The public portion of the meeting was adjourned at 9:25 a.m. After a short break, the Board then met in Executive Session to discuss and review the development of the proposed independent government cost estimate for the contract discussed at this meeting.

National Institute for Occupational Safety
Minutes of the Tenth Meeting of the
Advisory Board on Radiation and Worker Health
January 7-8, 2003

JANUARY 7, 2003

The tenth meeting of the Advisory Board on Radiation and Worker Health (ABRWH, or the Board) was held at the Westin Hotel in Cincinnati, Ohio, on January 7-8, 2003. These meeting minutes of the Board's deliberations and a complete transcript certified by a court reporter is available on the Internet on the NIOSH/OCAS Website (www.cdc.gov/niosh/ocas). The meeting was called by the Centers for Disease Control and Prevention's (CDC) National Institute for Occupational Safety and Health (NIOSH), the agency charged with administering the Board.

Attendance

Members present were:
Paul L. Ziemer, Ph.D., Chair
Larry J. Elliott, M.S.P.H., C.I.H., Executive Secretary
Henry A. Anderson M.D.
Antonio Andrade, Ph.D.
Roy L. DeHart M.D., M.P.H.
Richard L. Espinosa
Michael H. Gibson
Mark A. Griffon
James M. Melius, M.D.
Wanda I. Munn (see below)
Robert W. Presley
Genevieve S. Roessler, Ph.D.

Member Leon Owens was absent; member Wanda Munn was present by telephone link for the public portion of the meeting.

Federal employees present were:

Department of Defense (DOD):
D. Michael Schaeffer, Defense Threat Reduction Agency (DTRA)

Department of Health and Human Services (DHHS):
Larry Elliott, Russ Henshaw, Cori Homer, Liz Homoki-Titus, Ted Katz, David Naimon, Jim Neton

Department of Labor (DOL):
Jeffrey L. Kotsch and Rose Toufexis

Members of the public who attended over the course of the meeting were:
Everett "Ray" Beatty, Fernald Atomic Trade and Labor Council (FAT & LC), Lawrenceburg, IN
William L. Beck, Oak Ridge Associated Universities (ORAU)
Eula Bingham, University of Cincinnati, Cincinnati, OH
Jeanne Cisco, Paper and Allied Chemical Employee (PACE) Union, Piketon, OH

Richard Findlay, Fluor Fernald, Fernald Atomic Trades and Labor Council, Fernald, OH
Kenny Fleming, Science Applications International Corporation (SAIC), Knoxville, TN
Steven R. Fowee, IAM&AW/ICWUC, Maineville, OH
Ray Green, court reporter, Atlanta, GA
Jim Griffin, MJW Corporation, Olean, NY
Stu Hinnefeld, Cincinnati, OH
Mark Lewis, PACE Worker Health Protection, Waverly, OH
Bill McGowan, University of Cincinnati
Greg Malone, ICWUC, Cincinnati, OH
Richard Miller, Government Accountability Project (GAP)
John S. Morametz, ICWU, Cincinnati, OH
Marie Murray, meeting recorder, Atlanta, GA
Paul Mullens, PACE Union, Piketon, OH
Louise S. Presley, Clinton, TN
Sam Ray, PACE, Lucasville, OH
Leland Russell, Fluor Fernald, Fernald, OH
David Stuenkel, Trinity Engineering, Cincinnati, OH
Robert Tabor, FAT & LC, Harrison, OH
Bill Tankersley, ORAU
Elyse Thomas, ORAU
R. E. Toohey, ORAU

Opening Comments
Dr. Ziemer convened the meeting, calling it to order at 8:35 a.m.

Review/approval of the Draft Minutes Dr. Ziemer asked for any changes to the minutes of the October 15-16, 2002, meeting and teleconference of December 12, 2002. The following were provided:

October 2002: *Executive Summary* (pp 3-10)

- David Naimon: 1) Page 7, sentence two, of the report on his presentation, change to: "... agency or the department, and may not speak for the ABRWH unless a majority of the members approve the position" and 2) in sentence 3, delete "regardless of" and add to the end of the sentence".. or otherwise, with anyone."

