

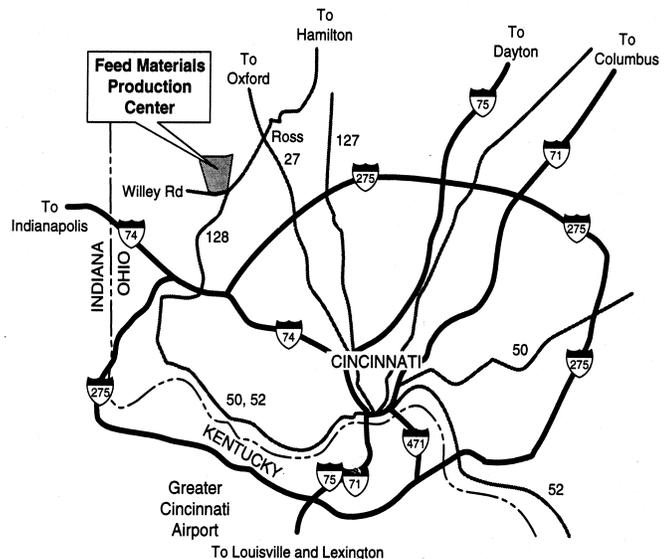
Centers for Disease Control and Prevention National Center for Environmental Health

Fernald Risk Assessment Project – Draft Phase II Report

Phase II: Screening Level Estimates of the Lifetime Risk of Developing Kidney Cancer, Female Breast Cancer, Bone Cancer, and Leukemia as a Result of the Maximum Estimated Exposure to Radioactive Materials Released from the Fernald Feed Materials Production Center (FMPC)

The Fernald Nuclear Site

The Fernald Feed Materials Production Center (FMPC) near Ross, Ohio (now known as the Fernald Environmental Management Project) was a Department of Energy facility that was part of the United States' nuclear weapons production complex from 1951 to 1988. The FMPC's primary purpose was to produce uranium metal for the United States defense program. A 1000-acre site located about 15 miles northwest of Cincinnati, Ohio, the FMPC processed uranium ore concentrates and compounds recycled from other stages of nuclear production into either uranium oxides or ingots of uranium metal. Production activities at the FMPC ended in 1988.



During the FMPC's production years (1951-1988), radioactive material was released from the site into the air during processing, from waste material stored in two large silos (the K-65 silos), and from waste burned or buried in pits and incinerators.

CDC's Initial Involvement 1988 to 1990

In 1988, the United States Congress requested that CDC's National Center for Environmental Health consider an epidemiologic study of the community surrounding the FMPC. CDC replied that such a study would have little chance of success without adequate estimation of radiation doses in the community. CDC determined that the appropriate first step in assessing potential FMPC-related health effects was to estimate off-site radiation exposure through a dose reconstruction process.

In addition, CDC proposed that a community-based risk assessment was needed in order to evaluate the FMPC's effect on the health of people who lived in the surrounding community. By estimating the range of possible doses and the number of selected health outcomes that may have occurred in the area, CDC can determine if a scientifically sound epidemiologic study can be conducted in the Fernald area.

Fernald Health Effects Subcommittee

To address the community concerns about possible health consequences associated with the Fernald Nuclear site, CDC and the Agency for Toxic Substances and Disease Registry (ATSDR) formed the Fernald Health Effects Subcommittee (FHES) in the Spring of 1996. The FHES is a formal Federal Advisory Committee Act chartered advisory group made up of a diverse group of local citizens and scientists. CDC and ATSDR work closely with the FHES to determine what type of public health activities and research should be carried out at Fernald and to interpret findings from studies now under way.

***CDC's Fernald
Dose
Reconstruction
Project
1990-1998***

In 1990, CDC initiated the Fernald Dosimetry Reconstruction Project. CDC's National Center for Environmental Health and its contractor, Radiological Assessments Corporation (RAC), performed a thorough review of historical records and conducted extensive interviews with former and current employees and residents to reconstruct routine plant operations, document unintentional releases, and evaluate unmonitored emission sources. RAC then estimated the quantities of radioactive materials released into air, surface water and groundwater; developed the methodology and mathematical approaches for modeling how this material moved through the environment; and produced methods for estimating the resulting radiation doses to specific organs in the body. RAC estimated doses for nine hypothetical exposure scenarios and found that the estimated radon lung dose was significantly higher than the dose to the lung from uranium, thorium and other radionuclides, or doses to other organs. Draft project findings were released to the public in August 1996. After lengthy scientific and public review, the final report was released in December 1998.

***CDC's Fernald
Risk Assessment
Project***

In response to community concerns and a formal recommendation to CDC from the FHES, the Fernald Risk Assessment Project was initiated. The purpose of the Fernald Risk Assessment Project is to estimate the health risks to the surrounding community that may result from past exposures to radioactive materials released from the former FMPC during its operating years and to provide data for evaluating the feasibility of an epidemiologic study. The Fernald Risk Assessment Project has been conducted in two phases. Phase I focused on estimating the effect of exposure to radioactive materials released from the site on lung cancer mortality. The draft results of Phase I (Estimation of the Impact of the Former Feed Material Production Center (FMPC) on Lung Cancer Mortality in the Surrounding Community) were reported in March 1998 and a final report was released in December of that year. The CDC estimated that the number of lung cancer deaths in the population residing within 10 kilometers (6.2 miles) of the site from 1951 through 1988 may be 1% to 12% higher because of Fernald-related radiation exposure than it would have been if these exposures had not occurred.

The Phase II report, "*Screening Level Estimates of the Lifetime Risk of Developing Kidney Cancer, Female Breast Cancer, Bone Cancer, and Leukemia as a Result of the Maximum Estimated Exposure to Radioactive Materials Released from the Former Feed Materials Production Center (FMPC)*," provides estimates of the maximum dose, lifetime risk, and percentage increase in the lifetime risk for hypothetical individuals residing at different geographic locations around the site and upper bound, or worst case estimates of the number of kidney cancer, female breast cancer, bone cancer and leukemia cases that may occur or may have already occurred in the population residing within 10 kilometers (6.2 miles) of the site from 1951 through 1988 as a result of their Fernald-related radiation exposure.

***For More
Information***

For further information on CDC's research at Fernald or information on the Fernald Health Effects Subcommittee, please contact Dr. David Pedersen at (513) 841-4400. CDC, NIOSH, MS R-19, 4676 Columbia Parkway, Cincinnati, OH 45266-1998