

**OAK RIDGE RESERVATION
HEALTH EFFECTS SUBCOMMITTEE**

**CENTERS FOR DISEASE CONTROL AND PREVENTION
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY**

Detailed Proceedings of the October 22, 2002 meeting of the Subcommittee

Call to Order/ Opening Remarks

The Oak Ridge Reservation Health Effects Subcommittee (ORRHES) convened on October 22, 2002 at the YWCA at 1660 Oak Ridge Turnpike, Oak Ridge, Tennessee. Chairperson Kowetha Davidson called the meeting to order at 12:15 PM, welcoming all attendees.

Introductions

Kowetha Davidson asked the attendees to introduce themselves. The attendees present at this time were:

Kowetha Davidson, Chairperson, ORRHES
La Freta Dalton, DFO, ATSDR
Brenda Vowell, Tennessee Department of Health
Chudi Nwangwa, Tennessee Department of Environment and Conservation
Elmer Akin, Environmental Protection Agency (EPA)
David Johnson, ORRHES member
Bob Craig, ORRHES member
Susan Kaplan, ORRHES member
James Lewis, ORRHES member
Don Creasia, ORRHES member
LC Manley, ORRHES member
Karen Galloway, ORRHES member
Jeff Hill, ORRHES member
Barbara Sonnenburg, ORRHES member
Donna Mosby, ORRHES member
Charles Washington, ORRHES member
Peggy Adkins, ORRHES member
Anthony Malinauskas, ORRHES member
George Gartseff, ORRHES member
Don Box, ORRHES member
Jerry Pereira, ATSDR
Sandy Isaacs, ATSDR
Marilyn Palmer, ATSDR
Herman Cember, ORRHES member
Burt Cooper, ATSDR
Paul Charp, ATSDR
Jack Hanley, ATSDR

Bill Murray, ATSDR
Tim Joseph, Oak Ridge Office, Department of Energy (DOE)
The recorders are Ken Ladrach and Amylane Duncan, Auxier & Associates, Inc.

Agenda Review, Correspondence, and Announcements

Agenda Review

Kowetha Davidson reviewed the agenda dated October 8, 2002.

Correspondence

No correspondence has been received since the last ORRHES meeting.

Announcements

Lunch order announcement.

Approval of August 27, 2002 ORRHES Meeting Minutes

Kowetha Davidson referred to the minutes of the August 27, 2002 ORRHES meeting, previously distributed to the Subcommittee members. A motion was received, and seconded, to approved the August 27, 2002 meeting minutes, with minor edits regarding page 21 provided by Don Box. A vote was taken by voice with none opposed. The minutes of the August 27, 2002 ORRHES meeting were declared approved.

Status of Action items – list provided

The table listing the status of action items has been distributed to the Subcommittee members. The table of action items was reviewed. No comments were made regarding the action items.

ORR Project Update

Jerry Pereira commented that he has been meeting with Dr. Falk, who has requested monthly status updates regarding ORRHES progress. Dr. Falk has an increased interest in the Subcommittee's actions and places full responsibility and authority for the work in Oak Ridge on Jerry Pereira.

Regarding future resource needs, Jerry Pereira plans to report, in detail, what has been done thus far with current resources, and, if additional resource needs are identified, will define why desired goals can not be achieved and what is needed to achieve those goals. Jerry Pereira will require legitimate reasons to support resource requests brought to Dr. Falk. Given those legitimate reasons, Jerry Pereira believes that he can get the resources to accomplish what the Subcommittee needs to accomplish. At the December 3rd ORRHES meeting Jack Hanley will present the project plan, including dates and milestone activities. In monthly reports to Dr. Falk the status of those milestones will be updated.

Jerry Pereira and Bill Murray have recently interviewed a candidate for the administrative position in the field office (SEEP employee program). ATSDR plans to have this person begin to work as soon as arrangements can be made.

Kowetha Davidson reported that Dr. Falk plans to attend an ORRHES meeting after January 1, 2003.

James Lewis reported on a recommendation concerning performance issues. In March of 2000, ORRHES requested that ATSDR develop a project plan to outline outstanding PHA issues. Lacking completion of the project plan, several Subcommittee members and some members of the public developed a recommendation to identify weaknesses. The recommendation summarizes issues and focuses on meeting the goals of the Subcommittee. Evaluation of contaminants of concern is behind schedule, for example regarding iodine and mercury. The recommendation is generated to expedite PHA progress and get back on schedule. Currently, only a draft of the project plan has been developed. The recommendation includes an organizational chart depicting Subcommittee members' understanding of ATSDR staff responsibilities on the project. ORRHES members feel that the PHA process lacks a project manager with the authority and responsibility to see that tasks were performed in a timely manner.

LC Manley, Susan Kaplan, Al Brooks, and James Lewis met with Dr. Falk as private citizens rather than representatives of the Subcommittee. Donna Mosby and Pete Malmquist were unable to attend. The reason for the meeting was to inform Dr. Falk of issues and concerns of the Subcommittee. The following issues were presented:

- The key issue concerned the performance of the ATSDR/PHA process. Two documents were presented to Dr. Falk. The first document was a PHA Task

Milestone Chart (Schedule) listing incomplete milestones. The second document presented was the ATSDR/PHA Guidance Manual. The ATSDR//PHA Guidance Manual, Section 2.5.1, presents the following points for conducting the process:

- Perform initial site documentation and agency activity scoping review,
 - Define roles and responsibilities of team members (internal and external),
 - Establish communication mechanisms (internal and external),
 - Develop a site-specific PHA strategy (establish aggressive, but realistic, time lines).
- The second issue concerned what could be done to recover from the schedule delays, and complete the PHA process in the next 18-24 months. Dr. Falk indicated that this issue would have to be evaluated, but appeared to be a reasonable goal.
 - The third issue concerned the assignment of authority to control the project. Jerry Pereira has just clarified in this meeting that Dr. Falk has given him full responsibility and authority for the work in Oak Ridge.
 - The fourth issue concerned field office operations, ensuring that staff with the proper skill sets are provided in the field office to help the Subcommittee and work groups manage meetings.

After listening to the all of the issues presented, Dr. Falk committed to looking further into the issues and responding to the Subcommittee at the December 3rd ORRHES meeting.

Discussion:

Al Brooks concurred with James Lewis' presentation about the meeting with Dr. Falk, and commented that the most important point concerns lines of authority in the project. Jerry Pereira has given the Subcommittee reassurance on this issue today.

Jerry Pereira commented that after the meeting Dr. Falk asked him to contact Kowetha Davidson about what was discussed. Dr. Falk confirmed that any response from ATSDR would be made to the Subcommittee at the December 3rd ORRHES meeting. Dr. Falk also confirmed that he viewed the visitors as members of the local community.

James Lewis added that if members of the Subcommittee have issues or questions regarding the discussions in the meeting with Dr. Falk, those issues or questions should be compiled for presentation to Dr. Falk.

LC Manley commented that he is concerned about ATSDR follow-up, after compiling and evaluating data in the PHA, to help the community. Currently the ORRHES and the ATSDR/PHA process have a negative image in the community.

Bob Craig inquired about the status of the Gantt chart. Jerry Pereira responded that members should have a copy of the chart before next ORRHES meeting, with milestone dates.