*Dr. Anderson **moved to accept the executive summary as edited** and the motion was seconded. Upon a vote, the minutes were **unanimously approved** as edited.*

Main Minutes: Dr. Ziemer noted that the formal actions of the meeting were italicized in order to stand out in the report. Edits requested were:

- Mr. Naimon: 1) Page 34, Scenario 1: After "I cannot speak for," delete ABRWH and insert: "... or the department. They also cannot speak on behalf of the ABRWH"; and 2) Page 35, Scenario 2: delete "regardless of" and change as done in executive summary edit 2.

*Dr. Andrade **moved to accept the formal minutes** as edited and the motion was seconded by Mr. Presley. The motion received **unanimous approval.***

***December 2002** Conference Call*

- Dr. DeHart: On the page 1 listing of participants, insert that he left the conference call at 3:00 p.m.
- Mr. Griffon asked that the names of those speaking be inserted to the bottom of page 4, at "Comments included:".

*Dr. Melius **moved to accept the minutes and Mr. Gibson seconded the motion. They were unanimously approved.***

OCAS Program Report

Mr. David Sundin, Deputy Director of NIOSH/OCAS, reported on the OCAS program's progress to the end of calendar year (CY) 2002. The last quarter of CY 2002 was the first quarter of the federal fiscal year.

Cases transferred from the Department of Labor (DOL) since the first quarter of 2002 totaled 10,158. About 150-200 cases/week are received from the four DOL district offices. NIOSH sends a letter to the claimant to confirm receipt of the claim, which is logged in to the data base, and a paper file is created. Changes were made to the data base management system to more efficiently operate with the dose reconstruction contractor, the Oak Ridge Associated Universities (ORAU). Of the claims to date, 14% have come from atomic weapons employer (AWE) employees and 86% from non-AWE employees.

NIOSH is receiving nearly 80 calls/day (11,325 to date and 949 e-mails). OCAS has forwarded 8471 requests for personal exposure records to the Department of Energy (DOE), which has responded to 58%. Follow-up requests for more information were sent on 4884 claims (14% are at >150 days from request; 4% >120 days; and 7% each at 90 and 60 days). Many of the outstanding requests were sent to older sites. DOE has set new procedures to expedite those records' provision.

Since the ORAU contract was awarded, the number of interviews conducted has doubled; 320 were done by phone with claimants and 242 interview reports were sent to claimants. Currently, 144 dose reconstructions are underway, quadruple the amount reported in October 2002. Fourteen draft dose reconstructions were sent to claimants. The close-out interview was completed for these and the OCAS-1 form, signifying the claimant's approval, was signed. They were then transferred back to DOL for adjudication.

All initial contract deliverables have been received on schedule from ORAU. NIOSH's Residual Contamination Progress Report, of interest to the OCAS process, was transmitted to Congress on December 9, 2002. Additional appointees to the physician panels have been identified, and more will be recruited to staff about 25 three-member panels. These will be sorely needed with the rising numbers of completed dose reconstructions.

Discussion with Mr. Sundin included:

- Ziemer: *Are any substantive changes expected on the Memorandum of Understanding's (MOU) contents as its discussions go higher in the agency?* That is hard to predict, but sufficient communication to date on the basics of the agreement should prevent any major changes. The content is not currently available since the document is still in pre-decisional form.
- Melius: *Are the delayed information requests more applicable to particular sites, or to types of records that are not available?* The reasons for untimely response are individual to the sites. For example, some did not anticipate the volume of the requests and staffed up later than others and one site had not completed the necessary indexing system for the records' locations. As a result, some sites will always lag behind, but by and large, CDC is encouraged by most sites' response. Communication with claimants relate the date the information request was sent. The sites are reminded at >60 days overdue on individual cases. If requested, the claimant is told the individual work done on their behalf. Since many have already contacted the site, this notice is usually not a surprise. Response to claimant inquiries is done, but there is no periodic update process in place. Claimant information will be placed on the OCAS Website once the updated data base is available. Upon entry of the claimant number, they will be able to check their claim status.
- Melius: *Will the ABRWH get a list of the sites lagging in response to records requests, and breakdown of the reasons why?* This can be provided.
- Anderson: *How many phone calls relate to delayed claims, that might be avoided with a regular notification system; or are they general information calls?* This has not been analyzed, but the sense is that most are asking about the status of their claim.

