7/1/02

General (ATSDR, DOE Site Summaries, health assessments)

## SITE-SPECIFIC SUMMARIES

The following pages summarize ATSDR's activities at specific Department of Energy sites. Activities include health consultations, public health assessments, exposure investigations, community-based education, health studies and public health interventions.

# Alba Craft Laboratory
## Oxford, Ohio

**Type Site:** Petition, Formerly Utilized Site Remedial Action Program (FUSRAP)
**Size:** 0.25 acres
**Facility Status:** Inactive
**Facility Mission:** From October 1952 until February 1957, the mission was to machine natural uranium metal parts for National Lead of Ohio, the former prime contractor for the former Fernald Feed Material Production Center. The laboratory facility is located in a predominantly residential area. The site has been demolished and remediated.

**DHAC Site Lead:** Carol Connell, BS

**Action Dates:**

**Health Consultation**

**Radionuclide Exposure to the Public** (requested by Senator John Glenn)
06/09/94 - to data validation
07/08/94 - final

**Conclusions and Impacts:**

ATSDR's health consultation (July 8, 1994) was in response to a request from Senator Glenn to evaluate radiological contaminants from the Alba Craft Laboratory. ATSDR concluded that radiological contamination in the surface soil at the site and neighboring properties does not pose a public health hazard as long as major soil-disturbing activities do not occur. The agency also investigated whether wood ash could be the source of slightly elevated cesium-137 concentrations at one of the residential properties. The higher-than-background level probably resulted from roof runoff when



13663

it rained and not from the wood ash; however, ATSDR staff members were able to assure the resident that the concentration did not pose a health hazard.

ATSDR independently interpreted and evaluated the adequacy of exposure indicator testing conducted by DOE-Oak Ridge. Testing included blood and urine analysis and scanning the whole body to determine total internal radioactivity. ATSDR found the testing appropriate and concluded the exposure posed no human health hazard.

ATSDR held a public health forum in Oxford, Ohio, on July 28, 1994, that engaged community members in an open forum that (1) discussed the findings and conclusions of the health consultation, (2) conducted health education activities related to potential exposures to various hazardous and radioactive materials, and (3) enhanced communication between ATSDR and local residents. Following the forum, ATSDR received additional written comments and concerns, which were addressed in individual letters to the community members. Representatives of CDC's National Institute for Occupational Safety and Health also attended the forum to address worker-related issues and potential exposures.

---

# Bonneville Power Authority
## Bonneville, Washington

**Type Site:** NPL (deleted from NPL 9/23/96)
**Size:** 235 acres
**Facility Status:** Active
**Facility Mission:** The mission is and has been the distribution of hydroelectric power generated by the Columbia River to regions throughout the Pacific Northwest and parts of Canada. Laboratory activities involve the use of heavy metals in the testing of capacitors, transformers, and other transmission equipment. Maintenance activities have involved the use of transformer oils containing polychlorinated biphenyls (PCBs) and organic and inorganic compounds associated with the storage of treated wooden transmission poles, paints, solvents, and waste oils.

**DHAC Site Lead:** Andy Dudley, BS

**Action Dates:**

**Public Health Assessments**

10/06/93 - initial release for data validation
04/22/94 - public comment release
09/28/94 - final

**Conclusions and Impacts:**

The final public health assessment was released on September 28, 1994. ATSDR classified the site as no apparent public health hazard. ATSDR's conclusion of the

public health assessment supported DOE's petition to EPA for deletion of the site from the NPL. The site was removed from the NPL on September 23, 1996.

As part of the public health assessment process, ATSDR identified the use of private wells, located in the vicinity of the Bonneville Power Authority (BPA), that had not been previously identified by EPA or DOE. ATSDR used the Geographical Information System (GIS) to identify the location of private wells and to map the migration of the contaminated groundwater plume. This enabled ATSDR to provide independent confirmation that private wells would not be affected by contamination from BPA. ATSDR notified the community of the findings through individual letters and telephone calls. This alleviated fear and anxiety within the community about groundwater contamination.

---

# Brookhaven National Laboratories
## Long Island, New York

**Type Site:** NPL
**Size:** 5,265 acres
**Facility Status:** Active
**Facility Mission:** The mission is and has been to carry out basic and applied research in the following fields: high-energy nuclear and solid state physics; fundamental material and structure properties and the interactions of matter; nuclear medicine and biomedical and environmental sciences; and selected energy technologies.

**DHAC Site Lead:** Andy Dudley, BS

**Action Dates:**

**Public Health Assessments**

10/01/96 - initiated

**Health Consultations**

**Groundwater Contamination** (requested by the public and DOE)
11/22/96 - to classification review
11/22/96 - initial release for data validation
05/01/97 - revision and second data validation
09/29/97 - public comment release
10/14/97 - addendum to public comment release

**Technical Assistance**

03/12/96 - Responded to community member's concerns about specific health effects (e.g., dental problems) associated with contaminated groundwater (letter).
03/13/96 - Responded to community member's concerns about general health effects associated with contaminated groundwater (letter).

09/04/96 - Prepared a fact sheet on ATSDR activities at the site.

**Conclusions and Impacts:**

As part of the public health assessment process, ATSDR worked with DOE and local community members and organizations (e.g., home owners' associations from the Yaphank, Manorsville, Longwood, Brookhaven, and Middle Island communities; and two activist groups, Citizens Campaign for the Environment, and Environmental Advocates of Long Island) to determine priorities. Groundwater contamination and air releases from the site's four reactors are the primary health concerns and are being addressed through health consultations.

