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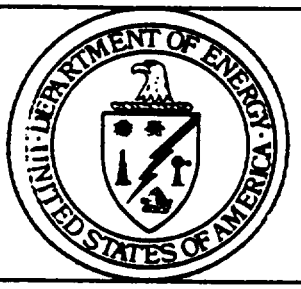
FINDING OF NO SIGNIFICANT IMPACT AND ENVIRONMENTAL ASSESSMENT



United States Department of Energy
Chicago Operations Office

BATTELLE COLUMBUS LABORATORIES DECOMMISSIONING PROJECT

JUNE, 1990

DOE F 1325.8
(8-89)

United States Government **Department of Energy**

memorandum

DATE: AUG 0 6 1990

REPLY TO ATTN OF: EM-423

SUBJECT: Batelle Columbus Laboratories Decommissioning Project Transmittal of Approved Environmental Assessment Finding of No Significant Impact

TO: Jeff O. Neff
BCLDP

The Environmental Assessment (EA) and Finding of No Significant Impact (FONSI), which were approved by the Assistant Secretary of Environment Safety and Health on June 14, 1990, are hereby transmitted to you for information and use. You should provide public notice of these documents in accordance with Section 1505.6(b)(3) of the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA. Publication of a notice in the Federal Register is not required. The approval of the EA and FONSI concludes the NEPA action required for cleanup actions at your site.

Please extend my thanks to your staff for their cooperation in obtaining approval of these documents.

W. E. Murphie
Acting Chief
Decontamination and
Decommissioning Branch
Division of Eastern Area Programs
Office of Environmental Restoration

Attachment

cc:
F. F. Gorup, CH
S. J. Webster
C. Hickey, EM-431

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DOE F 1325.8
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United States Government | Department of Energy

memorandum

DATE: June 14, 1990

REPLY TO ATTN OF: EH-25

SUBJECT: Environmental Assessment for Battelle Columbus Laboratories Decommissioning Project

TO: Leo P. Duffy, Director
Office of Environmental Restoration
and Waste Management

This is in response to your request of April 12, 1990, for approval of the environmental assessment (EA) for Battelle Columbus Laboratories Decommissioning Project (DOE/EA-0433) and issuance of a finding of no significant impact (FONSI) for the proposed action.

The Office of Environment, Safety and Health has reviewed the EA in accordance with our responsibilities under Department of Energy Order 5440.1C regarding compliance with the National Environmental Policy Act (NEPA). The EA, including revised pages received on May 2, 17 and 30, 1990, incorporates comments provided by the Office of NEPA Project Assistance on earlier versions of the EA and is responsive to comments provided by the State of Ohio Department of Health and Environmental Protection Agency.

Based upon my staff's review and analysis and its recommendations, and after consultation with the Office of General Counsel, I have determined that this EA is adequate for publication and that the proposed action is not a major Federal action significantly affecting the quality of the human environment, within the meaning of NEPA. Therefore, the preparation of an environmental impact statement is not required. The basis for the determination is explained in the attached FONSI.

Environmental Restoration and Waste Management is responsible for providing public notice of the availability of the EA and FONSI as required in Section 1506.6(b)(3) of the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA. Please send three copies of the EA and a copy of the distributior list to the Office of NEPA Project Assistance for our files.

Peter N. Brush
Acting Assistant Secretary
Environment, Safety and Health

Attachment

FINDING OF NO SIGNIFICANT IMPACT, DECONTAMINATION AND DECOMMISSIONING OF BATTELLE COLUMBUS LABORATORIES IN COLUMBUS AND WEST JEFFERSON, OHIO

AGENCY: Department of Energy

ACTION: Finding of No Significant Impact

SUMMARY: The Department of Energy has prepared an Environmental Assessment (EA) (DOE/EA-0433) for the proposed decontamination and decommissioning of Battelle Memorial Institute facilities in Columbus and West Jefferson, Ohio, which were used by the Federal Government in support of government-sponsored nuclear research. Based on the analysis in the EA, the Department has determined that the proposed action is not a major Federal action significantly affecting the quality of the human environment, within the meaning of the National Environmental Policy Act of 1969. Therefore, the preparation of an environmental impact statement is not required and the Department is issuing this Finding of No Significant Impact (FONSI).