Elmer Akin inquired whether there was a way to report any outcomes of the meeting with Dr. Falk to the community other than through the ORRHES. Al Brooks responded that there was unanimous agreement that any actions taken in response to the meeting with Dr. Falk would be reported through the ORRHES.

Work Group Sessions

AGENDA WORK GROUP PRESENTATION

Barbara Sonnenburg stated that there were no meetings of the Agenda Work Group and had nothing to report.

GUIDELINES AND PROCEDURES WORK GROUP

Karen Galloway stated that there were no meetings of the Guidelines and Procedures Work Group and had nothing to report.

HEALTH EDUCATION NEEDS ASSESSMENT WORK GROUP

Theresa Nesmith provided an update on the Health Education Needs Assessment by telephone.

The Needs Assessment flow chart was presented. Key resource interviews were completed in September 2001. Theresa Nesmith pointed out that in the original plan focus groups were to precede telephone surveys. George Washington University changed the Needs Assessment design to convene the focus groups after telephone surveys. The telephone surveys were completed in January 2001. The Needs Assessment is currently at Step 6, "focus groups," in the flow chart. The focus groups are currently being formed, and recruiting of participants is ongoing. Weekly updates are provided to the Health Education Needs Assessment Work Group chairpersons. The next steps of the Needs Assessment include:

- Continue focus group recruitment
- Finalize Needs Assessment report
- Develop follow-up Health Education and Health Promotion Plan based on the findings of the Needs Assessment

The current projected schedule for the Needs Assessment is:

- Focus groups completed by January 2003
- Needs Assessment document finalized by Spring 2003
- Additional Health Education and promotion activities (dependent upon Needs Assessment recommendations, PHA, and other public health activities)
- I-131 Health Education Program completed by Spring/Summer 2003 (dependent upon PHA recommendations and other public health activities).

Iodine-131 studies are being performed at many DOE sites (e.g. Hanford, Savannah River, etc.). The American College of Preventive Medicine (ACPM) is conducting a project with ATSDR to develop I-131 health education materials. Health education materials developed through that project could be modified for use for Oak Ridge. Representatives from the ACPM project could be brought to the Subcommittee to make a presentation about health education.

Discussion:

Bob Craig asked why focus group recruitment has been delayed. Theresa Nesmith replied it was due to change in design, switching the focus groups from Step 5 to step 6. In addition, there have been difficulties recruiting people.

James Lewis asked how many focus groups have been developed and their titles. James Lewis also asked how many focus groups have met and when upcoming focus group meetings are scheduled to meet. Theresa Nesmith responded that the names of focus groups are being kept confidential. Typically the names of focus groups are not shared. Theresa Nesmith agreed to check into the confidentiality requirement. The projected schedule for completing the focus group process is January 2003.

James Lewis questioned the necessity of keeping the names of the focus groups confidential. Subcommittee members expected to have some idea of the titles of the focus groups. Theresa Nesmith again committed to check into the confidentiality requirement.

Jerry Periera asked what number of focus group meetings have been conducted. Theresa Nesmith responded that no focus group meetings have been conducted. Eight focus groups will be conducted. Recruiting for the focus groups is ongoing. All of the focus groups will be formed and then conducted simultaneously. Theresa Nesmith confirmed that one group has been formed and is ready for its meeting.

Barbara Sonnenburg asked if the work group chairpersons have been provided with Needs Assessment updates. Theresa Nesmith clarified that the two chairpersons of the Health Education Needs Assessment Work Group receive updates on the Needs Assessment.

Barbara Sonnenburg commented that the Subcommittee feels strongly that the types of focus groups should be limited to titles similar to those recommended by the Subcommittee. If the Subcommittee knew the titles of the focus groups the Subcommittee could assist in recruiting participants. Theresa Nesmith responded that the input of the Subcommittee (focus group titles and potential participants) was used.

Barbara Sonnenburg inquired whether the information could be shared with Subcommittee members via e-mail prior to the next ORRHES meeting. Theresa Nesmith replied that the information would be sent out if there are no restrictions on releasing the information. Theresa Nesmith encouraged Subcommittee members to ask people to call and volunteer to participate in the focus groups.

Herman Cember (new ORRHES member) asked about the subject of the focus groups. Kowetha Davidson asked ATSDR to provide new ORRHES members with information about the Needs Assessment and focus groups from the ORRHES meeting minutes from April 2001. Jerry Pereira informed the Subcommittee that ATSDR staff will present a brief update of agency activities two hours before the December 3, 2002 ORRHES meeting.

Al Brooks asked if the findings from previous county studies of health concerns in the Oak Ridge area will be reconciled with new information that is generated from the current Needs Assessment. Theresa Nesmith replied that information from previous studies in the Oak Ridge area has been considered in the Needs Assessment.

James Lewis asked whether ATSDR has performed a Needs Assessment for any of the other DOE sites, and whether ATSDR has a document that describes the end product expected from the Needs Assessment. Burt Cooper responded that a Needs Assessment is not performed at most sites.

COMMUNICATIONS AND OUTREACH WORK GROUP

James Lewis stated that there were no meetings of the Communication and Outreach Work Group and had nothing to report.

PUBLIC HEALTH ASSESSMENT WORK GROUP

Bob Craig stated that several recommendations are brought to ORRHES from the Public Health Assessment Work Group.

The first recommendation states:

If ATSDR determines that there is unavoidable delay in completion of the

I-131 evaluation, the evaluation of one or more other contaminants of concern should be expedited and presented before the I-131 Public Health Assessment.

The second recommendation states:

The ORRHES requests a copy of a detailed Gantt chart from ATSDR as soon as possible. The detailed Gantt chart should reflect the steps in the ORRHES flow sheet. (The flow sheet includes dates of presentations made to the work groups and the Subcommittee).

James Lewis emphasized the need for the Public Health Assessment Work Group to be prepared to address contaminants of concern that may be expedited in advance of I-131.

ATSDR's Radiation Screening Process

Presentation by Paul Charp "Radiation Screening Level"

Presentation topics:

- Background information regarding dose-based screening
- The ATSDR Minimal Risk Level (MRL)
- Screening Protocol Rationale

February 11, 2002 ORRHES meeting:

- ATSDR presented a screening value for radiation exposure of 5,000 millirem (mrem) in a lifetime (70 years, excluding thyroid exposures to I-131)
- Screening value presents no apparent public health concern
- Screening value is partially based on worker studies
- Separate thyroid radiation screening value is to be determined

ATSDR Minimal Risk Level (MRL):

- MRL is a daily radiation dose not expected to cause any adverse health effects (non-cancerous health effects)
- MRL is based on epidemiological studies of exposed persons
- MRL incorporates multiple uncertainty factors
- Refer to: "ATSDR Minimal Risk Levels and Worksheets"

- Two ATSDR MRLs: chronic external radiation exposure (100 mrem/year above background) and acute external radiation exposure (400 mrem/year above background)
- Chronic external - exposure for a period of time greater than one year, MRL = 0.3 x background (or: MRL = 1.3 x background)
- Acute external - exposure over a short period of time, usually less than 14 days, MRL = NOAEL x CF/UF = 0.3 x (1/25) / 3 = 400 mrem/year

Components of Background Radiation:

- Natural background radiation includes contributions from soil, water, air (including radon gas), and cosmic radiation.
- Typical dose levels of background radiation (not including contributions from medical exposures, consumer products, fallout):

<i>Source</i>	<i>Dose (mrem/yr)</i>	<i>Percent</i>
Cosmogenic	28	9.5
Terrestrial	28	9.5
Internal	40	13.5
Inhaled (mostly radon)	200	67.6
Total	296	100

- Natural background radiation levels vary with geographic location and elevation (for example: Southeast U.S. versus Rocky Mountains).
- Average radon gas levels indoors in Tennessee by county:
 - Anderson = 3 pCi/L
 - Knox = 2.6 pCi/L
 - Loudon = 2.8 pCi/L
 - Morgan = 1.5 pCi/L
 - Roane = 7.1 pCi/L

ATSDR Screening Value Compared to Background Radiation:

- 5,000 mrem/lifetime divided by 70 years = 71 mrem/year
- Average background in the U.S. = 360 mrem/year
- 71 mrem divided by 360 mrem = 20%
- Annualized screening value represents 20% of average background
- Proposed ICRP (International Commission on Radiological Protection) harmonization of radiation dose to level of health concern:

<i>Level of Concern</i>	<i>Effective Dose</i>
High	>100 x background
Raised	>10 x background
Normal	Background
Low	<0.1 x background
None	<0.01 x background

- MRL = 1.3 x background

ATSDR Exposure and Dose Assessment Flow Chart:

- Source terms contribute external exposures and internal exposures.
- External and internal exposures are used to estimate whole body and organ doses (Effective Dose and Committed Effective Dose Equivalents).
- Effective Dose and Committed Effective Dose Equivalents are combined to produce a total dose estimate.
- Total dose estimate is compared to MRL to determine either:
 - No apparent health concern, or
 - Public Health Advisory, or
 - Health hazard.
- “No apparent concern” is defined by the ATSDR Public Health Assessment Guidance Manual as exposure to a site contaminant that may have occurred in the past, or is still occurring, but the exposures are not expected to cause adverse health effects.
- Bone seeking radionuclides or radionuclides distributed throughout the body would be individually evaluated by ATSDR for their potential to cause health effects. (e.g. strontium, radium, plutonium).

Discussion:

Herman Cember asked what action would be taken regarding a dose estimate greater than the screening value. Paul Charp responded that exposure pathways would be looked at more closely. Herman Cember commented that 5000 mrem is small and not likely to cause an effect, and suggested that perhaps the screening level is too low to identify health effects caused by that dose. Paul Charp responded that the MRL screening value is a cut-off point below which dose estimates are not of concern, and above which pathways are evaluated more closely.

Peggy Adkins asked if dose assessments could be performed for people with manifest health effects to estimate their exposures. Paul Charp responded that such a process is an epidemiological process. Elmer Akin added that epidemiologists start with a disease

endpoint and then look for a common exposure, and they compare incidence of the disease with incidence in a control community.

Jack Hanley commented that ATSDR's PHA health assessment process focuses on estimating exposures rather than measuring health outcomes of exposures, which is the focus of epidemiological studies. Jack Hanley also commented that individuals with existing health problems could seek assistance at an AOEC clinic (Association of Occupational and Environmental Clinics). This information is contained in the Environmental and Occupational Medical Resources fact sheet developed by the Subcommittee.

Jeff Hill commented that the ATSDR screening value seems reasonable and was presented clearly.

Kowetha Davidson commented that establishing a cause and effect in individuals is very difficult because many diseases are associated with multiple types of exposures. Certain diseases are associated with exposures to particular substances. (E.g. asbestosis associated with exposure to asbestos)

Public Comment

Bob Peele commented that the proposed ATSDR screening value is inappropriate, and that the MRL concept is inappropriate for carcinogens. Radiation exposure, which can cause cancer, is regulated based on the proportionality of exposure to risk of cancer. Bob Peele believes that the ATSDR screening value is too high, and the ATSDR MRL corresponds to an excess cancer risk of 0.3%. This level of risk is of concern, particularly if groups of people are exposed at this level. Bob Peele suggested that the Subcommittee not endorse the ATSDR screening value, and pointed out that the EPA clean-up program goals are 1/30th of the exposure value.

Constance Jones, EPA project manager of the Scarboro Sampling Program provided an update on the status of activities of that program. The Sampling Report is available for public comment through November 22, 2002, at the Scarboro Community Center, DOE Information Center, and the Oak Ridge Public Library. Two public availability sessions are scheduled for November 14, 2002 from 11:00 AM to 1:00 PM in the Oak Ridge Mall, and at the Scarboro Community Center from 6:30 PM to 8:30 PM. The report is also available on the EPA Region IV website.

Barbara Sonnenburg asked other Subcommittee members for comments about Bob Peele's comment that the ATSDR radiation screening value is too high.

Jeff Hill compared the ATSDR screening value to the occupational dose limits as a radiation worker (2 rem/year administrative limit). Jeff Hill asked what percentage of the population (non-occupational) might be exposed to 71 mrem/year for 70 years.

Paul Charp replied that the annualized dose limit of 71 mrem/year corresponds to an estimated risk of 35 per million per year of exposure. Paul Charp also stated that the Committed Effective Dose Equivalent concept conservatively assigns the entire committed dose (future internal dose) to the year of intake.

Herman Cember clarified that the cancer risk versus radiation dose model is unverifiable, assumes no threshold, and is based on acute exposures while environmental exposures are typically chronic and at lower levels. Bob Peele added that a threshold could exist within the range of background radiation exposure levels.

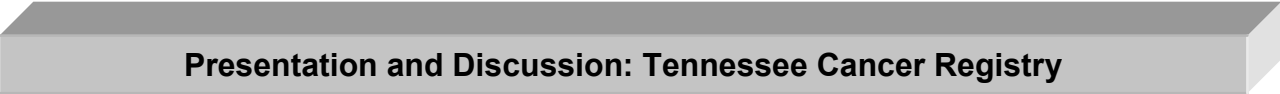
Paul Charp displayed a graph of cancer risk versus acute dose from the General Accounting Office review of radiation standards. The graph shows that health effects are known to occur above 10 rem, that it is unknown whether health effects occur between 5 rem and 10 rem, and that it has not been possible to verify health effects below 5 rem. Below 5 rem a linear risk versus dose model is typically assumed, although other models have also been proposed. Elmer Akin added that the risks of non-radioactive carcinogens at low doses are also unverifiable and that model assumptions must similarly be made.

Barbara Sonnenburg expressed concern that the combined impacts of background radiation releases to the air from sources impacting Oak Ridge have not been evaluated (e.g. releases from Oak Ridge Reservation, Kingston Power Plant, Nevada Test Site).

Bob Craig pointed out that background radiation exposure for 70 years (i.e. 360 mrem/year x 70 years) is well over 10 rem on the General Accounting Office graph displayed during the presentation.



Short Break



Presentation and Discussion: Tennessee Cancer Registry

Dr. Toni H. Bounds
Director, Office of Cancer Surveillance, Tennessee Department of Health

Dr. Bounds is the Program Director of the Tennessee Cancer Registry. Toni Bounds described the Tennessee Cancer Registry for the Subcommittee.

