



Agency for Toxic Substances
and Disease Registry
Atlanta GA 30333

SEP 3 1996

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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 third 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. Bashor, Ph.D.
Associate Administrator for
Federal Programs
Director, Office of Federal Programs

Enclosure



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AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY
THIRD QUARTER, FISCAL YEAR 1996 ACTIVITIES
AT
U.S. DEPARTMENT OF ENERGY FACILITIES

Public Health Assessments and Health Consultations

BROOKHAVEN NATIONAL LABORATORY, NY

ATSDR plans to initiate the public health assessment for Brookhaven National Laboratory in September 1996. However, in response to community members' concerns and DOE's request, ATSDR is evaluating ground water data at this time.

Contaminants detected in the groundwater 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 indicates that 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, current information shows that the VOC contamination beyond the monitoring wells is below the depth from which private wells draw water. As a precautionary measure Brookhaven has offered to connect houses south of the site to public water supplies.

ATSDR has provided fact sheets to several members of the community who asked for information on potential health effects of the various VOCs detected in the groundwater.

FERNALD ENVIRONMENTAL MANAGEMENT PLANT, OH

ATSDR continued the project for off-site environmental sampling in the Fernald area. Radon monitors will be in place through the remediation of the K-65 silos (OU5).

Development of the public health assessment for the site has begun. The initial release is projected for the fourth quarter, Fiscal Year (FY) 1997.

A Federal Advisory Committee Act (FACA) group, the Fernald Health Effects Subcommittee, has been established for the site and received its charter in June. The committee is currently working to define its work plan and goals.

HANFORD RESERVATION, WA

ATSDR evaluated the information received from the request made to the community during the second quarter 1996 to assist ATSDR in identifying health concerns. In response

to that mailing, the community expressed concern about the following most frequently: cancer (43), thyroid disease (41), reproductive, developmental and perinatal problems (8), neurological problems (7), bones, bone marrow, or teeth (4), past releases to air (53), releases via groundwater (9), and past releases to the Columbia River (9). ATSDR will incorporate this data into the public health assessments under development for the 100, 200, and 300 Areas.

LOS ALAMOS NATIONAL LABORATORY, NM

In April 1996, ATSDR met with members of the Santa Clara and Cochiti Pueblos to gather community concerns and provide basic information on the limitations of health outcome data.

The San Ildefonso Pueblo has expressed concern about the releases of radionuclides with short half-lives from the Los Alamos National Laboratory (LANL). On June 11, 1996, ATSDR drafted a consultation recommending that gross gamma environmental monitors be located at the most frequented areas on the reservation that coincide with canyon channeling and transportation of contaminants. These monitors would enable ATSDR to directly measure the levels of external gamma dose in off-site areas. Currently, off-site doses are estimated using the CAP-88 computer model, LANL air emission sources and meteorological data. The monitors would also allow ATSDR to independently verify levels of radiation reported by Department of Energy's NEWNET stations in the community.

ATSDR has completed collection of fourth quarter and twelve month thermoluminescent dosimeters (TLDs) located on the San Ildefonso Pueblo. The TLDs are currently at the Environmental Protection Agency (EPA) / National Air Radiation and Environmental Laboratory (NAREL) awaiting analysis.

The development of the public health assessment for the site is projected to begin in FY 1997.

MONTICELLO MILL TAILINGS SITE, UT

ATSDR continued work on the public health assessment for the Monticello Mill Tailings Site. ATSDR is currently revising the document based upon comments received during the data validation process. The agency projects that the public health assessment will be available for public comment in early 1997.

MOUND PLANT, OH

Development of the public health assessment continues. A draft public health assessment was sent to DOE for security clearance review.

ATSDR continues to receive many inquiries concerning the work being conducted at the Mound Plant. Information has been provided to site employees, the Ohio Environmental Protection Agency as well as concerned citizens regarding the information collected for the site, data we have generated, and the public health assessment process in general.

OAK RIDGE RESERVATION, TN

ATSDR continues to identify and address community concerns through meetings with the public. A health consultation is under development to address concerns about the Clinch River. Dependent on ATSDR's ability to access specific electronic databases, the consultation is projected for completion during the first quarter, FY 1997. Development of the public health assessment will begin in FY 1997, with completion of the initial release projected for FY 1998.

PADUCAH GASEOUS DIFFUSION PLANT, KY

ATSDR held five public availability sessions at three locations in Paducah and Heath, Kentucky on May 7, 8 and 9, 1996. Approximately 15 to 20 persons discussed their public health concerns on a one-to-one basis with representatives from ATSDR, Boston University, and EPA/NAREL. ATSDR provided basic information concerning a state-issued fishing warning due to polychlorinated biphenyls (PCBs) in some of the lakes and creeks adjacent to the site. Precautionary procedures were discussed with individuals who are believed to be subsistence hunting/fishing in the area. A list of community concerns from postcard responses, prior visits with community members and the public availability sessions has been compiled. These concerns will be addressed in the public health assessment. ATSDR and NAREL continue to work with the site environmental personnel to transfer electronic data to ATSDR and NAREL. ATSDR has received annual environmental reports from 1958 through 1994. ATSDR is continuing to work with state agencies and DOE's and the state of Kentucky's Federal Facilities Oversight Unit in a coordinating effort to share data.