On October 14, 1997, ATSDR submitted the second health consultation on contaminated groundwater for public comment. Although this draft includes a review of groundwater data generated since the consultation was first drafted, the conclusions and recommendations of the consultation did not change. *Sampling results of residential wells do not indicate that persons are currently being exposed to contaminant levels that would cause adverse health effects*. The consultation was distributed to the community groups and members that ATSDR has been networking with and to individuals on DOE's community mailing list. In addition, ATSDR held public meetings to present the information in the groundwater health consultation.

DOE requested that ATSDR evaluate the results of the groundwater monitoring to determine whether there is a public health hazard associated with the contamination. Residential well monitoring had been completed by DOE and the Suffolk County Department of Health Services (SCDHS) for approximately 675 residential wells in North Shirley, Shirley, East Yaphank, and Manorsville. Monitoring results indicate that some of the wells have levels of volatile organic compounds (VOCs) and a pesticide above the federal and state drinking water standards. The radionuclides strontium-90 and tritium have also appeared at levels above federal and state drinking water standards in on-site monitoring wells.

As a precautionary measure, DOE has offered to test the water in existing private wells that might be affected and, at the homeowner's option, connect residences to the public water supply. DOE, in conjunction with the SCDHS, has connected approximately 1,200 residences to the public water supply. ATSDR believes that it is safer to obtain water from the public water supply than from private wells, because the public water supply is tested regularly. Furthermore, spills of hazardous materials in the area have been reported, and unreported spills might have occurred. ATSDR recommended that residents accept the offer to be connected to the public water supply because all residential wells have not been sampled, the full extent of the contaminant plumes is uncertain, and there is potential for future contamination.

ATSDR will continue to analyze the results of samples of water from monitoring wells and residential wells to determine whether residents are being exposed to contaminants at levels that could result in adverse health effects.

**Health Education:**

Working with the New York State Department of Health, ATSDR will educate health care

providers in the area. Through a series of outreach programs, health care providers will be (1) informed about the health effects associated with hazardous substances at Brookhaven, (2) trained to diagnose and treat breast cancer, and (3) trained to record an exposure history.

---

# Cape Thompson Radiation Waste/Point Hope
## North Slope Borough, Alaska

**Type Site:** Petitioned
**Size:** 10 cubic meters of soil
**Facility Status:** Inactive
**Facility Mission:** The past mission was testing radioactive transport through the environment. The site has been remediated.

**DHAC Site Lead:** Paul Charp, PhD

**Action Dates:**

**Health Consultation** (requested by the local health department)
08/17/94 - to classification review
09/28/94 - initial release for data validation
10/24/94 - final (no comments or changes requested)

**Conclusions and Impacts:**

In 1993, the North Slope Borough (NSB) Department of Health and Social Services petitioned ATSDR to evaluate (1) the status and potential health threat from the presence of radioactive material in the Cape Thompson area and (2) the incidence of cancer in the area. ATSDR responded by performing a health consultation to determine whether the public health of local residents has been or will be affected adversely by the radiological contaminants at the Project Chariot Site.

The health department expressed concerns regarding the cancer incidence in the NSB and around the Point Hope area. Cancer is now the leading cause of death among Alaska Native women and the second leading cause of death among Alaska Native men. According to Alaska Native elders, cancer previously was not a common disease in the native populations.

On the basis of the supplied information, ATSDR concluded that the levels of radioactive materials at the Project Chariot Site do not pose a public health hazard. Cancer rates in the NSB were similar to those in other areas of Alaska.

---

# Fernald Environmental Management Plant
# (Feed Material Production Center)

# Fernald, Ohio

**Type Facility:** NPL
**Size:** 1,050 acres
**Facility Status:** Inactive production; Active remediation
**Facility Mission:** The former mission was uranium metal production. The current mission is environmental compliance and restoration.

**DHAC Site Lead:** French Bell, PE

**Action Dates:**

**Public Health Assessments**

FY 1997 - initiated

**Health Consultations**

**Radon Emissions from K-65 Silos** (requested by community members)
10/12/94 - to classification review
10/20/94 - initial release for data validation
02/27/95 - public comment release
05/---/95 - final

**Milk Produced By Cows Grazing Near the Site** (requested by DOE Site-Specific Advisory Board)
02/10/95 - to classification review
03/01/95 - initial release for data validation
03/10/95 - public comment release
06/---/95 - final

**Nonpotable Use of Contaminated Groundwater** (requested by community members)
08/17/95 - to classification review
09/27/95 - initial release for data validation
02/27/96 - final

**Consumption of Produce Grown Near the Site** (requested by community members)
09/22/95 - to classification review
11/07/95 - initial release for data validation
01/23/96 - final

**Technical Assistance**

02/23/96 - Responded to community member's telephone call about health effects from off-site radon releases (letter).

11/10/97 - Responded to community member's letter to Fernald Health Effects Subcommittee (FHES) about impacts from eating vegetables grown near the site (letter).
03/23/98 - Responded to FHES member's questions about comparison values used on selecting contaminants of concern in off-site media (letter).

**Conclusions and Impacts:**

**K-65 Silo Consultation (Ambient and Indoor Radon Monitoring)**

- Because ATSDR found that the existing radon monitors did not function in cold temperatures, DOE changed the equipment to provide real-time radon monitoring and ensure greater protection of the public health.
- ATSDR sent letters to 64 homes surrounding the Fernald site, advising residents that current levels of ambient radon do not pose a public health hazard. The letters focused on health education (1) explaining home owner's radon level, its meaning and health implications; (2) providing residents with information to control and reduce levels of radon in their homes; and (3) explaining that the levels of radon seen in houses are naturally occurring and not linked to activities or emissions from the site.
- As part of the ATSDR child health initiative, ATSDR sampled the ball park and confirmed that uranium did not pose a health hazard when children played.