What is a Cancer Registry?

- A cancer registry collects information about new cancer cases, which represent cancer incidence over a specified period of time. The time period for the Tennessee (TN) Cancer Registry is the calendar year (cases diagnosed January 1 through December 31 each year).
- General types of cancer registries:
 - Hospital-based registry
 - Special registry
 - Population-based registry
- Hospital-based registries cover only that particular facility. Oaks Ridge Hospital has a hospital-based cancer registry on the cases of cancer diagnosed and treated in that hospital. Those case data are reported to the TN Cancer Registry. Internally, hospitals use their cancer registry to help care for cancer patients.
- Hospital cancer registries are either:
 - ACOS (American College of Surgeons) approved, or
 - ACOS not approved

The ACOS provides approved standards for hospital registries. ACOS approved hospitals have a “tumor board” of doctors who review cancer cases, make recommendations, and perform special studies of particular cancer sites.

- Special registries collect particular information on a specific area / cancer site (e.g. brain cancer, childhood cancer).
- A population-based (central) registry collects all defined cancer cases within a population. The TN Cancer Registry is an example of a population-based registry.
- General Information and history about the TN Cancer Registry:
 - Located in Nashville within the TN Department of Health
 - Housed in the Office of Cancer Surveillance, Bureau of Health Informatics
 - Developing TN Cancer Plan – a program for cancer prevention and control
 - 1983 TN Cancer Reporting Act passed (controversial law)
 - 1986 statewide reporting began (first few years data reporting was voluntary)

- 1997 CDC grant awarded to the state to include data from outpatient and diagnostic clinics because of a trend of people using these facilities as alternatives to hospitals.
- 2000 state law amended to include all national regulations for cancer registries
- 2002 rules and regulations of the TN Cancer Registry passed
- TN Cancer Registry estimates that they receive data for 80% of all actual cases in the state. The goal is 95% complete reporting.

Types of data collected by the TN Cancer Registry:

- Definition of each case: identifies each form of invasive cancer diagnosed (excluding basal and squamous cell skin carcinoma and carcinoma of the cervix, which are too numerous to include in the registry).
- Patient information: name, address, gender, date of birth, family history, tobacco and alcohol use history, occupation/industry exposures.
- Cancer information: cancer site, stage of tumor progression, first course of treatment administered.
- Management information: reporting facility, name of person abstracting data, date of diagnosis. Management information is used to help facilities correct reporting procedures if data are not properly reported.

Facilities reporting information include all healthcare facilities and practitioners who diagnose or treat cancer patients. This includes hospitals, laboratories, and outpatient facilities. Healthcare practitioners do not report if the cancer case is reported by a healthcare facility.

Data reported is abstracted from patient medical records by staff trained in “case finding procedures”. Colleges have training programs available (e.g. Roane State, Walter State). Software packages are available to assist in abstracting data from medical records. The data are required to be reported within 6 months of the date of diagnosis. Six months is allowed in order for the patient and caregiver to establish a course of treatment.

National Cancer Registry history:

- North American Association of Central Cancer Registries (NAACCR) was established in the late 1980’s. The NAACCR established working relationships with statewide registries, and adopted national standards for cancer registries.

- 1992 National Cancer Registries Act passed to create a National Program of Cancer Registries (NPCR) so that data may be shared between states. It is managed by CDC. The TN Cancer Registry is part of the NPCR.
- NPCR, NAACCR and CDC provide monetary support, training and set standards for registries.
- Data exchange agreements allow information to be exchanged with other states regarding patients who choose to be treated or diagnosed outside of their home state.

There are four major areas of NAACR standards:

- Data Completeness: 95% complete reporting, and less than 3% death certificate cases, required within 24 months.
- Data Timeliness:
- Data Quality: 99% of cases pass edits within 24 months. In Tennessee, 30,000 cases are reported each year, and about 8,000 are duplicates, which must be edited appropriately.
- Data Confidentiality: must maintain confidentiality. Data are used by citizens, researchers, students, the Department of Health, and other cancer registries.

Cancer statistics for the state of Tennessee:

- Highest cancer rate in males is 91.9 per 100,000 for prostate cancer.
- Highest cancer rate in females is 95.0 per 100,000 for breast cancer.
- Next highest cancer rate in males and females is lung cancer.
- Lung cancer is the most common type of cancer in Tennessee, overall.

Limitations of the cancer registry data:

- Incomplete reporting
- Not receiving data from ambulatory centers, laboratories, physicians
- Not yet performing death certificate clearances

Strengths of the data:

- Extensive data edits are applied to the TN Cancer Registry
- The TN Cancer Registry has certified tumor registrars
- Education and training of tumor registrars is ongoing

Other issues:

- Identity security must be maintained
- Health Insurance Portability and Accountability Act specifies identity security requirements.

Epidemiological constraints:

- The data are population-based and do not correspond to incidence in individuals.
- The data inherently follow geographical-political boundaries.
- There are multiple risk factors for cancer. Certain cancers are associated with specific risk factors. (e.g. smoking and lung cancer).
- Exposures to individuals are difficult to estimate.

Contact information: Toni H. Bounds, Ph.D., MPH
Director, Office of Cancer Surveillance
TN Department of Health
Cordell Hull Bldg., 6 North
425 Fifth Ave. North
Nashville, TN 37247
(615) 532-7903
(800) 547-3558
toni.bounds@state.tn.us

Public Comment

Discussion (following Toni Bounds presentation):

Barbara Sonnenburg asked whether two different cancers in a single person are counted as separate cases, and requested copies of the TN Cancer Registry maps presented by Toni Bounds. Toni Bounds responded that the different cancers are counted separately, and the data will be sent to the Subcommittee.

Charles Washington asked which region, county, and city in Tennessee has the highest rate of cancer. Toni Bounds responded that she would have to examine the data in order to determine an answer.

Susan Kaplan asked whether thyroid cancers are included in the registry, and if follow-up questions may be submitted if time does not allow for all questions during the Subcommittee meeting. Toni Bounds replied that all cancers are included in the registry and follow-up questions are welcome.

Tony Malinauskas asked the meaning of “age adjustment” in cancer incidence presentations. Toni Bounds explained that it compensates for the confounding variable of age, which is the greatest risk factor for cancer (cancer incidence increases with age).

Toni Bounds explained that cancer incidence statistics for one year are unstable, they are often based on small numbers, and may also change considerably from year to year. One-year cancer incidence rates are based on small numbers, which contributes to their instability.

Bob Peele asked for a calculation sheet that shows how the age adjustment is calculated. Toni Bounds replied that she would provide a calculation sheet, and that it is important to understand which age-adjustment standards are used when looking at cancer incidence statistics. Some mortality rates are adjusted to the 1940 standard, but statistics from the newer data are adjusted to the 2000 standard. The TN Cancer Registry is changing all statistics to the year 2000 standard.

Elmer Akin asked for which years the TN Cancer Registry has achieved 80% reporting, and if the data would help the Subcommittee determine what counties are impacted by the Oak Ridge facilities, particularly thyroid cancer. Toni Bounds responded that the early and mid-1990’s have achieved 80% reporting, and that the TN Cancer Registry could be used to make estimates of the incidences of specific cancers.

