



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-8064

June 23, 2000

Mr. William C. Salisbury  
American Nuclear Corporation  
P.O. Box 2713  
Casper, Wyoming 82602

SUBJECT: NRC INSPECTION REPORT 40-4492/00-01

Dear Mr. Salisbury:

On June 5, 2000, the NRC completed an inspection at the site of your former Gas Hills uranium milling facility. The enclosed report presents the results of that inspection.

The inspection was an examination of activities conducted under the license as they relate to radiation safety and to compliance with the Commission's rules and regulations and the conditions of the license. In addition, the inspection was an examination of the reclamation related activities being conducted under your license.

The inspection disclosed that no reclamation activities have been in progress since the last inspection; however, environmental and effluent monitoring was being conducted in accordance with NRC license requirements. During this inspection, no items of non-compliance or significant issues were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, please contact Mr. Louis C. Carson II at (817) 860-8221 or myself at (817) 860-8191.

Sincerely,

*/RA/* Charles L. Cain approved for

D. Blair Spitzberg, Ph.D., Chief  
Fuel Cycle and Decommissioning Branch

Docket No.: 40-4492  
License No.: SUA-667

Enclosure:  
NRC Inspection Report  
040-4492/00-01

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**ENCLOSURE**

U. S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket No.: 40-4492

License No.: SUA-667

Report No.: 40-4492/00-01

Licensee: American Nuclear Corporation

Facility: Former Gas Hills Project

Location: Gas Hills area, Fremont County, Wyoming

Inspection Date: June 5, 2000

Inspectors: Louis C. Carson II, Health Physicist  
Fuel Cycle and Decommissioning Branch

Accompanied By: Judith Walker, Health Physicist (Inspector In-Training)  
Fuel Cycle and Decommissioning Branch

Approved By: D. Blair Spitzberg, Ph.D., Chief  
Fuel Cycle and Decommissioning Branch

Attachment: Supplemental Inspection Information

## **EXECUTIVE SUMMARY**

### American Nuclear Corporation's Gas Hills Project NRC Inspection Report 40-4492/00-01

This inspection included a review of site status and remediation; management organization and controls; site radiation protection; environmental protection; and waste management programs.

#### Site Status and Decommissioning for Uranium Mill Sites

- Site activities and decommissioning programs were being conducted in accordance with the remediation plan, the license, and applicable regulations for uranium mill sites (Section 1).

#### Management Organization and Controls

- The licensee's organization and management controls were found to be in accordance with requirements of the license. Qualified individuals had maintained adequate oversight of reclamation activities (Section 2).

#### Radiation Protection

- The licensee had implemented a radiation protection program that was found to be in accordance with requirements established in 10 CFR Part 20 and the license. No occupational exposures were recorded in 1998 and 1999 (Section 3).
- Site fences were in good condition. Site security and perimeter postings were appropriate (Section 3).

#### Environmental Protection and Radioactive Waste Management

- A review of the licensee's radioactive waste management, environmental monitoring, groundwater, and land use survey programs indicated that the licensee was in compliance with the license requirements (Section 4).
- Reviews of the licensee's documentation in support of 10 CFR 40.65 semi-annual effluent reports revealed that the facility had not released any radioactive material into the environment that exceeded the limits established in 10 CFR Part 20 (Section 4).

#### Followup

- When reclamation activities resume, an NRC geotechnical engineer will inspect ANC site/construction records regarding the frequency of moisture/density field tests on cover materials (Section 5).

## Report Details

### **1 Site Status and Decommissioning Inspection Procedure for Uranium Mill Sites (87654)**

#### 1.1 Inspection Scope

The site status and decommissioning program were reviewed to determine if licensee activities were being conducted in accordance with the American Nuclear Corporation (ANC) Reclamation Plan, the license, and applicable NRC regulations for uranium mill sites.

#### 1.2 Observations and Findings

##### a. Site Status

Reclamation oversight of the facility had been transferred to the State of Wyoming, Department of Environmental Quality (WDEQ). This transfer occurred because ANC had become insolvent in May 1994 and site reclamation was incomplete. A Confirmatory Order between the NRC and the WDEQ describing the requirements for reclamation activities had been agreed upon by both parties and was issued in October 1996.

The licensed site encompasses approximately 550 acres of land of which approximately 80 acres consist of Tailings Pile 2 and 40 acres of Tailings Pile 1. Tailings Pile 2 reclamation activities are complete and Tailings Pond 1 activities are on hold. Additionally, the site has an active groundwater recovery and corrective action program.

Reclamation activities are targeted to restart in the Year 2002. Since the last inspection in April 1998, no site reclamation activities had been performed. After approval of the reclamation plan for Tailings Pile 1, activities will include the following: (1) windblown clean-up activities, (2) capping with clay (3) radon testing, and (4) placement of rip-rap rock.

