


United States  
Nuclear Regulatory Commission



# Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors

## *Format and Content*

United States Nuclear Regulatory Commission Official Hearing Exhibit	
In the Matter of: AEROTEST OPERATIONS, INC. (Aerotest Radiography and Research Reactor)	
	ASLBP #: 14-931-01-LT-BD01
	Docket #: 05000228
	Exhibit #: NRC-042-00-BD01
	Admitted: 8/12/2014
	Rejected: Other:
Identified: 8/12/2014 Withdrawn: Stricken:	

February 1996

NUREG - 1537 PART 1

Office of Nuclear Reactor Regulation  
Division of Reactor Program Management

## 15 FINANCIAL QUALIFICATIONS

In this chapter of the SAR, the applicant should present the financial information submitted to NRC for a non-power reactor license to establish that the applicant is financially qualified to own, construct, operate, and decommission a non-power reactor. This information should be submitted along with the application for a construction permit and an initial operating license or along with the application for license renewal. Financial qualifications cover three areas:

- financial ability to construct the non-power reactor facility authorized by the construction permit
- financial ability to safely operate the facility
- financial ability to safely decommission the facility so that NRC can terminate the facility license at the end of the facility's use

Financial information to be submitted by the applicant is discussed in 10 CFR 50.33(f) and (k). The cover letter for the construction permit and operating license application, or for the license renewal application, can refer to this chapter of the SAR for complete financial information. If the applicant considers its financial information to be proprietary, an affidavit in accordance with 10 CFR 2.790 shall be submitted to request that the information be withheld from the public. If possible, a non-proprietary version of the financial information should also be submitted.

### 15.1 Financial Ability To Construct a Non-Power Reactor

An applicant for a construction permit to build a non-power reactor should submit information which demonstrates that the applicant possesses, or has reasonable assurance of obtaining, the funds necessary to cover estimated construction costs and related fuel cycle costs. This information should include estimates of construction and fuel cycle costs and should identify the sources of funds to cover these costs.

The applicant can obtain estimates of construction costs from the facility designers as part of the design contract, from construction bids received from contractors to build the facility, or from costs, adjusted for inflation, for similar completed projects. However, the number of non-power reactors constructed in recent years is limited. Construction costs to install a non-power reactor in an existing building should take into account the cost of the reactor and support systems and any modifications to the existing building. The regulations in 10 CFR 50.10 allow the construction of multipurpose buildings (e.g., construction of a college laboratory building that will house a non-power reactor) without the issuance of a reactor



construction permit. If the building funding has been committed, the applicant should specify the costs for that section of a multipurpose building used to house the non-power reactor and should indicate that the costs are considered covered costs.

The applicant can obtain fuel cycle cost estimates from analysis of the proposed operations, as well from analysis of proposals from fuel vendors and providers of other services needed for the fuel cycle. The applicant can also quote recent costs of operating similar reactors. The applicant should estimate fuel cycle costs even if the non-power reactor facility receives fuel assistance from the U S. Department of Energy (DOE).

The applicant should discuss the sources of funds to cover these estimated costs. If the source of funding is not committed, the applicant should discuss the probability of acquiring the funds and the potential source(s) of the funds. The applicant should discuss the options available to secure funding that is not committed through the completion of the project. The applicant should provide supporting documentation for funding that is committed. For example, if university funds are to be used to construct the facility, the applicant could provide a statement signed by the chief financial officer of the university. If gifts or grants are to be used, the applicant could submit copies of these documents. This section also applies to fuel cycle costs. If DOE will be supplying fuel for the reactor and support for the fuel cycle, the applicant should submit a letter from DOE stating this fact or a copy of the DOE grant that supports the fuel cycle costs. Section 1.7 of this document contains information on fuel disposal costs.

## **15.2 Financial Ability To Operate a Non-Power Reactor**

An applicant for an operating license or for renewal of an operating license for a non-power reactor should submit information which demonstrates that the applicant possesses, or has reasonable assurance of obtaining, the funds necessary to cover estimated operating costs for the duration of the license. The applicant should provide estimates of operating costs for each of the first 5 years of operation of the facility or for the first 5 years of the renewal period. The applicant should also indicate the sources of funds covering these costs.

The applicant can obtain estimates of operating costs from an analysis of the proposed operation that takes into account the operating time and the experimental program. The applicant can exclude from the analysis those overhead services that are provided to all departments of the university or company without internal transfer of funding (e.g., cleaning, utilities, and in some organizations, health physics coverage), but the applicant should indicate that these costs are excluded and should discuss the reasons for the exclusion. The applicant should include in the costs the overhead that is allocated to departments (e.g., a certain percentage

of direct salaries for benefits or a percentage of the total budget). The applicant for a new facility can use similar operating facilities to develop cost estimates. Applicants seeking to renew licenses have actual costs from which to develop future estimates. The 5-year estimates should be sufficiently detailed to show categories of spending, such as salaries, benefits and overhead, equipment, and supplies. If possible, the applicant should break the estimates down by functional area, such as reactor operations, utilization, health physics, and administration.

