rutherford explained W. R. Grace was a contractor for the Atomic Energy Commission from 1958 to 1970, and was contracted to recover enriched uranium from uranium scrap. The AEC was the regulatory authority for the site, located in Erwin, Tennessee, from '58 through 1974 with the Nuclear Regulatory Commission becoming the regulatory authority in 1975.

Operations began in 1957 involving radioactive material, with principal operations being conversion of high and low enriched uranium to a useful form to manufacture nuclear fuel, producing fuel consisting of

uranium oxide mixed with plutonium and zirconium oxides. **Mr. Rutherford** outlined the radiological processes and radiological sources relevant to the class, and a summary of information available for dose reconstruction. This included the data capture attempts made to current operators, State of Tennessee, Nuclear Regulatory Commission, DOE Germantown, et cetera. The data available included internal monitoring data, with **Mr. Rutherford** describing various information, and the external monitoring data.

As a petition overview **Mr. Rutherford** noted that NIOSH was unable to obtain sufficient information to complete the dose reconstruction for an existing claim. In January of 2007 a claimant was notified his dose reconstruction would not be completed and was provided with a copy of SEC Petition Form A, which was submitted to NIOSH later in that same month.

NIOSH has concluded that they lack monitoring, process, or source information sufficient to estimate internal radiation doses from thorium exposures for the period of January 1, 1958 through December 31, 1970. NIOSH believes there is sufficient information to estimate internal dose from uranium and plutonium, and occupational external exposures, including medical, for that period.

Assessing the health endangerment issue, NIOSH determined it is not feasible to estimate with sufficient accuracy internal radiation doses and that the health of the covered employees may have been endangered. Evidence indicates workers in the class may have accumulated intakes of thorium during the covered period.

The proposed class definition was presented by **Mr. Rutherford**, along with the recommendation for inclusion of this class of employees into the Special Exposure Cohort.

Discussion Points:

- Class definition talks about workers monitored or should have been monitored for thorium in specific buildings. Does that include all workers in those buildings or only those with potential for being exposed to thorium.

*** * ***

A motion was made and seconded that a recommendation be made to the Secretary of Health and Human Services that he accept the proposed class definition as stated in the presentation today, with the refined official wording to be considered tomorrow.

The motion was open for discussion.

- Clarification on a question of the thorium operations;
- How large is the proposed cohort;
- How many claims have been received;
- Does the petition exclude plutonium workers in those buildings.

* * *

The motion carried unanimously.

* * * * *

PUBLIC COMMENT PERIOD

Dr. Ziemer reiterated the purpose of the Board, that it only provides an opinion on SEC petitions. He explained Board members are not employed by any agency, and reminded the participants of the 10-minute limit for public comment.

The comments of individual speakers can be found in their entirety on the NIOSH/OCAS web site located at www.cdc.gov/niosh/ocas. The following is a list of members of the public who spoke.

Mr. Cliff DelForge, Rocky Flats worker; Dr. Dan McKeel, SINuW; Mr. Stan Beitscher, claimant; Mr. Lynn Earley; Ms. LeeAnn Bayes, survivor.

* * * * *

With no further business to come before the Board, the day's meeting was concluded at 8:35 p.m.

* * * * *

Friday, May 4, 2007

Dr. Ziemer called to order the third day of the meeting, indicating some items were being carried over from the previous day's agenda and would be addressed first. Those items were the Dow Chemical Madison and Chapman Valve SEC petitions.

Dr. Wade added his welcome, and cautioned about losing Board members for a quorum due to travel constraints. He asked that Board members keep that issue in mind and let him know if a problem arose relative to their need to leave the meeting.

* * * * *

DOW CHEMICAL COMPANY (MADISON SITE) SEC PETITION

NIOSH Evaluation Report Update

Mr. Stu Hinnefeld, NIOSH
Technical Program Manager

Mr. Hinnefeld presented an update on the evaluation report, including some information received since the report had been prepared. He noted this is an 83.14 petition, a site where NIOSH determined there was some aspect of the radiation dose they did not have sufficient information to reconstruct, and they had proceeded along the pathway of the 83.14 evaluation. He explained this included the two-pronged test of feasibility and likelihood of health endangerment and was followed as usual.
Mr. Hinnefeld explained the site location and the work undertaken there for the AEC as a subcontractor for Mallinckrodt Chemical Works. This was the extrusion of uranium metal in 1957 and 1958, and the straightening of uranium metal rods in 1959 and 1960.

Also explained was the plant's routine handling of thorium, which was incorporated into their commercial metal alloy products. The plant was ordinarily engaged in metal production, making magnesium and aluminum alloys as their main line of business.