Peggy Adkins asked who initially opposed the establishment of the TN Cancer Registry. Toni Bounds replied that some health agencies hesitated to support the formation of the TN Cancer Registry because of concerns about extra work involved in reporting cancer cases. The registry staff have helped to relieve those concerns by providing training and software for reporting. There is not a problem with facilities providing the data today. Peggy Adkins expressed concern that people who lived in the Oak Ridge area in the 1950’s were deceased by the 1970’s, and would have been missed by the registry. Toni Bounds responded that state mortality data date back to the 1930’s in Tennessee, and it would be possible to go back to those records to collect some cancer information.

Kowetha Davidson commented that any further questions could be submitted in writing, and will be collected by Bill Murray, for a later response from Toni Bounds.

**Presentations and Discussion:
TN Department of Environmental Conservation
(TDEC) – Environmental Monitoring Database**

Jim Harless is the Environmental Program Manager of the TDEC Environmental Monitoring Program.

A presentation was given by Dale Rector about the DOE Oversight Division of TDEC. This oversight is made possible by DOE grants under the TN Oversight Agreement.

There are three DOE grants:

1. Non-regulatory independent environmental monitoring and oversight, TDEC Oversight Division.
2. Regulatory participation in the CERCLA Federal Facilities Agreement with EPA and DOE.
3. Multi-jurisdictional planning for emergency response, overseen by TEMA.

Purpose and Goal of Environmental Monitoring:

- Monitor and track trends
- Monitor exit pathways from the ORR
- Evaluate effectiveness of CERCLA remediation
- Monitor releases during operations (e.g. demolition, waste management)

Annual Environmental Monitoring Reports (AER) report on the following monitoring activities:

- Surface water monitoring - ambient surface water, toxicity biomonitoring of effluent discharges, Bear Creek uranium study.
- Sediment monitoring - stream sites on the ORR and in the Clinch River.
- Biological/fish and wildlife monitoring - studies of Canadian Geese, benthic macroinvertebrates, honeybees, deer, mast, lichens and vegetation as an indicator of biological uptake.
- Drinking water monitoring - water systems, chlorine and bacteria levels, ORR distribution systems, ETTP drinking water studies, EPA ERAMS (Environmental Radiation and Ambient Monitoring System)
- Air quality monitoring - hazardous air pollutant monitoring at ETTP, ORNL and Y12, EPA ERAMS air monitoring, fugitive radiological emissions, ORR perimeter air monitoring.
- Groundwater monitoring - residential wells, ORR spring and seep monitoring, dye tracing for Bear Creek Valley and SNS (Spallation Neutron Source).
- Radiological monitoring - facility survey program, gamma radiation levels, foot print reduction surveys, building K-1066E yard monitoring, environmental dosimetry, radon monitoring at Bear Creek burial ground, real-

time gamma monitoring, UF₆ (Uranium Hexafluoride) storage yard gamma monitoring, Watts Bar “beach survey”.

Dale Rector introduced other TDEC staff making presentations to the Subcommittee including Dr. Charles Yard (Radiological Monitoring), Bob Childres (Hazardous Air Pollutant Monitoring), Roger Petrie (Biological Monitoring), Robert Benfield (Groundwater Monitoring), Don Gilmore, and Howard Crabtree.

Radiological Monitoring Program:

Dr. Charles R. Yard, manager of DOE Oversight Radiological Monitoring, gave a presentation on Radiological Monitoring.

The Radiological Monitoring Program is divided into three sections:

- Environmental Restoration, soil monitoring (R.A. Storms)
- Air/Water Monitoring (H.L. Crabtree)
- SEER (Site Evaluation and Emergency Response) (D.A. Thomasson)

Radiological Air Monitoring programs described:

- ORR perimeter air monitoring (low volume air samplers)
 - 12 locations
 - beta and gamma data
 - data are well below Clean Air Act 10 mrem/year level
- Monitoring fugitive emissions (high volume air samplers):
 - two locations: outside K-33 building and at Fort Loudon Dam
 - data are well below Clean Air Act 10 mrem/year level
- ERAMS air monitoring:
 - five locations
 - analytes include gross beta, gamma, Pu-238 and Pu-239/240, U-234, U-235 and U-238
 - data are well below Clean Air Act 10 mrem/year level

Radiological Water Monitoring programs described:

- ERAMS water monitoring
 - samples collected from five finished water supplies
 - results compared to Tritium Drinking Water Act standard
 - data are well below Drinking Water Act standard

- Monitoring of Uranium transport in Bear Creek Valley
 - 14 sampling locations on Bear Creek
 - 13 sampling locations on tributaries to Bear Creek
 - six sampling locations on springs in Bear Creek Valley

Ambient Radiation Monitoring program using environmental dosimetry described:

- Optically Stimulated Luminescent (OSL) Dosimeter Program
 - 70-80 dosimeters deployed in and around Y12, ORNL, ETPP
- Gamma monitoring with continuously recording gamma exposure rate monitors
 - two locations: outside K-33 building and at Fort Loudon Dam
- UF₆ cylinder yard OSL monitoring

Radiological Environmental Restoration surveys performed:

- Footprint reduction surveys - systematic survey of 21,000 acres of the ORR, identified numerous abandoned dumpsites containing gamma emitting radioactive material.
- Walkover surveys
- Poplar Creek surveys - gamma measurements collected at frequent intervals along Poplar Creek.

Radiological Emergency Response Monitoring Responsibilities performed:

- Staffing of EMCC (Environmental Monitoring Control Center)
- Staffing of field teams (2-3 field teams)
- Coordination for a multi-faceted response
- Tracking occurrences
- Exercise participation (drill exercise once per year)

Radiological Facility Survey activities performed:

- Historical document research
- Walk-through of facility
- Evaluate facility
- Rank facility as to potential for environmental release
- Present results to DOE
- Maintain facility file for public viewing

Radiological Materials Management Responsibilities performed:

- Reactor oversight
- EU (Enriched Uranium), DU (Depleted Uranium), and Pu (plutonium)
- Pu production at ORNL
- Spent fuel management
- SNS (Spallation Neutron Source)
- UF₆ cylinder tracking (all cylinders to be shipped out of Tennessee by 2009)
- Tracking of potential radioactivity leaving the ORR in miscellaneous materials (metals, concrete, etc.).

Discussion:

Paul Charp asked how the graphs of gross alpha and gross beta air monitoring results were converted to a radiation dose for comparison to the Clean Air Act 10 mrem/year dose limit. Howard Crabtree explained that the gross alpha air monitoring results were assumed to be contributed entirely by U-235 and the gross beta air monitoring results were assumed to be contributed entirely by Sr-90. The air monitoring results were compared (by ratio) to the air concentration limits for these two isotopes, which are the most restrictive isotopic limit values among alpha and beta emitters. The Clean Air Act limits are specified as values above background levels.

Susan Kaplan commented that the graphs of air monitoring data presented represented 2001 data and asked whether a graph was available depicting air monitoring results averaged over multiple years of monitoring. Howard Crabtree replied that facility perimeter air monitoring data have been collected since 1994 and that data are typically presented in reports on an annual basis. The staff regularly compares annual data from the current year to data from previous years to determine whether trends are evident. Susan Kaplan followed up asking whether air-monitoring data prior to 1994 are available (e.g. from the 1940's). Howard Crabtree commented that ORNL probably has air monitoring data for their facility perimeter that dates back to the 1960's, and that the ORHASP report includes historical estimates of stack releases as well as the ORHASP's estimates of actual releases to the air. In addition, the OREIS (Oak Ridge Environmental Information System) data base may contain historical air monitoring or air release data, and maps, produced in 1985, may contain useful historical information.

