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Agency for Toxic Substances  
and Disease Registry  
Atlanta GA 30333

MAY 17 1996

STAIN

Mr. Leo Little  
Assistant Manager for Environmental Management  
U.S. Department of Energy  
Richland Field Office  
825 Jadwin Avenue  
P.O. Box 550  
Richland, Washington 99352

Dear Mr. Little:

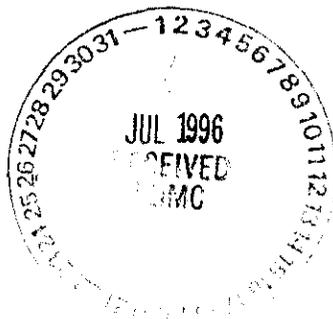
Enclosed is the quarterly report for the second quarter of  
FY 1996, for activities conducted by the Agency for Toxic  
Substances and Disease Registry (ATSDR) at Department of Energy  
(DOE) facilities.

As always, we appreciate your cooperation and support as we carry  
out our programs with DOE.

Sincerely yours,

Mark M. Basher, Ph.D.  
Associate Administrator for  
Federal Programs  
Director, Office of Federal Programs

Enclosure



RECEIVED  
JUN 17 1996  
DOE-RL/DCC

AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY  
SECOND QUARTER, FISCAL YEAR 1996 ACTIVITIES  
AT  
DEPARTMENT OF ENERGY FACILITIES

**Public Health Assessments and Consultations**

**BROOKHAVEN NATIONAL LABORATORY, NY**

1. ATSDR responded to a civic association's concern regarding ATSDR's failure to initiate the public health assessment at Brookhaven National Laboratories (BNL). ATSDR personnel discussed the lack of resources necessary to address all Department of Energy (DOE) facilities simultaneously and discussed ATSDR's prioritization system for concentrating resources on those sites determined to have the greatest potential impact on public health.

ATSDR has begun to acquire environmental data for BNL. ATSDR has also begun collaborating with the state and local health and environmental departments to develop an evaluation strategy. ATSDR has been notified by DOE that they may be requesting health consultations on air releases and groundwater contamination in the near future. ATSDR plans to initiate the public health assessment process for the site during September 1996, and looks forward to meeting with the various civic associations at that time.

2. ATSDR responded to a community member's question about potential health effects from contamination of groundwater around BNL. The contaminants that have been detected in the groundwater both on and off site include radionuclides (strontium-90 and tritium) and volatile organic compounds (VOCs), a class of compounds that includes approximately twenty different chemicals. The information that ATSDR currently has reveals the levels of radionuclides off site are not of public health concern. Monitoring wells located just south of the site have shown concentrations of VOCs at levels of public health concern, however. Both BNL and the Suffolk County Department of Health Services are currently investigating the vertical and horizontal extent of groundwater contamination, both on and off site. Current information shows that the contamination is at a depth below that of the private wells south of BNL.

BNL has offered to connect well owners south of BNL to public water. ATSDR suggested that the community member's well be tested for VOC and radionuclide contamination. If their well is located in an area that has been found to be contaminated, ATSDR suggested that the family use an alternate water supply or gain access to the public water supply. ATSDR provided fact sheets on the various VOCs that have been detected in the groundwater around BNL.

3. ATSDR responded to a community member's public health concerns about the contaminated groundwater, specifically related to dental problems. After reviewing the

available literature on strontium-90 and tritium, it was determined that only strontium-90 would have the potential to cause dental problems. The concentrations of strontium-90 detected in the groundwater around BNL, however, are well below the levels required to cause the dental problems referred to in the letter.

