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**GAO**

United States General Accounting Office  
Washington, DC 20548

**RELEASED**

Logistics and  
Communications  
Division

B-201506

DECEMBER 22, 1980

The Honorable Robert C. Byrd  
Chairman, Subcommittee on Interior  
and Related Agencies  
Committee on Appropriations  
United States Senate



114087

Subject: Adequacy of Insulation at Leetown  
Laboratory, National Fish and Wild-  
life Service, Department of the  
Interior (LCD-81-18)

Dear Mr. Chairman:

The General Accounting Office has inquired into the engineering and design of the National Fish Health Research Laboratory, Leetown National Fisheries Center, West Virginia. Your subcommittee was concerned that the laboratory was erected without minimum insulation needs and that minimum temperatures could not be maintained during the winter months.

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According to National Fish and Wildlife Service (NFWS) officials, the laboratory's malfunctioning heating system, not its insulation, has made it impossible to maintain desired room temperatures in the laboratory during winter. NFWS engineers estimate that repairs to the heating system to ensure desired temperatures will cost \$5,774. They also told us that, although additional insulation is not needed to correct the heating problem, it is needed to bring the laboratory into compliance with Executive Order 12003 dated July 20, 1977, which requires retrofitting of Government buildings to reduce energy consumption.

BACKGROUND

The laboratory was planned in 1974, its design was completed in early 1976, and the contract for its construction was awarded in February 1977. NFWS engineers designed the laboratory and walls and windows, and a private contractor designed the mechanical systems, including heating, ventilation, and air-conditioning. The heating system consists of a solar system supplemented by a heat pump and an oil-fired



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boiler. The heat pump and oil-fired boiler were designed to heat the laboratory if the solar system failed.

#### HEATING PROBLEMS

The solar system has not functioned as planned, consequently, the supplemental system (heat pump and boiler) was put into use. During October 1979 through March 1980, the supplemental system provided room temperatures which were lower than NFWS officials felt were needed for temperature-sensitive research activities and for the health and comfort of the staff.

NFWS officials first thought that needed temperatures were not maintained because of the failure of the solar system and because the insulation was inadequate. An October 1980 investigation of the heating system revealed that the failure was due partially to an error in the system's installation but primarily to a deficiency in the airflow system. NFWS engineers estimate that repairs will cost \$5,774 and will be completed by December 31, 1980. Once these repairs are completed, the engineers are confident that the heat pump and oil-fired boiler will adequately heat the laboratory.

Upon the request of NFWS officials, the National Aeronautics and Space Administration examined the solar system and recommended certain repairs to correct the deficiency in the system. NFWS is repairing the solar system at an estimated cost of \$325,000. The Department of Energy has provided a grant of \$184,500 toward these repairs.

#### INSULATION REQUIREMENTS

According to NFWS engineers, the insulation specified for the laboratory complies with design standards in existence at the time the laboratory was planned and designed. Although the engineers no longer believe additional insulation is necessary to solve the laboratory's heating problem, they believe that additional insulation is necessary to insure compliance with the Presidential guidelines to reduce energy consumption. The engineers estimate that it will cost \$485,000 to add insulation to comply with the President's guidelines.

The engineers estimate that the cost of the additional insulation would be recovered in 50 years. We brought this information to the attention of your office on November 19, 1980, and we understand your subcommittee has recommended funding of only \$100,000 of the \$485,000 NFWS requested for the additional insulation.

As arranged with your office, unless you publicly announce the contents of the report earlier, we plan no further distribution until 15 days after the date of the report. Then, we will send copies to the Secretary of the Interior and to other interested parties and make copies available upon request.

Sincerely yours,

A handwritten signature in black ink, appearing to read "R. W. Gutmann". The signature is written in a cursive style with a horizontal line extending from the end.

R. W. Gutmann  
Director