Dose Reconstruction and Contract Support Status

Dr. James Neton, OCAS' dose reconstruction project officer, reported government approval to double the size of the OCAS staff, from 22 to 43 full-time employees (FTE). NIOSH is actively recruiting new staff who are health communication specialists, a dose reconstruction team leader who is a health physicist and nine other health physicists; seven public health advisors, a paralegal, a research epidemiologist, an epidemiologist/statistician, and an office automation specialist.

Other activity: Many of the dose reconstructions begun by NIOSH have been completed. NIOSH staff will continue to complete some small percentage of the dose reconstructions through the course of the program. The ORAU's team documents, procedures, and dose reconstruction research have been overviewed (a key staff members is assigned to each aspect). Technical bulletins and document change notices have been distributed to the field reconstructors. Review of ORAU dose reconstructions is ongoing.

A flow chart of the ORAU project organization showed six areas: 1) data base management, 2) data collection, 3) dose reconstruction research, 4) claimant interviews, 5) dose estimation and dose reporting, and 6) technical/program management support (with a NIOSH staffer assigned to each, as above).

Task 1: Data base management: The Cincinnati Operations Center was installed and is operational. A sequel server environment will be rolled out January 13 and will allow better communication between NIOSH, ORAU and the field. The computer aided telephone interview (CATI) system is being redesigned and upgraded, and collection and input of site profile data is continuing.

Tasks 2 and 3: Data collection and dose reconstruction research: A sampling plan for initial cases was established (external, high- and low internal exposure environments, and the AWE facilities). Key health physicist staff members were hired to review the cases. Environmental dose reconstruction tables are being developed for the large Hanford and Oak Ridge sites, as well as diagnostic x-ray tables for Hanford and the Nevada Test Site (NTS). Site visits to Environmental Measurement Laboratories in (EML) in New York City and the Atlanta Federal Records Center identified many data files dating back to the 1950s. These are now being transferred to the Germantown DOE offices, to be researched by ORAU. The ORAU vault was also inventoried for relevant records.

Task 4: Claimant interviews: Four of the six points of the interview plan were implemented. The transition to the ORAU team is well underway and the interview staff was hired and trained. The claims received early are given priority, as much as possible, and >370 interviews have been done to date. All interview reports are reviewed by an health physicist prior to issuance and ~20% of the interviews provided additional comments to the draft interview report sent to them (e.g., spelling error edits, names of facilities, etc.).

Task 5: Dose estimation and reporting: More than 60 draft dose reconstructions were completed and forwarded to NIOSH for review, most involving compensable claims. The technical basis for conducting a dose reconstruction at an AWE facility was completed and is close to official approval. Control procedures to ensure the consistent conduct of dose reconstructions nationwide were written and forwarded to NIOSH for review. Additional health physicist support staff was added. The ORAU goal is to produce 100 dose reconstructions per week by March 1, 2003, and then 200/week by June 1.

Task 6: Administrative/technical support: The build-out of the Cincinnati Operations Center was completed. The project quality assurance plan (QAP) was completed by ORAU and approved by NIOSH. The information systems QAP is in development, and key training documents were developed to train interviewers about DOE facilities, the program's legislative underpinning, etc. The conflict of interest documentation is underway and will be on the Website in the near future (2-3 weeks).

Discussion with Dr. Neton included:

- Roessler: *Where are you on the organizational chart?* Dr. Neton is the technical program manager, to whom the dose reconstruction team leader, contract oversight team leader, and technical support team leader report. The claim information and communication team leader reports directly to Director Elliott. All are based in Cincinnati.
- Roessler: *Can the names of the ~90 people involved in the interviews and dose reconstruction work be provided to the ABRWH?* Yes, and more and more will be on the