#### FERNALD ENVIRONMENTAL MANAGEMENT PLANT, OH

1. ATSDR released a health consultation to the public addressing the consumption of produce (fruits and vegetables) grown near the site. Community residents have expressed concern regarding possible risks posed from consuming produce that may be contaminated with uranium or other radionuclides. Under an interagency agreement with ATSDR, staff from the U.S. Environmental Protection Agency (EPA) National Air and Radiation Environmental Laboratory (NAREL) collected and analyzed produce samples obtained in the vicinity of the Fernald site. ATSDR evaluated the results to determine whether people who eat locally grown produce might be exposed to hazardous levels of radionuclides from them. ATSDR determined that uranium and other radioisotopes found in locally grown produce were consistent with naturally occurring levels one would be expected anywhere. Considering only radioactive contaminants, which is all that was analyzed for, the produce is safe to eat.

ATSDR recommended that DOE continue to monitor produce through completion of the remediation program at Fernald. Remediation of the site will result in substantial movement of soils. Careful monitoring of produce will provide a measure of safety to the community.

2. ATSDR and NAREL staff continue off-site environmental sampling in the Fernald area in response to community health concerns. The ambient radon monitoring program has been expanded and extended. Radon monitors will remain in place through the remediation of the K-65 silos (OU5).

3. ATSDR completed a public health consultation addressing concern expressed by residents over the safety of using well water contaminated with uranium for purposes other than drinking. In March 1994, ATSDR and NAREL sampled and analyzed groundwater from private wells near the plant and found minute quantities of uranium and other radioisotopes. ATSDR determined that for nonpotable uses, the level of materials in the groundwater are not a public health concern.

4. ATSDR to a concerned citizen regarding questions about the ambient radon monitoring program. ATSDR installed monitoring equipment on the property in March 1994. The data from these devices was used to prepare last year's health consultation on ambient radon emissions from the K-65 silos, in which ATSDR recommended continuation of the monitoring program until DOE completes remediation of the K-65 silos.

5. ATSDR staff advised a Fernald resident who called and expressed concerns about children swimming in local streams and pools filled with uranium-contaminated groundwater. She was also concerned about danger to open wounds, sores or cuts from exposure to this contaminated groundwater. ATSDR responded to allay these concerns and stated that no adverse health effects could result from exposures during swimming in local streams or pools. The level of uranium in groundwater was not enough to be hazardous, even if a child were to swallow it or swim in it with an open cut or abrasion. ATSDR's health consultation on nonpotable use of uranium contaminated groundwater was discussed.

#### HANFORD RESERVATION, WA

1. On February 23, 1996, ATSDR mailed a flyer to 1,027 community members soliciting community concerns. As of March 31, 1996, 105 responses were received. The purpose of the mailing was to collect information on community concerns about health effects.

2. ATSDR responded to a community member's request for information about Othello Air Force Station in Franklin County, Washington. The base was located on the eastern edge of what is now known as the Wahluke Slope Habitat Management Area. The Wahluke Slope Area is being prepared by DOE for release to the public. This area, immediately north of the Columbia River, was not used for plutonium production. Historical records reviewed by DOE indicated no radioactive materials were used, and therefore, radioactive contamination is not anticipated. ATSDR reviewed the area for nonradioactive substances of concern and did not find sufficient information on groundwater and surface water contamination to evaluate potential health effects. However, the most contaminated soil in the area was 7-14 miles to the northwest of the base, and contains lead, arsenic, and motor oil. Soil 3 miles west of the base was contaminated by 2,4-D, a herbicide. Because past contact with the contaminated soil would have been intermittent and of short duration, no adverse health effects would be expected.

In April 1994, the Center for Disease Control and Prevention (CDC) - National Center for Environmental Health's (NCEH) Hanford Environmental Dose Reconstruction Project released a report entitled "Summary: Radiation Dose Estimates from Hanford Radioactive Material Releases to the Air and the Columbia River." From information provided in this report, it is possible to calculate doses received by representative individuals living or working near Hanford during the years of plutonium production. For Othello, the exposure pathway would primarily be the air pathway, and the time would be primarily from 1944 to 1951. The greatest doses would be of iodine-131 to the thyroid glands of infants and young children drinking milk from backyard cows fed on fresh pasture. Lower doses received by representative individuals of other ages and dietary classifications could be estimated from this report. ATSDR will consider of the NCEH dose reconstruction calculations during development of the public health assessment.

