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 Thirty-Eighth Meeting
June 14-16, 2006

The Thirty-Eighth Meeting of the Advisory Board on Radiation and Worker Health (ABRWH or the Board) was held at the Marriott Metro Center, 775 12th Street Northwest, Washington, D.C., June 14-16, 2006. The meeting was called to order by **Dr. Paul Ziemer**, Chairman of the Board, and by **Dr. Lewis Wade**, the Designated Federal Official, Centers for Disease Control and Prevention's (CDC) National Institute for Occupational Safety and Health (NIOSH). 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. Bradley Clawson; Dr. Roy DeHart; Mr. Michael Gibson; Mr. Mark Griffon; Dr. James Lockey, Dr. James Melius; Ms. Wanda Munn; Dr. John Poston; Mr. Robert Presley; and Dr. Genevieve Roessler.

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

Federal Agency Attendees:

Department of Health and Human Services:

Mr. Jason Broehm, Ms. C.C. Chang, Mr. Larry Elliott, Ms. Mindi Haughly, Mr. Frank Hearl, Mr. Stuart Hinnefeld, Dr. John Howard, Ms. Emily Howell, Ms. Laurie Ishak, Ms. Relada Miller, Dr. James Neton, Mr. Michael Rafky, Mr. LaVon Rutherford, Dr. Brant Ulsh.

Department of Labor:

Mr. James Grande, Mr. Larry Hoss, Ms. Shirley Jarmi*, Mr. Jeff Kotsch, Ms. Roberta Mosier, Mr. Jeff Nesvet, Mr. Hang Tung, Mr. Peter Turcic.

Congressional Appearances:

New York Senator Hillary Clinton, Indiana Congressman John Hostettler, New Mexico Congressman Tom Udall.

Congressional Staff Personnel:

Mr. Mike Casshaft*, Representing Washington Congressman Doc Hastings; Ms. Michelle Chavez, State Director, New Mexico Congressman Tom Udall; Ms. Livia Lam, representing Washington Senator Maria Cantwell; Ms. Sandra Schubert, representing Nevada Senator Harry Reid; Ms. Jenny Wing, representing Iowa Senator Tom Harkin.

Contractors:

Mr. Timothy Joseph, Ms. Kate Kimpan, Oak Ridge Associated Universities; Dr. Hans Behling, Ms. Kathy Behling, Dr. Robert Bistline, Mr. Sanford Cohen, Mr. Joseph Fitzgerald, Dr. Joyce Lipsztein, Dr. Arjun Makhijani, Dr. John Mauro, Mr. Alec Zeitoun, Sanford Cohen & Associates; Mr. Judson Kenoyer, Dade Moeller & Associates.

Public Attendees: See Registration

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Dr. Ziemer called the meeting to order at 1:05 p.m., welcoming attendees, encouraging them to register attendance and to sign up to speak during public comment if desired, as well as to avail themselves of materials from the back table. **Dr. Ziemer** deferred action on three sets of minutes until Friday, June 16th.

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PROGRAM STATUS REPORT - NIOSH

Mr. Larry Elliott, NIOSH
Director, Office of Compensation Analysis and Support

Mr. Elliott opened his status report on the dose reconstruction program with acknowledgment of the considerable progress NIOSH has made. He detailed the overall claim distribution within NIOSH and the Department of Labor (DOL), highlighting the fact of 324 covered facilities within the program and the complications of reconstructing doses for facilities lacking site profiles. In summarizing the completed dose reconstructions (DRs) sent to DOL for final adjudication, he included a breakdown of the number of cases with possibility of causation (POC) over 50 percent and those with POC under 50 percent, and the awarding of $472 million to claimants for dose-reconstructed cases. NIOSH is making a concerted effort to complete the oldest cases and eliminate backlog.

To augment the technical support on dose reconstruction, NIOSH has added a contractor, awarding a one-year task order to Battelle to perform DRs on a specific type of claim. These are claims typically from Atomic Weapons Employers (AWE) where uranium was processed, and some DOE sites.
In order to explain the processes associated with an increased workload, **Mr. Elliott** covered the varied courses of action required to handle different types of cases, such as administratively-closed cases and re-works. Re-works are necessitated largely by the receipt of additional information. Of the claims completed by NIOSH and sent to DOL, 11 percent have been returned for reworks; only two percent of that 11 percent figure was returned for technical modification.

Speaking to the support from Department of Energy (DOE) to NIOSH dose information requests, **Mr. Elliott** emphasized that NIOSH seeks original data from actual badges, bioassays, urinalysis readouts and whole body count data rather than cumulative dose data. Of 412 currently outstanding requests, only 87 are beyond the 60-day mark. **Mr. Elliott** went on to describe the follow-up process to stay abreast of the status of outstanding requests. This includes a series of communications to both DOE headquarters and site points of contact at 30-day intervals, and requires that DOE provide a description of their efforts to locate and provide the requested information.

The presentation provided listings for six classes of workers added since full implementation of the Special Exposure Cohort (SEC) petitioning process; three petitions evaluated and delivered for Board review; six petition evaluation reports under development; 11 requests to add a class which have been submitted to NIOSH and are in the qualification process; and 28 submittals which have been administratively closed.

SEC petitions may be administratively closed for three categorical reasons: failure to meet the criteria specified in 42 CFR Section 83.9; the facility in the submission is already a member of an SEC class, or the petitioner voluntarily withdraws the petition. The listing also included 928 cases impacted by additions of SEC classes.

NIOSH recognized that people are having trouble understanding what criteria is needed in order to submit a petition. **Mr. Elliott** announced **Ms. Laurie Ishak** of the NIOSH staff in her new post will be assisting potential petitioners in the understanding and development of their petitions.

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Discussion Points:

- What special capabilities led to the awarding of a contract to Battelle.
- How NIOSH is assisting petitioners in understanding the closeout process.
- The number of actual claimants in relation to projections at the start of the SEC process.
- Whether an SEC petition, administratively closed due to lack of additional information within 30 days, could be reopened.

Dr. Wade explained the omission of the Nevada Test Site (NTS) and Pacific Proving Grounds (PPG) from the NIOSH presentation is because those two SEC petitions are working their way through the system. He asked **Mr. Elliott** to provide the Board with a sense of what would be needed within the next year or so in order to realize its goal of auditing two and a half percent of the cases.

Mr. Elliott described the NIOSH goal of a steady state as one where the backlog has been reduced, and dose reconstructions are being produced at a rate higher than what is being referred from DOL so no backlog is building. The second part has already happened, and it is hoped by September, 2007 they will be producing 4,000 DRs a year with only 3,600 coming in. **Mr. Elliott** expressed appreciation for the quality of technical support provided by the Oak Ridge Associated Universities (ORAU) team, noting the ORAU contract concludes in September, 2007. He added NIOSH anticipates a further need for some technical assistance in certain areas beyond that time, and will compete those task-related areas.

So the Board can begin to understand its audit responsibilities relative to that steady state, **Dr. Wade** confirmed at that point there will be a population of approximately 25,000 claims. He inquired whether the site profile generation process is slowing.

Mr. Elliott explained they are working through development of the final site profiles NIOSH feels are needed, noting the Battelle effort and the ORAU team are dedicated to that end. It is NIOSH's goal that very few if any site profiles will need development by the time ORAU's contract concludes. At that point NIOSH will be enhancing or providing additional quality in the existing site profiles.

An increased flow of SEC petitions is expected to become a significant part of the program. **Dr. Wade** observed that once steady state is attained, the Board's goal of auditing two and a half percent of cases will result in the need to review about 625 individual dose reconstructions.

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PROGRAM STATUS REPORT - DEPARTMENT OF LABOR

Mr. Peter Turcic,
Department of Labor

Mr. Turcic presented a status update on the DOL's activities under the Energy Employees Occupational Illness Compensation Program Act of 2000 (EEOICPA). He began with an enumeration and description of cases under Part B and the new Part E, detailing operational goals for administering the program under the Government Performance and Results Act (GPRA). **Mr. Turcic** explained the goals are based on timely initial decisions: 120 days for cases from a DOE facility or a Radiation Exposure Compensation Act (RECA) case and 180 days for cases from an AWE or a subcontractor, which need a longer period for employment verification.

Various scenarios were presented concerning timely decisions for final decisions based on these types: waiver of objections, review of the written record, or the instance of a case going to a hearing. DOL has set percentage goals for both their timely initial decisions and their final decisions, and those percentages have been continually raised as efficiency increases. Part B timeliness goals for FY '06 are 80%. The desire to put more emphasis on a backlog of Part D cases from DOE, however, caused DOL to lower their timeliness goal to 50 percent for 2006 for Part E. He reiterated that goals are continually set higher as performance increases.

As of the week prior to this meeting, over $2 billion has been paid in total EEOICPA program compensation. Payments made under Part B alone totaled $1.52 billion, and breakdowns of the following were presented: the payments made under Part E, RECA and Medical; decisions on cancer cases, including denials and the reasons behind them; NIOSH referral status including reworks, returns and withdrawals; the status of dose reconstructed cases including final decision, approvals and denials; cases from the newly-added SECs encompassing those withdrawn for review, those with final decisions including approvals and denials, those without final decisions, and those pending.