Susan Kaplan commented that the water monitoring data presented included data indicating tritium present in water sampled from ETTP, and that previous water sampling efforts specifically excluded analysis for tritium. Howard Crabtree responded that tritium is very difficult to extract from water samples because it is present in water form, and that the measured tritium levels presented, although real, are well below the regulatory limit.

Don Creasia asked how the background air monitoring data were collected. Charles Yard responded that the air was collected at a location not impacted by the ORR (Fort Loudon Dam, 30 to 40 miles distant) in the same manner and at the same time as air collected at locations at the site perimeter.

Don Creasia asked whether the data are available to add standard error bars to the graphed data points of air monitoring results, and pointed out that the air monitoring graphs presented show “spike” variations in results for the site perimeter and the background location at corresponding points in time. Howard Crabtree responded that uncertainty (error) values are not presented on the graphs but are included in the data submitted to the Subcommittee, and that substantial temporal variations in the site perimeter and background location data are not unusual. Seasonal variations do occur.

Barbara Sonnenburg asked if any background sampling has been performed between Kingston and Oak Ridge. Charles Yard responded that there is not an air sampling unit between Kingston and Oak Ridge, and that the two monitors in operation are positioned where TDEC feels that the data collected would be most useful.

Non-radiological Air Monitoring

Bill Childres, gave an overview of TDEC HAP (Hazardous Air Pollutant) Air Monitoring Program (substituting for Kristof Czartoryski).

- HAP Monitoring began in 1998
- Monitoring stations were originally located at K25, expanded to ORNL and Y12 in 1999
- HAP under 1990 Clean Air Act are analyzed in the samples

Three monitors are rotated each month to a new location. Samples are obtained weekly and sent to Nashville for analysis. There are 7 locations total:

1. TSCA Incinerator
2. North of K25
3. South of K25
4. East of ORNL
5. West of ORNL
6. East of the Y12 plant
7. West of the Y12 plant

These locations are chosen to sample air that flows naturally down the valley.

Concentrations are compared with national standards:

- Lead (1.5 microg/m³)
- Uranium (1.5 microg/m³) – derived from DOE Order 5400.5.
- No national or state standards for arsenic, cadmium, chromium, beryllium

Conclusions:

- Sampling from 1998 to 2001: all analytical results indicate no HAPs above standards.
- Other incinerator facilities are in the vicinity of the ORR.

- The TVA Bull Run Steam Plant on Edgemoor Road and the Kingston steam plant could have an impact on the air around the ORR.
- Operations at the TSCA Incinerator cannot be singled out as the sole contributor of levels seen in the analytical results from the ETTP or the ORR in general.

Discussion:

Bob Craig commented that the data provided indicate levels monitored at the ORR are consistent with levels monitored at unaffected control locations. Bill Childres agreed with that observation.

Susan Kaplan commented that one of the conclusions was that no results exceed standards, but that there are not standards for all of the HAPs. Bill Childres responded that TDEC compared results to standards or heavy metals guidelines. Susan Kaplan asked if TDEC has historical monitoring data. Bill Childres replied that TDEC does not.

Barbara Sonnenburg asked whether the composite impact from all three plants had been considered in the monitoring program. Bill Childres responded that they had not. Barbara Sonnenburg commented that no one looks at the sum of releases from all sites. Bill Childres agreed but stated that the composite impact still did not present a problem. Barbara Sonnenburg mentioned that Knoxville has some of the most polluted air in the region, and contributions come from surrounding areas. Tony Malinauskas commented that, for a specific location sampled, each sample represents a composite of impacts from all sources.

LC Manley asked whether locations north and south of the plants were sampled. Bill Childres responded that there are a limited number of samplers, and they are located in the valleys, where elevated concentrations would most likely exist.

Kowetha Davidson asked how much of the total chromium measured is chromium VI. Bill Childres replied that typically there is a very small percentage of total chromium that is chromium VI. Peggy Adkins asked whether there is a way to determine the proportion of chromium VI in samples of human tissues/biological samples. Bill Childres did not know and took the action to find out.

Environmental Monitoring

Roger Petrie presented an overview of the surface water, sediment, and biological monitoring program.

Ambient surface water and sediment monitoring sites:

- Sediment samples are collected once per year.
- Surface water samples are collected twice per year.
- Surface water and sediment sampling location are co-located.

- Sediment is not collected at Norris Dam due to the water flow rates associated with the power generation schedule of the dam.
- Sites 2, 6, 23 & 25 are considered control sites (upgradient).
- Single digit sampling location identifiers are on the Clinch River.
- Double digit sampling location identifiers are tributaries to the Clinch River.
- East Fork Poplar and White Oak Creeks are not sampled, but are covered under a different project.
- Main point of project is to target exit pathways from the ORR.

Surface water samples are analyzed for a number of parameters for which there are TN Water Criteria:

- Dissolved oxygen
- pH
- Temperature
- E. Coli
- Residue
- Arsenic
- Cadmium
- Chromium
- Copper
- Lead
- Mercury
- Zinc

There are different standards for different designated water uses (e.g. fish and aquatic life, domestic water supply use, recreational use). All of the sampling results are less than water quality criteria.

Sediment samples are analyzed for:

- Aluminum
- Arsenic
- Cadmium
- Chromium
- Copper
- Iron
- Lead
- Manganese
- Mercury
- Nickel
- Zinc

- Extractable organics
- Pesticides, PCBs
- Gross alpha, gross beta
- Gamma spectrometry

There are currently no criteria in place for sediment.

Three sites have been recently added downstream due to increased levels of mercury in Clinch River sediment where Poplar Creek flows into the river. These levels of mercury are still below the risk-based preliminary remediation goal.

Rapid bioassessment monitoring sites are located on White Oak, East Fork Poplar, and Mitchell Branch Creeks and are sampled quarterly. The results show minimal impact on water quality.

Monitoring of Canadian Geese began in the 1980's due to concern that they may become contaminated from ponds/lakes on the ORR. Once per year the geese are rounded up for whole body counting. The administrative release level is 5 pCi/g. In 1998, 38 geese at ORNL were found to have levels of cesium-137 contamination above 5 pCi/g. These geese were rounded up at a contaminated pond at the west end of ORNL. The roundup captures 100-150 geese, mostly from K25 and ORNL. There were no contaminated geese found in 1999-2001. In 2002, three geese at ORNL were found to contain levels exceeding 5 pCi/g, but no contaminated geese were found offsite.

Discussion:

Don Box asked if studies of wasp nests had been performed. Roger Petrie responded that site health physicists had performed surveys of wasp and mud dauber nests.

LC Manley suggested that smaller streams near Y12 should be sampled to check for possible contamination that may have moved across the ridge (For example Mill Branch near South Hill Golf Course). Roger Petrie replied that a lot of the tributaries are very small, they dry out seasonally, therefore, many are not sampled.