## LOS ALAMOS NATIONAL LABORATORY, NM

ATSDR and NAREL collected the fourth quarter and twelve month thermoluminescent dosimeters (TLD) on San Ildefonso Pueblo for sampling activities conducted in response to community health concerns about radionuclides released into the air from the site. This completes the TLD sampling activities. The data will be evaluated for incorporation into public health assessment for the site.

## MONTICELLO MILL TAILINGS SITE, UT

ATSDR continued work on the public health assessment for the Monticello Mill Tailings site. In December 1995, ATSDR provided an initial release of the public health assessment to agencies and individuals who provided data used in the public health assessment to verify that the data had been transferred accurately. ATSDR is currently reviewing comments received from DOE. ATSDR projects that the public health assessment will be available for public comment in early 1997.

## MOUND PLANT, OH

1. During a recent visit to Miamisburg, ATSDR received several inquiries regarding access to data from environmental sampling activities which were conducted in the Miamisburg area by ATSDR and NAREL. ATSDR is planning to public an evaluation of the data in the public health assessment. Since the public health assessment is not projected to be completed until later this year, ATSDR has released the data tables without comment.

2. ATSDR responded to an inquiry from the City Manager of Miamisburg concerning results of environmental sampling of city-owned property. ATSDR concluded that there were no findings that indicate cause of health concern to the City, nor any findings that should affect the continued use of city property covered by the testing program. The highest levels of radioactive contaminants were found in the bed of the Miami-Erie Canal where they were expected, and were in concentrations consistent with results published by DOE. ATSDR determined that the plutonium-238 in the canal were at levels below that which would cause anyone health problems. Furthermore, these are the same areas that are currently being addressed by the Mound Plant OU4 Removal Action (and the Canal Focus Group). Two soil samples from the picnic area in the Community Park showed elevated levels of uranium and uranium decay products, along with potassium-40. These findings indicate the soils contain remnants of ash from the coal-fired power plant that occupied a part of the area until the early 1970s. None of the radioactivity measured is high enough to pose a health problem, however. Analysis also found traces of radionuclides in all other environmental media (air, groundwater, surface water, sediment, produce, and area grasses). Again, none of the measurements indicate there is a public health hazard in the area.

## OAK RIDGE RESERVATION, TN

1. ATSDR completed a health consultation on the proposed mercury clean-up level for the East Fork Poplar Creek flood plain soil. At the request of community members and

the City of Oak Ridge, ATSDR evaluated the public health impact of DOE's mercury clean-up levels in the East Fork Poplar Creek flood plain soil. ATSDR concluded that the East Fork Poplar Creek flood plain soil clean-up levels of 180 mg/kg and 400 mg/kg mercury will be protective of public health and will pose no health threat to children or adults. ATSDR recommended that the following recommendations from ATSDR's April 1993 health consultation on the East Fork Poplar Creek be implemented or remain in effect:

- a. Until permanent remedial actions are implemented, signs should be posted and access should be restricted to the East Fork Poplar Creek flood plain areas where soil and sediment mercury concentrations exceed the clean-up level.
- b. Continue the East Fork Poplar Creek fish advisory. Ensure that a sufficient number of signs are posted, especially at the confluence of Poplar Creek, to warn the public of the presence of contaminated fish in the creek.

2. On February 22, 1996, ATSDR released a health consultation for public comment on the Lower Watts Bar Reservoir. The health consultation was done in response to requests from residents in the vicinity of the Oak Ridge Reservation and the Lower Watts Bar Reservoir that ATSDR evaluate the public health implications of chemical and radiological contaminants in the reservoir and the effectiveness of DOE's proposed remedial action for protecting public health.