Effects of how the 2005 Defense Authorization Act had amended EEOICPA relative to this issue were described by **Mr. Hinnefeld**. It added a second category to the definition of "AWE employee" and defined "radiation dose" for this added category.

Summarizing information available for dose reconstruction, **Mr. Hinnefeld** acknowledged that no individual external monitoring results are available; no in vitro or in vivo bioassay results are available for either uranium or thorium; a 1957 contract describes the extrusion operation to be 12 cycles, each expected to require 28 hours of effort. He went on to describe documents from FUSRAP relative to rod-straightening; a 1957 paper by the Dow Radiation Safety Officer relative to thorium, with some air sample results and a few radiation measurements, and other materials.

Data capture attempts discussed by **Mr. Hinnefeld** included the NRC, DOE Germantown, worker outreach and requests to Dow Chemical, among others.

In an overview of the petition **Mr. Hinnefeld** explained that NIOSH was unable to obtain sufficient information to complete the dose reconstruction for an existing claim, and in November 2006 a claimant

was notified and provided a copy of SEC Petition Form A, which was returned to NIOSH later that month.

In January 2007 NIOSH began communication with Dow requesting records from the covered period. This continued by mail, telephone and e-mail, providing whatever specificity Dow requested to aid their search. In early April Dow indicated their inspection effort was larger than anticipated and not expected to be complete until the end of the month.

Rather than extend the delay, NIOSH prepared the evaluation report with available data based on two things. One, Dow had indicated they had no personal monitoring information. The second was that two documents received from NRC contained information which led NIOSH to believe any additional discoveries by Dow would not improve its ability to perform dose reconstructions for internal thorium exposure.

On April 28 Dow delivered responsive documents providing some additional air sample results and several additional external radiation readings. This will require revision of the evaluation report at several points, which **Mr. Hinnefeld** enumerated and explained. However, preliminary evaluation of the new information has not caused NIOSH to change its original conclusion.

NIOSH still believes it is not feasible to reconstruct internal doses due to thorium exposure, and it is unlikely to have sufficient information for estimating the contribution of thorium to external doses, which are part of the EEOICPA dose during the contract period of January 1, 1957 through December 31, 1960.

Mr. Hinnefeld went on to describe and explain NIOSH's ability to reconstruct uranium dose as well as occupational medical dose. The health endangerment issue was discussed and a proposed class definition was provided, as follows: All Atomic Weapons Employer (AWE) employees who were monitored, or should have been monitored, for exposure to thorium radionuclides while working at the Dow Chemical Company site in Madison, Illinois for a number of work days aggregating at least 250 work days from January 1, 1957 through December 31, 1960, or in combination with work days within the parameters established for one or more other classes of employees in the SEC.

The NIOSH recommendation presented by **Mr. Hinnefeld** is that for the period January 1, 1957 through December 31, 1960 NIOSH finds that radiation dose estimates cannot be reconstructed for compensation purposes. Some members of the class may have accumulated chronic exposures sufficient to endanger their health.

*** * ***

Petitioner Response

Dr. Dan McKeel,
Southern Illinois Nuclear Workers

Dr. McKeel contended that an overriding consideration is that the petitioners were hampered by lack of access to primary site records. He noted five overarching issues about the DOW SEC, first of which is timeliness. He criticized the evaluation report itself, for which the petitioners developed 22 specific concerns, translated into 14 questions presented to NIOSH.

Further expressing his dissatisfaction with the process, **Dr. McKeel** asserted the affidavit testimony regarding working relationship between the AEC, Rocky Flats and Dow Madison site for thorium alloys was overlooked.

Other issues were NIOSH's failure to extend the covered period to include the uranium residual period, the Dow Madison relationships with the Atomic Energy Commission, thorium production and thorium residual contamination. A final point asserted was extreme harm to the workers, including beryllium exposure, at the Dow Madison plant.

Dr. McKeel offered a PowerPoint presentation and discussed two DOE major databases which characterize EEOICPA sites. He remarked on facility description, a purchase order with an AEC contract number, and contended Dow Madison was supplying magnesium/thorium alloys through Mallinckrodt Chemical Works for the AEC. He concluded by asserting that the Dow Madison class should be extended from 1957 through 1960 to 1957 through 1998 to include the uranium production and residual contamination periods.

*** * ***

Congressional Comments

Ms. Deb Detmers,
Congressman John Shimkus's staff

Ms. Detmers read into the record a letter from the office of **Congressman Jerry Costello** supporting approval of the Dow Madison petition.

