DEPARTMENT OF VETERANS AFFAIRS
NEBRASKA-WESTERN IOWA HEALTH CARE SYSTEM

March 24, 2003

In Reply Refer To

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Omaha
4101 Woolworth Avenue
Omaha NE 68105-1873

Lincoln
600 S 70th Street
Lincoln NE 68510-2493

Grand Island
2201 N Broadwell Avenue
Grand Island NE 68803-2196

2002 Annual Operating Report for the Alan J. Blotcky Reactor Facility
License R-57, Docket #50-131

This annual operating report is being submitted in compliance with technical specification 6.7.1, "Annual Operating Report".

Summary of Reactor Operating Experience during 2002.

- A decision was made to permanently shutdown the Alan J. Blotcky Reactor Facility on 11/5/2001. The reactor has been maintained in a secured shutdown condition since that date.
- An agreement was reached between the Department of Veterans Affairs and the United States Geological Survey to transfer the AJBRF fuel to the USGS TRIGA reactor (Docket # 50-274) in Lakewood, Colorado.
- On 2/13/2002, underwater dose rate measurements were made for selected fuel elements to aid in ALARA planning for the planned fuel shipment.
- All fuel assemblies were inspected on 2/3/2002-2/4/2002 to determine their condition prior to fuel shipment. There were no indications of damage to any of the fuel assemblies.
- On 5/29/2002, additional underwater fuel dose rate measurements were conducted to validate computer calculations made by USGS to determine classification for shipping requirements. During this evolution, a fuel element was dropped. There were no increased radiation levels or other indications of fuel damage. The facility emergency plan was reviewed and it was determined that no Emergency

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Action Levels were reached. The dropped fuel element was recovered on 6/4/2002. Underwater inspection revealed a small dent (estimated to be ¼" long and 1/64' deep) but no loss of fuel element integrity.

- On 6/22/2002, all 57 fuel assemblies were transferred to the NAC-LWT shipping cask. (USA/9225/B(U)F-85 Model No. NAC-LWT). The truck carrying the cask left the AJBRF on 6/24/2002 and arrived at the USGS TRIGA reactor facility in Lakewood, CO

- On 8/5/2002, Technical Specification amendment 11 was issued.

- Site characterization activities were conducted during November and December 2002.

- The fission chambers used in the reactor's nuclear instrumentation system were transferred to USGS during December 2002.

Unscheduled Shutdowns

The reactor was maintained in a scheduled secured shutdown condition throughout 2002.

Major preventative and corrective maintenance

No major safety related maintenance was performed during 2002.

Changes, Tests and Experiments

Several new procedures were written and approved in support of the fuel shipment. They include:

- SOP-20, Fuel Dosimetry Measurements by Outside Agencies

  This procedure was approved. 10 CFR 50.59 requirements were met.

- SOP-21, Procedure for Measuring Fuel Elements

  This procedure was approved. 10 CFR 50.59 requirements were met.

- SOP-101 NAC-LWT TRIGA Fuel Basket Loading Procedure

  This procedure was approved. 10 CFR 50.59 requirements were met for removal of fuel elements from the core. Placement of fuel elements within the basket met the requirements of the Certificate of Compliance (#9225) for the NAC-LWT.

- SOP-110 Veterans Administration TRIGA Shipment Loading Procedure

  This procedure was approved. This procedure met the requirements of the Certificate of Compliance (#9225) for the NAC-LWT. The Reactor Safeguards Committee required the cask vendor to perform a stability calculation for a work platform to be installed in the reactor pit to support an inner shield container in which the fuel basket is placed. The platform required modification from its initial design. As a result of that calculation, and additional step was added to the procedure to enhance stability of the platform.

- Vendor supplied radiation protection procedures to be used during fuel shipment, cleanup and site characterization activities.

  These procedures were approved for use. 10 CFR 50.59 requirements were met.

- Vendor Site Characterization Procedures

  These procedures were approved for use. 10 CFR 50.59 requirements were met. These procedures were also consistent with NUREG-1575 (MARSSIM).

A special procedure was developed to pick up the fuel element that was dropped on 5/29/2002.

This procedure was approved for use. 10 CFR 50.59 requirements were met. The procedure was performed first on a dummy fuel element to demonstrate its effectiveness and provide training on its use. The dropped fuel element was successfully recovered on 6/4/2002.

- An experiment was proposed to load 19 fuel assemblies into an underwater fixture supplied by USGS for dose rate measurements to validate computer calculations.

  The Reactor Safeguards Committee refused to approve this experiment because there was no analysis to demonstrate that K_{eff} would remain below 0.8 as required by technical specifications.

Radioactive Effluents

No radioactive effluents associated with the AJBRF were released or discharged beyond the effective control of the Medical Center.

Environmental Surveys

Environmental surveys were conducted as a part of the site characterization activities. Soil borings were made to evaluate the groundwater flow and direction and to analyze the soil adjacent to the reactor core for gamma emitting radionuclides. Three test wells were installed to depths between 100 and 131 feet. Four additional borings (without installation of wells) were made to a depth of 36 feet (approximately 10 feet below the bottom of the reactor.)

Eight-eight soil samples for various depths from all seven borings were analyzed by gamma spectroscopy. None of the samples showed activity other than naturally occurring radionuclides present at concentrations typical for US soils.

In addition to the soil borings, 30 surface and 30 subsurface soil samples were obtained during the characterization. None of the samples showed activity higher than naturally occurring radionuclides.

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Radiation Exposures

There were no radiation exposures received by AJBRF personnel or visitors exceeding 25% of allowable limits.

Sincerely,

PETER P. HENRY, CHE
Acting Director

cc: Alexander Adams, Jr.