**Milk Consultation**

- ATSDR determined that the levels of radionuclides in locally produced milk pose no public health hazard.

**Produce Consultation**

- ATSDR determined that levels of radionuclides in locally grown produce pose no public health hazard.

**Groundwater Consultation**

- Right-of-way issues were resolved and the public water system was expanded to residents in the Fernald community after ATSDR notified the Ohio Department of Transportation that residential drinking water wells were contaminated. ATSDR verified that water from cisterns was safe to drink. This was a pathway not previously considered by DOE or EPA.
- ATSDR determined that nonpotable use of the groundwater does not pose a health hazard from radionuclides.

**Overall Impact of ATSDR**

- ATSDR's four health consultations reduced the community's anxiety and stress with regard to exposures from the Fernald site. Through these health consultations, ATSDR engaged community members in health education activities by making presentations at monthly Fernald Residents for Environmental Safety and Health (FRESH) meetings and at Crosby and Ross Townships' meetings.
- ATSDR initiated more effective coordination of the federal and state agencies involved

at Fernald. This coordinated effort reduced duplication of activities and ensured that the community received comprehensive public health action using an optimum skill-mix from each agency.

- ATSDR promoted participation of two local governments and the local health agency in Fernald Health Effects Subcommittee.
- ATSDR's work at Fernald was the prototype for the joint committee to coordinate work at other DOE sites. Committee members represented ATSDR and CDC's National Center for Environmental Health and National Institute for Occupational Safety and Health.
- ATSDR gained the trust of the local residents and actively addressed their concerns.

**Health Studies:**

In cooperation with the University of Cincinnati, ATSDR is analyzing the Fernald Medical Monitoring Program data to determine whether releases from the Fernald site resulted in increased incidence of morbidity or mortality in off-site populations. In FY 1999, the analyses will be completed and summary report prepared. At that time, ATSDR will determine if additional health follow-up activities are indicated.

**Health Education:**

Working with the Fernald Health Effects Subcommittee, ATSDR will assess health education needs for the community and health-care professionals. On the basis of this needs assessment, ATSDR will develop a program to regularly provide information and training that will enable health care providers to (1) take an exposure history, (2) consult patients regarding radon exposures, and (3) promote behavioral changes that are protective.

---

# Fields Brook

## Ashtabula, Ohio

---

**Type Site:** NPL, Petitioned, FUSRAP
**Size:** 26 acres
**Facility Status:** Active
**Facility Mission:** One of the missions in the past was the extrusion of depleted uranium and of slightly enriched uranium ingots into rods or tubes. The current mission does not involve radioactive materials.

**DHAC Site Lead:** Michael Brooks, CHP

**Action Dates:**

**Public Health Assessments** (petitioned by community members)
09/30/92 - initial release for data validation
01/08/96 - public comment release
04/09/96 - final

**Conclusions and Impacts:**

Although there is evidence of uranium-contaminated soil on, and just outside, the Reactive Metals Incorporated Extrusion Plant at Fields Brook, ATSDR concluded that the plant poses no apparent public health hazard. The available data do not indicate current or past exposure to levels of radioactive contamination off-site that would cause adverse health effects. The available community-specific health outcome data do not indicate that the site had adverse effects on human health. No evidence indicates that Fields Brook or its banks exceed guidelines for release of radioactive effluents.

---

# Hanford 100 (Reactors-Columbia River) Area
## Richland, Washington

**Type Site:** NPL
**Size:** 26 miles of the Columbia River
**Facility Status:** Inactive
**Facility Mission:** The original mission was the production of weapons grade plutonium from nine nuclear reactors. The current mission is environmental restoration, decontamination, and demolition of the former reactors.

**DHAC Site Lead:** Michael Brooks, CHP

**Action Dates:**

**Public Health Assessments**
FY 1997 - initiated

**Conclusions and Impacts:**

No conclusions at this time.

---

# Hanford 200 (Iodine Release) Area
## Richland, Washington

**Type Site:** NPL
**Size:** 17 square miles
**Facility Status:** Inactive - undergoing cleanup
**Facility Mission:** The past mission was production of plutonium for nuclear weapons. The current mission is remediation.

**DHAC Site Lead:** Paul Charp, PhD

**Action Dates:**

**Public Health Assessments**

06/13/97 - to classification review
07/16/97 - initial release for data validation

**Technical Assistance**

05/22/97 - Tank explosion (assistance requested by community members)

**Conclusions and Impacts:**

The public health assessment determined that the 200 Area of the Hanford Site poses a public health hazard from site-related contaminants released to the air, soils, and groundwater. The recommendations include environmental health education for affected tribes, communities, and medical providers; fetal and infant death studies; medical monitoring for thyroid disease; and an iodine-131 exposure subregistry. ATSDR has prepared a separate briefing document that describes the Hanford Medical Monitoring and iodine-131 exposure subregistries. Furthermore, ATSDR recommended that DOE proceed with plans to remediate the area to the appropriate standards and pursue controls to maintain suitability for future industrial use.

On May 22, 1997, ATSDR provided technical assistance to the site and to the Kadlic Hospital Emergency Room on potential health effects associated with exposure to nitric oxide in response to a 400 gallon tank explosion on the second floor of a building near the Plutonium Finishing Plant. On the basis of symptoms (e.g., sore throats and a metallic taste) reported by the 10 men involved in the accident, ATSDR concluded that the nitric oxide exposure was greater than that calculated by DOE. ATSDR advised the hospital staff that the symptoms of exposure to nitric oxide might not be initially apparent, because such symptoms have a tendency to recur and can include latent potentially fatal pulmonary edema. This concern was heightened after one of the men reported renewed symptoms. ATSDR recommended that DOE conduct follow-up lung function monitoring; DOE agreed to provide follow-up monitoring for 6 months.

