

4.0 Affected Environment

This section briefly describes the existing conditions at the ANL-E site. Decontamination and decommissioning activities would occur within Building 335 or immediately outside of the building in previously disturbed areas. For this reason, no direct, indirect, or cumulative impacts would be expected to current land use, biological resources (including sensitive, threatened, or endangered species or their critical habitat), cultural or archeological resources, visual resources, ambient noise levels, wetlands, or floodplains. The primary sources for information in this section are the *Argonne National Laboratory-East Site Environmental Report for Calendar Year 2002* (ANL 2003c) and the *Environmental Evaluation Notification Form for the Decontamination and Decommissioning of the Juggernaut Reactor in Building 335 at Argonne National Laboratory -East (ANL-E)* (ANL 2003d).

4.1 Site Description

ANL-E occupies the central 607 hectares (1,500 acres) of a 1,514-hectare (3,740-acre) tract in southern DuPage County, Illinois (see Figure 4-1). ANL-E is completely surrounded by the 907-hectare (2,240-acre) Waterfall Glen Forest Preserve, which is used as a public recreational area, nature preserve, and demonstration forest. The ANL-E site is approximately 43 kilometers (27 miles) southwest of downtown Chicago and 39 kilometers (24 miles) west of Lake Michigan. The terrain of ANL-E is gently rolling, partially wooded, former prairie and farmland. The grounds contain a number of small ponds and streams.

ANL-E is in a region that is subject to tornadoes. Tornadoes have been observed in the area almost every month of the year, but are more active during April to June.

Land use in the area surrounding ANL-E includes residential, commercial, and industrial properties. No resident population lives within 1.6 kilometers (1 mile) of the center of the project site. Approximately 4,000 people work at ANL-E.