Compensation in cases for which a referral was made to NIOSH totaled $472 million. The presentation broke down numbers of payees and cases, compensation and payee numbers for dose-reconstructed cases and for added SEC cases. **Mr. Turcic** provided statistics relating to the SEC sites presently scheduled for discussion including Ames, Rocky Flats, and Y-12. He gave similar information for other sites including

Savannah River, Hanford, NTS, and Bethlehem Steel.

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Discussion Points:

- Are medical payment totals low due to large numbers of survivors or;
- difficulties in obtaining medical information from claimants.
- Identification of the major types of cancers among the non-specified cancers.
- Are Part E claims for cancer drawn largely from transferred Part B claims.
- How do mixed chemical and radiation exposures factor into claims under Part E.

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CONFLICT OF INTEREST (COI) DISCUSSION

Dr. Lewis Wade, NIOSH
Designated Federal Official

Dr. Wade highlighted changes in the updated COI policy to stimulate discussion. The NIOSH intent is to take all comments, from this session and beyond, and continue to evolve the policy with the hope of presenting a final policy in six weeks. The changes shown below are based on comments received.

1: The first major change was made to page 3 in Section 3.11 on issues relating to financial or supervisory types of conflicts. Two footnotes were added. One provided a familial definition, a significant addition to the COI policy. The other, footnote 9, dealt with the definition of "financial," in terms of exclusions.

2: An entirely new section was added at 4.0, "Corporate Disclosure and Exclusion."

3: A second paragraph was added on page 8 increasing specificity about what a site expert could not do.

4: The section on verification has an addition which clarifies the section on penalties.

5: Based on comments, a section 7.5 "Compliance Information Contacts" has been added.

Additionally, other less significant modifications were made to the COI policy based on comments received. **Dr. Wade** encouraged the Board to conduct a full airing and discussion of this document. He welcomed comment on NIOSH's strategy of having one document serve as the fountainhead for all policies that would flow from it. He offered that arguments could be made that the Board and the Board's contractor should be held to a different standard, and promised that the drafters of this document would take all present and future comments seriously.

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Discussion Points:

- Whether the wording of the new 3.11 is too broad.
- The matter of time period covered by the policy, especially as it relates to SECs.
- How conflicts will carry over a time frame and from site to site.
- How to make the policy operational.
- The new 4.0 seems to be all disclosure and no exclusion.
- The onus of responsibility is on document owners, and their work is not reviewed.
- How to deal with conflicts found in past work.
- Perhaps rules specific for each group in the program should be provided.
- Need for establishing a method, formally expressed within the structure of the document, for assistance in challenging an issue.
- Steps for finalizing the COI policy.
- The paucity of hourly workers who serve as site experts.
- Impact of the current and evolving policy on workload.
- Efforts made by the ORAU team to adhere to the letter and spirit of the policy.
- Potential outcomes if a site profile author is found to be conflicted.
- Need for a stronger review program, perhaps internal peer review, for early detection of issues with potential impact on dose reconstruction.
- The difficulty of reviewing constantly-changing documents.

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The Board agreed to reach a consensus position on the COI policy as early as possible. A working group was formed to review the policy and develop a statement for discussion during the August Board conference call. **Dr. James Melius** will chair, with **Mr. Brad Clawson** and **Mr. Mike Gibson** as the remaining members of the workgroup.

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Dr. Ziemer offered any members of the public who wished to comment on the Conflict of Interest policy the opportunity to do so. **Mr. Richard Miller** of the Government Accountability Project accepted, and his statement in its entirety may be found on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

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PUBLIC COMMENT SESSION

Public comment was solicited on the first two days of the meeting. The following is the only member of the public who spoke on this date. A full transcript of his public comment is available on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

Mr. Jeff Walburn, SPFPA, Local 66.

With no further public comment offered, the Board officially recessed until 8:30 a.m.

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Thursday, June 15, 2006

Dr. Ziemer opened the day with reminders to register attendance, sign up if desired for the day's public comment session and take copies of the agenda and other pertinent documents. **Dr. Wade** noted that when the petition for Ames Laboratory comes before the Board it will be the first in which SC&A has been aggressively involved in looking into issues. The Board has made every effort to make all the processes, including debate, full and open.

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AMES LABORATORY SEC PETITION
NIOSH EVALUATION REPORT

Dr. James Neton,
NIOSH

Dr. Neton presented NIOSH's evaluation of petition SEC-00038 on behalf of Ames Laboratory. He began with a sketch of petition-related activities and dates. The original proposed class included a broad scope of seven work categories. That definition, complete with

numerous job titles and site buildings, was provided. He detailed NIOSH's search for data within the NIOSH OCAS Claims Tracking System (NOCTS), noting the almost complete lack of monitoring data available therein. He described the Ames Laboratory in terms of its structure and its radiological activities, notably thorium operations. The physical plant was never intended to house a production scale operation and its ventilation was inadequate.

Dr. Neton detailed the information NIOSH obtained from each of its sources, including several databases, interviews with Ames staff members, the Ames Laboratory web site, and documentation provided by petitioners. He provided a breakdown of the dosimetry data into external and internal. As a whole, the dosimetry data is sparse. Monitoring and source term information is spotty. Under the first prong of the two-prong test established by EEOICPA, NIOSH came to the determination that the available monitoring records and process descriptions are insufficient to complete dose reconstructions with sufficient accuracy.

Regarding the second prong of that test, health endangerment, NIOSH's study of the evidence indicates that workers may have received episodic internal/external exposures from working with thorium, plutonium and thoron; however, those exposures do not meet the litmus test of an exposure equivalent to one that would result from a criticality accident, so the default 250-day requirement is used. Based on NIOSH's analysis, the revised proposed class definition added the 250 day requirement and eliminated job titles per se, substituting more encompassing wording. **Dr. Neton** explained why the proposed definition end date was one year earlier than that of the petitioner's proposed definition. That decision was based on cessation of operations in 1954 for both uranium and thorium activities and NIOSH's ability to establish plausible upper bounds for exposures in 1955. In summary, he delineated what NIOSH can and cannot do regarding dose reconstructions for internal, external, neutron and medical exposures.

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Discussion Points:

- Why the 250-day limit was used in the instance of episodic exposures.
- The potential for Ames workers still employed in 1955 to constitute a different class.
- The Board need to devise a way to handle situations in facilities with essentially no monitoring programs during relevant time periods.

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AMES LABORATORY PETITIONERS RESPONSE

Dr. Laurence Fuortes represented the petitioners to address errors they contend have been made in the past. He alleged lack of attention to worker health and safety from the very top levels of administration. The petitioners have three main issues. They concern the semantics of discrete event equivalent to a criticality and whether the intention of the legislation is being realized; NIOSH's recommendation of 250 days; and the date at which the petition's class is defined.

His statement in its entirety may be found on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

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AMES LABORATORY SEC PETITION WORKING GROUP REPORT and SC&A REVIEW

Dr. James Melius,
Working Group Chair
Dr. Hans Behling,
Sanford Cohen & Associates

Dr. Melius reported that at the conference call in April the work group had identified issues and determined it would be helpful to have SC&A perform a limited review of the information, the NIOSH evaluation report and the petition. The issues concerned residual contamination and episodic exposure. SC&A's recent report has not yet been reviewed by NIOSH.

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Dr. Behling highlighted only the outstanding issues in SC&A's report, along with those which might require Board resolution. Essential components of the review process included reviews of the petition and of available relevant documents, an assessment of NIOSH's petition evaluation report, and issues potentially requiring Board resolution.

SC&A concluded, as did NIOSH, that dose reconstructions would be difficult in light of information deficiencies and gaps. However, the question arose as to what constituted the Ames project, whether production or potential exposures went beyond the production period to be included as part of the SEC petition. This open question needed careful consideration, as did the possibility that the 1954 end date

might have been arbitrary. **Dr. Behling** reviewed results of a 1952 Atomic Energy Commission (AEC) survey conducted at the Ames Laboratory facility. The report identified serious deficiencies, along with 36 recommendations aimed primarily at reducing air concentration.

SC&A then identified three issues, the first one questioning whether the 1954-1955 time frame should be considered as the prime period for the SEC; the second concerning the class of workers and whether guards were included; and the most important issue, episodic doses that could have contributed to an exposure that might have workers eligible for the exposure period that was not necessarily defined by the 250-day work aggregate.

The second criterion involving a potential look at the 250-day period was the definition under paragraph 83.13 mentioning other events involving similar high level exposure resulting from the failure of radiation protection controls. The 1952 survey clearly pointed to a failure of those controls.

Thorium 232 calculations due to routine exposures were displayed; they were taken from the 1952 survey of exposures. Additional discussion between SC&A and NIOSH was needed to resolve the meaning of the numbers. The calculations illustrated the potential of one routine exposure in one day to constitute a significant health risk.