---

# Hanford 300 (Waste Treatment) Area
## Richland, Washington

---

**Type Site:** NPL
**Size:** 5.7 square miles
**Facility Status:** Active
**Facility Mission:** The past mission was fabrication of uranium fuel rods that were then irradiated in the 100-Area reactors to produce plutonium. The current mission is research and development.

**DHAC Site Lead:** JoAnn Freedman, PhD, DABT

**Action Dates:**

**Public Health Assessments**

06/13/97 - to classification review
07/16/97 - initial release for data validation

**Conclusions and Impacts:**

In its public health assessment, ATSDR determined that the 300 Area of the Hanford Reservation poses no public health hazard to the public from site-related contaminants because the public cannot come into contact with contaminants identified in soil and groundwater.

As part of the public health assessment process, ATSDR reviewed the *Proposed Plan for the 300-FF-1 and 300-FF-5 Operable Units* (DOE/RL-95-88) and the *300 Area Process Trenches Modified Closure/Postclosure Plan* (DOE/RL-93-73 Revision 1) and provided draft comments in a health consultation to DOE-Richland on December 1, 1995. Final comments were provided to DOE-Richland on December 29, 1995, after receiving clarification about DOE's intention to maintain institutional controls. ATSDR found the proposed alternative, P-3, protective of human health, given DOE's commitment to maintain these operable units in an industrial-use scenario through indefinite extension of institutional controls.

DOE's commitment to institutional controls has significant public health relevance because the radiation dose and exposure dose will differ depending on whether future use is industrial or residential. ATSDR believes that the DOE-recommended clean-up level of 350 pCi/g (uranium and its decay products) in soils is not protective of public health without institutional controls limiting future use to industrial uses.

---

# Hanford 1100 Area
## Richland, Washington

---

**Type Site:** NPL (deleted from NPL 9/30/96)
**Size:** 1.2 square miles
**Facility Status:** Active
**Facility Mission:** The mission is and has been to provide vehicle maintenance and general support for the Hanford facility.

**DHAC Site Lead:** JoAnn Freedman, PhD, DABT

**Action Dates:**

**Public Health Assessments**

02/08/95 - to classification review
03/31/95 - initial release for data validation
07/18/95 - public comment release
11/20/95 - final

**Conclusions and Impacts:**

The final public health assessment was released on November 20, 1995. ATSDR determined that the site poses no apparent public health hazard. This conclusion supported DOE's subsequent petition to EPA for deletion of the site from the NPL. The site was removed from the NPL on September 30, 1996.

ATSDR further stipulated that, if DOE releases the 1100 Area for non-DOE development, either formal steps (e.g., deed restrictions) should be taken to restrict land use in the contaminated areas of the 1100 Area or that additional information should be provided to ATSDR and evaluated to ensure protection of public health.

---

# Idaho National Engineering and Environmental Laboratory
## Idaho Falls, Idaho

**Type Site:** NPL, Petitioned
**Size:** 890 square miles
**Facility Status:** Active
**Facility Mission:** The past and current mission is to conduct nuclear reactor research and further development of nuclear reactors and related equipment; conduct light water reactor safety testing; provide irradiation services; recover uranium from highly enriched spent fuels; and provide storage, monitoring, and processing of radioactive wastes.

**DHAC Site Lead:** Michael Brooks, CHP

**Action Dates:**

**Public Health Assessments**

FY 1998 - initiated

**Health Consultations**

**Pit 9** (requested by DOE)
09/23/93 - final

**Ordnance Area Operable Unit (OU) 10-5** (requested by DOE)
12/16/93 - final

**Conclusions and Impacts:**

As part of the public health assessment process, ATSDR is working with community members, environmental activists, and local health-care providers (i.e., the Idaho Health Effects Subcommittee) to determine public health priorities for activities. Air releases of nitric oxides and ozone from the Idaho Chemical Processing Plant and groundwater contamination are the primary health concerns. These concerns are being addressed through health consultations.

In 1993, DOE requested that ATSDR provide health consultations for proposed remedial actions at Idaho National Engineering and Environmental Laboratory. In response, ATSDR performed two health consultations.

The Pit 9 Health Consultation found that
(1) there does not appear to be any present or future exposure pathway at a level that would cause adverse health effects because public access is prohibited, and
(2) remediation plans to excavate and remove waste forms have the potential to enhance contaminant migration through groundwater contamination if intact glass containers are broken during excavation.

The Ordnance Area OU 10-5 health consultation determined that the cleanup levels for Royal Demolition Explosives (RDX) and trinitrotoluene (TNT) proposed by the Record of Decision are protective of public health.

---

# Laboratory for Energy-Related Health Research
## Davis, California

**Type Site:** NPL
**Size:** 15 Acres
**Facility Status:** Inactive
**Facility Mission:** The past mission was DOE-sponsored research conducted by the University of California at Davis (1958-1988) on the biodistribution of strontium-90 and radium-226 in beagles. The site is currently under remediation.

