



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
1600 EAST LAMAR BOULEVARD  
ARLINGTON, TEXAS 76011-4511

June 14, 2018

MEMORANDUM TO: Docket File 040-04492

THROUGH: Ray L. Kellar, P.E., Chief */RA by RJEvans Acting for/*  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety

FROM: Linda Gersey, Health Physicist */RA/*  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety

SUBJECT: NRC SITE VISIT AT AMERICAN NUCLEAR CORPORATION - GAS  
HILLS, WYOMING

On May 15, 2018, the U.S. Nuclear Regulatory Commission (NRC), Region IV Office, conducted a site visit at the American Nuclear Corporation Uranium Mill Tailings Site in Fremont County, Wyoming. The purpose of the site visit was to observe the completed stabilization of Tailings Pond #1 by the Wyoming Department of Environmental Quality's (WDEQ) contractor. Enclosed to this memorandum is the NRC's trip report for this site visit.

In summary, the construction completed by the contractors was adequate. No significant regulatory issues or safety concerns were identified related to the contractors completed work. The NRC inspector noted several non-safety items of concern related to the site status.

Docket: 040-04492  
License: SUA-667

Enclosure:  
NRC Trip Report

cc: Ryan Schierman, Program Director, WDEQ

CONTACT: Linda M. Gersey, DNMS/FCDB  
817-200-1299

**U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV**

Docket: 040-04492

License: SUA-667

Report No.: 040-04492/2018-001

Licensee: American Nuclear Corporation Uranium Mill Tailings Site

Facility: Gas Hills Site

Location: Fremont County, WY

Date: May 15, 2018

Inspector: Linda M. Gersey, Health Physicist  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety

Approved by: Ray L. Kellar, P.E., Chief  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety

Attachment: Photographs Taken at the American Nuclear Corporation Site

Enclosure

## **NRC Trip Report**

### **1. Background**

The American Nuclear Corporation (ANC) site is located in the Gas Hills region in eastern Fremont County, Wyoming. The Gas Hills is a remote, sparsely populated, rural region in Wyoming, with the nearest population center (Riverton, Wyoming) approximately 45 miles (72.4 kilometers) west-northwest of the site. The site occupies approximately 550 acres (222 hectares) that were used for uranium mining and milling activities between 1959 and 1981. ANC suspended milling activities in 1981 due to poor uranium market conditions and began decommissioning activities. On May 9, 1994, ANC notified the NRC that it was ceasing operations and going out of business (ADAMS Accession No. ML071580050). Consequently, ANC forfeited its \$3.2 million surety reclamation performance bond to the WDEQ.

In July 1994, the WDEQ agreed to remediate the site (ADAMS Accession No. ML071580059). In October 1996, the NRC issued a Confirmatory Order outlining the WDEQ's responsibilities for the decommissioning of the site (ADAMS Accession No. ML071520354), and the WDEQ has been conducting limited decommissioning of the ANC site since 1996. Limited decommissioning of the site included placement of an interim cover on Tailings Pond No. 1 (TP-1), removal of windblown tailings, decommissioning and capping Tailings Pond No. 2, ongoing groundwater monitoring, and seasonal groundwater remediation. The Confirmatory Order was revised in 2012 and 2014 in an effort to conserve the remaining reclamation funds (ADAMS Accession Nos. ML120670346 and ML14122A199). During this time, the groundwater corrective action and associated activities were discontinued.

In May 2016, the WDEQ provided the NRC staff with a draft report entitled "ANC Uranium Mill Tailings Site Report of Engineering Evaluation/Cost Analysis and Prioritization of Reclamation Activities" (ADAMS Accession No. ML16148B084). The WDEQ requested that the NRC revise the Confirmatory Order to redirect the WDEQ's efforts at the site from collecting surface and groundwater samples to temporarily stabilizing the site and providing surface diversions. The Confirmatory Order was revised in January 2017 (ADAMS Accession No. ML16354B554), to direct the WDEQ to use the remaining decommissioning funds to stabilize those areas of the site that have deteriorated and improving the tailings pile cover in order to prevent additional recharge of contaminants to groundwater and to prevent erosion.

When the State of Wyoming becomes an Agreement State in late 2018, the Confirmatory Order will be closed, and the NRC will have exclusive regulatory authority over this site. The NRC staff is currently exploring options for obtaining funds to complete the decommissioning of the ANC site in accordance with all applicable NRC requirements.

### **2. Stabilization Plan for Tailings Pond #1**

The January 2017 revision to the Confirmatory Order specifically required WDEQ to perform engineering and reclamation activities to temporarily stabilize TP-1 and provide surface diversions.