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Discussion subsequent to the presentation was lengthy and technical, and included offerings from the Board, NIOSH, SC&A and the petitioners. Topics included the following.

Discussion Points:

- Whether the basis for SC&A's implication that the SEC class should be continued was residual contamination itself or the ability to do dose reconstruction.
- Whether SC&A acted appropriately in going beyond the scope of what they had been asked to review.
- The matter is not whether there was persistent contamination in some buildings, but whether NIOSH can put plausible upper bounds on the exposures in those buildings.
- NIOSH's internal dose calculation estimates are much lower than those presented by SC&A.
- Further discussion on this matter, and other issues, is needed.
- A request for NIOSH to share their calculations on the upper bound.
- A request for explanation of why the 50-year committed organ dose is

listed as a rate.

- A request for dates for which data is available.
- Clarification that guards, firemen and secretaries will be included in the NIOSH proposed SEC class definition.
- Consideration of the Ames storage facilities for thorium and uranium.

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As working group Chair, **Dr. Melius** read into the record their recommendation to the Board, which is received as a motion requiring no second:

The Board recommends that the following letter be transmitted to the Secretary of Health and Human Services within 21 days. Should the Chair become aware of any issue that in his judgment would preclude the transmittal of this letter within that time period, the Board requests that he promptly informs the Board of the delay and the reasons for this delay, and that he immediately works with NIOSH to schedule an emergency meeting of the Board to discuss this issue.

The Advisory Board on Radiation and Worker Health (the Board) has evaluated the SEC petition 00038 concerning workers at the Ames Laboratory under the statutory requirements established by EEOICPA and incorporated into 42 CFR Section 83.13. The Board respectfully recommends a Special Exposure Cohort be accorded to all Department of Energy employees or its contractor or subcontractor employees who were monitored or should have been monitored while working at Ames Laboratory in one or more of the following facilities/locations: Chemistry Annex 1 (also known as the "old women's gymnasium" and "little Ankeny"), Chemistry Annex 2, Chemistry Building (also known as "Gilman Hall"), Research Building or the Metallurgical Building (also known as "Harley Wilhelm Hall") for a number of work days aggregating at least 250 work days during the period from January 1st, 1942 through December 31st, 1954, or in combination with the work days within the parameters established for one or more other classes of employees in the SEC.

These workers were employed during the early years of the nuclear weapons production. There are very little monitoring data available for the Ames Laboratory during the years in question. NIOSH concluded that the available monitoring and source term information is not sufficient to document or estimate the potential maximum radiation exposures for workers at the Ames Laboratory under plausible circumstances during the time period in question. The Board concurs with this conclusion.

NIOSH has reviewed information which confirms that radiation exposures at the Ames Laboratory during the time period in question could have endangered the health of members of this class. The Board concurs with this conclusion.

The Board is still evaluating issues related to people who may have been exposed to radiation during discrete incidents that could have involved exceptionally high exposures to radiation while working at the Ames Laboratory. For example, those who were present during the explosions or fires (and fires in some of the buildings) and who may not meet the 250-workday requirement described above. The Board will continue to review this matter and may make additional future recommendations regarding this group.

Enclosed is supporting documentation from the recent Advisory Board meeting held June 15th in Washington, D.C. where the Special Exposure Cohort petition was discussed. This documentation includes transcripts of public comments on the petition, copies of the petition, the NIOSH review thereof, and related documents distributed by NIOSH and the petitioners. If any of these items are unavailable, they will follow shortly.

The motion was open for discussion.

- Whether 21 days is the correct reference in the first sentence.
- The motion includes the possibility of ongoing discussions on the issue of the episodic exposures, while also allowing for closure for most petitioners.
- Continuation of the time frame did not need to be part of the current motion; further discussion could take place.
- The Board had approved incorrect dates in its formal motion on a previous petition, which error had been rectified.
- Whether the basis of the 250-workday requirement might vary from site to site.
- The definition of episodic exposures as it relates to the 250-day requirement and why, in and of themselves, they did not qualify.
- The resulting exposure must be an exceptionally high level of radiation to be defined as equivalent to a criticality.
- What criterion will apply for Ames if 250 days is not used.
- The Board's need to develop criteria for moving forward operationally to address whether episodic exposures could qualify when the worker had less than 250 days of employment.

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Discussion was interrupted by the arrival of Senator Hillary Clinton of New York, who spoke on behalf of the Bethlehem Steel workers specifically and the law governing the SEC process generally. Her statement in its entirety may be found on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

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Discussion of the motion on the Ames Laboratory SEC petition continued with **Dr. Wade**'s suggestion that the motion as proposed could move forward while allowing for future discussion of the 250-day issue, given its numerous conflicts and open technical questions. He confirmed that 21 days is the correct time frame to use in the recommendation.

The motion carried unanimously.

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PARTIAL DOSE RECONSTRUCTIONS FOR NON-PRESUMPTIVE CANCERS

Mr. Stuart Hinnefeld,
NIOSH

Mr. Hinnefeld presented NIOSH's approach to partial DRs for claims where the claimant is included in the SEC class but is not compensated via the SEC, due to the fact that not all forms of cancer are designated to receive financial compensation. He explained that addition of an SEC class provides compensation without a DR for claimants with one of the 22 listed cancers, provided other conditions are met. Claimants who have a non-listed cancer or who do not meet the other criteria are eligible for compensation if NIOSH can perform a DR with those components of the dose which are feasible to reconstruct, and obtains a POC above 50 percent.

SEC classes added through the Secretary's designation letter include Mallinckrodt, St. Louis, 1942 to 1948 and 1949 to 1957; Iowa Ordnance Plant 1949 to 1974; Y-12 Facility, 1943 to 1947; and Linde Ceramics, 1943 to 1947.

The presentation summarized key elements that led to a determination of infeasibility of reconstructing dose at each of the above sites, including a listing of impacts of infeasibility. **Mr. Hinnefeld** verbally detailed these elements and impacts for each site, explaining each decision in terms of data availability, monitoring, internal, external, and occupational medical exposures. When some component of

the dose is found not feasible to reconstruct, NIOSH adds language to the DR report and summary reports to point out lack of components they would normally include. For each site he also detailed the doses that are feasible to reconstruct.

In summary, **Mr. Hinnefeld** stated NIOSH follows this process because the addition of an SEC class does not provide a remedy for all claims in that class. Historically, about 40 percent of the claims NIOSH has received for dose reconstruction do not have one of the SEC listed cancers, but a portion of these remaining class claims could receive compensation through partial DRs.

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Discussion Points:

- Basal cell carcinoma is the non-presumptive cancer most likely to be compensated.
- Infeasible exposures tend to be internal.
- NIOSH's basis for a determination of infeasibility comes from the site profile or the petition evaluation report.
- When doses determined infeasible to reconstruct lead to inclusion as a class in the SEC, they will receive no further consideration in any dose reconstruction.

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Discussion was interrupted by the arrival of Congressman Tom Udall from New Mexico, who spoke to the SEC petition for Los Alamos National Laboratory (LANL) currently being evaluated. His statement in its entirety may be found on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

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Discussion Points (Continued):

- A gap has been left in coverage relating to prostate cancer, which will probably require legislative action to resolve.
- Process anomalies, such as completion of DRs at sites for which dose reconstructions are later declared infeasible, or situations wherein an individual's data is sufficient but overall data is declared not sufficient for the class, are confusing to claimants.
- The best remedy may be legislative.
- Clarifying language early in the process might keep claimant expectations realistic.

- Words used in Board recommendations to the Secretary are crucial due to results flowing from language.
- Consideration for making Board discussions with DOL a regular part of their deliberations.

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Board attention then focused on how to improve communication in letters, deliberations and within the workgroups, where members had tended to focus on what was infeasible. Written reasons for both feasibility and infeasibility of dose reconstruction would help petitioners better comprehend the situation of partial dose reconstructions. A sharing and transmittal of information on the handling of circumstances at a particular site could provide continuity with other sites, although the information was unlikely to be applicable in all situations. Claimants had particular difficulty distinguishing between full and partial dose reconstructions. The Board suggested ways to make communications with petitioners more user-friendly and it was noted that a communication initiative will be presented during the next day's meeting.

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NEVADA TEST SITE AND PACIFIC PROVING GROUND SEC PETITIONS UPDATE ON ISSUES RELATED TO 250-DAY REQUIREMENT

Conflicted for Nevada Test Site (NTS), **Mr. Griffon** joined the audience for the following presentation and ensuing discussion.

Dr. James Neton,
NIOSH

Dr. Neton provided an update as to the characteristics of the covered classes with exposures less than 250 days. The Board had left open the option of investigating the possibility of inclusion of these workers. NIOSH examined the case data for people with less than 250 days who had presumptive cancers. At PPG, due to on-site residence, this condition applied to workers with 83 days or less of exposure. NIOSH looked at job categories and descriptions of these cases and monitoring status for these workers.