Susan Kaplan commented that it has always been reported that there is no plutonium at ETTP, however, Bill Childres mentioned TDEC detected plutonium in air samples of fugitive dust raised during building demolition (Building 1131) at ETTP. Dale Rector clarified that in the 1960's some UF₆ feedstock came from recycled uranium, therefore, it contained contaminant radionuclides including plutonium. Susan Kaplan asked what form of mercury is tested in TDEC samples. Roger Petrie responded that the samples are analyzed for total mercury.

Elmer Akin commented about the objective of the monitoring program, using mercury in surface water as an example. There was no mention of tracking the source of mercury in the Clinch River. Roger Petrie responded that it is well established that Y12 is the source

of the mercury in the Clinch River, and until mercury sources at Y12 have been eliminated the monitored mercury levels in sediment and surface water will persist.

Elmer Akin added that he was involved in the East Fork Poplar Creek cleanup, and the cleanup effort exempted sediments from cleanup until the sources of the mercury were eliminated. If mercury still continues to leach out from the creek then perhaps more than trace amounts of mercury may be going into the Clinch River, warranting closer monitoring. Roger Petrie responded that the mercury in the Clinch River sediment was released from Y12 twenty to thirty years ago and is moving very slowly.

Kowetha Davidson asked why analysis for sulfates was added to the monitoring program. Roger Petrie explained that the most hazardous form of mercury is methyl mercury. The form used at Y12 was elemental mercury, and that anaerobic sulfate reducing bacteria can convert elemental mercury to the methyl mercury form. These bacteria live in the sediments of streams, they thrive on sulfates, and they cause elemental mercury to change to methyl mercury. The monitoring program includes analysis for sulfates to examine the potential for these bacteria generating the methyl form of mercury. The sulfate monitoring data do not clearly demonstrate or refute the process for East Fork Poplar Creek and the Clinch River.

Herman Cember asked whether fish are living in the river and whether the fish show uptake of mercury. Roger Petrie replied that fish are living there, and that the fish at greatest risk for mercury uptake are bottom-feeding fish (e.g. catfish). The catfish do accumulate some mercury but the levels are below the FDA action level, which is 0.5 ppm in the tissue. Occasionally an older larger fish will have levels close to 0.5 ppm, but most of the fish caught do not live long enough to accumulate that level of mercury.

Tony Malinauskas asked about the levels of PCB's (polychlorinated biphenyls) in the fish. Roger Petrie responded that PCB levels TDEC has measured are above the FDA action level of 1 ppm in tissue. The river is posted with an advisory to limit consumption of catfish due to the PCB's.

Groundwater Monitoring

Robert Benfield, a Groundwater Geologist for TDEC, presented an overview of Groundwater Monitoring.

Groundwater Monitoring Program activities:

- Monitor groundwater quality on and near the ORR
- Assist the Division of Underground Storage Tanks (UST) on the ORR
- Independent sampling of springs and wells
- Co-sampling of springs and wells with DOE
- Sampling of select residential wells around the ORR
- UST investigations of underground tanks on the ORR

ORR and vicinity spring sampling:

- First spring sampled in 1993
- Currently sampling 70 spring locations
- Samples collected using EPA protocols
- All samples are sent to the state laboratories for analysis

Groundwater plumes detected:

- Carbon tetrachloride (CCl₄) Beneath Y12 and extending to Union Valley
- Bear Creek Valley plume
- ORNL plumes of radionuclides and volatile organics
- Melton Valley plumes from underground waste units (e.g. hydrofracture radionuclide injection wells)
- K25 solvent plumes

Residential well sampling:

- 15 non-community wells sampled from 1994 to 1996
- Residential well sampling began in 1997 (26 different wells have been sampled)
- To date no contamination has been found in residential wells.

Exit pathways from ORR are also studied in springs. At this time, DOE has no wells drilled offsite. Other organizations, such as USGS (U.S. Geological Survey), have drilled wells offsite. The USGS wells were drilled in the 1960's to model groundwater flow.

Dye tracing studies have been used to link contaminants at the ORR with contaminants in offsite springs.

- Bear Creek Valley dye tracing study has been used to determine the best places to monitor the EMWMF waste cell and the SNS site.
- Chestnut Ridge dye traces from sediment disposal basin, Chestnut Ridge security pits.
- Union Valley dye trace from Y12.
- Other dye traces include Mt. Vernon, WAG 3, K1070A, 901 Pond.

Discussion:

Herman Cember asked at what rate the groundwater flows and how rapidly plumes are diluted. Robert Benfield responded that 1km/day is typical of rapid flow in underground channels, and a lot of dilution occurs because of large amounts of water flowing through the local groundwater system.

Peggy Adkins asked whether anyone had mapped the underground water conduits outside of the ORR. Robert Benfield responded that he was not aware of anyone mapping those features. Peggy Adkins inquired whether a spring contaminated in the 1950's would still contain metals or radioactive substances today. Robert Benfield said that metals do not

migrate well in water, and would likely precipitate onto the sides of a spring. Peggy Adkins asked how one could find out if a spring formerly contained sources of contaminants. Robert Benfield explained that dye trace studies could be used but that those studies must begin close to potential sources because dilution increases as contaminants move further away. For example metals would not travel very far, but volatiles can travel far. Peggy Adkins asked whether a neighborhood could be included as a test site. Robert Benfield responded that TDEC would test the groundwater from wells within a one-mile buffer of the ORR.

Public Comment

Gordon Blaylock commented that The TDEC sediment samples are grab samples and represent sediment deposited only in the past 3-4 years. No metals or radionuclides have been found in such grab samples, but are found in core samples of sediment. Dale Rector acknowledged the sampling distinction and added that a number of core samples had been taken in the Watts Bar reservoir. Dale Rector acknowledged that contaminants are buried in the sediment and that there is a provision in the record of decision at Watts Bar Reservoir recognizing this fact.

Elmer Akin asked what streams from the ORR might flow under the Clinch River, and potentially contaminate residential wells on the other side (south side) of the river. Robert Petrie responded that a spring from Scarboro Creek at the UT Arboretum is perched above the groundwater table. The Clinch River may have deeper routes downstream. Residential wells could potentially be contaminated by other sources on the same side of the river.

Peggy Adkins asked when and where the hydrofracture injections of radionuclides occurred. Robert Petrie replied that hydrofracture took place in Melton Valley, behind ORNL, until 1985.

Work Group Recommendations

AGENDA WORK GROUP

No recommendations from the Agenda Work Group.

GUIDELINES AND PROCEDURES WORK GROUP

No recommendations from the Guidelines and Procedures Work Group.

COMMUNICATIONS AND OUTREACH WORK GROUP

No recommendations from the Communication and Outreach Work Group.

HEALTH EDUCATION NEEDS ASSESSMENT WORK GROUP

No recommendations from the Health Education Needs Assessment Work Group.

PUBLIC HEALTH ASSESSMENT WORK GROUP

Bob Craig stated that the Public Health Assessment Work Group has two recommendations:

RECOMMENDATION 1:

Bob Craig reported the following recommendation from the Public Health Assessment Work Group.

If ATSDR determines that there is unavoidable delay in completion of the I-131 evaluation, the evaluation of one or more other contaminants of concern should be expedited and presented before the I-131 Public Health Assessment.