Website with the posting of the conflict of interest forms. However, in addition to the NIOSH and ORAU FTEs (20-30), an additional ~90 may work on the project. They are not FTEs, but equal ~50 FTEs in time devoted to the project. That number will grow with the number of dose reconstructions done.
Melius: *If the 100/week dose reconstructions are done by March 1 by ORAU, will NIOSH be adequately staffed to review the completed dose reconstructions to be sent to DOL?* NIOSH hopes to have all FTEs hired by March 1, which would allow 200 reconstructions per week to be reviewed. The level of effort for review also is expected to decline with experience (~1 month to become familiar with all aspects of a compensation dose reconstruction) and with parallels between cases.
Melius: *It is hoped that NIOSH will expedite the conflict of interest postings to ensure the transparency of the process. What QC is planned for the interviewers' training?* Their training will take a week. Dr. R.E. Toohey, ORAU's dose reconstruction director, elaborated that this 40-hour training program covers the Energy Employee Occupational Illness Compensation Program Act (EEOICPA), the roles of OCAS and ORAU, the conflict of interest policy, Privacy Act disclosures, basic radiation worker training ("Health Physics 101"), details on the CATI data base and how to use the computer system, etc. There will also be a half-day trip to Fernald to see its DOE site. Two of the interviewers were DOE records employees, others are familiar with the claims process, and one speaks Spanish. ORAU hopes to have about 12 interviewers in all. The average length of interviews is about 100 minutes, but should be an hour. A person with a Masters in Social Work is being hired to help interviewers keep the process timely. As much as possible, site-specific interviewers are involved. For quality control, the task manager listens in on some interviews and reports, and the reports are reviewed by a health physicist. Follow-up interviews are done. While re-checks with claimants have not been implemented, ORAU would be willing to do so.
Melius: *Is a formal record kept of the interviewers QC reviews?* Dr. Toohey did not know, but agreed to advise the Board about that.
DeHart: *Will the thousands of records processed simultaneously be logged to be re-findable?* Dr. Neton responded that all DOL hard copy records are kept in one location and all DOE records are now at ORAU. NIOSH has all the electronic records.

AWE Site Profiles; Technical Basis for Dose Reconstruction at Bethlehem Steel
Dr. Toohey, ORAU's director of the NIOSH dose reconstruction project, described the approach to be used. He began by outlining for the Board the processes of a rolling mill in Lackawanna, NY. There, 5.5" uranium billets were rolled into 1.5" rods to be used for reactor loading in Hanford's plutonium production. Test rollings in a salt bath were done 4-5 times in 1951, followed by production runs on 7 dates in 1952. A labor representative's letter found in the files claims that an additional 6-8 runs occurred in 1955. Although this is not supported by records, ORAU is assuming this to be true and is profiling them parallel to the 1952 runs.

Monitoring data sources were used to develop the dose reconstruction approach, and the resulting data set was used to bracket the exposure conditions.

1. The Atomic Energy Commission (AEC) used 70 disintegrations per min (DPM) per cubic meter of air as the maximum allowable air concentration (MAC).

2. A 1981 report by the New York state assembly's Task Force on Toxic Substances, which investigated the Love Canal event, reported that rolling without lead baths produced readings as high as 1,000 times the MAC, while those done in a salt bath produced readings of 3-5 times the MAC. This was one reason the salt baths were used in the production runs.
3 Monitoring data from Simons Saw and Steel rolling runs in 1951 indicated 0.8 to 2.5 MACs on one occasion and 0.9 to 4.2 MAC on another.
4. A claimant submitted documents of Bethlehem Steel readings that indicated a range of 0 to 1.9 MAC in 1951 to 0 to 70.0 in 1952.

An exposure matrix was developed for airborne exposures, based on available monitoring data from Bethlehem Steel and Simons. Due to the uncertainties involved (e.g., unknown positioning of the air monitors used), a triangular distribution was used to develop the line from the minimum to maximum probable levels. For the time period of 1949-1950, they assumed a 5.0 MAC (in a range of 0.9 to 5000), based on the New York Task Force report. For 1951, they assumed a minimum of zero; and for 1952 and the possible additional rollings in 1955, they assumed 2.0 MAC (in a range of zero to 70 MAC).

The *dose estimate* was done on the mode of the distribution, while still carrying the uncertainty distribution through to the doses. That uncertainty distribution was then entered into the IREP program and promulgated through with the uncertainty of the risk coefficients to estimate the overall uncertainty of the probability of causation (POC). A compensable claim must achieve 50% POC at the 99% confidence level. So, 20% ±10% would be compensable using these three standard deviations.