At NTS, NIOSH found that 444 cases had exposures within the SEC time frame and, of those workers with less than 250 days of exposure, 61 had at least one presumptive cancer and 17 additional cases had non-presumptive cancers. **Dr. Neton** provided intricate details of NIOSH's examinations of the internal and external monitoring data for these cases.

Based on the available monitoring data for 28 of the 61 people with presumptive cancers who worked less than 250 days, these workers did not receive any external exposures. The collective dose for all 28 workers with monitoring data was 21 rem. The highest annual recorded dose in this time period was for a miner who received 4.7 rem recorded external exposure. None of these exposures was in the realm of exposure related to a criticality incident. The highest recorded exposure for a year from internal plus external sources was about 7 rem.

Concerning PPG, 69 cases met the criteria in the SEC class definition, 38 of those had exposures less than 250 days and 19 cases had less than the 83-day calculation. Job titles of workers with exposures less than 83 days seemed to be more heavily weighted towards the technical/professional category. Some types of external dose measurements were available for all 19 cases but none exceeded what NIOSH would consider the regulatory limits in effect at the time of exposure; they were much less than the exposures resulting from a criticality incident.

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Discussion Points:

- Guards would likely have been included in the NTS SEC if they were monitored or should have been monitored.
- Of the 19 cases for PPG workers with less than 83 days' exposure, NIOSH agreed to find out if any of them overlapped with NTS.

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PUBLIC COMMENT

Public comment was solicited on two days of the meeting. The following is a list of the members of the public who spoke during this session. Their statements may be found in their entirety on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

Ms. Sandra Schubert, representing Nevada Senator Harry Reid, read his statement into the record; Ms. Laurie Hunton, daughter of former NTS worker Earl Triplett, spoke on behalf of her father and read into the record statements from the following: Ms. Diane Milko, daughter of an NTS worker; seven surviving children of Mr. Archie Gilger; Ms. Shirley Breeden, daughter of an NTS mechanic foreman; Mr. Otis Tyrone Thompson, whose father served as head custodian from 1960 to 1969; and Mr. Irvin Forman, an NTS worker from 1957 to 1971. And finally, Dr. Lynn

Anspaugh, a research professor of radiobiology at the University of Utah who spent 33 years working at Lawrence Livermore National Laboratory in California as well as work time at NTS and Amchitka.

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Following Dr. Anspaugh's telephonic statement and offer of assistance in the area of resuspension, it was announced that a working group had been formed and needed only to be activated, with the goal of bringing closure to that issue at the September meeting. **Dr. Wade** reminded the workgroup to check with him before meeting to be sure that SC&A's involvement with NTS had been cleared, given that SC&A's work for the Defense Threat Reduction Agency (DTRA) could limit the contractor's ability to be available to the Board relative to that site.

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ROCKY FLATS SEC PETITION WORKING GROUP UPDATE

Mr. Mark Griffon,
Workgroup Chair

Mr. Griffon gave a brief history of the process. A site profile review had evolved into an SEC petition review and the matrix now primarily tracked issues of relevance to the SEC petition. The workgroup had not modified its matrix since the Board met in Denver in April, but work had been ongoing, including direct communications between NIOSH and SC&A.

The first item concerned high-fired plutonium oxide. NIOSH had designed an approach to be used for dose reconstructions for insoluble plutonium at Rocky Flats. The workgroup had asked **Dr. Joyce Lipsztein** and **Dr. Robert Bistline** to further review the design cases used to support a technical information bulletin (TIB) describing the methodology. SC&A's review involved these considerations:

1. SC&A reviewed and produced all the lung adjustment factors that NIOSH had produced and found them acceptable. This included adjustment factors used to handle the effects of smoking, the extra-thoracic region, the gastrointestinal tract, and for using AMAD.

2. SC&A independently reviewed autopsy and bioassay data for eight Rocky Flats workers with confirmed uranium intakes and measurable lung activity. They found that the NIOSH approach overestimates lung activities.

3. SC&A found problems with the empirical model derived from some design cases, in that NIOSH did not explain fully how the design cases were selected to derive the adjustment factors. Back-calculations from urine and lung data did not match up to give the same intake, so an explanation from NIOSH is needed.

4. This concern represents an issue. NIOSH's approach to insoluble plutonium is more conservative than that used at the ex-Soviet Union's Mayak plant when applied to bioassay urine results and when used to calculate lung doses from lung counts, but the Mayak model is more conservative when applied to calculate dose to systemic organs from lung count.

5. When calculating systemic organ doses derived from lung count, NIOSH states that no correction is necessary, but without providing a clear basis for this approach. Such doses are usually calculated from urine bioassay, so SC&A wants to see NIOSH provide explicit guidance to the dose reconstructor to use urine bioassay data, and explain its use in the cases not fitting a type S.

In conclusion, SC&A is in agreement with the NIOSH approach for estimating annual doses from intake of plutonium 239 that are retained in the lung longer than predicted by the normal absorption type S model; however, NIOSH still needs to demonstrate that the approach bounds the uncertainties associated with all the case-based measured values and analysis. NIOSH's case selections are conservative.

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Discussion Points:

- The Mayak paper and its attendant ICRP 66-A information was published in *Health Physics*.
- Cases in which doses to systemic organs would be underestimated.
- Variable behaviors of plutonium oxides.
- NIOSH will always start with the urine measurement for estimation of systemic burden.
- Overall SC&A is in agreement with NIOSH's methodology but seeks validation of the samples used to arrive at the adjustment factors.
- The cases represent the spectrum and are cases for which data is sufficient to develop models.
- The workgroup wants NIOSH to provide identifiers so they can assess the soundness of the selection process and the model.

- NIOSH has provided a supplement after development of TIB-49 to address the TIB's inconsistencies with respect to its application to systemic organs.
- The workgroup's next step will be finalization, which is close at hand.

Mr. Griffon covered other issues under workgroup consideration, including the following items:

- NIOSH's approach for dose reconstruction for radionuclides such as americium, neptunium; uranium 233, 235, 234, 238; curium and thorium need follow-up because gross alpha data is seemingly not available for all areas where these isotopes might have been present for all time periods. NIOSH is still checking on whether the gross alpha technique was available in the plutonium areas, particularly for the americium separation process.
- NIOSH's methods for reconstructing neutron exposures raise questions concerning data validity and the different methods used for different time periods. The workgroup wants to make sure the approaches are scientifically sound. For some periods direct measurement data is used; in earlier time periods neutron/photon correction factors are used. SC&A has completed a review of this issue which will be ready for the next workgroup session. SC&A considers the questions of data validity on neutron exposures and the 1969/1970 anomaly of missing records as loose ends.
- For decontamination and decommissioning (D&D) workers the issue is that during the later time period NIOSH's approach to internal dose measurements was changed from primarily bioassay to an increased reliance on breathing zone air sampling (BZA). It is unclear to the workgroup whether this program applies to everyone, including subcontractors. A different approach is possibly needed from NIOSH.

Dr. Brant Ulsh clarified the issues and offered that site experts confirmed subcontractors were included in the bioassay program. Further fine points of disagreement were exchanged, with questions raised on whether large groups of subcontractors, including second and third tier subcontractors, might have been missed. There were also questions surrounding changes to the routine bioassay sampling program on site once D&D work started. **Mr. Griffon** and **Dr. Ulsh** agreed on the need for further discussion at the next workgroup meeting.

The next three items fell under the heading of data reliability.

- Although NIOSH does not expect reliance on coworker models, the workgroup wants a check on original sources, including urine log books, to assure the database is suitable for use in the DR

program, noting that many of the hard copy records in claimants' files are actually printouts from the database itself. NIOSH will compare samplings of those log books with the electronic data.

- NIOSH will provide the databases with identifiers so that resolution on workgroup issues can be expedited.
- Termed investigation and follow-up on data validity questions raised by the petitioners, these questions also arose as a result of SC&A's interviews with petitioners. The workgroup wants to look into allegations that people working in high exposure areas for a couple of quarters have records for those quarters saying no data available. The workgroup intends to pursue the larger question on whether there was any kind of systemic problem.

Mr. Griffon remarked on a draft internal report on the status of these tasks completed by **Ms. Kathy DeMers** just two days prior. The report included all the investigations of various subgroups involving data reliability. NIOSH and SC&A have been working together to bring those issues to conclusion and plan a report to the workgroup.

- The first item dealt with approximately ten safety concern reports, a type of report any employee was authorized to issue. NIOSH determined that, despite their misleading titles, those reports cited in the original list were not pertinent to data integrity issues. SC&A questioned one report they felt might nonetheless be pertinent. NIOSH agreed to check to see if a full listing of safety concern reports might exist and to identify which reports might be of interest, using only their titles as a basis.
- Under external dose procedures, NIOSH is in the process of reviewing the records of specific individuals who made allegations of no data available in their record or that their TLD (thermoluminescence dosimeter) or badge had been mishandled or that it misrepresented their workplace exposure.
- Scanned versions of radiation contamination log books and other log books from Rocky Flats are to be posted on the O drive so that dosimetry-related information can be checked. This could confirm if zeroes appeared in workers' records when in fact there were very high exposures.
- Concerning records which were allegedly hidden in a trailer during inspection and later destroyed, NIOSH is investigating. No status is available at this point.
- Concerning missing records, NIOSH is tracking at least two individuals who claim their records were missing after the fire, a matter related to the 1969-1970 time frame.