Discussion:

Jack Hanley reported that ATSDR plans to expedite evaluation of uranium from Y12 since the EPA has completed the sampling program at the Scarboro community. James Lewis commented that Florida A & M University may return to Oak Ridge to perform additional studies. Jack Hanley responded that ATSDR has enough information regarding uranium releases from Y12 to expedite evaluation of that contaminant/source, and that no further sampling is needed. Kowetha Davidson asked if Jack knew when the PHA Work Group will receive data regarding uranium releases from Y12. Jack Hanley did not know the date information would be available.

This recommendation received a motion, was seconded, and was passed by the Subcommittee by a vote count of 15 in favor and none opposed.

RECOMMENDATION 2:

Bob Craig reported the following recommendation from the Public Health Assessment Work Group.

The ORRHES requests a copy of a detailed Gantt chart from ATSDR as soon as possible. The detailed Gantt chart should reflect the steps in the ORRHES flow sheet. (The flow sheet includes dates of presentations made to the workgroups and the Subcommittee.)

This recommendation received a motion, was seconded, and was passed by the Subcommittee by vote count of 15 in favor and none opposed.

RECOMMENDATION 3:

Bob Craig presented the following recommendation.

The Subcommittee should remain silent on the issue of the magnitude of the ATSDR screening value for radiation exposure.

Discussion:

Susan Kaplan suggested that a screening value between ATSDR's proposal (71 mrem/year) and Bob Peele's proposal (approximately a factor of 10 lower) be recommended. Kowetha Davidson stated that there should be a rationale for the recommendation. Burt Cooper stated that the MRL (5,000 mrem in a lifetime) is agency policy, regardless of the recommendation of the Subcommittee. Kowetha Davidson commented regarding exposures, that the lower the dose the longer the latency period, and the higher the dose, the shorter the latency period. Tony Malinauskas suggested that the Subcommittee does not have to endorse or reject the ATSDR screening value.

Herman Cember asked the purpose of the screening value. Paul Charp stated that the screening value is used to determine whether ATSDR will take additional action to evaluate potential impacts on public health.

Regarding discussion of collective dose, Herman Cember commented that collective dose is a method of applying zero threshold linear dose response to safety standards, and applies to populations, rather than individuals. Herman Cember asked whether the doses estimated in the PHA will be retrospectively estimated. Paul Charp confirmed that dose estimates will be retrospective, and that dose estimates above a screening value will trigger a more detailed assessment.

Susan Kaplan asked that Bob Peele propose a compromise screening value. Bob Peele suggested two possible compromises: that the Subcommittee remain silent regarding a

screening value or that the Subcommittee pass a resolution stating that the Subcommittee does not endorse the ATSDR value, but recognizes that it is policy that ATSDR will use.

Tony Malinauskas expressed concern that the uncertainty in the screening value is larger than screening value itself.

Kowetha Davidson recommended that the Public Health Assessment Work Group evaluate the screening value issue further in its next meeting.

Bob Craig moved that ORRHES remain silent regarding the ATSDR screening value for radiation.

This motion was seconded, and was not passed by the Subcommittee by a vote count of 8 in favor and 7 opposed.

Susan Kaplan made a motion that the Subcommittee recommend to ATSDR a screening value of 39 mrem/year.

Discussion:

Donna Mosby commented that it does not make sense to recommend a screening value because ATSDR uses an MRL that is agency policy.

Elmer Akin made the distinction between MRL and screening value.

Paul Charp added that reducing the screening value creates complications because it then falls within the variation of background.

This motion to recommend to ATSDR a screening value of 39 mrem/year was seconded, and was not passed by the Subcommittee by a vote count of 2 in favor and 13 opposed.



Unfinished Business/New Business/Issues/Concerns

La Freta Dalton announced that two hours before the December 3, 2002 ORRHES meeting there will be a briefing for new committee members (10:00 AM).

Burt Cooper stated questions for the epidemiologist/thyroid specialist, who will make a presentation to the Subcommittee on December 3, 2002, are due to Bill Murray by October 23, 2002.

La Freta Dalton reviewed 2003 meeting dates, beginning in February 2003. Future meetings are tentatively scheduled for:

- February 10
- April 1
- June 3
- July 29

Tony Malinauskas commented on a statement made in the previous ORRHES meeting (August 27, 2002) regarding the chelator DTPA. Tony Malinauskas has investigated DTPA and reported to the Subcommittee that DTPA is a FDA investigational new drug approved for chelation of plutonium, americium, californium and curium. It is not approved for uranium or neptunium, no mention of strontium. The drug is delivered by intravenous infusion, inhalation with a nebulizer, or intramuscularly, and is effective for water soluble forms of the approved radionuclides. The drug can be made available to private physicians through proper protocols. FDA maintains a strict accountability over the drug.

Paul Charp reported on a case of the use of DTPA at Hanford, Washington to chelate plutonium in a worker who experienced a plutonium intake in 1976. The incident involved an explosion that embedded plutonium in the man's skin. DTPA was administered by injection, and was demonstrated to cause the removal of approximately 90% of the plutonium from his body. At the time, a complicating side effect was the simultaneous chelation and removal of zinc from the man's body.

Identification of Action Items

La Freta Dalton read the following action items from the meeting:

- ACTION 1:** ATSDR will provide the new ORRHES members with a package of the meeting minutes from the April 2001 ORRHES meeting to help them become acclimated to the Health Needs Assessment and associated plan for the Focus Groups.
- ACTION 2:** Toni Bounds will provide ORRHES with copies of the Tennessee cancer registry maps displayed during her presentation to the Subcommittee.
- ACTION 3:** Toni Bounds will provide ORRHES with a calculation sheet that presents the "age adjustment" calculation for the cancer registry statistics for the Oak Ridge area.

ACTION 4: Toni Bounds will help evaluate certain cancers to determine whether the Tennessee cancer registry data indicate that cancer rates in certain local counties are above or below baseline rates.

ACTION 5: Bill Childres will examine the magnitude of a composite/combination of the air sample data from all of the Oak Ridge Reservation facilities, combined.

ACTION 6: Bill Childres will determine whether the chromium III and chromium VI species can be distinguished in tissue samples from people.

Housekeeping Issues and Closing Comments

Jerry Pereira reported that ATSDR made arrangements today for the administrative assistant to begin work at the ATSDR Oak Ridge field office, as a part time staff person, beginning November 4, 2002.

Regarding the setting of future Subcommittee meeting dates, Jerry Pereira requested that La Freta Dalton suggest ORRHES meeting dates through 2004 and then distribute those calendar dates to the Subcommittee members for comparison with their calendar schedules. Identified schedule conflicts would then be resolved at the next ORRHES meeting. This approach would save the time spent during ORRHES meetings establishing future meeting dates.

Kowetha Davidson reminded attendees of the EPA meeting on November 14, 2002 concerning the Scarboro community sampling program and report. Meeting times are from 11:00 AM to 1:00 PM at the Oak Ridge Mall and from 6:30 PM to 8:30 PM at the Scarboro Community Center. In addition, the public comment period on the EPA Scarboro community sampling program report ends on November 22, 2002.

Kowetha Davidson declared the meeting adjourned at 8:00 PM.