UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

January 6, 2014

MEMORANDUM TO: Docket File WM-00042

THROUGH: Marc S. Ferdas, Chief ***/RA/***
Decommissioning and Technical Support Branch
Division of Nuclear Materials Safety

FROM: Mark C. Roberts, CHP, Senior Health Physicist ***/MFerdas f/***
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SUBJECT: NRC OBSERVATIONAL SITE VISIT AT THE BURRELL, PENNSYLVANIA, DISPOSAL SITE

On December 10, 2013, a U.S. Nuclear Regulatory Commission (NRC) Region I inspector conducted an observational site visit at the U.S. Department of Energy's (DOE) Burrell, Pennsylvania, Disposal Site near Blairsville, Indiana County, Pennsylvania. This site visit was conducted in accordance with NRC guidance dated September 7, 2012. The purpose of the site visit was to observe DOE's routine and annual inspection of the facility. Enclosed to this memorandum is the NRC's trip report for this observational site visit.

In summary, DOE representatives conducted the annual inspection in accordance with the guidance provided in the Long-Term Surveillance Plan dated April 2000. No significant regulatory issues or safety concerns were identified during the site visit.

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Docket: WM-00042

Enclosure:
NRC Trip Report

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket No.:	WM-00042
Report No.:	WM-00042/13-001
Licensee:	U.S. Department of Energy
Facility:	Burrell, Pennsylvania Disposal Site
Location:	Blairsville, Pennsylvania
Date:	December 10, 2013
Inspector:	Mark C. Roberts, CHP, Senior Health Physicist Decommissioning and Technical Support Branch Division of Nuclear Materials Safety
Approved by:	Marc S. Ferdas, Chief Decommissioning and Technical Support Branch Division of Nuclear Materials Safety
Attachment:	Photographs Taken at the Burrell, Pennsylvania Disposal Site

Enclosure

NRC TRIP REPORT

1. Background

The licensing, custody, and long-term care of residual radioactive material disposal sites closed under Title I of the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978, as amended, can be found in 10 CFR 40.27. The U.S. Department of Energy (DOE) is the general licensee for these sites and conducts the program for the long-term surveillance and maintenance program for each inactive uranium ore processing site under a Long-Term Surveillance Plan (LTSP) that has been accepted by the NRC. The LTSP provides instructions for institutional control of the site. These controls include deed restrictions, site markers, survey monuments, boundary markers, gates, fences, signs and environmental sampling and analysis. The physical features of the site are inspected once per year by DOE staff. The "Long-Term Surveillance Plan for the U.S. Department of Energy Burrell Vicinity Property Blairsville, Pennsylvania", last revised in April 2000, provides the guidance for DOE in fulfilling the general license requirements.

The Burrell, Pennsylvania Disposal Site is a former railroad landfill located approximately one mile east of the Borough of Blairsville, Indiana County, Pennsylvania. The site is bordered on the south by the Conemaugh River and to the north by Norfolk Southern railroad tracks. The surrounding land is sparsely populated. The site was operated as a railroad landfill from the late 1940s through the late 1960s. The site was believed to have been used for typical railroad wastes, such as ties, cinders, and excess coal. In 1956 and 1957, approximately 11,600 tons of radioactive mill tailings material were removed from the former uranium ore processing site at Canonsburg, Pennsylvania, and transported approximately 50 miles to the Burrell site to be used as fill

In 1986, the Federal government acquired the Burrell site through condemnation proceedings. Because of the large volume of material and the distance to the Canonsburg site, the DOE consolidated and encapsulated the contaminated material in an onsite disposal cell, designed to minimize precipitation infiltration and control erosion. The cell was constructed by excavating the original fill material and consolidating this material with additional material that had been brought from the Canonsburg site. The disposal cell contains approximately 86,000 tons of material, containing four curies of radium-226 (Ra-226) and occupies approximately 4-5 acres of the 72-acre site. The disposal cell was closed in 1987.