Speaking for herself, **Ms. Detmers** discussed her involvement with the claimants and petitioners for six years now working with them. She asked the Board not dismiss the petition for lack of documentation on

the thorium issue, and urged the Board to extend the class to include the residual contamination period through 1998.

*** * ***

Mr. Robert Stephan,
Senator Barack Obama's staff

Mr. Stephan first read into the record a statement from **Senator Dick Durbin**'s office requesting that the class be expanded to include the residual contamination period through 1998.

On behalf of **Senator Obama**, he discussed the residual contamination period and that there is a belief that AEC-related thorium after 1960 was present. He contended that if it was provided to Rocky Flats or Mallinckrodt, that is good evidence of AEC-related thorium of that fact.
Mr. Stephan discussed 11 affidavits from workers, which have not been questioned by NIOSH, indicating thorium was shipped to Rocky Flats beyond 1960. He remarked that the issue is a "he said/she said" between the Department of Energy and 11 Dow Madison workers, and the Senator feels this is a critical moment in the history of the Board. There has to be a decision whether to take the statements of workers over statements of the Department of Energy which cannot be backed up by documentation.

*** * ***

Mr. Bill Hoppe

Mr. Hoppe spoke by telephone and commented that the workers didn't know what they were working with; that over 40 people have died of cancer; and if compensation is held out longer, they'll all be dead.

*** * ***

Board Discussion

Dr. Ziemer opened the petition for discussion, observing that there appeared to be two issues. One is the evaluation report, on which the Board has to act, and an additional request is the issue of expanding the covered period. He commented that while there may be great sympathy toward that, there is a legal issue and he needed to have some definition, explaining his understanding is that the covered period definition is not the prerogative of the Board but is established by Labor. He called for clarification that the Board has any authority in that regard.

Representing the HHS Office of General Counsel, **Ms. Liz Homoki-Titus** confirmed that those definitions are made by DOL and DOE and are not the prerogative of either the Board or the Department of Health and Human Services. The Board could express an opinion and make a recommendation that the Secretary of HHS contact DOL and DOE regarding whatever that opinion might provide.

*** * ***

Petitioner Objections

Dr. McKeel objected, claiming that Mr. Richard Miller's opinion was that there was nothing in the Act to forbid a class of the SEC covering a residual period.

Mr. Stephan contended it was insulting to the workers, that people from DOE and DOL have left the meeting and there's no one but legal counsel for HHS to address this issue.

Dr. Wade explained that NIOSH had the ability to include the residual contamination period, but the only material that could be considered was DOE or AEC work, which was the uranium.

Mr. Hinnefeld confirmed that NIOSH had proceeded with the petition with the understanding that the uranium extrusion and rod-straightening was the AEC work which caused the site to be on the AWE list. NIOSH has not been a part of the selection and identification of Atomic Weapons Employers.

*** * ***

Board Discussion (continued)

Discussion Points:

- There was thorium work in the early days, so is there anything that establishes uranium as the basis of the AWE designation;
- Who has the responsibility for making the definitions and what are the definitions to which the program is being operated.

*** * ***

Petitioner Objection

Dr. McKeel expressed his opinion based on the purchase orders being evidence that Dow Madison did AEC uranium work for Mallinckrodt. He

asserted anybody who knew anything about metallurgy and the nomenclature of alloys would recognize the code word indicating thorium alloys. He contended everybody knows the magnesium/thorium alloys were used in the aircraft industry, rockets, space shuttle and missiles, and Dow provided thousands of tons of alloys for that point.

Dr. Wade elicited from **Dr. McKeel** a confirmation that his point is the Board could supersede the facility description based upon the evidence **Dr. McKeel** has provided.

Discussion ensued surrounding the authority of the Board, official site description used in the program, the publication the official list of sites in a *Federal Register* notice, the terminology used, the interpretation of metal magnesium products.

Mr. Elliott added that as NIOSH encounters situations where there are questions on a site or what a facility designation means for covered exposure, they're obligated to coordinate with DOE or DOL on the particular issue and that has been done. The designation was based on contracts engaged with this AWE, which only show that uranium is AEC work.

Dr. McKeel contended that the Department of Energy missed something, and he hoped the Board could say a thorium contract between Dow Midland and Mallinckrodt, the AEC, is sufficient to move forward. It would be wonderful to get a confirmation from DOE, but he didn't think it would be practical.

*** * ***

Board Discussion (continued)

Discussion Points:

- Is there an SEC petition that covers the extended period;
- The request being made is to extend the NIOSH evaluation of infeasibility into the residual contamination period;
- It would seem more straightforward to have an SEC petition that covered that period;
- There is no evaluation for feasibility of doing dose reconstructions other than from the time period addressed in this petition;
- NIOSH has provided samples of dose reconstructions for the residual period addressed for uranium;
- What happens if the Board takes the step of moving forward and extending the period as suggested;
- DOL refers to the DOE definition in terms of the site and time period

of coverage as far as how they handle the claims;

- As far as NIOSH is concerned, in the asked-for extended period they haven't tried to demonstrate feasibility of reconstructing thorium dose, so that data isn't available.

