

SUMMARY

This environmental assessment (EA) has been prepared by the U.S. Department of Energy (DOE) in compliance with the National Environmental Policy Act of 1969 (NEPA) to evaluate the potential environmental impacts associated with continued and enhanced operation of the Advanced Photon Source (APS), including modifications, upgrades, and new facilities, at Argonne National Laboratory-East (ANL-E) in DuPage County, Illinois. This proposed action is needed to meet DOE's mission of sponsoring cutting-edge science and technology. Continued operation would include existing research activities. In 2002, 23 user teams had beamlines in use in 28 sectors of the experiment hall, and approximately 2,000 individual users visited annually (see Section 3.1.1). Enhanced scientific capabilities would include research on Biosafety Level-3 (BSL-3) materials in an existing area originally constructed for such work, and would not require new construction or workforce (see Section 3.1.2). A new experimental unit, the Center for Nanoscale Materials (CNM), would be constructed along the west side of the APS facility and would be used for bench-scale research in nanoscience (see Section 3.1.3).

Under the No Action Alternative, current APS operations would continue. However, initiation of BSL-3 research would not occur, and the proposed CNM research facility would not be constructed.

The environmental consequences of the Proposed Action are minor. Potential effects to the environment are primarily related to ecological effects during construction and operation of the proposed CNM and human health effects during BSL-3 activities.

The potential ecological effects of construction and operation of the CNM would be impacts of stormwater runoff into a restored wetland to the north of the CNM. DOE would minimize stormwater impacts during construction of the CNM by ensuring adequate erosion control before and during construction. Stormwater impacts would be minimized during operation of the CNM by collecting and pumping to the south, away from the restored wetland, most of the runoff from the CNM parking lot and by providing adequate detention and treatment for roof runoff and overflow runoff from the parking lot. Adverse ecological impacts are not expected to result from implementing the Proposed Action.

The potential human health effects of the proposed BSL-3 activities would be the same as those demonstrated for similar laboratories that are required to implement the guidelines established mutually by the Centers for Disease Control and Prevention (CDC) and the National Institutes of Health (NIH). The CDC and NIH define four levels of BSL work, in increasing levels of precaution — BSL-1, BSL-2, BSL-3, and BSL-4. BSL levels are specific combinations of work practices, safety equipment, and facilities that are designed to minimize the exposure of workers and the environment to infectious agents. BSL-3 applies to agents that may be transmitted by the respiratory route and that can cause serious infections. BSL-3 work at the APS would be limited to one BSL-3 hazard at a time. The quantity of BSL-3 samples at the APS at any time would be limited to 10 milliliters. Samples would either be pre-frozen or mounted in quartz capillaries. Human health information gathered from ANL-E's past experience with BSL-1 and BSL-2 laboratories, from the U.S. Bureau of Labor Statistics, and from anecdotal

information in published reports, indicates that while laboratory-acquired or laboratory-associated infections sometimes occur, they should be considered abnormal events because of their infrequency.

Radiological impacts from APS operations would not change and would remain very much below applicable standards and regulations.