

2004 Annual Inspection Report for the Grand Junction, Colorado, Defense Decontamination and Decommissioning Program Site

Summary

The Grand Junction, Colorado, Defense Decontamination and Decommissioning (D&D) Site, inspected on February 25, 2004, was in excellent condition. The inspection revealed that physical and institutional controls enacted at the site remain effective in preventing exposure to contamination remaining on the property. Ground water and surface water monitoring results will be included in an annual site environmental report. Operations in the analytical chemistry laboratory (Building 20) ended in December 2003, and the building is being prepared for demolition. No cause for a follow-up inspection was identified.

1.0 Introduction

This report presents the results of the annual U.S. Department of Energy (DOE) inspection of the Grand Junction D&D Site in Grand Junction, Colorado. R. K. Johnson (Inspector), of the S.M. Stoller Corporation, the DOE Legacy Management (LM) Contractor at Grand Junction, conducted the inspection on February 25, 2004, with J. F. Sink of DOE-LM. P. Oliver of the Colorado Department of Public Health and Environment observed the inspection. The inspection was conducted in accordance with the draft *Long-Term Surveillance Plan [LTSP] for the U.S. Department of Energy Grand Junction, Colorado, Office Facility* (MAC-LGJO-1.1, June 2001).

The site was contaminated during uranium milling and uranium oxide procurement activities conducted by the federal government between 1943 and 1974. DOE remediated the property between 1986 and 2001. Remediation consisted of decontaminating or demolishing contaminated buildings and removing contaminated soil. Contaminated materials were disposed of at the Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I Grand Junction Disposal Site located south of Grand Junction, Colorado. Some contaminated materials were left in place until they can be remediated efficiently under a state-approved covenant for deferred remediation.

DOE transferred approximately 8 acres of the site in 2001 to the U.S. Department of the Army (occupied by an engineering unit of the U.S. Army Reserve). The remainder of the facility was transferred to nonfederal ownership (Riverview Technology Corporation) in 2001, following approval of the covenant for deferred remediation. Several buildings are leased by DOE from the Riverview Technology Corporation to conduct its ongoing operations.

DOE remains responsible for ensuring that contamination left on its former property is controlled to prevent exposure to the public and the environment. Contamination remains in four occurrences:

- In a buried concrete slab and underlying soil beneath the south portion of Building 12.
- In soil and rubble beneath the southwest corner of Building 20.
- In ground water and surface water within the site perimeter.
- As radium foil sealed below ground in a decommissioned calibration borehole.

Contamination beneath Building 12 (the site computer facility) and Building 20 (analytical chemistry laboratory) will be remediated when DOE vacates those buildings and they are demolished. DOE concluded operations in the laboratory in December 2003 and is preparing the building for demolition. The ground water and surface water is being passively remediated by the process of natural flushing of the alluvial aquifer. DOE will provide stewardship oversight of the decommissioned calibration borehole in perpetuity.

Controls to maintain protectiveness from hazards created by the contaminated materials include warning signs, physical access barriers, deed restrictions, periodic inspections, and records maintenance. The purposes of the annual inspection are to confirm the integrity of visible features at the site, to identify changes in conditions that may affect site protectiveness, and to determine the need, if any, for maintenance, additional inspections, or monitoring.

2.0 Inspection Results

The annual inspection addresses only those portions of the site that must be monitored and maintained to ensure continued protection of human health and the environment. Those portions are related to contaminated media that remain at the site. Features discussed in this report are shown on the attached drawing. Photographs to support specific observations are identified in the text and on the drawing by photograph location (PL) numbers.

2.1 Specific Site Surveillance Features

Monuments—Two monuments exist at or adjacent to the site. A 1/16-section corner monument east of the site is located adjacent to the site access road (B $\frac{3}{4}$ Road). This monument was the origin for the site survey coordinate system during remediation. A U.S. Coast and Geodetic Survey monument is near the former north gate to the site. This monument establishes elevation control for the site. Both monuments are in excellent condition.

Monitor Wells—DOE owns eight monitor wells on the property to monitor the progress of natural flushing of contaminants from the alluvial aquifer. The wells are sampled annually. Inspectors found the visible portions of all wells in good condition, and all wells were secure.

Four of the flush-mounted wells (11-1S, 14-13NA, GJ01-01, and GJ01-02) do not have visible identification numbers. Flush-mounted wells 10-19N and GJ84-4 have their identification numbers marked on metal signs next to the wells. The sign for GJ84-04 has bullet damage but is still legible (PL-1). DOE will apply permanent identification numbers on all the flush-mounted wells.

Warning Signs—Thirteen warning signs installed on galvanized steel posts are positioned around the surface water areas so the warning will be visible to a person approaching from any direction of reasonable access (PL-2). Dense vegetation or fences block access to portions of the surface water occurrences. All signs are in excellent condition. The signpost for warning sign S9 is loose and will be reset in concrete. Metal caps will be installed on the signposts to inhibit rusting and prevent freeze damage.