ATSDR's findings are as follows:

- a. The levels of polychlorinated biphenyls (PCBs) in the Lower Watts Bar Reservoir fish pose a public health concern. Frequent and long-term ingestion of reservoir fish poses a moderate increase risk of cancer in adults and increases the possibility of developmental effects in infants whose mothers consume fish regularly during pregnancy and while nursing.
- b. Turtles in the Lower Watts Bar Reservoir may contain levels of PCBs that are of public health concern. However, without analysis of PCB levels in reservoir turtles and the consumption rate of turtles by area residents, ATSDR is unable to determine the degree of public health concern.
- c. Current levels of contaminants in the reservoir surface water and sediment are not a public health concern. The reservoir is safe for swimming, skiing, boating, and other recreational purposes. Drinking water from the municipal water systems, which draw surface water from tributary embayments of the Lower Watts Bar Reservoir and the Tennessee River upstream from the Clinch River and Lower Watts Bar Reservoir, is safe to drink.

- d. DOE's selected remedial action, which includes maintaining the fish consumption advisories, continuing environmental monitoring, and implementing institutional controls to prevent disturbance, resuspension, removal, or disposal of contaminated sediment, is protective of public health.

ATSDR recommends the following:

- a. The Lower Watts Bar Reservoir fish advisory should remain in effect. Precautions in the fish advisory should be followed to minimize exposure to PCBs in reservoir fish and reduce the risk of cancer associated with PCB exposure. Pregnant women and nursing mothers should avoid eating all reservoir fish.
- b. ATSDR will work with the State of Tennessee to implement a community health education program on the Lower Watts Bar Reservoir fish advisory and the health effects of PCB exposure.
- c. The health risk posed by Lower Watts Bar Reservoir turtles should be evaluated by determining consumption patterns of area residents and analyzing PCB levels in the edible portion of turtles.
- d. The surface and subsurface sediments should not be disturbed, removed, or disposed of without careful review by the interagency working group.
- e. Drinking water from the municipal water system should continue to be sampled at regular intervals. DOE should notify municipal water system managers and monitor surface water intakes when there is any significant increase in the release of contaminants from the Oak Ridge Reservation into tributaries of the Clinch River.

Following the release of this health consultation, the Tennessee Department of Environment and Conservation informed ATSDR that they will analyze the PCB levels in Lower Watts Bar Reservoir turtles.

3. ATSDR provided technical assistance to a Lockheed Martin Energy Systems employee regarding possible cyanide exposure at K-25. In response to the employee's personal health concerns, ATSDR provided the employee and the employee's personal physician with copies of the ATSDR Case Study in Environmental Medicine - Cyanide Toxicity and a list of the Association of Occupational and Occupational Clinics. To address the employee's concerns regarding potential workplace exposures, ATSDR referred the employee to the National Institute for Occupational Safety and Health (NIOSH), Hazard Evaluations and Technical Assistance Branch for a health hazard evaluation of the workplace. ATSDR provided NIOSH with background and historical information on public health activities at the Oak Ridge Reservation, names of experts for more

information on K-25 and cyanide, copies of the ATSDR Case Study in Environmental Medicine and of the ATSDR toxicological profile for cyanide, and a list of preliminary reference values for urine thiocyanate. ATSDR will continue to assist NIOSH as necessary and monitor their investigation of potential cyanide exposure at K-25.

Following NIOSH's workplace exposure investigation, ATSDR will review NIOSH's findings to determine the public health implications to residents living in the vicinity of K-25.

#### PANTEX PLANT, TX

ATSDR participated in the Pantex Plant Citizens' Advisory Board meeting and discussed the initial contaminants of concern and pathways findings. Members were asked to notify ATSDR if there were additional contaminants or pathways that ATSDR should consider. At a subsequent meeting, ATSDR briefed the board on the progress of the public health assessment and briefly summarized radiological information. ATSDR also met with Pantex staff to review classified data and to receive clarification on data reviewed to date.