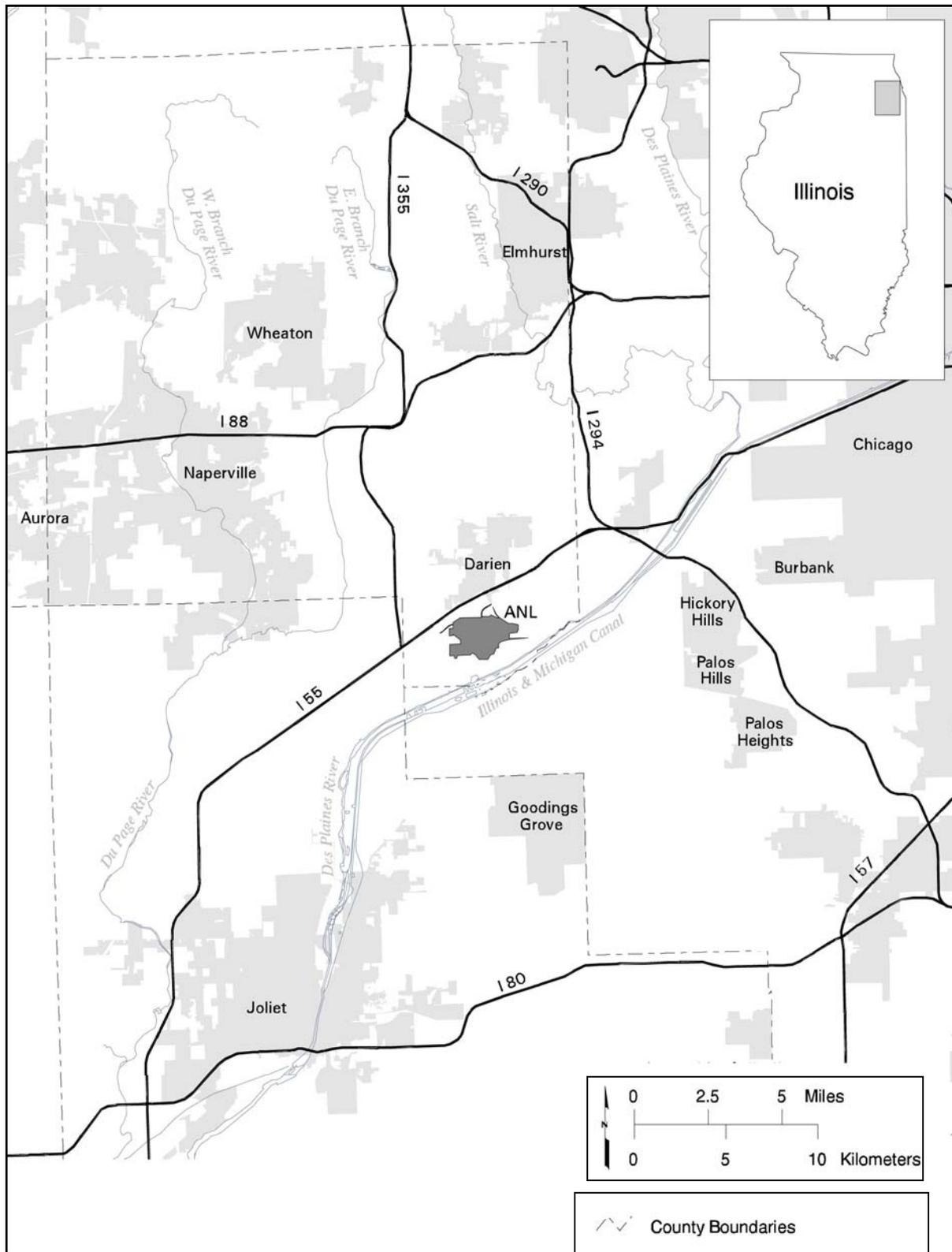


Figure 4-1. Location of Argonne National Laboratory – East

No state- or Federal-listed threatened or endangered species are known to reside at the Juggernaut Reactor Facility site. No historic properties would be affected by the proposed action (see Appendix A).

4.2 Air Quality

Routine continuous monitoring of the permitted emission sources at ANL-E has indicated that the amount of radioactive material released to the atmosphere from these sources is extremely small, resulting in a very small incremental radiation dosage to the neighboring population. The calculated potential maximum individual offsite dose to a member of the general public from ANL-E operations for 2002 was 0.039 mrem (air pathway), well below the DOE radiation protection standard of 100 mrem per year for all pathways set forth in DOE Order 5400.5. For comparison, the average American living in the United States is typically exposed to 360 mrem annually from natural and other sources of radiation.

Particulates in the air are also monitored at ANL-E perimeter and offsite sampling stations for total alpha activity, total beta activity, strontium-90, isotopic thorium, isotopic uranium, and plutonium-239. No statistically significant difference was identified between samples collected at the ANL-E perimeter and samples collected offsite.

4.3 Environmental Justice

Executive Order No. 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, directs Federal agencies to identify any disproportionately high and adverse human health or environmental effects of their actions on minority or low-income populations. To identify such impacts, it is first necessary to identify the minority or low-income populations that could be affected by the proposed action or no action alternative.

Approximately 8.7 million people live within an 80-kilometer (50-mile) radius of ANL-E, and approximately 183,000 people live within 8 kilometers (5 miles) of ANL-E (DOE 2003). On the basis of 2000 census data, 51 percent of the population within 80 kilometers (50 miles) and 24.5 percent of the population within 8 kilometers (5 miles) of the site consists of minorities, as

compared with the state averages of 32.2 percent for Illinois, 14.2 percent for Indiana, and a national average of 30.9 percent (DOE 2003). With respect to low-income populations, 11.5 percent of the population within 50 miles (80 kilometers) and 10.9 percent of the population within 5 miles (8 kilometers) of the site are comprised of low-income populations, as compared with the state averages of 10.7 percent for Illinois, 9.5 percent for Indiana, and a national average of 12.4 percent (U.S. Census Bureau 2003).