Exposure times were estimated with several assumptions, again based on the records: 10-hour workdays and 12 workdays per year for 1949 and 1950; then 13, 11, and 8 days for 1951, 1952, and 1955, respectively. The 1994 ICRP -66 breathing rate for heavy labor was used (in part due to the higher temperature environment). The modes of estimated inhalation intakes per year ranged from 8.7 to 32.5 nanocuries (nCi), with a maximum of 0.3 to 6.5 microcuries (μCi) over those five years of exposure.

Estimates of *external exposure* were developed for uranium dust using the standard assumptions of submersion in a semi-infinite cloud of uranium dust from the uranium billets used. Then, for the external exposure from the billets themselves, they used the beta dose rate, which was figured from an average of one to three feet from the semi-infinite plane source of uranium. The maximum calculated skin dose from the beta exposure ranged from 10 to 16.5 rem; the deep photon dose on bone surfaces was half that. That number included occupational chest x-rays. The CATI interviews will particularly inform the latter. In summary, all available data were used to characterize the exposure conditions at the Bethlehem Steel facility. Claimant-friendly assumptions were made for exposure times and the amounts of material handled, and a triangular uncertainty distribution was used to estimate the uncertainty in the exposure estimates. The resulting technical basis document will guide the dose reconstructions for the >300 claimants from Bethlehem Steel.

The conclusions reached were that: 1) AWE facilities usually did only one type of work with one type of radioactive material, 2) Monitoring data from the facility, or from another doing the same type of work, can be used to characterize exposure conditions, although extensive record searches might be required, and 3) Once an AWE is characterized, all claims from that facility can be processed relatively quickly.

Discussion with Dr. Toohey included:

- Ziemer: *Where there any bioassay data?* None were found. The guess, from EML records and one 1951 document from the New York Operations Office, tracing the material flow through various AWE sites, indicate that bioassay testing (such as urinalysis for uranium) was spotty. The reliance was on air monitoring, which was always reported at less than the MAC.
- Roessler: *There are no estimates on internal dose, although they were probably significant, and x-rays should be a contributing factor in external dose.* The draft document has some estimates for photon exposure to skin. Dr. Toohey was not yet satisfied with them, but expected them to be a few mrem.
- Griffon: *Were any interviews done with site experts about the runs?* They were done with interested claimants, but not yet with site experts, although that is planned. For example, Tony LaMastra will be asked to do a reality-check review of the draft document.
- Griffon: *Will you wait, in developing the technical basis document, to do other similar facilities, to see if the triangular distribution will be consistent between sites?* That will be done, since this is an iterative process. The technical document will be done simultaneously with the other sites; the dose reconstructions cannot be delayed to ensure maximum accuracy. ORAU will proceed with the dose reconstructions, and the claimant review of the interview and the dose reconstruction itself are also checks. If further information so prompts, past dose reconstructions will be re-done.
- Melius: *Could you modify the claimant interview process to evaluate the validity of the posited 1955 exposures, and to explore any more information?* The interview form has been approved by OMB and cannot be changed, but the interview includes worker input on when they worked and on what processes. Melius: *Then, would the Office of Management and Budget (OMB) not allow data gathering from the present 300 claimants before their interview to try to determine any further information on these runs?* Mr. Elliott did not expect that the OMB would allow that, but follow-up questions will allow more detailed questions to be posed than those from the original questionnaire. This is part of the normal claimant interview process, but NIOSH cannot go back to all those interviewed to do so. However, NIOSH has OMB approval of a questionnaire to go to other site staff to interview them about information uncovered.

  Presley: *If a person is identified with an outstanding dose (e.g., a mill operator versus a material handler), can ORAU go back and review such employee classifications at other sites?* Yes, but it is not clear that this kind of detail can be done at this particular site. But such process employee detail can be incorporated into the interview process.

  Dehart: *Were particles flaking off into the air a cause of radiation contamination?* We are using a claimant-friendly 5 micron default particle size in the respiratory tract. Most particle sizes would probably be higher than that, which produces a lower dose per unit intake. But a survey done in the 1970s at a Formerly Utilized Sites Remedial Action