#### PADUCAH GASEOUS DIFFUSION PLANT, KY

ATSDR continues to gather information and data for the public health assessment. Boston University made its second site visit to attend the initial Site Specific Advisory Board meeting and meet with citizens. Persons contacted included retired employees, the principal of the local high school, and a local minister who is familiar with a low-income subsistence hunting/fishing patterns in the area. The state issued a fishing warning due to the presence of PCBs in some of these lakes and creeks, but indications are that the community has not been adequately educated about what the warnings mean. ATSDR plans to hold public availability sessions in May, and is working to provide initial information to the community. ATSDR is trying to contact and coordinate with the many state agencies that have been involved at the site and that may have additional data available.

#### PORTSMOUTH GASEOUS DIFFUSION PLANT, OH

The public health assessment process is continuing for the Portsmouth Gaseous Diffusion Plant. The public health assessment was released for public comment on December 19, 1995 with a public comment that extended until February 2, 1996. ATSDR is revising the public health assessment in response to comments received.

### **Health Studies**

#### HANFORD RESERVATION, WA

1. ATSDR continues working with the Hanford Health Effects Subcommittee (HHES) on several studies that have been proposed to address identified public health issues. ATSDR developed protocols for two health study activities, both of which were presented to HHES. The two projects are as follows:

- a. a study to analyze infant and fetal death records from 1940 to 1951 by geographic area and time periods for an eight-county region surrounding the Hanford Reservation; and
- b. the development of an iodine-131 subregistry of children born in Benton, Franklin and Adams counties for the years 1940-1951.

Both study protocols have been peer reviewed. The subregistry project has been approved by the Internal Review Board (IRB). The infant and fetal death study is anticipated to gain IRB approval during the third quarter.

2. A summary report of the November Medical Monitoring Workshop was completed. The report was distributed to the workshop participants. Copies from ATSDR are available upon request.

Plans have been finalized for a series of three medical monitoring workshops wherein invited experts from various disciplines will help ATSDR better define the appropriate medical monitoring criteria. These were scheduled for April 23-24, June 5-6 and July 9, 1996.

## **Health Education**

### **PADUCAH GASEOUS DIFFUSION PLANT, PADUCAH, KY**

At this time, there are two public health concerns that need to be addressed for this site:

1. consumption of fish (and possibly racoons) with elevated levels of PCB and mercury from a Kentucky Fish and Wildlife Management area near the site; and
2. elevated levels of trichloroethylene found in 18 private wells near the site, eight of which are still in use.

ATSDR will be working with stakeholders to develop a health education plan for the community. ATSDR plans to conduct a preliminary needs assessment and discuss draft health education materials with the community at the public availability session to be held in May.

### **OAK RIDGE RESERVATION, TN**

ATSDR is working with the Tennessee Department of Environment and Conservation and local organizations to implement a community health education program on the health risks associated with consumption of PCB-contaminated fish. Program activities may include the development of brochures about the fish advisory, a presentation to interested residents on the health effects of PCB exposure and a physician education program on PCB exposure. ATSDR is meeting with local citizens, the site specific advisory board,

the local oversight committee and the Oak Ridge Health Agreement Steering Panel in May to solicit their input into a preliminary needs assessment for the site.

### **Toxicological Profiles**

- ATSDR has drafted development of the priority list of hazardous substances found at DOE sites which is required under sections 104 (i)(2) and (3) of the Comprehensive Environmental Response, Compensation and Liability Act. This list will assist ATSDR and DOE in selecting candidate substances for development of toxicological profiles. The priority listing is based upon the frequency of occurrence at DOE National Priorities List sites, the toxicity of the substance, and the human exposure potential. This list is divided into two parts: radionuclides and non-radionuclides.

A draft version of the list was completed along with a draft *Federal Register* announcing availability of the list. Publication of the notice in the *Federal Register* is expected to occur during the third quarter.

- The toxicological profiles for ionizing radiation and uranium (including depleted uranium) are currently under development. Draft versions of the profile are currently undergoing internal review.