SINGLE COPIES OF THE EA ARE AVAILABLE FROM:

Mr. Jefferson O. Neff
U.S. Department of Energy
Chicago Operations Office
Battelle Columbus Laboratories
Decommissioning Project
Room A190I
505 King Avenue
Columbus, Ohio 43201
(614) 424-3990

FOR FURTHER INFORMATION ON THE NEPA PROCESS CONTACT:

Ms. Carol Borgstrom, Director
Office of NEPA Project Assistance
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585
(202) 586-4600

PROPOSED ACTION:

Under provisions of the Surplus Facilities Management Program, the U.S. Department of Energy proposes to decommission fifteen facilities and associated premises belonging to Battelle Memorial Institute in Columbus and West Jefferson, Ohio. Nine of these buildings are located at Battelle Memorial Institute's Battelle Columbus Laboratories King Avenue Site, in Columbus, Ohio. The remaining six are located at Battelle's West Jefferson Site, West Jefferson, Ohio.

Battelle Memorial Institute's facilities are operated under a Nuclear Regulatory Commission license (No. SNM-7) and in compliance with all applicable State and Federal regulations. As a result of nuclear research and development activities conducted over a period of approximately 43 years, performed for the Department of Energy and its predecessor agencies and other commercial contracts, the 15 buildings have become contaminated with varying amounts of radioactive material.

Existing monitoring data and historical information indicate that radioactive contamination consists of mixed fission products, activation products, uranium, thorium, and suspect transuranics. An estimated 6,055 Curies (Ci) of radioactive contamination are present in the facilities, with 6,000 Ci of activity being contained in the Hot Cell Laboratory building at the West Jefferson site. This contamination is contained within the buildings primarily as fixed contamination on floors and walls and is monitored under an extensive surveillance and maintenance program.

The Department of Energy no longer has a need to utilize the facilities and is contractually obligated to remove the contamination such that the owners can use the facilities without radiological restrictions.

BACKGROUND:

The King Avenue facility is located in the West Central portion of the city of Columbus, Ohio, at a latitude of 39 degrees 59 minutes N, and longitude of 83 degrees 03 minutes W. The ten acre King Avenue facility comprising twenty-one buildings is bounded on the north by King Avenue, on the east by Perry Street, on the south by Fifth Avenue and on the West by the Olentangy River.

Nine of the buildings involved in the decommissioning action are located at the King Avenue Site. The nuclear research performed in these buildings included processing and machining of enriched, natural, and depleted uranium, thorium fuel fabrication, radiotracer studies, radiochemical analyses, and powder metallurgy studies. In addition, secure vault storage for nuclear material was provided in one of the buildings.

There are three sumps at the King Avenue facility which contain approximately 2.6 m^3 (91 ft^3) radioactive contamination mixed with PCBs at concentrations greater than 50 ppm. Sixteen other sumps contain only radioactive contaminants or only PCBs. There have been no radioactive releases outside the buildings reportable under Nuclear Regulatory Commission regulations or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) during the entire operation of the facility.

The West Jefferson site is approximately 15 statute miles west of the King Avenue facility and is located at a latitude of 39 degrees 58 minutes N, and longitude of 83 degrees 15 minutes W. The site consists of a 1000-acre tract bounded in the following manner: the northern boundary of the West Jefferson site extends from the Plain City-Georgesville Road eastward to Big Darby Creek and is approximately one mile south of Interstate Highway 70; the southern boundary consists of the Conrail tracks; the eastern

boundary of the site is parallel to Big Darby Creek; and the western boundary is defined by the Plain City-Georgesville Road.

Six buildings included in the decommissioning project are located at the West Jefferson site. Research was performed at two areas on this site: the Nuclear Sciences area (three buildings) in the northern portion, and (2) the Engineering area (three buildings) in the southeastern portion. The three buildings in the Engineering area were used for fuel element fabrication and ballistics studies.

The oldest and most highly contaminated building in the Nuclear Sciences area is the Hot Cell Building (JN-1). This building began operation in 1955 and has been used continuously for nuclear research studies. Work conducted there included examinations and evaluations of power and research reactor fuels; post irradiation examination of fissile control rod, source, and structural materials and components; and examinations of irradiation surveillance capsules. In addition, this building has been the site of radiation source encapsulation, and physical and mechanical property studies of irradiated materials and structures.