The contaminated materials in the cell are covered by a low-permeability layer of compacted clay, a bedding layer, and a protective rock layer. The clay layer is designed to prevent the escape of radon-222 gas (from the decay of the Ra-226) and infiltration of precipitation. The bedding layer allows water to drain down the sloped cell top and the rock cover protects the cell surface against erosion. The area surrounding the cell is graded to promote drainage away from the disposal cell and was vegetated with native species to further prevent erosion. A chain link fence with warning signs surrounds the property to prevent unauthorized access. Locked gates allow for vehicle and pedestrian access. A site marker placed near the entrance of the site identifies the site and shows the date of closure and contents of the cell. Erosion control markers have been placed between the fence perimeter and the river. Contractors perform routine, periodic landscaping maintenance activities (primarily mowing and tree pruning along the fence) during the year.

2. Site Status

The DOE conducted the last annual inspection of the Burrell, Pennsylvania Disposal Site in October 2012. The inspection concluded that the disposal cell and all associated drainage diversion structures were in good condition and functioning as designed. No maintenance needs or cause for a follow-up or contingency inspection were identified.

The DOE monitors groundwater quality in samples from eight monitoring wells and two seeps from the cell every five years. Past monitoring results have indicated that the disposal cell is not releasing any contamination and is performing as designed. The last groundwater sampling event occurred in October 2013, but analytical results are not yet available.

3. Site Observations and Findings

DOE and its contractors prepared an inspection checklist to identify items to review during the inspection. The checklist included requirements for the inspectors to observe the disposal cell, site perimeter, outlying areas, vegetation, and various site-specific features. The inspection staff included the DOE site manager and two contractors

The DOE inspectors checked the disposal cell for evidence of erosion, settlement, slumping, displacement, and any other feature that would require maintenance or repair. The rock surfaces on the side slopes were found to be in good condition. The DOE contractors did not authorize any inspection of the rock surfaces at the top of cell due to the snowy weather conditions and the potential for slip and fall injuries. Seeps from the base of the cell were not observed to be active.

At the time of the observational site visit, the property was enclosed by a chain link fence and locked gates. Other institutional controls in place at the site included the site marker, perimeter warning signs, and the erosion control markers. These institutional controls were found to be in place and in good condition, with minor exceptions. In one location along the south perimeter fence, the top rail of the fence had been damaged by a fallen tree that had since been removed. The fence appeared serviceable, but the contractors noted the issue and DOE will consider repairs in 2014. No deep-rooted vegetation was identified on the top or side slopes of the cell that would impact cell performance. Bullet holes were noted in a few of the perimeter warning signs. No evidence of human intrusion was identified within the restricted area. The DOE contractors replaced a missing perimeter warning sign.

The NRC inspector measured the ambient gamma exposure rate at several locations using a Ludlum Model 19 micro R meter (NRC No. 033514, calibrated 08/06/13, calibration due date, 08/06/14). The background exposure rates ranged from 6-10 microRoentgens per hour (μR/hr). The exposure rates at the base of the disposal cell, adjacent to selected monitoring wells, and along the site perimeter fence, also ranged from 6-10 μR/hr and thus were not significantly different than background.

4. Conclusions

The NRC inspector concluded that the DOE inspectors conducted the site inspection in accordance with the requirements specified in the LTSP dated April 2000. The disposal

cell appeared to be structurally intact, and the cover was in good condition. No threats to the integrity of the disposal cell were identified. Minor maintenance needs were noted by the DOE representatives for future disposition.

5. Meeting Summary

The NRC inspector participated in a planning meeting with the DOE site manager and site contractors prior to commencing the site inspection. During this meeting, the participants discussed the site status, the inspection plan, potential hazards, and personal protective equipment. At the conclusion of the inspection, the DOE site manager and site contractors noted the site status and recorded minor maintenance needs.

6. Persons Contacted

K. Broberg, Hydrogeologist, S. M. Stoller Corporation.
C. Carpenter, Site Manager, DOE
M. Miller, Project Manager, S. M. Stoller Corporation

ATTACHMENT

Figure 1: Burrell Disposal Cell (looking south)

Figure 2: Site marker located near the entrance to the Burrell site