**DHAC Site Lead:** William H. Taylor, PhD, DABT

**Action Dates:**

**Public Health Assessments**

FY 1997 - initiated

**Site Summary**

09/28/95 - to classification review
10/19/95 - initial release
12/28/95 - final

**Health Consultations**

**Fish in Putah Creek**

03/24/97 - to classification review
04/04/97 - final

**Technical Assistance**

04/04/97 - Reviewed *Draft Risk Assessment Protocol for the DOE Areas at the LEHR, UC Davis, California* (requested by DOE)

**Conclusions and Impacts:**

**Contaminated Fish Pathway**

Because ATSDR notified the state that fish were contaminated with mercury and lead at levels of health concern, California is considering issuing a fish advisory for consumption of contaminated fish from Putah Creek. A decision will be made after ATSDR releases the results of additional fish sampling later in 1998. ATSDR staff first visited the Laboratory for Energy-Related Health Research (LEHR) site in July 1995. As a result of that visit and after reviewing documents pertaining to the site, the agency issued a site summary report in December 1995. In that report, ATSDR recommended that the fish in Putah Creek, adjacent to the LEHR site, be sampled to ensure that people who eat fish from the creek are not being exposed to unsafe levels of contamination. EPA Region IX scientists collected a total of 141 fish and crayfish from four locations along Putah Creek during a 2-week period in August

and September 1996. They also collected water and sediment samples from the creek at the same four locations. ATSDR arranged for EPA's National Air and Radiation Environmental Laboratory (NAREL) to analyze the samples. ATSDR staff reviewed the fish sampling data and issued a health consultation on April 4, 1997.

ATSDR's primary conclusion was that mercury and lead concentrations in some fish collected from Putah Creek pose a public health hazard. The agency recommended posting a general fish advisory and testing another sample of fish to identify which fish species were concentrating the toxic metals.

In October 1997, EPA Region IX returned to Putah Creek to collect fish for further analyses, including determining levels of pesticides. Stakeholders at the LEHR site plan to discuss posting a fish advisory after issuance of the next health consultation, which will address the second round of test results. ATSDR is waiting for final data results from the EPA NAREL laboratories before completing the health consultation.

---

# Lawrence-Berkeley National Laboratory
## Berkeley, California

**Type Site:** Technical assistance request from DOE
**Size:** 130 acres
**Facility Status:** Active
**Facility Mission:** The mission is and has been energy-related research, including biomedical uses of tritium, particle accelerators, and chemistry.

**DHAC Site Lead:** Paul Charp, PhD

**Action Dates:**

**Technical Assistance** (requested by DOE)
05/14/96 - Reviewed DOE's "Environmental Health Risk Assessment for Tritium Releases at the National Tritium Labeling Facility"

**Conclusions and Impacts:**

At the request of DOE-Oakland, ATSDR provided independent verification of DOE's risk assessment for tritium releases at the National Tritium Labeling Facility. ATSDR recalculated radiation doses received by residents near the facility using different assumptions, dose conversion factors, and risk coefficients. On the basis of these calculations and a comparison of ATSDR's results to the results presented by the laboratory, ATSDR concurred with the overall findings of the risk assessment. These findings indicated that the tritium releases did not pose a public health hazard to the surrounding area.

The agency also supplied comments to the laboratory to clarify issues, thus eliminating apparently contradictory statements found in the assessment, and ATSDR suggested

additional exposure pathways that should be evaluated.

# Lawrence-Livermore National Laboratory - Main Area
## Livermore, California

**Type Site:** NPL
**Size:** 800 acres
**Facility Status:** Active
**Facility Mission:** The mission is and has been laboratory-conducted research in defense systems, biomedical and environmental research, energy, magnetic fusion, and laser research.

**DHAC Site Lead:** Paul Charp, PhD

**Action Dates:**

**Public Health Assessments**

FY 1997 - initiated

**Health Consultations**

**Plutonium in Big Trees Park** (requested by community members)
10/28/97 - to classification review
11/05/97 - initial release for data validation
02/25/98 - public comment release

**Municipal Water Supply Quality** (requested by community members)
10/16/97 - to classification review
10/24/97 - initial release for data validation
02/25/98 - public comment release

**Technical Assistance**

04/13/95 - Reviewed data package for plutonium-239 concentrations in soil at a community park (requested by EPA).
04/08/97 - Provided community members with public health information.

**Conclusions and Impacts:**

ATSDR has engaged community members by asking them to identify issues and set priorities in the public health assessment process. The ATSDR site team includes representatives from the community, TriValley Citizens Against a Radioactive Environment (CAREs), Rotary Club, Central Valley Water Control Board, City of Livermore, Water Quality Boards from Livermore and Tracy, California Department of Toxic Substances Control, California Department of Health Services (DHS), DOE, and EPA. ATSDR and DHS provide monthly

Department of Health Services (DHS), DOE, and EPA. ATSDR and DHS provide monthly updates to the site team and hold quarterly meetings. These meetings are held in the evening and are open to the public; public attendance at these meetings has grown to over 100 people. Through the site team meetings, ATSDR has provided health education on basic radiation dose, exposures, and health effects, including the *ATSDR Public Health Statements* on plutonium, uranium, and trichloroethylene (TCE).

As a result of the health consultation for Big Trees Park, DOE is testing an additional 1,000 samples to further determine the disposition of plutonium-contaminated sludge.

---

# Lawrence-Livermore National Laboratory - 300 Area
## Livermore, CA

**Type Site:** NPL
**Size:** 10.2 square miles
**Facility Status:** Active
**Facility Mission:** The mission is and has been to serve as a testing ground for the Lawrence-Livermore National Laboratory Main Area. The facility was established in 1955 for materials testing and "non-nuclear" high-explosive diagnostic work. During 1963-1978, open air weapons detonations using tritium, depleted uranium, and beryllium were simulated.

**DHAC Site Lead:** Paul Charp, PhD

**Action Dates:**

**Public Health Assessments**
FY 1997 - initiated

**Conclusions and Impacts:**

No conclusions at this time.

