

knew or should have known of the requirements of 10 CFR 34.44 that a radiographer's assistant must be under the personal supervision of a radiographer, including the radiographer providing immediate assistance if required and the radiographer watching the assistant's performance of operations. This conclusion is also supported by Mr. Stephens' October 8, 1996 signed, written statement to OI that he had been taught that his responsibility as a supervisor included insuring the assistants and others complied with safety and regulations.

These willful acts are significant because Mr. Stephens, the senior radiographer, failed to observe the safeguards designed to protect him, the radiographer's assistant, and others from unnecessary and potentially dangerous radiation exposures. These willful acts contributed to an unnecessary radiation exposure to the radiographer's assistant. The NRC must be able to rely on the Licensee and its employees to comply with NRC requirements. Mr. Stephen's actions during this incident have raised serious doubt as to whether he can be relied upon to comply with NRC requirements.

#### IV

By letter dated February 19, 1997, the NRC described its conclusions to Mr. Stephens. The letter documented the NRC's understanding that Mr. Stephens did not wish to participate in further discussions of the above issues, and that Mr. Stephens agreed to a commitment that he be prohibited from engaging in NRC-licensed activities for a period of 3 years. Mr. Stephens signed a statement dated March 11, 1997, consenting to the issuance of this Order with the commitment as described in Section V below. Mr. Stephens further agreed in his signed statement, that this Order is to be effective upon issuance and that he has waived his right to a hearing.

I find that Mr. Stephens' commitments as set forth in Section V are acceptable and necessary and conclude that with the commitment the public health and safety are reasonably assured. In view of the foregoing, I have determined that the public health and safety require that Mr. Stephens' commitments be confirmed by this Order. Based on the above and Mr. Stephens' consent, this Order is immediately effective upon issuance.

#### V

Accordingly, pursuant to Sections 161b, 161i, 182, and 186 of the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR

2.202, 10 CFR 30.10, and 10 CFR 150.20, it is hereby ordered, effective immediately, that:

Mr. Stephens is prohibited from engaging in NRC-licensed activities, including work conducted as an employee of an Agreement State licensee if the work is performed in a non-Agreement State or an area of exclusive federal jurisdiction, for a period of 3 years from the date of this order.

The Director, Office of Enforcement, may, in writing, relax or rescind any of the above conditions upon demonstration by Mr. Stephens of good cause.

#### V

Any person adversely affected by this Confirmatory Order, other than Mr. Stephens, may request a hearing within 20 days of its issuance. Where good cause is shown, consideration will be given to extending the time to request a hearing. A request for extension of time must be made in writing to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission Washington, D.C. 20555, and include a statement of good cause for the extension. Any request for a hearing shall be submitted to the Secretary, U.S. Nuclear Regulatory Commission, ATTN: Chief, Docketing and Service Section, Washington, DC 20555. Copies also shall be sent to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555, to the Assistant General Counsel for Hearings and Enforcement at the same address, to the Regional Administrator, NRC Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011 and to Mr. Stephens. If such a person requests a hearing, that person shall set forth with particularity the manner in which his or her interest is adversely affected by this Order and shall address the criteria set forth in 10 CFR 2.714(d).

If a hearing is requested by a person whose interest is adversely affected, the Commission will issue an Order designating the time and place of any hearing. If a hearing is held, the issue to be considered at such hearing shall be whether this Confirmatory Order should be sustained.

In the absence of any request for hearing, or written approval of an extension of time in which to request a hearing, the provisions specified in Section IV above shall be final 20 days from the date of this Order without further order or proceedings. If an extension of time for requesting a hearing has been approved, the provisions specified in Section IV shall be final when the extension expires if a hearing request has not been received. An answer or a request for hearing shall

not stay the immediate effectiveness of this order.

Dated at Rockville, Maryland this 15th day of April 1997.

For the Nuclear Regulatory Commission.