*** * ***

There ensued another open forum discussion between Board members, **Dr. McKeel** and **Mr. Stephan** as far as documents, AEC work, military contractors, Rocky Flats, et cetera.

Dr. Wade summarized the three issues the Board must look at. The first is the report from NIOSH recommending the Board grant the SEC during the covered period based on inability to reconstruct thorium dose. While it was part of Dow's commercial operation, it can be considered during the covered period. Not stated, but upon which the Board can comment, is NIOSH claims it can reconstruct uranium dose during the residual period. The third is whether or not thorium work was AEC-related.

The FUSRAP report is available on the O drive and in the references for the Dow Madison evaluation report.

Dr. Mauro discussed the preliminary review they had done based on suggestions from the Board at the last meeting. He described the uranium exposures during the covered period, the residual uranium exposures, information relative to thorium exposures during the covered period, the processes involved with thorium, SC&A's radiochemist's examination, lack of information on unique activities associated with management of thorium. He commented it appears thorium levels were not very high, generally below the limits of detection, but there are unknowns that were not researched. It doesn't appear there was a serious problem with airborne thorium at the facility during the covered period.

Dr. McKeel, **Mr. Stephan**, **Dr. Makhijani** and **Mr. Bill Hoppe** discussed shipping labels from 1962 to 1965, which were almost all thorium going to Rocky Flats, Martin Marietta or Lockheed. Labels would say first Department of Defense and then DOE, in care of Rocky Flats.

An unidentified worker interjected that he had been a laborer at Dow Madison and some of the extruded thorium couldn't be used so it was stored for years and everybody just worked around it.

The suggestion that the Board move forward with the petition before them, with the understanding that there will be an extension or a new petition to cover additional dates for residual contamination was

objected to by **Dr. McKeel** on behalf of the petitioners because he had expressed the concern on the residual period based on affidavits, on the record, with a PowerPoint presentation, and it was a major issue. The petitioners are giving additional independent conclusive evidence that the thorium work was AEC-related and they don't consider it a new issue.

An understanding among the petitioners and the Congressional representatives was expressed that if the Board makes a recommendation to the Secretary for something he cannot in turn recommend to Congress, as in expanding a period or expanding a definition, time is lost for the 47 workers covered under the current petition and the process will have to start all over again. Therefore there was agreement to deal with the current petition and investigate the issues raised by the petitioners.

Ms. Homoki-Titus indicated that even if the Board agreed to lump everything together, the Secretary could say he was recommending the addition of one portion and not another. The petitioners' position then changed back to putting it all together and letting Labor deal with how to separate the time periods. **Ms. Homoki-Titus** explained she couldn't say what the Secretary would do; she was just reporting his options. Her recommendation would be to give him the most direct guidance of what the Board wants done.

The Board does not have before it information indicating that the residual period group qualifies technically for an SEC petition. There is no evaluation report. NIOSH has not examined it, nor has SC&A, as to feasibility to do dose reconstructions for the time period. There has been a ruling made on the uranium, but not the thorium issue.

*** * ***

A motion was made and seconded to recommend a class be added to the Special Exposure Cohort for all AWE employees who were monitored, or should have been monitored, for exposure to thorium radionuclides while working at the Dow Chemical Company, Madison site, for a number of days aggregating at least 250 work days during the period from January 1, 1957 through December 31, 1960, or in combination with work days within the parameters established for one or more classes of employees in the SEC.

The precise language of the motion is attached hereto and incorporated herein by reference.

Discussion Points:

- Clarification of why NIOSH concluded they couldn't reconstruct thorium dose.

* * *

Petitioner Objection

Dr. McKeel objected that he had not been given a single data point from the plant, although he had asked for it repeatedly; that the petitioner is supposed to be provided all the documents that NIOSH has.

* * *

The motion carried unanimously.

* * *

Dr. Ziemer suggested it would be appropriate to have a follow-up motion dealing with the issue of the extension of the covered period. It was agreed the motion would be presented later in the day.

* * * * *

CHAPMAN VALVE SEC PETITION

NIOSH Update

Dr. James Neton,
NIOSH

Dr. Neton reminded the Board that the evaluation report was presented in September of 2006, when NIOSH recommended the petition be denied. NIOSH indicated their belief that dose reconstructions were feasible for the class, and it should be denied based on the proposed definition.