---

# Los Alamos National Laboratory
## Los Alamos, NM

**Type Site:** Petitioned
**Size:** 28,000 acres
**Facility Status:** Active
**Facility Mission:** The current mission is nuclear research and development, including magnetic and inertial fusion, nuclear fission, nuclear safeguards and security, laser separation, and basic research in physics, chemistry, and engineering.

**DHAC Site Lead:** Edward A. Tupin, MS

**Action Dates:**

**Public Health Assessments**

FY 1998 - initiated

**Health Consultations**

**Acid Canyon Contamination** (requested by community)
09/14/92 - final

**Tritium in Residential Groundwater Wells** (requested by Indian Health Service)

02/14/95 - final

**Nitrates in Groundwater** (requested by Indian Health Service)
04/04/95 - final

**Air Monitoring for Radionuclides on the San Ildefonso Indian Reservation** (requested by community)
09/08/95 - to classification review
09/29/95 - initial release for data validation
06/11/96 - to DOE for second data validation
08/28/96 - final

**Technical Assistance**

03/10/95 - Responded to Indian Health Service regarding high alpha radiation levels found in pueblo wells.
04/04/95 - Provided recommendations and community education materials to San Ildefonso Pueblo regarding nitrate contamination found in residential wells.
07/11/95 - Provided assistance to Eight Northern Indian Pueblo Council in the formulation of a community health survey.
09/21/95 - Provided health education to pueblo governments and rural communities
09/22/95 regarding the adverse health effects of chemicals and radiation.

**Conclusions and Impacts:**

**NAREL Sampling**

After collecting and reviewing environmental surveillance data, ATSDR determined that off-site monitoring data were insufficient to determine exposure to possible air releases of radionuclides. ATSDR, through an interagency agreement with the Environmental Protection Agency's (EPA's) National Air and Radiation Environmental Laboratory (NAREL), collected and analyzed off-site samples to obtain more information. The media that were sampled included soil, sediment, surface water, groundwater, fish, vegetation, and produce.

Sampling results indicated concentrations of plutonium-239 and cesium-137 in sediment that were statistically greater than background levels. In addition, elevated levels of plutonium were found in surface water samples. Even though these levels were higher than background concentrations, they were not at levels known to adversely affect public health. Sampling results from vegetation, produce, groundwater, and fish did not indicate elevated levels of radionuclides.

To determine whether individuals were being exposed to radiation from very short-lived contaminants from air emissions, ATSDR deployed thermoluminescent dosimeters (TLDs) at approximately 30 locations in the San Ildefonso Pueblo and around the laboratory boundary. After 1 year of monitoring, no signs of elevated radiation levels were found.

To determine the levels of gamma radiation to which residents are being externally exposed, ATSDR deployed six gamma radiation monitors during August 1996. These monitors were recommended in ATSDR's health consultation, *Air Monitoring for Radionuclides on the San Ildefonso Indian Reservation* (August 28, 1996).

**Acid Canyon Contamination**

The Working Group to Address Los Alamos Community Health Concerns requested that ATSDR investigate levels of plutonium in Acid Canyon. ATSDR concluded that levels of plutonium did not pose a public health hazard to persons using the canyon for recreational activities, such as jogging.

**Tritium Levels in Residential Wells**

The All Indian Pueblo Council (AIPC) Environmental Office notified ATSDR that tritium contamination had been detected in several groundwater wells in and around the Los Alamos National Laboratory (LANL) and requested assistance in determining the accuracy of the sampling and analysis. ATSDR, through its interagency agreement (IAG) with NAREL, reviewed the data from LANL and AIPC on the levels of tritium detected, sample collection and analytical processes and possible health implications. The report, issued February 14, 1995, indicated that the tritium could have originated from one or more of the following sources:

- areas of known contamination on or around the LANL;
- natural sources in rain or soil moisture;
- deposition from worldwide fallout resulting from nuclear weapons detonations;
- natural occurrence not previously recognized because the technology to detect tritium at the low levels seen had not been developed or low-level tritium analysis had not been performed earlier; and
- contamination introduced during sample collection or analysis.

A calculation of the potential effective dose equivalent to an individual who consumed water at the highest tritium concentration reported (2237 pCi/L) gave an estimate of 0.104 millirem per year (mrem/y) which is less than 5% of the EPA drinking water limit of 4 mrem/y total radioactivity. This value came from a monitoring well that is not being used for drinking water. Therefore, the levels of tritium reported do not represent a public health threat. Because the descriptions of the methodology and analysis of quality control samples were not provided, ATSDR could not perform a technical review of the methods or accuracy and precision of the analyses.

**Nitrates in Residential Wells**

On March 29, 1995, the Indian Health Service notified ATSDR that three residential wells on the San Ildefonso Pueblo had concentrations of nitrates above the maximum contaminant level (MCL) of 10 ppm. On April 6, 1995, ATSDR involved the pueblo and state and local environmental health officials in public health activities designed to (1) limit exposure to infants and prevent associated adverse health effects, (2) educate persons about health effects associated with nitrate exposures, and (3) provide examples of specific preventive health measures. The agency also provided copies of ATSDR's *Nitrate Case Study in Environmental Medicine* and the Michigan Health Department's *Nitrate in Drinking Water Fact Sheet* to the pueblo. These activities helped eliminate potential exposure to nitrates in groundwater for the most sensitive population, infants less than 4 months of age.