**James Lieberman,**

*Director, Office of Enforcement.*

[FR Doc. 97-10972 Filed 4-28-97; 8:45 am]

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## NUCLEAR REGULATORY COMMISSION

[Docket No. 50-297]

### Environmental Assessment and Notice of Finding of No Significant Environmental Impact Regarding Proposed Renewal of Facility License No. R-120, North Carolina State University

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to renew for 20 years Facility License No. R-120 for the North Carolina State University (NCSU or the licensee) PULSTAR Research Reactor located on the NCSU campus in Raleigh, North Carolina.

#### Environmental Assessment

This environmental assessment is written in connection with the proposed renewal for 20 years of the facility license of the NCSU PULSTAR Research Reactor (PULSTAR) at Raleigh, North Carolina, in response to a timely application from the licensee dated August 19, 1988; as supplemented on January 2, April 17, and December 18, 1989; April 17 and July 18, 1990; January 25, 1991; November 30, 1992; September 15, 1995; and October 4, November 25, and December 30, 1996. The proposed action would authorize continued operation of the reactor. The facility has been in operation since Facility License No. R-120 was issued in 1972. Currently, there are no plans to change any of the structures or operating characteristics associated with the reactor during the renewal period requested by the licensee.

#### Need for the Proposed Action

The proposed action is required to authorize continued operation of the reactor so that the facility can continue to be used in the licensee's mission of research.

#### Alternatives to the Proposed Action

Since we have concluded that there is no significant environmental impact associated with this license renewal, any alternatives will either have no

significant impact or greater impact than the proposed action.

An alternative to the proposed action that was considered was not renewing the operating license. This alternative would have led to cessation of operations, and decommissioning of the facility, with a resulting change in status and a likely small impact on the environment.

Another alternative is to take no action on the request for extension. The facility license would not be deemed to have expired until the application has been finally processed (10 CFR 2.109). To take no action on the applicant's request would not be responsive; therefore, this alternative is rejected.

#### *Environmental Impact*

The PULSTAR operates in an existing shielded pool of water inside an existing multiple-purpose building, so this licensing action would lead to no change in the physical environment.

On the basis of the review of the specific facility operating characteristics that are considered for potential impact on the environment, as set forth in the staff's safety evaluation report (SER) for this action, "Safety Evaluation Report Related to the Renewal of the Operating License for the Research Reactor at North Carolina State University" (NUREG-1572), it is concluded that renewal of this facility license will have an insignificant environmental impact. Although judged insignificant, operating features with the greatest potential environmental impact are summarized below.

Argon-41, a product from neutron irradiation of air during operation, is the principal airborne radioactive effluent from the PULSTAR during routine operations. Conservative calculations by the staff, based on the average total amount of argon-41 released from the reactor during the last several years, predict a maximum potential annual whole-body dose of less than 1 millirem in unrestricted areas. Radiation exposure rates measured outside the reactor facility building are consistent with this computation. For continuous reactor operation, the licensee conservatively estimates a maximum potential annual whole-body dose of about 25 millirem in unrestricted areas.

The staff has considered hypothetical credible accidents at the PULSTAR and has concluded that there is reasonable assurance that such accidents will not release a significant quantity of fission products from the fuel cladding and, therefore, will not cause significant radiological hazard (less than 1 mrem for the maximum hypothetical accident) to the environment or the public.

This conclusion is based on the following:

(a) The maximum reactivity for any single experiment allowed under the technical specifications is insufficient to support a reactor transient generating enough energy to cause overheating of the fuel or loss of integrity of the cladding.

(b) At a thermal power level of 1000 kilowatts, the inventory of fission products in the fuel cannot generate sufficient radioactive decay heat to cause fuel damage even in the hypothetical event of instantaneous, total loss of coolant, and

(c) The hypothetical loss of integrity of the cladding of three fuel pins will not lead to radiation exposures in the unrestricted environment that exceed guideline values of 10 CFR Part 20.