The Chapman Valve facility had a two-year contract to do AEC work to machine uranium slugs for the Brookhaven Research Reactor. This involved lathe operations, grinding, cutting, et cetera. The operation was small, involved less than 100 people. They had Q clearances as a requirement to work on the project. There was bioassay monitoring data and film badge data for a good portion of those workers.

* * *

Workgroup Update

Dr. Genevieve Roessler,
for Dr. John Poston, Chair

Dr. Roessler reported on behalf of the working group chair, **Dr. John Poston**, in his absence. The working group also included **Mr. Brad Clawson**, **Mr. Mike Gibson** and **Mr. Mark Griffon**. She reported on the background of events, including that in February of 2005 there was a worker outreach meeting, at which time the TBD was approved.

In December a *Federal Register* notice indicated a Chapman Valve SEC petition met the minimum requirement for review and evaluation. The evaluation report was submitted in August 2006 and presented at the Board meeting in September. SC&A was assigned to evaluate the site profile and the working group was appointed, and in October a TBD revision was submitted.

In November, **Dr. Roessler** shared, the working group chair, **Dr. Poston**, accompanied SC&A staff on a site visit and tour, participating in interviews with petitioners and workers. The first working group meeting was held shortly thereafter and NIOSH explained they had a good bit of data and felt they could do dose reconstructions. A report was received in April supporting that belief, and a working group teleconference was held later in the month.

This petition was for all AWE employers who were monitored, or should have been monitored, for radiological exposures while performing AEC work in Building 23 at Chapman Valve from January 1, 1948 through December 31, 1949. **Dr. Roessler** explained the period through April of 1949 was the production period, with the remainder considered a residual exposure period.

The official language then continues, indicating a period from January 1, 1991 through December 31, 1993 as another residual exposure period.

Dr. Roessler explained the working group is unanimous, with the concurrence of SC&A staff, in its conclusion that the NIOSH approach to dose reconstruction will provide bounding but claimant-favorable estimates of dose to the workers over the periods of interest.

Based on this conclusion, the working group does not recommend that SEC status is warranted for the Chapman Valve employees.

*** * ***

Discussion Points:

- Possibility for a motion similar to the Dow motion on operations outside the defined period of time because of a potential enriched uranium sample that may or may not be valid;
- NIOSH has sent a letter about that sample to DOL and DOE asking them to investigate, but has not gotten a response;
- Clarification that there were no bioassay samples on the second residual period;
- There were no film badge data for the residual period, no indication individuals were actively working in those areas;
- Clarification that the letter from NIOSH to DOE and DOL was written sometime in February;
- There was an additional DOE remediation conducted from 1994 to 1995, and more information is being sought on those remediation aspects, which is why this class definition stops at 1993, which is the extent of where NIOSH felt it had sufficient information to evaluate;
- The petitioners asked NIOSH to look at the '48/-49 time period and at '91 to '95 and, for the reason just discussed, they recommended approval of the period '91 to '93 rather than postpone action on the assumption that other information may be developed;
- If other information is developed, nothing precludes taking that into consideration at that time.

* * *

A motion was made and seconded that the NIOSH recommendation be accepted and passed along to the Secretary.

* * *

The motion was open for discussion.

Dr. Makhijani provided information about why the question of enriched uranium was at issue, having come during a worker interview from a different part of the project. There was suggestion of shipment from Oak Ridge to a different facility, but which came onto the site by train and was then transferred to truck. If there had been contamination on the equipment there would be an explanation for why there was only a small amount found at the main site. This was not only outside the covered period, it would be at a different facility.

- Was an SC&A report regarding the petition ever put in writing;
- A report was delivered in December of 2006, but was not available on the web site because of the names included and the fact that it has not gone through Privacy Act clearance;

- The Board has the report, although the petitioner probably does not;
- Questions about why a document can't get Privacy Act clearance in five months;
- Are there claimants whose claim falls outside the covered time period;
- Claims that fall outside the covered time period are not eligible claims and not sent to NIOSH for dose reconstruction;
- This is the third example at this meeting of significant delays and problems with petitioners and people outside the Board getting access to documents that are part of the deliberations;
- Both at the face-to-face and teleconference meetings of the workgroup the petitioners were on the phone and aware of the workgroup discussions;
- Should the Board postpone the vote until the June meeting to allow time for the petitioner to review the one report from SC&A they haven't seen;
- A one-day meeting in June will not give enough time to discuss issues that have been moved off to that date;
- These are never going to be easy decisions and there will never be full information, and there will never be the last detail that everyone would like to have;
- It is incumbent upon the Board to move forward with the information available;
- The working group spent a lot of time on it, the data there has been reviewed and the workgroup recommendation appears valid;
- A suggestion to expand the meeting in June to two days;
- It's a different situation when a group of petitioners is expecting to be compensated, but in this case the workgroup is not recommending approval because NIOSH can do dose reconstructions;
- A question of how quickly the SC&A report can be redacted and made available to the petitioners;
- GC's office has not received the report so there's no way to judge how long it would take;
- The report was submitted to the Board and NIOSH.