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PETITIONER COMMENTS

Dr. Ziemer interrupted the discussion to allow **Ms. Kay Barker**, representing the petitioners and former Rocky Flats workers, to make a statement via telephone. She posed a number of questions regarding conflict of interest and the petition evaluation report. Her comments in their entirety are available on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

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Concern was expressed over possible misattribution of the source of extreme allegations appearing in SC&A's May 9, 2006 draft attachment to task 10008. To the casual reader, worker concerns appeared to be presented as a matter of fact. It was suggested that SC&A revise the document to be clear as to the unconfirmed nature of the allegations and as to who made them. Reiterative comment was made on the lack of hands-on workers designated as site experts qualified to help write site profiles and similar documents. **Dr. Ziemer** summarized those comments, making the point that anything used to characterize a site needed factual confirmation.

Dr. Ziemer sought Board consensus before tasking SC&A with any revision of their draft attachment. ORAU's annotation approach was seen as the best solution because it identified the individual source along with his or her COI information. **Dr. Mauro** concurred with these concerns and agreed to take appropriate actions on this supplement and future documents.

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Y-12 SEC PETITION
NIOSH EVALUATION UPDATE

Conflicted for Y-12, **Dr. Ziemer**, **Dr. DeHart** and **Mr. Presley** joined the audience, and **Dr. Wade** assumed the duties of Acting Chair through the following presentation and ensuing discussion.

Mr. Jason Broehm, Congressional liaison for CDC's Washington office, read into the record a letter from Senators Bill Frist and Lamar Anderson of Tennessee expressing their support for the SEC petition on behalf of Y-12 workers. That statement in its entirety may be found on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

Dr. James Neton,
NIOSH

Dr. Neton began his update on the SEC evaluation report for the Y-12 SEC class with background on NIOSH's agreement to expand their evaluation to include a review of all workers at the site between 1948 and 1957. As a result, NIOSH recommended a proposed class which would include employees who worked at least 250 days in Building 9202, 9204-1, 9204-3, 9206 and 9212.

At subsequent working group meetings, two particular issues were identified which needed further research by NIOSH:

- The first question concerned whether or not NIOSH had identified all buildings involved in thorium production.

Information on this matter is classified. After obtaining appropriate clearances to review the material mass balance ledgers, NIOSH located a mass balance ledger for every year of the SEC period. A review of those ledgers led to discovery of an additional building, 9201-3, where a large quantity of thorium was handled, and NIOSH is proposing to add this to the proposed class definition for thorium exposures. NIOSH also came to a determination that internal exposures for workers in three buildings previously named can in fact be reconstructed.

- The second issue concerned whether or not the incident reports for Cyclotron operations portrayed in NIOSH's evaluation report could adequately bound the internal exposures for workers during that period.

ORAU's search through the database of 800 incident reports yielded nothing of use for reconstructing internal exposures during the SEC period. NIOSH cannot find 1960's incident reports, which they believed documented some fairly large internal exposures, and do not anticipate being able to find them in a timely manner. As a result they will revise their class definition to include workers in the Cyclotron building, 9201-2.

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Discussion Points:

- Explanation was sought and received on how to make operational for DOL the definition of monitored or should have been monitored for thorium exposures.
- The Board's concern is to be certain the definition will be clear and usable by DOL.
- How will DOL make a determination on which workers were in the

proposed buildings in light of the assertion by some site experts that several departments were not linked specifically to one building.

- Explanation was sought on how, from an implementation standpoint, DOL could retrospectively determine who should have been monitored for internal exposures.
- Addressing the end point for operations, particularly the Cyclotron, NIOSH's investigation into the post-1957 Cyclotron operations will continue.

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Petitioners were invited to comment. Mr. James Duvall, participating by telephone, declined the opportunity to express any concerns.

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Y-12 SEC PETITION
WORKING GROUP UPDATE

Mr. Mark Griffon,
Working Group Chair

Mr. Griffon observed that although the review process is slow at times, it works. Delays are due in part to the classified nature of the ledgers. The workgroup is pleased with NIOSH's effort to obtain information on where additional thorium operations took place. The workgroup has not yet looked at the outline of a model NIOSH provided, but it is clear there had been small laboratory quantities present. Methods for bounding the exposures for workers in those laboratories are thought to be available. This item is resolved.

Other items included the following:

- Regarding Cyclotron work, the principal item concerns exotic radionuclides. Discussion between NIOSH and the workgroup resulted in agreement that an unknown and significant dose component is important to justifying the addition of this group of workers to an SEC.
- Based on NIOSH's DR model for plutonium exposures from the Calutron runs and from laboratory support work conducted in building 9205, SC&A and the workgroup are in agreement that NIOSH can determine upper estimates.
- Independent validation for Y-12 data is vital to the workgroup for several reasons. Close to 80 percent of the claimants are in some way reliant on a coworker model, which will use the electronic

database for development of a distribution and assignment of their external exposures. Furthermore, the Y-12 database is owned by the contractor on this project, ORAU.

Validation of the external and internal data was accomplished to the satisfaction of SC&A, despite some difficulties. Health physics reports provided the basis for the validation process. NIOSH has recently provided a database with all the identifiers, allowing its work to be checked. This is important at Y-12, and possibly in the future, because the health physics reports upon which NIOSH is basing its summary reports are still classified.

- Follow-up on the coworker models on the gamma and beta exposure models is in part a data validation question and in part a question on the method by which NIOSH is back-extrapolating exposures. It became clear that a plausible upper-bound dose can be calculated, so the workgroup is comfortable that it is not an SEC issue, although questions might remain in terms of the site profile review. The coworker model for internal uranium exposures used in the back-extrapolation does have applicable later data, and that item is closed out as well.

- Regarding the neutron dose reconstruction, NIOSH provided the requested follow-up references. SC&A reviewed those and is satisfied to close out that item.
- The question of the approach to be used for recycled uranium exposures is closed out from an SEC standpoint due to conviction that a plausible upper bound for doses can be established.

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Discussion Points:

- Concern for the difficulty in giving extended thoughts to last-minute matters resulting from real time work.
- This workgroup process provides a clear example of the value of SC&A's involvement and demonstrates NIOSH's ability to listen, adjust and modify based on discussion.

The workgroup was concerned about how to craft a recommendation that DOL can implement effectively. **Dr. Melius** updated the Board on the draft he and **Mr. Griffon** have worked on, explaining that they still have significant questions on how to describe the cohort and, for the non-SEC cancers, how to communicate in terms of what can reasonably be dose-reconstructed as well as what cannot be done.

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REVIEW OF INDIVIDUAL DOSE RECONSTRUCTIONS
SC&A INITIAL PRESENTATION ON 4TH ROUND OF CASES

Ms. Kathy Behling,
Sanford Cohen & Associates

Ms. Behling began her summary of the fourth set of case reviews with a brief explanation of the process to date. Two-member Advisory Board teams met with **Dr. Behling** and **Ms. Behling** to discuss their cases and the associated findings. SC&A's draft report was originally published on April 7th and as of this presentation it is still considered a draft. **Ms. Behling** had generated a matrix on that day and forwarded it to the Board and NIOSH, but the issues resolution process has not begun, so the findings presented at this session are preliminary findings.

Ms. Behling reviewed the four items in SC&A's initial charter: reasonableness of dose estimates; review of assumptions used; review sufficiency and completeness of data NIOSH receives from its sources; ensure DRs are conducted in compliance with written procedures and in a manner consistent between cases.

The basis for SC&A's audit process was described as consisting of the three primary areas of a review of the data collection to ensure completeness and sufficiency for calculating a reasonable dose estimate; review of interview information, the CATI report and documentation provided by the claimant to ensure appropriateness of data use; a study of the internal and external dose estimates to determine if all assumptions were appropriate and gave the claimant the benefit of the doubt.

The fourth set of 20 cases was detailed in terms of the facilities represented, types of cancer, compensability, maximized external and internal doses, and the relation of these factors to each other. SC&A interpreted NIOSH's guidance document for the six AWE facilities to be a maximizing procedure and therefore they were questioning the appropriateness of using that procedure for the first three cases, each of which was compensated. Many of SC&A's findings associated with those first three cases had to do with whether the appropriate procedure had been used.

Ms. Behling noted SC&A was surprised at the level of detail, complexity, painstaking and time-consuming effort that went into estimating doses for NIOSH's best estimate cases. Most of SC&A's findings associated with these case reviews had to do with the assumptions used by NIOSH in making some of their determinations.

The presentation included a breakdown of the relevant percentage of the 100 total findings as categorized by data collection, external dose, internal dose, and CATI information. Data collection does not appear problematic for NIOSH. Most of the findings fell under the external and the internal dose.