**Air Monitoring at San Ildefonso Pueblo**

The San Ildefonso Pueblo requested that ATSDR determine the emissions of radionuclides to the air from the LANL and the impact on public health. ATSDR concluded that the LANL has not identified all sources of radionuclide emissions to the air and, therefore, radionuclides of concern and the extent of radiation exposure could not be determined. Of particular concern was the possibility that very short lived radionuclides were not being identified by the air monitoring system in use. The agency recommended the installation of real-time air monitoring stations. As a result, DOE established a Neighbor Environmental Watch Network consisting of real-time monitors for gamma radiation, which would be responsive to releases of short lived radionuclides, in four pueblos near the LANL and in the City of Los Alamos, New Mexico.

**Technical Assistance**

**High Alpha Levels in Pueblo Wells**

On March 10, 1995, ATSDR reviewed radiological data of drinking water samples taken from the Tesuque Pueblo. ATSDR concluded that water in the Main Well and Backup Well should be safe for drinking. ATSDR recommended that, because alpha radiation levels exceeded Safe Drinking Water Act (SDWA) standards, use of the Bingo 1, Bingo 2, and Camp Ground wells should be restricted to nonpotable uses and that isotopic analyses of water from these wells should be done to determine the source material for the elevated levels of gross alpha and gross beta activity. The Indian Health Service staff and Tesuque Pueblo officials were educated about the health effects and necessary preventive action associated with radiological contamination in drinking water. These activities should eliminate exposure to the most sensitive population, workers at the Bingo and Camp Ground facilities.

**Health Studies:**

In conjunction with the New Mexico Department of Health, ATSDR participated on the steering committee review of Los Alamos cancer rates. The committee determined that incidence of brain cancer in Los Alamos county was not elevated. However, incidence of thyroid cancer was elevated. The New Mexico Cancer Registry continues to monitor incidence data.

**Health Education Activities**:

Through a cooperative agreement, Boston University assisted ATSDR in identifying community health concerns and health outcome data. Boston University established a toll free telephone number for the community and provided health education workshops for the San

Ildefonso and Santa Clara Pueblos.

ATSDR sponsored a workshop for pueblo and rural communities in September 1995. Approximately 60 people attended the workshop and were provided environmental health information on chemical and radiation exposure.

ATSDR continues to engage community members by providing advice on the public health impact of new environmental sampling results and addressing community health concerns upon request.

Needs assessments are critical in the design to build capacity within a community to address the environmental concerns of affected community members and provide direct input on decisions concerning the health issues related to site releases.

ATSDR has conducted needs assessments for multiple communities in the Los Alamos area, including the Eight Northern Pueblos and Hispanic communities near the site. In FY 1998, ATSDR will implement the health education activities identified in the needs assessment to inform residents in communities around the laboratory about hazards associated with radiation exposure. In FY 1999, ATSDR will continue community and professional health education. ATSDR health education activities assist the community in understanding the effects of exposure to low doses of contaminants. Health education will increase the community's knowledge about potential exposures and, therefore, reduce adverse health effects and diminished quality of life resulting from exposure to hazardous substances in the environment.

---

# Maywood Interim Storage Site

## Bergen County, New Jersey

**Type Site:** NPL, FUSRAP

**Size:** 11.7 acres
Properties include Maywood Interim Storage Site (MISS), Stepan Chemical Company, 10 additional commercial properties, and 85 municipal and residential properties (some remediated and some scheduled for remediation).

**Facility Status:** Active (Stepan Chemical, formerly Maywood Chemical Company, is an active chemical company but does not handle radioactive materials).

**Facility Mission:** The past mission was extraction of thorium from monazite ore and production of rare earth metals and other chemicals. The current mission is interim storage of low-level mixed waste.

**DHAC Site Lead:** Carol Connell, BS

**Action Dates:**

**Public Health Assessments**

12/10/88 - initial release
07/30/90 - final

09/04/92 - site review and update

**Health Consultations**

**Sears and Adjacent Commercial Properties** (requested by EPA)
08/04/93 - initial release for data validation
11/19/93 - final

**Contamination on Residential and Municipal Properties in Maywood, Lodi, and Rochelle Park** (requested by EPA)
09/25/95 - to classification review
11/07/95 - initial release for data validation
12/21/95 - final

**Technical Assistance**

08/28/95 - Health Education for Municipal Workers in Lodi
10/03/97 - Review of *Cancer Incidence in Three Communities Near the Maywood Area Superfund Sites (Bergen County), New Jersey: A Site-Specific Follow-Up Health Study* (09/08/97)
08/16/95 - Provided comments on the Engineering Evaluation/Cost Analysis for the Cleanup of Residential and Municipal Vicinity Properties.
12/14/94; 06/19/95; 06/23/95; 09/12/96
- Provided individual community members with information about potential health effects of contaminated soil in Lodi residential lots (letters).

**Conclusions and Impacts:**

**Sears and Adjacent Commercial Properties**
ATSDR reviewed the data on elevated levels of volatile organic compounds (VOCs) and radon emissions from subsurface soils and concluded that future excavation on the Sears and adjacent properties could expose unprotected workers to levels associated with adverse health effects. ATSDR recommended suitable precautions be taken during on-site excavation. Surface soil does not pose a public health hazard to incidentally exposed members of the public.

In addition, DOE revised its sampling program after ATSDR recommended that DOE sample for radon-220 (a daughter product of the contaminant thorium-232) instead of radon-222 (the daughter product of uranium, which was not a contaminant). The revised sampling program identified four areas with elevated radon-220 levels. These areas were remediated during the summer of 1996.

**Residential and Municipal Properties**
ATSDR concluded that current levels of radiological contaminations in surface soils do not pose a public health hazard. However, ATSDR identified elevated levels of lead (1,000 mg/kg) in the soils of one residential property. ATSDR considered this level to be a potential health hazard for children playing in the yard. At ATSDR's request, the Bergen County Health Department tested the children for blood-lead levels.