In addition to the analyses in the SER summarized above, the environmental impact associated with operation of research reactors has been generically evaluated by the staff and is discussed in the attached generic evaluation. This evaluation concludes that there will be no significant environmental impact associated with the operation of research reactors licensed to operate at power levels up to and including 2 MW(t) and that an environmental impact statement is not required for the issuance of construction permits or operating licenses for such facilities. We have determined that this generic evaluation is applicable to operation of the PULSTAR and that there are no special or unique features that would preclude reliance on the generic evaluation.

#### *Alternative Use of Resources*

This action does not involve the use of any resources beyond those normally allocated for such activities.

#### *Agencies and Persons Consulted*

The staff has obtained the technical assistance of the Idaho National Engineering Laboratory to perform the safety evaluation of continued operation of the PULSTAR. The staff consulted with the North Carolina State official regarding the environmental impact of the proposed action. The State official had no comments.

#### **Finding of No Significant Impact**

On the basis of the foregoing environmental assessment, the Commission has concluded that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for this proposed action.

For further details with respect to this action, see the licensee's request for a license amendment dated August 19,

1988, as supplemented. These documents are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW, Washington, DC 20037.

Dated at Rockville, Maryland this 18th day of April 1997.

For the Nuclear Regulatory Commission.

**Seymour H. Weiss,**

*Director, Non-Power Reactors and Decommissioning Project Directorate, Division of Reactor Program Management, Office of Nuclear Reactor Regulation.*

#### **Environmental Considerations Regarding the Licensing of Research Reactors and Critical Facilities**

##### **Introduction**

This discussion deals with research reactors and critical facilities that are designed to operate at low power levels, 2 Mw(t) and lower, and are used primarily for basic research in neutron physics, neutron radiography, isotope production and experiments associated with nuclear engineering, training, and as a part of a nuclear physics curriculum. Operation of such facilities will generally not exceed a 5-day week of 8-hour days, or about 2000 hours per year. Such reactors are located adjacent to technical service support facilities with convenient access for students and faculty.

Sited most frequently on the campuses of large universities, these reactors are usually housed in already existing structures, appropriately modified, or placed in new buildings that are designed and constructed to blend in with existing facilities. However, the environmental considerations discussed herein are not limited to those facilities that are part of universities.

##### **Facility**

There are no exterior conduits, pipelines, electrical or mechanical structures, or transmission lines attached to or adjacent to the facility other than for utility services, that are similar to those required in other similar facilities, specifically laboratories. Heat dissipation, if required, is generally accomplished by use of a cooling tower located next to or on the roof of the building. These cooling towers typically are on the order of 10 by 10 by 10 feet and are comparable to cooling towers associated with the air conditioning systems of large office buildings. Heat dissipation may also be accomplished by transfer through a heat exchanger to water flowing directly to a sewer or a chilled water system. Makeup for the cooling system is readily available and

usually obtained from the local water supply.

Radioactive gaseous effluents during normal operations are limited to argon-41, and the release of radioactive liquid effluents can be carefully monitored and controlled. Liquid wastes are collected in storage tanks to allow for decay and monitoring before dilution and release to the sanitary sewer system or the environment. This liquid waste may also be solidified and disposed of as solid waste. Solid radioactive wastes are packed and shipped offsite for disposal or storage at NRC-approved sites. The transportation of such waste is done in accordance with existing NRC and Department of Transportation regulations in approved shipping containers.

Chemical and sanitary waste systems are similar to those at other similar laboratories and buildings.

#### **Environmental Effects of Site Preparation and Facility Construction**

Construction of such facilities invariably occurs in areas that have already been disturbed by other building construction and, in some cases, solely within an already existing building. Therefore, construction would not be expected to have any significant effect on the terrain, vegetation, wildlife, or nearby waters or aquatic life. The societal, economic, and aesthetic impacts of construction would be no greater than those associated with the construction of an office building or a similar research facility.

