

# **FINDING OF NO SIGNIFICANT IMPACT**

Proposed Decontamination and Disassembly of the  
Argonne Thermal Source Reactor  
at Argonne National Laboratory-East



**U. S. Department of Energy  
Chicago Operations Office**

**July 15, 1998**

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**AGENCY:** U. S. Department of Energy

**ACTION:** Finding of No Significant Impact (FONSI)

**SUMMARY:** The Department of Energy (DOE) has prepared an Environmental Assessment (EA) DOE/EA-1266, evaluating proposed decontamination and disassembly (D&D) of the Argonne Thermal Source Reactor (ATSR) at Argonne National Laboratory-East (ANL-E), Argonne, Illinois. The ATSR was one of several early "zero power" reactors (ZPRs) developed and operated from 1950 to 1989 within the Building 314, 315, 316 complex at ANL-E. The reactor was used to conduct research from 1953 until the late 1980's when it was shut down and the fuel removed. The ATSR facility is located in Building 316.

The D&D work would protect human health and the environment from risks associated with the contaminated surplus ATSR, a former experimental reactor that contains residual radioactivity and hazardous materials.

Based on the analysis in the EA, the DOE has determined that the proposed action does not constitute a major federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969 (NEPA). Therefore, the preparation of an Environmental Impact Statement is not required.

**DESCRIPTION OF THE PROPOSED ACTION:**

The proposed action would include activities such as equipment and systems disassembly; size reduction by cutting with saws or cut-off wheels; and packaging and disposal of the resultant waste. Some lead-based paint would be removed by grit blasting using a High Efficiency Particulate Air (HEPA)-filtered recovery system. Reactor components such as lead shielding bricks, graphite piles, concrete shielding, a fume hood, duct work, and a dump tank would be disassembled and packaged for removal. The work would be performed indoors in Building 316.

**ALTERNATIVES:**

Under the no action alternative, the ATSR would not be decontaminated and the existing equipment would not be removed. The ATSR would be maintained as at present in a safe lay-up condition. Surveillance and monitoring activities would continue to ensure adequate containment of radioactive materials, provide physical safety and security controls and to allow for personnel access. The use of the space for other activities would be precluded. Surveillance and maintenance personnel would continue to be exposed to radioactivity and the risk of release of material due to accidents or natural hazards would remain.

**ENVIRONMENTAL IMPACTS:**

Impacts of activities associated with D&D of the ATSR were analyzed in the EA. The finding of no significant impact for the proposed action is based on the following factors which are supported by information and analysis in the EA.

**Cultural Resource Impacts:** DOE has determined that the Building 314, 315, 316 complex is eligible for listing on the National Register of Historic Places because of its importance in the development of ANL-E and nuclear reactor technology. The ATSR may be a contributing component of the Building 314, 315, 316 complex and the D&D of ATSR may be an adverse effect. DOE will mitigate for this adverse effect by completing Illinois Historic American

Engineering Record documentation for ATSR in accordance with a memorandum of agreement with the Illinois Historic Preservation Agency and the Advisory Council on Historic Preservation.

**Air Quality Impacts:** This project would generate very small amounts of particulate air emissions (dust) which would include a small amount of radioactivity. Air emissions would be controlled by portable HEPA filters.

**Transportation Impacts:** Approximately six truckloads of wastes would leave ANL-E for shipment to disposal sites. No transportation accidents would be expected to occur.

**Human Health Impacts:** Worker personnel radiation exposures are expected to average less than 100 mrem per worker and the estimated collective worker dose would be approximately 0.313 person-rem. Workers engaged in the proposed action would incur a  $1.24 \times 10^{-4}$  collective increased risk for a fatal cancer.

**Accidents and Natural Hazards:** The risks of accidental injury to workers from the proposed action would be similar to risks from construction projects of comparable size. No fatal accidents and no nonfatal occupational injuries or illnesses would be expected to occur based on construction industry statistics.

**Waste Management:** The proposed action would generate approximately 11.3 m<sup>3</sup> of conventional waste, 25.2 m<sup>3</sup> of low-level radioactive waste, 2.7 m<sup>3</sup> of low-level radioactive and hazardous mixed waste, and 0.06 m<sup>3</sup> of hazardous waste.

All wastes generated by the proposed action (except for lead shielding bricks that may be recycled as shielding at other projects and wastewater) would be disposed of at off-property permitted facilities with available capacity.

**Noise Impacts:** Noise would be produced by D&D equipment during normal working hours for the duration of the project. Workers located in areas where equipment would be used for remediation would use hearing protection if necessary. Noise would not be noticed by persons away from the Building 316 area.

**Environmental Justice:** DOE has analyzed the effects of the proposed action and determined that implementing the action would not have adverse human health or environmental impacts in any area occupied by predominantly low-income or minority populations. Off-property impacts of the proposed action would be minimal and limited to the area immediately surrounding the ANL-E property. The area immediately surrounding ANL-E contains neither predominantly low-income nor minority populations.

**Cumulative Impacts:** The incremental impact of the proposed action would not be significant if added to all other past, present and reasonably foreseeable future actions at ANL-E. No known off-property activity is adversely affecting human health or the environment on the ANL-E property or in immediately adjacent areas.

**DETERMINATION:**

Based on the analysis in the EA, the DOE has determined that the proposed D&D of the ATSR at Argonne National Laboratory-East does not constitute a major federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969. Therefore, an Environmental Impact Statement on the Proposed Action is not required.

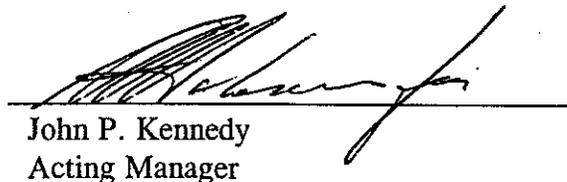
**PUBLIC AVAILABILITY:** Copies of the EA (DOE/EA-1266) are available from:

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For further information regarding the Department of Energy's National Environmental Policy Act process contact:

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John P. Kennedy  
Acting Manager