During October and November 2017, WDEQ through its contractor, Lidstone and Associates, submitted a stabilization plan for the ANC site, entitled "Design Memorandum for the ANC Tailing Pond #1 Interim Stabilization Plan" (Plan) to the NRC for review and approval (ADAMS Accession Nos. ML17278A068 and ML17333B156). On January 10, 2018, WDEQ submitted Task Order 4 for the project (ADAMS Accession No. ML18023A379).

The NRC staff reviewed the Plan in Task Order 4 and concluded that it was adequate to protect workers and the public during the stabilization project and that geotechnical stabilization of TP-1 could be accomplished if the proposed plans, including reclamation, grading, drainage and hydrology, are followed and implemented. The NRC staff's Safety Evaluation Report, documenting the NRC's review and approval of the Plan, was issued by letter dated March 15, 2018 (ADAMS Accession No. ML17312A597).

The stabilization project consisted of three principal activities: (1) establishing an earthen cover over TP-1; (2) constructing diversion channels around TP1; and (3) revegetating the interim earthen cover.

During April 2018, the WDEQ verbally notified the NRC that their contractor would not be completing the Plan as specified in Task Order 4, due to an unforeseen overrun in costs. The contractor committed to ensuring that the health and safety plan would be implemented and radiologic surveys would be completed as stated in Task Order 4.

### **3. Site Observations and Findings**

On May 15, 2018, the inspector observed the completed activities by the WDEQ's contractor. The inspector was accompanied by a representative of the WDEQ and a contractor employee. The contractor stated that TP-1 had been covered with approximately 1.7 feet of overburden, 0.25 feet of wicking material, and 0.83 feet of topsoil, for a total of 2.78 feet of new cover. The original approved Plan stated that the total interim cover would be 3.25 feet above the existing cover. The difference of cover height should not increase the radiation levels on TP-1. The grading on TP-1 was leveled to create a more uniform surface to ensure that water runoff would be directed toward the northwest side of TP-1 and flow to the low lying area beyond. The contractor generated diversion channels surrounding TP-1 to direct water drainage away from the top of the TP-1. The inspector noted that the completed earth work looked acceptable, although the as-built drawings would not be available for NRC review until July 2018. The NRC staff will review the as-built drawings at a later date. The contractor stated that it was anticipated that the top of TP-1 would be seeded with rye in upcoming weeks.

The inspector noted that some of the erosion and rills on the edge of the northern slope of TP-1 were bulldozed to make an even surface. Although the worst of the erosion was addressed, there remains a significant amount of erosion and rills. It is unknown whether the remaining erosion will impact the new construction.

The inspector performed radiological surveys on the edge of the slope using a Ludlum Model 19 Survey Meter (NRC No. 015530, calibration due date of July 25, 2018, calibrated with radium-226). With a background of approximately 35 micro-Roentgen per hour, the average reading on top of TP-1 was found to be approximately 25–30 micro-Roentgen per hour. The highest reading found on the slope edge was

approximately 185 micro-Roentgen per hour. It was unknown if the radiation reading on the slope edge was from mine waste, which is not regulated by the NRC, or was windblown material from TP-1. Regardless of the origination of material, the radiation levels were well below the NRC's definition of a radiation area (5,000 micro-Roentgen per hour).

Other items of concern, not related to the contractors completed work, were identified by the inspector related to overall site status. Funding has not yet been identified to install fencing around TP-1. Without a fence surrounding TP-1, the growth of rye on the tailings will attract cows and wildlife. The extent of impact on the current interim cover by these animals is unknown. There are no radioactive material warning signs near TP-1, or around the licensed property. In addition, the inspector noted that the WDEQ, Abandoned Mine Land organization, was using a water well and had constructed water pits on the NRC licensed property without NRC knowledge. It appeared to the inspector that construction work was imminent, directly adjacent to the licensed area, by the Abandoned Mine Land organization as indicated by staged earth moving equipment. It was unclear during the site visit if earth moving work would be conducted within the NRC licensed boundary. NRC staff will follow-up with the WDEQ regarding these matters.

#### **4. Conclusions**

The completed work by the contractor appears to be adequate. NRC staff will review the as-built drawings and final construction report as they become available. Items of concern identified by the inspector, not related to the construction completion, will be evaluated by NRC staff at a later date.

#### **5. Persons Contacted**

David Adams, Health Physicist, WDEQ, Uranium Recovery Program  
Calvin Demler, Construction Manager, Lidstone and Associates, Inc.  
Ryan Schierman, Program Manager, WDEQ, Uranium Recovery Program



Figure 1: Looking North/North East of TP-1



Figure 2: Looking East over TP-1



Figure 3: Diversion Channel on West Side of TP-1



Figure 4: Erosion on North Slope of TP-1

NRC SITE VISIT AT AMERICAN NUCLEAR CORPORATION-GAS HILLS, WYOMING -  
 DATED JUNE 14, 2018

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Ryan Schierman, Program Director, WDEQ

ADAMS ACCESSION NO: ML18165A430

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