#### 1.3 Conclusion

The inspectors concluded that the site was being maintained in accordance with the ANC Reclamation Plan, the license, and applicable NRC regulations for uranium mill sites.

## **2 Management Organization and Controls (88005)**

### **2.1 Inspection Scope**

The organization structure was reviewed to ensure that the licensee had maintained an effective organization with defined responsibilities and functions. The licensee's management controls were assessed to evaluate the effectiveness of such controls on site activities.

### **2.2 Observations and Findings**

#### **a. Management Organization**

The organization had not changed since the previous inspection. One employee (the president of ANC) continued to be responsible for the environmental monitoring activities which included effluent and groundwater monitoring. The company president continued to provide oversight of the facility on a limited basis to maintain compliance with the license conditions. Onsite activities performed by this individual included maintenance of the sample stations, groundwater sampling, and oversight of the enhanced evaporation system. An individual from the WDEQ inspected the site periodically.

#### **b. Management Controls**

License Condition (LC) 15 required the licensee to document the results of personnel monitoring, surveys, calibrations, sampling, and audits. The inspectors reviewed instrument calibration records from December 12, 1999, through March 27, 2000. Also records for groundwater, ambient air particulate, and ambient gamma exposure rates were reviewed. The licensee's program exceeded the requirements of the license.

### **2.3 Conclusions**

The licensee's organization and management controls met or exceeded the requirements of the license. No change had been made to the organizational structure since the last inspection. Qualified individuals had maintained adequate oversight of reclamation activities.

### **3 Radiation Protection (83822)**

#### **3.1 Scope**

The inspectors reviewed the licensee's radiation protection program to determine compliance with the license application and 10 CFR Part 20.

#### **3.2 Observations and Findings**

At the time of the inspection, no radiation work was going on. No personnel exposures had been recorded at the site during 1998 and 1999. The licensee expects to continue reclamation activities of Tailings Pile 1 in 2002.

LC 11 exempts the licensee from the radiological posting requirements set forth in 10 CFR 20.1902(e), which required that the licensee conspicuously post all entrances to the mill with the words: "Any area within the mill may contain radioactive material." The inspectors observed that the waste disposal area, mill tailings area, and the demolished mill site within the restricted area boundary were adequately posted as required by the license and 10 CFR Part 20. During the site tour, the inspectors noted that security was maintained by keeping the site access gate closed to prevent unauthorized access to the property. The inspectors concluded that licensed material was secure within the site property as required by 10 CFR 20.1801.

LC 21 requires that the licensee not release contaminated material above the limits pursuant to "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct or Source Materials." The licensee had not released any material since the last inspection.

#### **3.3 Conclusion**

The licensee implemented a radiation protection program that was in compliance with the license and applicable portions of 10 CFR Part 20. Site fences were in good condition and perimeter postings were appropriate.

#### **4 Environmental Monitoring (88045) Radioactive Waste Management (88035)**

##### 4.1 Scope

The inspectors reviewed the licensee's environmental monitoring and radioactive waste management programs to determine compliance with applicable requirements specified in the license.

##### 4.2 Observations and Findings

###### a. Site Tour

A tour was performed to verify that site activities were being conducted in accordance with applicable regulations and the conditions of the license to ensure that controls were adequate to protect the health and safety of workers and the public. The inspectors observed site conditions, the two tailings ponds areas, and the decommissioned heap-leach area. The licensee explained that Tailings Pond 1 had not reached 90 percent consolidation at two locations. De-watering of Tailings Pond 1 by the enhanced evaporation system was in operation during the inspection. No problem areas were identified, and no health or safety hazard was identified during the site tour.

The inspectors performed radiological surveys using an NRC-issued microRoentgen meter calibrated to radium-226. Exposure rate readings were 28-30 microR per hour ( $\mu\text{R/hr}$ ) on Tailings Pile 2, 40-45  $\mu\text{R/hr}$  on Tailings Pile 1 and background of 25  $\mu\text{R/hr}$ .

###### b. Environmental Monitoring Program

LC 13 identifies the environmental monitoring program requirements. The program consisted of groundwater sampling, ambient air particulate sampling, and measurement of the ambient gamma exposure rates at the three sample stations. The inspectors observed environmental monitoring stations including continuous air particulate samplers and thermoluminescent dosimeters (TLD). The semi-annual effluent reports for 1998 and 1999 were reviewed. The semi-annual reports were submitted in a timely manner and provided relevant data for the facility.