* * *

A motion was made and seconded to table the vote. Being a non-debatable motion, and not specifying when it comes off the table, the motion carried unanimously and the motion to deny the petition was tabled.

* * *

An observation was made that the sequence of how reports flow from SC&A

through contracting office to NIOSH and so forth over Privacy Act considerations needs to be straightened out.

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Review of Language of the Official Rocky Flats Motion

Dr. Ziemer indicated the delegation from Colorado wanted to understand the definition of "monitored, or should have been monitored, for neutrons" and who that actually covers. They've asked that the submission to the Secretary be delayed by directive of the Board. **Mr. Hiller** from Senator Salazar's office, speaking on behalf of the delegation, indicated their concern with the language of the current motion regarding definition of the group of workers subject to inclusion in the cohort, '52 to '58 group of workers. They do not want the Board to recommend inclusion of the group and have that approved, only to have later confusion about which workers are truly eligible for inclusion. They don't want them to face another process to prove their eligibility, so they're requesting the Board consider an amendment so that the letter to the Secretary won't go out until after the June meeting, and that the Board in the meantime ask NIOSH and SC&A to provide guidance in terms of a description or definition of the group of workers eligible for this class.

Dr. Ziemer observed that the 21 days mentioned in the motion is the Board's standard procedure and doesn't change the intent of the motion. It is to ensure there is no delay in getting the materials to the Secretary but, by agreement of the Board, can be readily modified.

Ms. Alberg from **Senator Allard**'s office indicated she felt safe in saying the Congressional delegation would be supportive of the request. She clarified they've not necessarily asking for a delay, but for a clarification of who is covered.

There was a suggestion the number of days be changed from 21 to 42, which would then extend past the next Board meeting. If it can be addressed in a shorter period of time and people are satisfied, that would be fine.

Without objection, it was agreed that the time period in the motion would be changed to 42 days.

Dr. Wade offered that **Mr. Pete Turcic** at DOL had been sent the definition as stated in the motion, and he had written back raising certain questions. It was probably best that those questions be resolved before forwarding the recommendation to the Secretary.

There was a suggestion that a sentence be added to indicate the Board is still considering the possible addition of workers for the time period beyond 1958 and expects to make an additional recommendation in the near future, just to clarify any questions the Secretary might have. That could serve as a heads-up to the Secretary that there is more to come.

The mover indicated that would be accepted as a friendly amendment. This motion will come back to the Board in a month since it's being held for clarification of the definition at the next meeting. That would be an opportunity to affirm or determine any other wording changes that need to be made to describe the already-designated class.

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DISCUSSION OF BOARD SCHEDULE

Dr. Wade led a discussion of the Board's upcoming work schedule. Part of the discussion was surrounding a face-to-face meeting in June. A call is scheduled for the 12th, but that could be face-to-face. Another solution could be a two-day meeting, the 11th and 12th, in order to do justice to the complex issues.

The question of whether all the answers will be available by that time in order for the Board to address the Rocky Flats issues was examined. There is also the issue of tasking the contractor and asking NIOSH to do some related things.

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The proposed wording of the motion regarding the three outstanding questions was read into the record. **Dr. Neton** confirmed that two of the three could be done in a fairly short time frame, but the neutron-to-photon ratio reevaluation could take some time.

The possibility of a working group meeting in late May to assess the final SC&A report and get it to the petitioner before the June meeting was discussed.

Dr. Wade reported that, in addition to the scheduled June 12 phone call, there is a July 17-19 face-to-face meeting, a September 4 call, and an October 3-5 meeting face-to-face meeting. It was agreed that July 17 seemed more reasonable for NIOSH, SC&A and the working group to have their questions on the three issues answered.

A suggestion was made to have an update on the June call to get an understanding if the time line is suitable, and then deal with it in

July.

A concern was raised that there has been a public indication to the petitioners the Board would deal with the issue in June in Denver, and there should be some effort made to do that. Otherwise they should discuss it with the petitioners and there should be good reason and a sound rationale provided for not doing so and there is not enough information right now to be able to do that.