PANTEX PLANT, TX

At the April 30, 1996 Pantex Plant Citizens' Advisory Board meeting, ATSDR briefed board members and members of the public on the progress of the public health assessment, including contaminants of concern and

pathways identified to date. Attendees were asked to notify ATSDR if there were additional contaminants or pathways that ATSDR should consider. During the visit, ATSDR also continued to review classified data to confirm and clarify information analyzed to date.

Under a cooperative agreement with ATSDR, the Texas Department of Health, Bureau of Epidemiology is reviewing health outcome data in response to community concerns about potential health effects. This information will be included in the public health assessment. The public comment release of the public health assessment is projected for the fourth quarter, FY 1997.

PORTSMOUTH GASEOUS DIFFUSION PLANT, OH

ATSDR is revising the public health assessment based upon comments received during the public comment period. The final public health assessment is projected for release during the first quarter, Fiscal Year (FY) 1997.

Health Studies

HANFORD RESERVATION, WA

Hanford Fetal Death and Infant Mortality Analysis

Project: This project is to investigate whether rates of infant mortality and fetal death differ according to the Iodine-131 exposure classification of the mother's residence at the time of birth in an 8-county region near Hanford for the period 1940 through 1952. The Centers for Disease Control and Prevention (CDC)/ATSDR Institutional Review Board (IRB) approval of the project has been received. The notification of review disposition from the Washington Department of Health IRB is expected by mid-August. Preliminary negotiations regarding data collection procedures have occurred with the National Opinion Research Center and the Washington Department of Health Vital Statistics Division.

Iodine-131 Exposure Sub-registry: The purpose of this study is to assess long-term health consequences to the general population from past exposures to Iodine-131 and other radionuclides. The protocol has been written and approved, the questionnaire created, the CDC/ATSDR IRB approvals solicited, and contractor work orders written for data collection. All activities should be in full scale operation by the beginning of 1997.

Medical Monitoring: ATSDR is assessing whether a medical monitoring program is appropriate for Hanford. In coordination with the Hanford Health Effects Subcommittee, ATSDR has hosted four workshops. The first

workshop focused on health risks related to the Hanford releases of radionuclides. The last three workshops have focused on the development of a draft document "Consideration of Medical Monitoring at Hanford" by invited experts. A medical monitoring program would provide medical evaluation and tests to identify specific diseases or conditions in eligible clients and refer them for further evaluation and, as appropriate, treatment. The document is undergoing technical peer review at this time. Following appropriate modifications based on the peer reviewer comments, ATSDR will then use the document to make a final determination and recommendation on whether a medical monitoring program should be initiated. It is anticipated that the decision will be made in October 1996. If a medical monitoring program is recommended, an initial program can then be developed and implemented.

Health Education

OAK RIDGE RESERVATION, TN

ATSDR has been working with the Oak Ridge Reservation Local Oversight Committee, Inc., the site-specific advisory board, representatives of the state health department, community members, and members of civic organizations to discuss the need for health education at the site. ATSDR is working with the Oak Ridge Reservation Local Oversight Committee, Inc. specifically to determine the most effective messages and methods of communication to inform community members about the dangers of ingesting PCB contaminated fish from Watts Bar. A community and physician education program will subsequently be conducted.

There has been concern expressed by the community about health problems that may be related to elevated levels of cyanide and its metabolite thiocyanate in employees and residents who live the Oak Ridge K-25 site. The CDC / National Institute for Occupational Safety and Health (NIOSH) has evaluated these health concerns and generated a health hazard evaluation report. ATSDR, in cooperation with NIOSH, will be mailing packets of materials to physicians who deal with patients who believe they have been exposed in August. This package will contain the NIOSH report, the public health statement on cyanide, and the "Case Studies in Environmental Medicine" on "#15: Cyanide Toxicity" and "#26: Taking an Exposure History."

SAVANNAH RIVER SITE, SC

ATSDR is working with Citizens for Environmental Justice and the Chatham County Health Department to develop a needs assessment for community health education.

LOS ALAMOS NATIONAL LABORATORY, NM

ATSDR has begun discussions with area residents to determine what the community health education needs are.

Toxicological Profiles

ATSDR has drafted 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 identifies hazardous substances found on DOE sites; prioritized by frequency of occurrence, toxicity, and human exposure potential. This list is composed of two parts: radionuclides and non-radionuclides. The list was published in the *Federal Register* on July 26, 1996.