**Technical Assistance**

**Health Education for Municipal Workers in Lodi**
On August 8, 1995, ATSDR provided public health education to municipal workers in Lodi, New Jersey. Through a cooperative agreement with the Boston University School of Public Health, ATSDR explained that, although radiological contamination in surface soil did not pose a health hazard, subsurface soil could be a health hazard and that DOE should be notified before digging or excavating. ATSDR also provided workers with maps of the city and individual properties at which subsurface soil contamination was found.

**Review of *Cancer Incidence in Three Communities Near the Maywood Area Superfund Sites (Bergen County), New Jersey: A Site-Specific Follow-Up Health Study***
During the public comment period, ATSDR provided comments and concerns on the draft report to the New Jersey Department of Health and Human Services (NJDHHS). The study reported that brain/central nervous system (CNS) cancer incidence in females increased two-fold; however, because the incidence of brain/CNS cancer cases was so small, this increase may not be significant. NJDHHS plans to continue surveillance of brain/CNS cancer in the study area. The study also reported that, with the exception of brain and CNS cancers in females, incidence rates for all cancers and specific types of cancer were not significantly different than expected in comparison with average state incidence rates.

In a letter dated September 22, 1997, Congressman Steven R. Rothman, Senator Robert G. Torricelli, and Senator Frank R. Lautenberg requested an ATSDR consultation for Maywood, Lodi, and Rochelle Park that addresses demographic population confounders in the study to clarify the epidemiologic significance of the conclusions. They also requested a review of the range of contaminant concentrations that have been released from all sources in the geographic region of concern to identify those materials most likely associated with brain and CNS cancers. ATSDR plans to prepare a site review and update during FY 1998.

**Residential Lots**
ATSDR responded to community members' requests to evaluate the health risks associated with dose exposure for children who might have been exposed while playing in their yards, sandboxes, and swing sets before DOE's remediation of radiological contamination. ATSDR assured the residents that the radioactive material concentrations did not pose a health hazard.

**Review of Engineering Evaluation/Cost Analysis**
ATSDR reviewed and commented on the DOE proposed *Engineering Evaluation/Cost Analysis (EE/CA) for the Cleanup of Residential and Municipal Vicinity Properties at the Maywood Site.* ATSDR recommended that the remediation level of 100 pCi/g for uranium on residential soils should be lowered to protect public health. ATSDR further recommended that confirmatory samples be taken after remediation to demonstrate that the properties have been properly remediated.

---

# Monticello Mill Tailings Site and Monticello Vicinity Properties Site
## Monticello, Utah

**Type Site:** NPL

**Size:** 78 acres

**Facility Status:** Inactive

**Facility Mission:** Initially served as an ore-buying station. Ore production increased sufficiently to justify mill construction in 1941. Produced vanadium (1942-1943), uranium-vanadium sludge (1943-1946), and uranium (1949-1960). The current mission is site remediation.

**DHAC Site Lead:** Marcie Gallagher, BCE

**Action Dates:**

**Public Health Assessments**

10/24/95 - to classification review
12/28/95 - initial release
12/20/96 - public comment release
09/30/97 - final

**Health Education**

April 1995

**Conclusions and Impacts:**

**Public Health Assessment**

ATSDR concluded that (1) the mill previously posed a public health hazard and (2) because site access is now strictly controlled, the mill tailings on site currently do not pose a public health hazard. Industrial hygiene surveys of the mill performed when the mill was operating reported that conditions were "very dusty" and that many workers were exposed to levels of radioactive dusts above allowable concentrations. Hazardous substances included yellow cake (uranium oxides), black cake (vanadium oxides), uranium, vanadium, and chlorine gas.

ATSDR identified higher mortality rates in San Juan County for renal failure and breast cancer in females and lung cancer and prostate cancer in males.

In the 1993 DOE Monticello Annual Report, ATSDR is credited with increasing public awareness of remedial actions at the site. As a result of ATSDR's work with the community, DOE re-evaluated the Record of Decision and modified it to include a strategy of on-site burial of contaminated soil and debris which was formulated by local community members.

**Health Studies**:

Based on results from an updated cancer statistics review, an assessment of end-stage renal disease incidence in San Juan County, and a potential case-series analysis of end-stage renal disease, ATSDR staff will collaborate with community representatives to determine the feasibility of and interest in conducting epidemiologic studies of selected cancers or end-stage renal disease. Working with the community, ATSDR staff will design and conduct a study to estimate the association between exposure to radioactive contaminants and subsequent health

effects. In addition to cancer and renal disease, early stage kidney disease (i.e., as assessed by the use of biomarkers) may be a possible outcome to evaluation.

A health study conducted at the site will help determine whether releases from the Monticello Mill Tailings Site are associated with increased morbidity and/or mortality in off-site populations. In addition, a study using biomarkers of effect would advance scientific knowledge in the field of preclinical disease research.

**Health Education:**

In conjunction with EPA's National Air and Radiation Environmental Laboratory (NAREL), ATSDR developed community information sharing sessions on radiation and health to educate and assist the community near the Monticello Mill Tailings Site and the Monticello Vicinity Properties Site. The sessions were conducted in Monticello and Blanding, Utah, April 24—27, 1995, with school-aged children (elementary, middle, and high school) and adults in the , communities, including the Ute Indians and the Blue Mountain Dineh Indians. Approximately 1,228 people attended, and the sessions effectively enabled ATSDR to engage community members in health education activities and provided an open forum to discuss radiation and public health issues. ATSDR and NAREL provided age-appropriate materials (e.g., coloring books, comic books, and informational books) for meeting attendees.

Next Section Table of Contents