Radium Foil Borehole—DOE installed a 300-foot-deep cased borehole in the 1980s to calibrate depth measurement systems on borehole geophysical logging trucks. Two strips of radium-226 foil were placed around the casing at depths of 81 feet (29 picocuries per gram) and 181 feet (3 picocuries per gram). During calibration, the instruments in the trucks would detect the gamma signal from the radium.

The borehole was decommissioned in place in 2000. DOE perforated the casing above and below each strip of foil and pressure-grouted the annulus with Portland cement to seal the foil in place. The borehole was filled with grout, and a metal plaque was mounted in concrete at ground level over the well. Borehole information printed on the metal plaque is fading and difficult to read. The plaque will be replaced with a new metal plaque with the borehole information die-stamped or engraved into the metal.

2.2 Transects

To ensure a thorough and efficient inspection, the site was divided into two areas referred to as transects: (1) the area within the former DOE property boundary that is addressed in the LTSP; and (2) the outlying area.

Within each transect, inspectors examined specific site surveillance features, such as survey markers, warning signs, and monitor wells. Inspectors examined each transect for evidence of erosion, excavation, vandalism, or other phenomenon that might indicate a loss of institutional control or diminished protectiveness.

Interior Portions of the Site—This transect includes the portions of Buildings 12 and 20 where contamination remains beneath the buildings, the surface water areas, and other site surveillance features within the former DOE property boundary.

Inspectors entered Buildings 12 and 20 to inspect the floors above the contamination. There was no evidence of recent floor penetrations in the affected areas. Likewise, the exterior areas opposite the contaminated media have not been disturbed (PL-3 and PL-4). The current site owner controls maintenance activities in the exterior areas near the contaminated soil and DOE contractor personnel observe these exterior areas during normal working activities.

The North Pond, South Pond, and wetland areas are surrounded by a fence, which limits casual intrusion. There was no evidence of fishing, trespass, vandalism, or use of the water.

Most of the site surveillance features are in areas not easily accessible by the public due to fencing. Inspectors observed no signs of activity, development, or land use change (e.g., well installations or excavations that could expose ground water) on the site that might degrade protectiveness.

The DOE in-ground calibration facility, which is in an area that is accessible by the public but not a required surveillance feature for this site, was checked as a best management practice. Debris consisting of hoses and clipped branches from shrubs and trees was on and adjacent to the southernmost calibration models. Various types of non-DOE equipment are stored within the calibration model area but do not inhibit access to the models. The calibration models were secured with locks, and there was no evidence of safety hazards or vandalism.

Tamarisk and Russian olive, both undesirable plant species, are establishing around the perimeter of South Pond, in the wetlands area, and along the dike road. Mature stands of tamarisk are present around North Pond and along the bank of the Gunnison River. These plants are not designated for control under the LTSP.

Outlying Area—Inspectors observed no signs of activity, development, or land use change that might expose contaminated ground water or impact the natural flushing of the aquifer.

3.0 Ground Water and Surface Water Monitoring

In accordance with the Record of Decision for the site, the contaminated ground water is being remediated through natural flushing of the alluvial aquifer. This passive remediation is expected to be completed in 50 to 80 years following completion of remediation of contaminated soils (except for the contamination remaining under Buildings 12 and 20, site remediation was completed in 2001). Sampling of the ground water at the site wells and of the surface water at locations at North Pond, South Pond, the wetlands area, and the Gunnison River occur on an annual basis. The results of the monitoring for 2003 will be included in an annual site environmental report.

4.0 Recommendations

1. None of the flush-mounted monitor wells have their identification numbers permanently marked on their caps or covers (page 2).

Recommendation: Identification numbers will be die-stamped or engraved on all flush-mounted monitor wells.

2. The signpost for warning sign S9 is loose (page 2).

Recommendation: The signpost will be reset in concrete.

3. The signposts for the warning signs do not have caps and the posts could rust or suffer freeze damage from collected water (page 2).

Recommendation: Metal caps will be installed on the signposts.

4. The printed information on the plaque of the decommissioned 300-foot borehole is fading (page 3).

Recommendation: The plaque will be replaced with a stamped or engraved metal plaque.

5.0 Photographs

Photograph Location Number	Azimuth	Description
PL-1	270	Bullet-damaged identification sign at monitor well GJ84-04.
PL-2	310	Warning sign S7 near North Pond.
PL-3	300	East side of Building 12 outside the area of buried contamination.
PL-4	40	Southwest corner of Building 20 outside the area of buried contamination.

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GJO 2/2004. PL-1. Bullet-damaged identification sign at monitor well GJ84-04.



GJO 2/2004. PL-2. Warning sign S7 near North Pond.



GJO 2/2004. PL-3. East side of Building 12 outside the area of buried contamination.



GJO 2/2004. PL-4. Southwest corner of Building 20 outside the area of buried contamination.