Airborne particulate samples were obtained at three sample stations around the site. The samples were analyzed quarterly for natural uranium, radium-226, lead-210, and thorium-230 concentrations. In 1998 the highest sample result measured was obtained for lead-210 from Well #13 station downwind of the restricted area boundary. The lead-210 concentration measured 2.0 percent of the effluent concentration limits established in 10 CFR Part 20, Appendix B, Table II. In 1999 the highest sample result measured was obtained for natural uranium from the Corrals Station upwind of the restricted area boundary. The natural uranium concentration was measured at 3.2 percent of the effluent concentration limits established in 10 CFR Part 20, Appendix B, Table II. All other air particulate sample results were less than 3.2 percent of the limits during 1999. No significant trends were identified by the licensee.

Ambient gamma exposure rate measurements were obtained using TLDs at three locations: (1) Corral Station #2 upwind of the restricted area boundary, (2) Well #13 downwind of the restricted area boundary, and (3) NECORA Station NE Corner of the restricted area boundary. Background for the site measured 251 millirems for the Calendar Year 1998. The Corral Station #2 was considered to be the background station. The other stations measured 195 millirems and 165 millirems during 1998. Background for the site measured 248 millirems for the Calendar Year 1999. The other stations measured 211 millirems, and 156 millirems during 1999. Considering the background radiation levels, the net annual exposures from the site were well below the total effective dose equivalent limit (100 millirems per year) established in 10 CFR 20.1301 for individual members of the public.

d. Groundwater Monitoring Program

LC 29 requires the licensee to implement a groundwater compliance monitoring program, and LC 13(G) requires the licensee to submit the sample results to the NRC on a semi-annual basis. Also, the licensee is required by LC 29 to submit a groundwater corrective action report to the NRC, annually. The report for 1999 was submitted by letter dated April 12, 2000. The report indicated that the licensee had obtained all groundwater samples and analyzed the samples at the required frequency. No significant trends were identified. Radiochemical and chemical constituents in monitoring wells that were still above limits specified in LC 29 included uranium, radium, thorium, gross alpha, selenium, beryllium, sulfate, chloride, nickel, cadmium and total dissolved solids. The inspectors determined that groundwater from the site was not being consumed by members of the public as drinking water. The inspectors concluded that effluent and environmental monitoring data for 1999 indicated that the dose to the nearest resident did not exceed the 100 millirems per year dose limit for the public.

e. Annual Land Use Survey

LC 27 required an annual land use survey. The most recent annual land use survey was submitted to the NRC on April 12, 2000. The annual land use survey discussed the private residences, nonresidential structures, grazing areas, recreation uses, and potable and agricultural wells within 5 miles of the site. According to the licensee, there were no significant changes in land use since the previous survey.

4.3 Conclusions

A review of the licensee's environmental monitoring, groundwater, and land use survey programs indicated that the licensee was in compliance with the license requirements.

## **5 Followup (92701)**

### **5.1 Moisture/Density Field Test**

The specification for moisture/density field test frequency on cover materials is one test per 5,000 cubic yards of material placement as indicated in the reclamation plan. This test frequency specification in the reclamation plan differs from that provided in Section 3.2.3 of NRC's "Staff Technical Position on Testing and Inspection Plans during Construction of DOE's Remedial Action at Inactive Uranium Mill Tailings Sites," dated March 1987, which requires one test per 500 cubic yards of material placement. WDEQ committed to conform to the requirements provided in the staff technical position.

According to the NRC's project manager for the ANC site, no inspection of the ANC site/construction records by a geotechnical engineer had been performed since February 13, 1998, primarily because there has been no reclamation work performed at the site since completion of Tailings Pile 2. This matter will be reviewed further during a future NRC inspection.

## **6 Exit Meeting Summary**

The inspectors presented the inspection results to licensee representatives at the conclusion of the inspection on June 5, 2000. The licensee representatives acknowledged the findings as presented.

## ATTACHMENT

### **PARTIAL LIST OF PERSONS CONTACTED**

#### Licensee

W. Salisbury, President, American Nuclear Corporation  
M. Moxley, Land Quality Division, District II Supervisor, WDEQ

### **INSPECTION PROCEDURES USED**

IP	83822	Radiation Protection
IP	87654	Decommissioning Inspection Procedure for Uranium Mill Sites
IP	88005	Management Organization and Control
IP	88035	Radioactive Waste Management
IP	88045	Environmental Monitoring

### **ITEMS OPENED, CLOSED, AND DISCUSSED**

#### Opened

40-4492/0001-01	IFI	NRC geotechnical review of site/construction records when reclamation activities resume
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#### Closed

None

#### Discussed

None

### **LIST OF ACRONYMS**

ANC	American Nuclear Corporation
CFR	Code of Federal Regulations
LC	license condition
NRC	Nuclear Regulatory Commission
RSO	radiation safety officer
WDEQ	State of Wyoming, Department of Environmental Quality