The two other buildings at the Nuclear Sciences area are the old Critical Assembly Laboratory (JN-2) and the partially dismantled Research Reactor Building (JN-3). The Critical Assembly

Laboratory was used for reactor critical assembly experiments, direct energy conversion experiments, experiment assembly, special nuclear materials handling, and plutonium research activities. Active nuclear experimentation was terminated in this building in 1970. Since then it has been used for administration offices. However, it still houses a special nuclear materials vault, although all special nuclear materials have been removed, and a radiochemistry laboratory which supports health physics and site environmental activities. The Research Reactor Building contains the Battelle Research Reactor which was actively used from 1956 until 1974. It was partially dismantled in 1974 and its license (SNM-7) was changed to a possession only. Since then it has been used for short term waste storage.

Elevated levels of radioactivity have been identified at a storm sewer outfall area and in two retired filter beds located at the West Jefferson Nuclear Sciences Area. The contamination consists of cesium, cobalt, americium, and plutonium at the storm sewer and cesium, cobalt and americium at the filter beds. The storm sewer outfall area involves less than 8.5 m^3 (300 $ft^{3)}$ of soil, with concentrations ranging from 0.07 to 11.2 picoCi (pCi)/g, and the filter beds involve less than 2,300 m^3 (81,375 ft^3) of soil, with concentrations ranging from 0.2 to 32 pCi/g. Remediation of these areas may not be necessary because of the low concentrations of radionuclides present; however, the options of

removal and disposal and additional institutional controls are available.

ENVIRONMENTAL IMPACTS:

The potential environmental consequences of the proposed action were analyzed for several categories of activities which include: (1) decontamination and decommissioning, (2) transportation, and (3) disposal impacts. No significant impacts were determined in any category under routine or accident conditions. The results are summarized below.

Decontamination and Decommissioning

The radiological impacts were evaluated for two groups: the general public and the decommissioning/decontamination workers. The general public was further divided into two groups: non-involved Battelle staff, and persons living or working near the two sites.

The maximum dose for a non-involved Battelle worker was estimated to be 0.1 millirem (mrem)/year, which is approximately 0.4% of the Department of Energy guideline of 25 mrem/yr. The collective dose for non-involved workers was estimated to be 0.01 person-rem for the entire project. This translates to a health risk (i.e., number of expected latent cancer fatalities in exposed individuals and serious genetic defects in their progeny) of 6×10^{-6}.

The maximum dose to persons living or working near the King Avenue and West Jefferson sites was estimated to be 1.22×10^{-5} and 1.09×10^{-3} mrem/yr, respectively, clearly below the Department of Energy Guidelines of 25 mrem/yr. The collective dose estimates for the general public are 1.9×10^{-4} person rem/yr and 4.6×10^{-3} person-rem/yr for the King Avenue and West Jefferson sites, respectively. A conservative risk estimate, assuming full exposure over the life of the project (eight years), presented by these doses are 9×10^{-7} and 2×10^{-5} for the King Avenue and West Jefferson sites respectively.

For the decommissioning/decontamination workers, the highest individual exposure is estimated to be 2.9 rem/year which is less than 60 percent of the occupational guideline of 5 rem/yr. The mean exposure, 0.92 rem/yr is less than 20 percent of the same guideline. These individual exposures lead to a collective dose estimate of 520 person-rem for the entire project over an eight year period. Actual exposures to the decommissioning/ decontamination workers are expected to be much less as a result of implementation of As Low As Reasonably Achievable (ALARA) principles during operations.

Sludge that contains PCBs in concentrations greater than regulatory guidelines (Toxic Substances Control Act (TSCA)) would be incinerated in a TSCA permitted PCB incinerator. Sludge containing radionuclides and PCB concentrations in excess of

regulatory guidelines would be packaged and sent to the Department's Oak Ridge Reservation for storage and subsequent incineration at the PCB/radioactive waste incinerator, expected to be permitted soon, or to Hanford for storage and eventual incineration. The handling, transportation and storage requirements of TSCA would be followed whenever PCB contaminated sludge is handled.