The applicant should discuss the sources of funds covering these estimated costs. If the source of the funding is not committed, the applicant should discuss the probability of acquiring the funds and the potential source of the funds. The applicant should also discuss the possibility of operating the facility without this funding. The applicant should provide supporting documentation for funding that is committed. The applicant should submit the latest financial statements of the university or the company as part of the evidence of financial solvency and the ability to fund the facility. If gifts or grants are to be used to fund operations, the applicant should submit copies of these documents if they are available.

A non-power reactor may be considered a commercial reactor, as discussed in 10 CFR 50.22. If more than 50 percent of the annual cost of owning and operating the facility is devoted to the production of materials, products, or energy for sale or commercial distribution, or to the sale of services, other than research and development or education or training, the facility would be considered a commercial non-power reactor. Note that the key is not *where* funding comes from, but *the cost* of owning and operating the facility and *the percentage of the cost* devoted to commercial activities. It is possible for a non-power reactor to be involved in commercial activities that provide a large portion of the budget (e.g., 90 percent), but if the cost of conducting the commercial activity is less than 50 percent of the cost of owning and operating the facility, the facility may be licensed as a Class 104 facility. This arrangement allows facilities to use commercial activities to fund research and development. A commercial non-power reactor generally would be licensed as a Class 103 facility, in accordance with 10 CFR 50.22, and the licensing process would be similar to that for a power reactor.

The NRC staff determines whether an activity is a commercial activity on a case-by-case basis. The staff has determined that some activities are commercial, such as irradiation of gemstones to enhance color and the irradiation of silicon to make semiconductors; other activities may similarly be classified as commercial.

In the application, the applicant should discuss any specific activities it is involved in or plans to be involved in and should specify which are commercial activities and which are not. The applicant should show the percentage of cost devoted to commercial activities.

### 15.3 Financial Ability To Decommission the Facility

The information in this section applies primarily to new applications for operating licenses. As part of the operating license application, 10 CFR 50.33(k) requires a report indicating how reasonable assurance will be provided that funds will be available to decommission the facility. The information to be submitted to the NRC for decommissioning is discussed in 10 CFR 50.75(d). The decommissioning report shall contain a cost estimate for decommissioning the facility, an indication of which of the method or methods described in 10 CFR 50.75(e) is to be used to provide funds for decommissioning, and how the cost estimate and funding levels will be adjusted periodically over the life of the facility to account for changes in the costs of such items as labor and waste disposal charges.

To identify costs and develop the cost estimate, the applicant may have to carry out preliminary decommissioning planning to identify the amount of radioactive waste created, the labor required to decommission the facility, and the other supplies and costs associated with decommissioning the facility. Chapter 17, "Decommissioning and Possession-Only Amendments," of this document contains additional information on decommissioning planning and decommissioning plans. Section 1.7 of this document discusses disposal of high-level radioactive waste and spent fuel.

Acceptable methods of providing financial assurance for decommissioning of non-power reactors are discussed in 10 CFR 50.75(e)(2). These methods include prepayment, an external sinking fund, and a surety method, insurance, or other guarantee method. Federal, State, or local government applicants may submit a statement of intent containing a cost estimate for decommissioning and indicating that funds for decommissioning will be obtained when necessary. State university officials may use this method for non-power reactors they own. The statement of intent must be signed by an official who has the authority to commit to spending the necessary funds to accomplish decommissioning. It should be clearly asserted in the statement that the official signing the statement has the authority to commit to spending the funds.

The applicant can determine the estimated cost of decommissioning from an analysis of the facility design, as well as from an analysis of estimates and actual costs of decommissioning similar facilities. NUREG/CR-1756 contains information on estimating the costs of decommissioning nuclear non-power reactors.

The applicant should discuss how the cost estimate and funding levels will be adjusted periodically over the life of the facility to account for changes in the costs of such items as labor and waste disposal charges. The applicant can use actual changes in costs such as waste disposal charges or indices of costs such as changes

in labor and energy costs to adjust the cost estimate. This process requires that the original cost estimate of decommissioning be in sufficient detail to allow categories of costs that can be adjusted. Funding levels should also be adjusted. This adjustment may require an increase in the funds needed to decommission the facility and a change to the prepayment, external sinking fund, or surety method, insurance, or other guarantee method. Applicants using a statement of intent should ensure that the officials responsible for the statement of intent are aware that the cost of decommissioning the facility has changed.

## **15.4 Reference**

U.S. Nuclear Regulatory Commission, "Technology, Safety and Costs of Decommissioning Reference Nuclear Research and Test Reactors," NUREG/CR-1756, March 1982; Addendum, July 1983.