Another breakdown of the findings showed how they impacted dose, with "low" indicating only a marginal impact. The category titled "under review" was used for cases in which NIOSH did not receive all the data they requested. For these cases SC&A is making a recommendation that NIOSH contact DOE or try to determine if more information is available.

Ms. Behling compressed the 100 findings into areas where SC&A found discrepancies. The largest, 38 percent, fell under incorrect procedure, method or assumption used. Most in that category were findings that NIOSH excessively overestimated the dose.

Another category, 23 percent, is that DRs did not consider all potential sources, or NIOSH did not properly account for those sources. The category of misinterpretation or procedural non-compliance included procedures not clearly written and therefore routinely misinterpreted. NIOSH has corrected those.

In relation to all 80 cases that have been reviewed, findings for the fourth set are comparable. Two small sets of findings are unique to the fourth set. These are for calculational errors and procedures not being referenced. The category of "reviewer could not reproduce dose", is used in instances where SC&A cannot reproduce all of the doses due to unclear guidance or, more often, due to use of a best estimate or workbook which utilized the Crystal Ball Monte Carlo technique.

Concerning the impact of SC&A's audit process and findings, SC&A has identified NIOSH procedures that are routinely misinterpreted, and that situation is being corrected. **Ms. Behling** noted, however, that complexity was expected to increase due to the complexity of the cases and the TIBs. She suggested, for the sake of NIOSH and the auditor, the situation would be eased by having certain dose reconstructors assigned solely to site-specific cases so they can become familiar with those complex guidance documents. SC&A is also recommending avoidance of excessive overestimation, which they regard as confusing to claimants and not scientifically sound. SC&A recommends that NIOSH provide identification of the doses on the IREP sheet for the benefit of NIOSH's internal auditing process and for the claimants themselves. They also recommend clearer wording in the dose reconstruction report.

In summarizing, **Ms. Behling** noted that NIOSH has completed

approximately 12,000 cases that have been sent to DOL and SC&A has audited only 80 these cases. The value of this audit will be to improve future DRs by amending procedures when appropriate. The second point is to re-evaluate or revise completed DRs such as lymphoma cancers that have impacted adjudicated cases. Lastly, it is hoped these findings can assist NIOSH in improving their internal QA program.

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Discussion Points:

- It would be helpful if SC&A could specifically identify the cases for which they had high significant findings.
- The situation of irreproducible results seemed to be improving.
- SC&A is working on a resolution matrix to be delivered shortly.
- NIOSH has not had a chance to respond to SC&A's audit.

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PUBLIC COMMENT PERIOD

The following is a list of the members of the public who spoke. A full transcript of the public comment is available on the NIOSH/OCAS web site, www.cdc.gov/niosh/ocas.

Ms. Harriet Ruiz, claimant; Dr. Dan McKeel, Southern Illinois Nuclear Workers, who also read a statement from Illinois Senator Barach Obama; Mr. Jason Broehm of CDC Washington read a statement from New York Senator Charles Schumer; Ms. Michelle Chavez, State Director, New Mexico Congressman Tom Udall's office; Mr. John Ramspott, son-in-law of a claimant; Mr. Adrian Beard, survivor.

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With no further comments, the Board officially recessed until the following morning.

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Friday, June 16, 2006

Dr. Ziemer welcomed everyone to day three of the meeting of ABRWH at 8:30 a.m. with a preview of the day's activities.

Dr. Ziemer, **Dr. DeHart**, and **Mr. Presley**, conflicted with respect to Y-12 and unable to participate in the upcoming SEC motion, joined the

audience. **Dr. Lewis Wade** assumed the duties of Acting Chair.

Y-12 SEC PETITION UPDATE and MOTION (Continued)

A motion, based upon the previous day's discussion and draft motion, was made and seconded as follows:

The Board recommends that the following letter be transmitted to the Secretary of Health and Human Services within 21 days. Should the Chair become aware of any issue that, in his judgment, would prelude the transmittal of this letter within that time period, the Board requests that he promptly informs the Board of the delay and the reasons for this delay, and that he immediately works with NIOSH to schedule an emergency meeting of the Board to discuss this issue.

The Advisory Board on Radiation and Worker Health (the Board) has evaluated the SEC petition 00028 concerning workers at the Y-12 plant under the statutory requirements established by EEOICPA and incorporated into 42 CFR Section 83.13 c(1) and 42 CFR c(3). The Board respectfully recommends a Special Exposure Cohort (SEC) be accorded to all employees of the DOE or the DOE contractors or subcontractors who were monitored, or should have been monitored for:

(1) thorium exposures while working in Building 9201-3, 9202, 9204-1, 9204-3, 9206 or 9212 at Y-12 for a number of work days aggregating at least 250 work days during the period from January 1948 through December 1957, or in combination with work days within the parameters established for one or more other classes of employees in the SEC; or

(2) radionuclide exposures associated with Cyclotron operations in Building 9201-2 at Y-12 for a number of work days aggregating at least 250 work days during the period from January 1948 through December 1957, or in combination with work days within the parameters established for one or more other classes of employees in the SEC.

This recommendation is based on the following factors:
NIOSH found that there are insufficient bioassay or air sampling data in the available Y-12 databases to allow for the reconstruction of internal thorium exposures for employees who worked within several buildings where thorium operations took place during the time period from January 1948 through December 1957. These buildings have been identified by NIOSH as follows: 9201-3, 9202, 9204-1, 9204-3, 9206 and 9212. The Board concurs with this finding.

Finding number two. NIOSH found that there are insufficient bioassay or air sampling data in the available Y-12 databases to allow for the reconstruction of internal exposures to Cyclotron workers (employees who worked in Building 9201-2). NIOSH presented information indicating that the Cyclotron workers may have accumulated substantial chronic exposures through episodic intakes of a variety of radionuclides that were produced during the operation period. The Board concurs with this finding.

NIOSH determined that health was endangered for the workers at Y-12 exposed to thorium in these operations and for workers exposed in the Cyclotron operation. The Board concurs with this determination.

The NIOSH and Board review of the available data on operations and exposures at the Y-12 facility during the period January 1948 to December 1957 found that the data were sufficient to support accurate dose reconstructions for a number of important exposures. These include, but are not necessarily limited to:

(1) NIOSH demonstrated that sufficient bioassay data are available for reconstruction of internal doses for workers for potential for exposure to uranium or recycled uranium contaminants (plutonium-238 (plutonium-239 in lesser quantities), neptunium-237 and technetium-99 during the time from January 1948 to December 1957.

(2) NIOSH demonstrated sufficient data are available for reconstruction of internal doses for workers involved in plutonium operations during the time period from January 1948 to December 1957 when plutonium was enriched with the Calutrons.

(3) NIOSH demonstrated that sufficient monitoring records are available for individual dose reconstructions for external doses for workers at the Y-12 facility during the time period from January 1948 to December 1957.

Enclosed is supporting documentation from the recent Advisory Board meetings held in Washington, D.C. and Denver, Colorado, as well as several Advisory Board workgroup meetings where this Special Exposure Cohort was discussed. This documentation includes a review report of the NIOSH evaluation report prepared by the Board's contractor, SC&A; transcripts of public comments on the petition, copies of the petition and the NIOSH review thereof, and related documents distributed by NIOSH and the petitioners. If any of these items are unavailable at this time, they will follow shortly.

The motion was open for discussion.

Discussion Points:

- The motion referenced Board discussions in terms of what could be done, but was not limiting as to what had or could be done in terms of other exposures.
- The language is intended to keep open avenues of possibility.
- Concern over the grammar and the desire for a concise statement as to which workers qualified.
- The Chair's conflict will not preclude his ability to make appropriate grammatical changes.

The motion passed unanimously.

Without objection, **Dr. Ziemer** was authorized to exercise some flexibility on grammar and on inserting dates of the two meetings referenced in the motion.

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STATUS AND PLANNING FOR UPCOMING SEC PETITIONS

Mr. Stuart Hinnefeld,
NIOSH

Mr. Hinnefeld announced the purpose of his presentation was to provide information on the NIOSH SEC evaluation process which would allow the Board to prepare for upcoming work. He summarized the status of current SEC petitions, and information on sites likely to result in an 83.14 finding which could lead to an SEC petition.

Of the 28 petitions that did not qualify, the most common cause is that petition requirements are not met. Those requirements include the need for a valid petitioner, a petition for a single site, and establishment of technical bases. Failure to qualify on technical bases could result from exposures not monitored; data discarded, falsified or destroyed; insufficient data as determined by someone with knowledge of DR techniques; or a technical paper calling into question the available data.

Board members were updated on the status of ten petitions that have been qualified. Status included anticipated completion dates for evaluation reports and identification of factors which might delay progress on the petitions. The ten qualified petitions are for Y-12, Rocky Flats, Oak Ridge Institute of Nuclear Studies (ORINS), Ames

Laboratory, Chapman Valve, Blockson Chemical, Feed Materials Production Center, Monsanto Chemical, Oak Ridge Thermal Diffusion Plant, and Los Alamos National Laboratory (LANL). Additional facilities being evaluated through the 83.14 process as of June 8, 2006, include Harshaw Chemical Company and General Atomics.