It was noted that if it can't be done, it is almost making the case by default that the Board can't move in a timely fashion, which is one of the main issues for the petitioners. If it can't be done in a timely fashion it forces the Board to a default position of going with what is available because there will never be 100 percent information and at some point a determination has to be made that enough is enough.

Mr. Hiller commented that timeliness is a crucial issue and sooner or later there has to be a decision based on available information. If it isn't available, that probably directs the Board's action. The motion passed yesterday indicated this was going to be resolved on June 12.

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The precise language of the motion is attached hereto and incorporated herein by reference.

A vote was called for on the motion, which passed unanimously.

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Dr. Wade confirmed there was a quorum of the Board at the table, and that he would schedule a face-to-face meeting of the Board for the 11th and 12th of June, full days, and for future meetings that the Board should plan on their being full-day meetings.

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Congressional Comment

Ms. Portia Wu from **Senator Ted Kennedy**'s office phoned in to the meeting and made a statement about the Chapman Valve petition. **Dr. Ziemer** clarified the delayed status of the petition vote and the purpose for that. Whether the site profile will be revised in light of the Ferguson report, the enriched uranium question and the response from DOL and DOE to the NIOSH letter about that was discussed.

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REVIEW OF SEC WRITEUPS

Los Alamos National Laboratory

Copies of the final wording on the Los Alamos petition were distributed and, unless anyone had wording problems, **Dr. Ziemer** indicated he was going to take it by consent that it was acceptable.

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A motion was made and seconded that the Advisory Board recommend NIOSH provide further consideration to the locations listed in Table 5.1 in the Los Alamos report on a number of Technical Areas, operational dates and radionuclides which were excluded from the current SEC recommendations, with NIOSH reporting any findings regarding those locations, and consider any new information and report to the Advisory Board at the meeting in July. There was a further request that SC&A also review the designations and information.

The precise language of the motion is attached hereto and incorporated herein by reference.

The motion was open for discussion.

Discussion Points:

- This work is actually already being done, but the petitioners had asked that it be formalized;
- A concern was expressed about getting as much work done on Rocky Flats as possible before the June meeting, and whether this additional work on LANL would affect that;
- The contractor's staff working on Los Alamos and Rocky Flats are different.

The motion carried unanimously.

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Dow Chemical Company (Madison site)

The language for the second portion of the Dow Madison recommendations was read into the record. This language asked the Secretary of HHS to work with the Secretaries of Labor and Energy to address the issue of

EEOICPA coverage for Dow Madison workers during the time period 1961 through 1998.

The motion was made and seconded, with the precise language being attached hereto and incorporated herein by reference.

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Mr. Stephan made an additional request, asking that it be clarified that the task for SC&A includes speaking to at least the 11 Dow workers who have testified to the thorium shipments.

Dr. Ziemer explained the Board doesn't get to that level of specificity in their tasking, but SC&A has heard the point and it is open to them.

Dr. McKeel contended that unless the words "AEC thorium" are added into the letter, he did not think the Secretary would be persuaded.

Dr. Wade clarified for the record that there was no question in anyone's mind that thorium was on the property. The question is whether it was AEC thorium, and they wanted to refer to **Dr. McKeel**'s documents, if necessary, to make the case.

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The motion carried unanimously.

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W. R. Grace Company

The Board members were provided a draft of the final wording. **Dr. Ziemer** indicated he was going to take it by consent that this standard wording was agreeable unless he heard otherwise. The language is attached hereto and incorporated herein by reference.

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SANDIA LIVERMORE SEC PETITION

Dr. Wade commented that he didn't have an expectation that the Board would complete its work on the Sandia Livermore SEC petition evaluation report, but he thought it should be started in case the Board wished to task some work to be done.

NIOSH Evaluation Report

Dr. Samuel E. Glover,

NIOSH/OCAS

Dr. Glover presented the NIOSH evaluation report for SEC Petition 0059, noting that it was a very small, well-defined class of three people. He provided site history on the facility, the petition submission date of May 2005, and the class definition provided by the petitioners. That was defined as All X-ray technologists and materials scientists who worked in the X-ray Diffraction and Fluorescence Laboratory; Building 913, Room 113; Building 913, Room 128; and Building 941, Room 128 from December 1, 1967 through December 31, 1990. The petition was qualified in October of 2006 and the *Federal Register* notice was published that same month. The evaluation report was issued in March of 2007.

The proposed class definition was modified by removing Building 941, Room 128 because X-ray diffraction activities in that building began after 1992 and outside the time period proposed.

Sources available for the evaluation included a draft site profile, Technical Information Bulletins, telephone interviews with former workers, the site research database, as well as documentation and affidavits submitted by petitioners. **Dr. Glover** outlined and explained the availability of dosimetry data which was in the NIOSH/OCAS Claims Tracking System.