#### **Environmental Effects of Facility Operation**

Release of thermal effluents from a reactor of less than 2 Mw(t) will not have a significant effect on the environment. This small amount of waste heat is generally rejected to the atmosphere by means of small cooling towers. Extensive drift and/or fog will not occur at this low power level. The small amount of waste heat released to sewers, in the case of heat exchanger secondary flow directly to the sewer, will not raise average water temperatures in the environment.

Release of routine gaseous effluents can be limited to argon-41, which is generated by neutron activation of air. In most cases, this release will be kept as low as practicable by using gases other than air for supporting experiments. Experiments that are supported by air are designed to minimize production of argon-41. Yearly doses to unrestricted areas will be at or below established 10 CFR Part 20 limits. Routine releases of radioactive liquid effluents can be carefully

monitored and controlled in a manner that will ensure compliance with current standards. Solid radioactive wastes will be shipped to an authorized disposal site in approved containers. These wastes should not require more than a few shipping containers a year.

On the basis of experience with other research reactors, specifically TRIGA reactors operating in the 1-to-2-Mw(t) range, the annual release of gaseous and liquid effluents to unrestricted areas should be less than 30 curies and 0.01 curie, respectively.

No release of potentially harmful chemical substances will occur during normal operation. Small amounts of chemicals and/or high-solid-content water may be released from the facility through the sanitary sewer during periodic blowdown of the cooling tower or from laboratory experiments.

Other potential effects of the facility, such as aesthetics, noise, or societal effects or impact on local flora and fauna are expected to be too small to measure.

#### **Environmental Effects of Accidents**

Accidents ranging from the failure of experiments up to the largest core damage and fission product release considered possible result in doses that are less than 10 CFR Part 20 limits and are considered negligible with respect to the environment.

#### **Unavoidable Effects of Facility Construction and Operation**

The unavoidable effects of construction and operation involve the materials used in construction that cannot be recovered and the fissionable material used in the reactor. No adverse impact on the environment is expected from either of these unavoidable effects.

#### **Alternatives to Construction and Operation of the Facility**

To accomplish the objectives associated with research reactors, there are no suitable alternatives. Some of these objectives are training of students in the operation of reactors, production of radioisotopes, and use of neutron and gamma ray beams to conduct experiments.

#### **Long-Term Effects of Facility Construction and Operation**

The long-term effects of research facilities are considered to be beneficial as a result of their contribution to scientific knowledge and training. Because of the relatively small amount of capital resources involved and the small impact on the environment, very little irreversible or irretrievable

commitment is associated with such facilities.

#### **Costs and Benefits of Facility Alternatives**

The costs of facility alternatives are on the order of several millions of dollars and have very little environmental impact. The benefits include, but are not limited to, some combination of the following: conduct of activation analyses, conduct of neutron radiography, training of operating personnel, and education of students. Some of these activities could be conducted using particle accelerators or radioactive sources, which would be more costly and less efficient. There is no reasonable alternative to a nuclear research reactor for conducting this spectrum of activities.

#### **Conclusion**

The staff concludes that there will be no significant environmental impact associated with the licensing of research reactors or critical facilities designed to operate at a power level of 2 Mw(t) or lower and that no environmental impact statements must be written for the issuance of construction permits, operating licenses, or license renewals for such facilities.

Dated: December 3, 1996.

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### **NUCLEAR REGULATORY COMMISSION**

[Docket No. 40-8905]

#### **Quivira Mining Company; Final Finding of No Significant Impact; Notice of Opportunity for Hearing**

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) proposes to amend NRC Source Material License SUA-1473 to authorize the licensee, Quivira Mining Company (QMC), to accept 11e.(2) material for disposal at its Ambrosia Lake uranium mill and tailings site, located near Grants, New Mexico. An Environmental Assessment was performed by the NRC staff in accordance with the requirements of 10 CFR Part 51. The conclusion of the Environmental Assessment is a Finding of No Significant Impact (FONSI) for the proposed licensing action.

**FOR FURTHER INFORMATION CONTACT:** Mr. Kenneth R. Hooks, Uranium Recovery Branch, Mail Stop TWFN 7-J9, Division