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Discussion Points:

- A detailed description of what is called a "litmus case", a critical step in the development of an SEC petition to add a class under 83.14.
- An exploration of ways to notify greater numbers of potential claimants.
- How NIOSH can provide more personal and helpful interaction with petitioners, including personal phone calls and possible modification of DOL's letter of denial.
- A request for NIOSH's feedback on implementation of the Board's wording of the class definition for Y-12 so as to improve future definitions.
- Likelihood the Board might want to audit some submissions that did not qualify for evaluation.

This discussion resulted in a decision to form a working group for that purpose. **Dr. Wade** made a summary comment that in September the Board will likely see petitions from ORINS, Chapman Valve, Blockson Chemical and possibly Oak Ridge Thermal Diffusion Plant. Awareness of these impending petitions could help the Board consider how it might want to engage SC&A.

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SITE PROFILE UPDATES

Dr. James Neton,
NIOSH

Dr. Neton noted that non-SEC site profile reviews had been delayed due to resource constraints. He offered a brief status report on the site profiles under review, including a listing of the members of the working group assigned to each and the corresponding health physicist appointed as OCAS point of contact to help facilitate these reviews. SC&A's finding resolution matrices are available for the Savannah River, Hanford and NTS site profiles. Issues are listed in priority order.

The site profile review for Savannah River Site is closest to completion. The OCAS response to the Savannah River matrix was provided on June 5th and SC&A has that in their possession. For the next step, the work group will convene to discuss issues, come to agreement, and decide on the issues in need of further scientific discussion.

For the Hanford site profile, SC&A has created the finding resolution matrix and OCAS and ORAU are preparing responses to it. That is close to completion. When finished it is to be forwarded to SC&A who will check into availability of time and staff resources to schedule a meeting for purposes of advancing the site profile.

Status of the finding resolution matrix for Nevada Test Site is similar to that of Hanford. Issues related to the SEC are expected to drop away once the class is added and dose reconstructions are no longer required. After that, another look at the finding resolution matrix will be needed to see which issues remain. No meeting is currently scheduled for NTS.

The six additional site profile reviews the Board has asked SC&A to conduct are for Fernald, Linde Ceramics, X-10, Mound, LANL and Pinellas. **Dr. Neton** reviewed the steps involved in SC&A's usual procedures resulting in a list of questions to help clarify issues. Of these sites only X-10 and Pinellas have not received their list of questions. Conference calls with SC&A have taken place for Mound and Los Alamos.

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Discussion Points:

- Updated activities of the Savannah River Site working group since its formation.
- NIOSH's draft response for Hanford is expected within weeks.
- The model followed by the SRS workgroup was suggested.
- Budget implications concerning SC&A's review work for Hanford and NTS.
- Whether SC&A should move forward in the process or first obtain authorization because it represents an extension of the scope of work.
- How SC&A can provide timely draft site profile reviews in cases where the question/answer dialogue has not been held and deadlines are fast approaching.
- Issuance of documents prior to discussion between NIOSH and SC&A.
- Identification of the bottleneck in the process, with perhaps a complete report made on the August call, at which time the Board

could decide how to proceed.

- The Board's need to think in terms of its functions and its potential needs for review of SEC petition evaluation reports and the import of an available site profile review.
- How the OCAS points of contact are chosen for the sites in light of actual and perceived COI concerns.

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Discussion was interrupted by the arrival of Indiana Congressman John Hostettler, Chairman of the Subcommittee on Immigration, Border Security and Claims. His subcommittee has jurisdiction over claims against the government, and thus oversight responsibility with regard to EEOICPA. He addressed the series of evaluations his subcommittee had asked GAO to conduct on implementation of Subtitle B, roles of NIOSH staff, ABRWH, SC&A, whether cost increases related to the audits were reasonable, as well as the ORAU contract and implementation of the NIOSH COI policy. His statement in its entirety may be found on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

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FUTURE PLANS AND SCHEDULES

Dr. Lewis Wade,
Designated Federal Official

Dr. Wade detailed the upcoming schedule of Board meetings for August through February, 2007. He announced a tour of the NTS site is on the Board's schedule during its mid-September meeting in Las Vegas.

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6TH ROUND OF DOSE RECONSTRUCTION REVIEWS FINALIZE SELECTION OF SUBCOMMITTEE'S PROPOSED CASES

Dr. Paul Ziemer,
Subcommittee Chair

Speaking on behalf of the subcommittee, **Dr. Ziemer** referred the Board to the list of proposed cases. Cases for the sixth round were identified numerically as **Dr. Wade** read them into the record, a reading which constituted a motion from the subcommittee.

The list includes 08, 18, 19, 22, 26, 31, 33, 48, 49, 65, 72, 93, 96, 98, 106, 113, 125, 136, 144, 155, 163, 166, 171, and 181. In addition there are two carried over from the fifth round that will

be added for consideration.

It was agreed that the two carry-overs from round five will be used as the first two and the next 18 on the list will follow as the cases to be reviewed in round six.

A vote was taken and the motion passed unanimously.

Team assignments for this round of cases will not be needed before the next phone meeting.

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SC&A REPORT ON SEC REVIEW PROCEDURES

Dr. Arjun Makhijani
Sanford Cohen & Associates

Dr. Makhijani gave a history of the actions and documents production leading up to the present, including phases of the process and underlying criteria for considerations of feasibility of dose reconstruction.

A working group and SC&A had each independently looked at SEC petition review procedures and SC&A was asked to offer a blend. SC&A submitted two reports to the Board: a review of NIOSH procedures for evaluating an SEC petition and a review of draft Board procedures for reviewing the petition evaluation report. The Board then adopted its own criteria for reviewing the evaluation and SC&A was directed to revise the draft procedures for the Board. In conformity with those principles and also utilizing its experience in reviewing SEC petitions, SC&A submitted a revised report shortly before this meeting.

Acting in accordance with their interpretation of the Board's direction, SC&A will execute the work in two phases. Phase one is to be completed before NIOSH publishes its evaluation report and phase two will follow NIOSH's report. The second phase could consist of a full, partial, or no review at all, depending on the Board's decision. The touchstone of all this work is feasibility of dose reconstruction with sufficient accuracy under 42 CFR 83.

Dr. Makhijani then gave very specific detail of the processes for each phase. Much of the issue-specific development revolved around two questions: were the data available and valid, and were they the types of data needed. These procedures called for at least a preliminary interview with a minimum of one petitioner. The main objective of the preliminary assessment will be a list of examples. He enumerated the

different sets of steps to be taken in the cases of availability or non-availability of a site profile.

After submission of the evaluation report, the Board has three options and historically it has exercised all three in some way:

1.accept the evaluation report and vote on it;
2.accept it partially and investigate further;
3.conduct a full or partial review the evaluation report.

Dr. Makhijani's visual presentation listed all the steps within a full review of the evaluation report and he explained how a partial review would differ. He highlighted the criteria for data validation that is part of the working group's recommendation, encompassing comparison of raw data, examination of data for patterns of data entry, comparison of incident data in worker files with incident reports, and interviews with site experts. In terms of the contractor deliverables being suggested, flexibility is suggested regarding phase one deliverables. For phase two, SC&A can provide a final report to the Board.

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Discussion Points:

- The Board might want to officially adopt the procedure or endorse its direction for contractor review of the SEC petitions and/or petition evaluation reports.
- Everyone will have a chance to review the procedure before coming to formal closure at the next Board meeting or conference call.
- The report has attachments which will allow the Board to see its correspondence with the working group's document.
- The two-phase process worked very well to expedite provision of the post-evaluation report, and it fulfills the Board's intentions to increase efficiency while preserving independence of the reviewers.
- Ongoing work requires vigilance concerning the budget.

Dr. Ziemer summarized the suggestion that the Board formalize an action by the August 8th Board call.

Mr. Griffon provided a status update on the three matrices from the second and third sets of dose reconstruction reviews and the procedures review matrix, which were near closure.

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SUMMARY OF SC&A REVIEW
SECOND SET OF NIOSH/ORAU PROCEDURES

Dr. John Mauro,
Sanford Cohen & Associates

Dr. Mauro explained that under Task III SC&A was authorized to review a second set of 32 procedures. Although that review is not yet completed, SC&A electronically delivered a draft report on June 8th. Board members are to receive a hard copy of Supplement 1, which addresses 30 of the 32 procedures. Another supplement, to be delivered soon, reviews two procedures having to do with the CATI reports. This will largely complete SC&A's deliverables for Task III. Imbedded in the review of these Task III procedures and in the review of cases under Task IV is a review of the workbooks. **Dr. Mauro** explained SC&A's plan is to produce a deliverable dealing specifically with workbooks.