One case met the class definition. No dose reconstructions have been completed. One case contained internal dosimetry and one case contained external dosimetry. There was also a CATI report which provided work location, work hours and hazard/incidents encountered.

The petition basis proposed that one or more unmonitored, unrecorded, or inadequately monitored exposure incidents occurred, citing two incidents during the 23 years of operation, one in 1978, the other in 1979. Both were due to violations of procedures and standard industry practices on the same Norelco Diffraction X-ray Generator.

Dr. Glover explained the petitioner has provided evidence of potential unmonitored exposure, with no personal or area monitoring data for the first exposure incident. He noted the Laboratory did not provide permanently mounted instrumentation for continuous recording of the ionizing radiation being emitted.

Dr. Glover described the radiological operations, the monitoring information for the class, the exposure conditions for sample dose reconstruction, a synopsis of the sample dose reconstructions for internal exposure to uranium; external exposure, both deep and shallow; recorded and unrecorded external exposures.

There were 148 documents reviewed and over 250 documents are currently undergoing classification review.

Dr. Glover explained the standard two-pronged test of feasibility and health endangerment was applied to the evaluation process for this petition. NIOSH concluded that the available monitoring records, process descriptions and source term data are adequate to complete dose reconstruction with sufficient accuracy for the proposed class of employees; therefore health endangerment determination was not required.

NIOSH recommends the petition be denied.

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Discussion Points:

- Is this one individual or three;
- Was the incident a diffraction incident or was the person getting in the beam;
- Diffraction units give very high doses and are highly localized, with exposure resulting in an almost immediate skin burn;
- Scatter is much lower and should be picked up by film badge, but is very low energy to start with and then is scattered and would all be shallow dose.

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Petitioner Response

Ms. Emily Howell from the HHS Office of General Counsel read into the record a letter on behalf of the petitioner which, although lengthy, was done at the specific request of the petitioner. The letter is available in its entirety on the NIOSH/OCAS web site, www.cdc.gov/niosh/ocas.

In general the petitioner noted that his dosimetry records for the period in question have not been found. He frequently wore his dosimeters at the waistline to prevent them from interfering with tabletop work, so the dosimeter was blocked by the table and would not accurately reflect the exposure. He also discussed the work environment and a lack of appropriate shielding.

He objected to the description in the evaluation report that both incidents were due to violations of procedure and standard industry practices. He commented that the generator was subsequently removed

from service because the generator and faulty shutter could not be relied upon.

The petitioner contested a statement in the evaluation report regarding sealed sources. He commented on the fact that during the time period in question they were allowed to eat and drink in the same laboratory where they dealt with the radioactive and toxic materials.

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Ms. Mary Carter, while on the line and representing the facility, indicated she had no comment to add.

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A motion was made and seconded to table deliberation on this petition until NIOSH has had an opportunity to review the data just submitted in the petitioner's letter, with a hope that it could be done prior to the June meeting.

The motion carried unanimously.

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ADDITIONAL WORKGROUP REPORTS

Dr. Wade called on **Dr. James Melius** to report on the status of his two workgroups to add to earlier reports. Those are the SEC issue group and the Hanford working group.

Dr. Melius indicated he had reported on Hanford in the conference call and there was no update for that.

On the SEC workgroup mainly dealing with the 250-day issue, the only change from his last report was that they have received a report regarding the Ames, Iowa lab from SC&A formalizing their earlier presentation. They are making progress with NIOSH on some informational issues related to Nevada Test Site. He expected that possibly by the July meeting they would have made some progress with another meeting of the workgroup, but that depends on how much material there is for everybody to review.

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USE OF DATA FROM OTHER SITES

Dr. Ziemer noted there was still one issue unresolved, which is

Bethlehem Steel. The schedule had included a presentation on use of data from other sites by the legal department, with the presentation materials in the Board's packet, but that will have to be delayed until the next meeting.

Dr. Melius indicated he would speak with **Ms. Homoki-Titus** to be sure that any specific questions he had were covered in her presentation.

Dr. Ziemer made the observation that the practical effect is that they would be tabling the Bethlehem work until the next meeting.

Ms. Homoki-Titus added that she believed some of **Dr. Melius**'s questions would lead the GC office to violate attorney/client privilege. She suggested they may be able to work out a closed meeting.

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With no further business to come before the Board, the meeting was adjourned at 12:52 p.m.

End of Summary Minutes

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I hereby confirm these Summary Minutes are accurate, to the best of my knowledge.

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Paul L. Ziemer, Ph.D., Chair

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Date