Remediation of the soil areas with elevated levels of radionuclides found at the storm sewer and the filter beds at West Jefferson may not be necessary because of the low concentrations present. Analyses were conducted, however, to determine the maximum exposure to the public if a puff release of the entire inventory of radionuclides were to occur at one time. The result of these analyses indicted a maxiumum exposure of 0.12 mrem/yr to the public for a release at the storm sewer at the site boundary. The exposure declined with distance. Maximum exposure from a puff release at the filter beds was estimated at 1.2 mrem/yr because the concentrations are an order of magnitude greater than the storm sewer. Both exposures are well below DOE's guideline of 25 mrem/yr.

No threatened or endangered species occur on either site nor are there wetlands or scenic waterways. Monitoring data demonstrate that there have been no releases of radionuclides from operation

of the King Avenue and West Jefferson facilities that could have had an effect on tne terrestrial and aquatic biota in the areas.

No releases to ground water and no unregulated releases to surface water would be anticipated during decontamination and decomissioning activities. Treatment of contaminated water will be conducted on-site in accordance with applicable regulations and licenses. Discharges would be in accordance with the facility's NPDES permit.

Other potential impacts could result from the generation of toxic substances and mixed wastes. Toxic substances or mixed wastes that are generated during the project will be stored, treated and disposed of in accordance with regulatory requirements.

Another potential impact is noise. All of the activities occur inside buildings or in the rural location of West Jefferson; therefore, noise levels would not impact the public and noise level impacts on workers would be mitigated to levels consistent with OSHA requirements by providing ear protection for involved workers and the relocation of non-involved workers.

Transportation

Potential exposure to transportation personnel as a result of transporting waste to disposal sites is based on all shipments being made by truck. The maximum individual exposure to a driver

is less than 2.5 rem/yr (50 percent of the Department of Energy occupation guidelines of 5 rem/yr). The total exposure for all drivers is calculated to be 101 person-rem. There is a certain potential for non-radiological injury or death as a result of a truck accident. It is estimated that waste shipments might lead to 1.3 accidents, 0.6 injuries, and 0.04 fatalities. During maximum transport activity, it is estimated that a total of six truck shipments will originate during 1993 from the King Avenue site and 40 truck shipments during 1996 from the West Jefferson site. This maximum transport activity would be equivalent to a common 18-wheel, tractor-trailer rig leaving the King Avenue site every 2 months and slightly less than once a week from the West Jefferson site.

Disposal of Waste

The Hanford site in Washington is fully approved and qualified to accept and dispose of the low-level wastes from decommissioning activities at BCL. The volume of low-level waste generated will equal approximately 4% of the volume annually accepted at the Hanford site for the life of the project but an insignificant percentage of the total volume of the site. It is expected that any TRU waste will go to the Waste Isolation Pilot Plant for disposal once the WIPP is authorized to accept such wastes. In the interim, this waste will be stored at Hanford. The Battelle Columbus Laboratories Decommissioning Project suspect TRU waste

is estimated to be approximately 0.06% of the waste expected to be received at the WIPP.

ALTERNATIVES CONSIDERED

In the EA, the Department considered no action as an alternative to the proposed action of decontamination and decommissioning of Battelle Memorial Institute Facilities in Columbus and West Jefferson, Ohio.

The No Action alternative poses no threat to the environment or public health if institutional controls are maintained at the site. These controls involve the continued surveillance and maintenance of the contaminated facilities. Surveillance and maintenance consists of (1) an environmental monitoring program to ensure that radioactive contamination has not escaped to the environment, (2) regularly scheduled inspection and maintenance of health, safety, and radiation protection equipment and instrumentation calibration and documentation, (3) a program of health physics surveillance monitoring and personnel dosimetry, and (4) emergency planning, training, and drills. All surveillance and maintenance activities are conducted under an existing nuclear quality assurance program consistent with DOE Order 5820.2A (NQA-1) and 10 CFR 50 Subpart B.

The No Action alternative, however, does not allow the Department to release the facilities to Battelle for future use without

radiological restrictions. Because the Department is required to release the facilities for use without radiological restrictions, in accordance with contractual-requirements, and institutional control would be required for several thousand years, the No Action alternative was not selected.

DETERMINATION:

The proposed decontamination and decommissioning of the Battelle Memorial Institute Laboratory Facilities in Columbus and West Jefferson, Ohio, does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act; therefore, an environmental impact statement is not required. This finding is based on the analyses in the EA.

Dated at Washington, D.C. this 14 day of June, 1990.

Peter N. Brush
Acting Assistant Secretary
Environment, Safety, and Health