The summary of the findings includes a checklist for every procedure reviewed. Those dealing with technical procedures regarding internal and external dosimetry have 27 criteria; quality assurance reviews have 21. Each procedure is ranked with a score of one to five, with five indicating perfect and one representing significant deficiencies. **Dr. Mauro** noted the reviewed procedures were found to range from very good to excellent.

A finding of "no" within the QA procedures refers to very minor issues such as improperly filling out a title page. The only important finding under QA is that the role of each particular procedure within the overall QA program is not always apparent from reading the individual procedure.

Principal technical improvements include integration of procedures with site profiles; and procedures that are well-written, consistent, concise, well-organized, technically defensible, claimant-favorable, and functional.

A few deficiencies were found which will form the basis for the resolution matrix for this review. These include:

1. the need for a great deal of judgment on the part of the dose reconstructor;
2. lack of full disclosure of the uncertainties associated with X-rays in procedures for reconstructing occupational medical exposures;
3. the need for updating ingestion dose protocols;
4. the need for better explanation in the procedure for non-penetrating radiation to account for a negative reading or no reading;

5.the need for improvement of methods for deriving neutron doses from alpha/n reactions; and
6.a dramatic increase in the complexity of dose reconstruction.

Dr. Mauro suggested that a meta-document might help the dose reconstructor navigate the process.

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Discussion Points:

- Examples of inconsistencies due to the exercise of judgment by individual dose reconstructors.
- The suggestion that these inconsistencies might be reduced by development of a case book collection of precedent decisions on various issues.
- The existence of working guidelines for dose reconstructors at some larger sites.
- A second request for those working guidelines to be posted on the O drive.
- How peer review of DRs could help ensure consistency.
- The impossibility of measuring skin dose directly.
- The low impact of inconsistencies on outcomes to date.
- The goal of consistency for different types of DRs as a relative matter.

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SC&A CONTRACT ACTIVITIES FOR NEW FISCAL YEAR FUTURE PLANS AND SCHEDULES

Dr. Wade sought the Board's approval to have SC&A prepare a cost proposal for next year. He detailed SC&A's normal workload to serve as a starting point so the Board could consider costs associated with that level of effort.

Discussion Points:

- The number of DRs the Board wants to see reviewed and how increasing efficiency might allow for an increase in that number.
- The number of SEC petition evaluation reviews that might be needed can't really be estimated.
- Increases in the number of reviews could impact not only costs but also the contractor's personnel or capability.

- Changes in the DR process might need examination.
- The possibility conducting blind DR reviews, especially on best estimates, to uncover subjective professional judgments which may have gone into the DRs.
- An increase in audits might necessitate modification of the audit approach.
- The process could be simplified by not having to demonstrate each and every number by reproducing it.
- The Board has never mandated checking every number.
- SC&A estimated twice as many cases could be audited for the same price if the reviews were constrained; they offered to detail that option in their proposal.
- The wisdom of cutting the effort in half and possibly compromising the product of DR reviews, noting there have not been many in-depth reviews.

It was agreed that 80 dose reconstruction reviews and likely more than six SEC petition evaluation reviews would be requested in the proposal of work for SC&A for 2007.

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STATEMENTS FROM MEMBERS OF CONGRESS

Mr. Jason Broehm read into the record a statement from New York Congressman Brian Higgins addressing the needs of former workers at the Bethlehem Steel site.

Mr. Broehm then read into the record a statement from Washington Senator Maria Cantwell in which she addressed the pending Hanford SEC petition.

Both statements in their entirety may be found on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

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NIOSH UPDATE ON PROGRAM ISSUES

Mr. Larry Elliott,
NIOSH/OCAS

Mr. Elliott provided an update on several program-related issues NIOSH has been tracking. In order to come to some closure on the Bethlehem Steel site profile, the Board asked NIOSH to follow up on and report on six issues on a quarterly basis. NIOSH completed and resolved five of

the six issues as shown below:

1. The site profile has been modified to treat 1951 and 1952 separately, with adjustment factors specific to each year.
2. Ingestion intakes have been modified.
3. Concerning resuspension of dust, NIOSH has incorporated guidelines using the median values for 1949 and 1950, and separately for 1951 and 1952.
4. An issue not addressed in the first site profile regarding extended contact with uranium has been modified to assume a 1.5 millirem per hour exposure from clothing contamination, resulting in a 1.8 rem per year dose.
5. The effect of oronasal breathing has now been addressed and the Board agreed that the effect would have been small. NIOSH is continuing to develop generic guidance on this issue, which could also apply to other facilities.
6. The remaining issue centers on concern that the 95th percentile of dose does not take into account the short-term, episodic exposures that would occur during the cutting of cobbles. NIOSH will continue to work with Mr. Ed Walker, a claimant from Bethlehem Steel. A meeting is scheduled on June 21st with Mr. Walker and other workers having knowledge of that exposure scenario in hopes of properly addressing the issue in the site profile.

Mr. Elliott provided a great deal of detail about construction workers to counteract what he described as inaccurate information disseminated during the public comment period in Denver. His presentation included a breakdown of 4,000 cases in terms of numbers of cases with a POC of greater than 50 percent, those with POC less than 50 percent, and those cases that have been pended. The TBD guiding their process is in the final stages and will be implemented soon to attend to 705 of the claims. In summary, he does not believe the construction trades constitutes a disenfranchised group.

Concerning 132 Technical Basis Documents (TBDs) approved and in use, **Mr. Elliott** listed the ones currently in various stages of development. Of the 43 approved Technical Information Bulletins, 21 are site-specific and 22 are complex-wide. He pointed to the import of the latter in regard to dose reconstruction review and conflict of interest. He emphasized that site profiles and TBDs are reviewed periodically, and explained the review process.

NIOSH's communications initiatives include improvements in their web site, such as the addition of a listing of meetings for the current year on the Advisory Board web page, with a link to meeting minutes and transcripts; an individual site page on the navigation bar; a list of work sites; and four distinct areas of interest on the SEC web page.

NIOSH's acknowledgment letter to claimants has evolved into an information packet. Their dose reconstruction video will be available in DVD form for interested members of the public. The DR report will be reformatted to include a non-technical claimant-friendly section for lay persons, as well as a scientifically-developed technical section should a claimant seek an independent technical consultation.

Regarding NIOSH's quality assurance (QA) and quality control (QC) program, **Mr. Elliott** first defined the two terms and then detailed how NIOSH processes claims received from DOL to ensure accuracy of information. He explained each step of the QA/QC program that ORAU performs in developing the dose reconstruction. He concluded by describing NIOSH's QA measure of reviewing all prior activities to be sure they had achieved the high quality product they intend.

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Discussion Points:

- The NIOSH DR video is in DVD form.
- Discussion about the number of digits following the decimal point for POC led to a decision that IREP (Interactive RadioEpidemiological Program) will be adjusted to truncate the figures, thus reducing confusion to claimants.
- SC&A has in fact reviewed some of these procedures.
- Concerning peer review it was clarified that the review is more concurrent than iterative.
- The comment and resolution process will have taken place before the first signature is affixed.
- Provision of comments from the peer review process to the O drive will help expedite or enlighten the workgroup's resolution process.
- Perhaps site profiles could similarly be made available.
- NIOSH will take action to make the update section on the web site more responsive.
- Announcements about updated web site offerings will be made after the fact rather than before.

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BOARD WORKING SESSION

At the start of this session, Mr. Ed Walker offered comments relative to Bethlehem Steel. Mr. Walker raised a number of issues and concerns for which he asked the Board to find answers. His statement in its

entirety may be found on the NIOSH/OCAS web site at www.cdc.gov/niosh/ocas.

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APPROVAL OF MINUTES

A motion was made and seconded to approve minutes of the March 14, 2006 telephone meeting.

The motion passed unanimously.

A motion was made and seconded to approve minutes of the subcommittee meeting of October 17, 2005.

The motion passed unanimously.

A motion was made and seconded to approve the subcommittee minutes of January 24th, 2006.

The motion passed unanimously.

Dr. Ziemer suggested the Board designate four of its members, along with two alternates, to form a group to serve as the dose reconstruction subcommittee. He noted the current charter for the subcommittee will have to be modified.

A motion was made and seconded to modify the structure of the subcommittee to, number one, restrict it to dose reconstruction review activities, and two, limit the membership to four members plus two alternates.

In the very brief discussion following the motion it was agreed membership would be considered after the vote.

The motion passed unanimously.

The Subcommittee on Dose Reconstruction Review Activities was constituted to include **Mr. Gibson**, **Dr. Poston**, **Ms. Munn**, with **Mr. Griffon** as Chair. The **Mr. Presley** and **Mr. Clawson** will serve as alternates. The charter revision is expected to become effective in August.

The new workgroup discussed earlier in the Board meeting was set up to review requests for consideration as SEC petitions which failed to qualify for evaluation. **Dr. Lockey** volunteered to chair. **Dr. Roessler**, **Dr. DeHart**, and **Dr. Melius** were added.

Dr. Wade encouraged working group chairpersons to contact him quickly concerning their next meeting.

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With no further business to come before the Board, the meeting was adjourned.

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