Based upon the listing activities and evaluation of the health data needs of the agency, ATSDR recommends the development of new or updated toxicological profiles for the following substances:

Iodine: Iodine (I-131) is a volatile fission product from nuclear reactor operations. The substance has been associated with thyroid cancer, especially in children. I-131 has a short half-life of eight days so it typically is not detected when sites are monitored. The lack of monitoring data to incorporate into the algorithm used to prioritize substances precludes I-131 from making ATSDR's priority list. The substance is however a substance of concern when its past presence has been shown such as has been documented at the Hanford Reservation in Washington state.

Cesium: Cesium (Cs-137) is a fission product of all nuclear power and fuel reprocessing plants, and a fallout product from nuclear atmospheric weapons testing that remains in the environment beyond the human lifespan. It is a high energy gamma ray emitter that is typically in a very soluble chemical form, enabling it to easily enter the biosphere. Cesium and potassium are chemically similar. Cesium has been observed in some populations to act like potassium in the body. The Chernobyl reactor accident in the former USSR introduced a large amount of cesium into the biosphere making it necessary to halt the use of produce and animals for food in affected areas.

Cesium is #13 on ATSDR's priority list. There is a large body of information available for developing a profile.

Strontium: Strontium (Sr-89, Sr-90) is present at many DOE sites. It is a bone seeking element and radionuclide that mimics calcium. It is a high energy beta radiation emitter. It is #15 on ATSDR's priority list and there seems to be adequate information for developing a profile.

Cobalt: The existing profile on cobalt (Co-60) does not address its radioactive properties. Co-60 is an activation and corrosion product of many nuclear reactors. It is the primary nuclide of environmental concern for the operation and repair of nuclear-powered warships. Past and current laws have allowed its discharge in quantity directly from these reactors into the air and water. It is available to marine organisms decades after its initial production. Co-60 is #5 on ATSDR's priority list and sufficient information appears to be available for developing a profile.

Americium: Americium (Am-241) is present at all DOE sites where plutonium (Pu-238, Pu-239) is found. It is also prevalent in the public sector as a component of many smoke alarms. Am-241 concentration in atomic weapons material increases over time relative to its Pu-239 content. Am-241 is #8 and #25 (in conjunction with Pu) on ATSDR's priority list and there appears to be sufficient information for developing a profile.

Noble gases: Noble gases (Ar-41, Kr-85, Kr-87, Kr-88 and Xe-135) are fission products which are released from operating nuclear reactor steam generators, from degassing operations, and from fuel processing plants when the fuel cladding is ruptured. Some sites maintain compressed gas cylinders of noble gases to allow them to decay before release. Noble gases expose individuals through submersion in air that contains the radioactive material. Internal exposure is not a concern because noble gases do not interact chemically with the body and do not absorb appreciably into body fluids. The noble gas isotopes are #7, #16, #20, #22, and #34 on ATSDR's priority list. All noble gases can be grouped into a single profile since they only produce external radiation exposure. There appears to be sufficient information available to develop a profile.

Plutonium: Plutonium (Pu-238, Pu-239) was profiled in 1990 but must be updated in accordance with section 104(i)(3) of CERCLA. Plutonium may be more toxic than radium and is found at DOE nuclear weapons sites. Its

various isotopes are #21, #25 and #29 on ATSDR's priority list and sufficient information is available to update the profile.

Radium: Radium (Ra-224, Ra-226, and Ra-228) was profiled in 1990 but must be updated in accordance with section 104(i)(3) of CERCLA. Radium is recognized by EPA as a carcinogen. It is found at elevated levels in the tailings at all uranium mine and mill tailing sites. EPA has selected it as the primary radionuclide that must be assessed at these sites. The element is being considered for profile update because the current radium profile is primarily written from a chemical viewpoint and not a radiological viewpoint, where dose is referred to as concentration of radioactive material administered in $\mu\text{Ci}/\text{kg}$ and not to total radiation dose in rem. It is radium's radiological properties that are considered harmful. The isotopes are #3 and #5 on ATSDR's priority list. Sufficient information appears to be available for an update.

Thorium: Thorium (Th-228, Th-230, Th-232 and Th-234) was profiled in 1990. It is a ubiquitous radioactive material that is associated with uranium, vanadium and radium mine and mill tailing sites. The isotopes are #1, #18, #23, and #33 on ATSDR's priority list. Sufficient information appears to be available for an update.

Radon: Radon (Rn-220, Rn-222) was profiled in 1990. The original profile was written largely in a chemical sense. It has been an isotope of public interest since its link with lung cancer deaths. The linkage between radon and cancer is based on studies of uranium miners. The miners, many of whom were smokers, were exposed to high concentrations of radon over extended periods of time. Some believe that when exposure to radon gas is combined with smoking, there is a synergistic effect that is particularly hazardous to human health. Such inferences have been made in spite of the lack of comprehensive studies directly linking radon gas exposure in houses to increased incidences of lung cancer. As the toxicological profile is updated, additional data may clarify the degrees to which the cancer risk levels reflect the contribution of cigarette smoke to human health hazard.