



DEPARTMENT OF THE ARMY
BADGER ARMY AMMUNITION PLANT
S7273 BLUFF ROAD
MERRIMAC, WISCONSIN 53561

January 25, 2018

SUBJECT: Documentation of Annual Maintenance Activities 2017
Closed, Covered and Capped Sites
Badger Army Ammunition Plant

Mr. Gregory A. Rudloff, P.G.
Corrective Action Section
Waste Management Branch
Land and Chemicals Division
USEPA - Region 5
77 West Jackson Blvd. (LU-9J)
Chicago, IL 60604-3590

Mr. Jason Lowery
Wisconsin Department of Natural Resources
GEF2 Central Office
PO Box 7921
Madison, WI 53707-7921

Dear Mr. Rudloff and Mr. Lowery:

This letter report summarizes the year 2017 activities associated with maintenance of the closed sites at the Badger Army Ammunition Plant (BAAP) that have been covered or capped. The project sites include:

- Landfill #5 (WDNR License #2813)
- Propellant Burning Ground (PBG) Racetrack Area Including Hazardous Waste Thermal Treatment Unit (HWTTU)
- Landfill #1
- 1949 Pit Cap (Phases 1 and 2-PBG Pits)
- Deterrent Burning Ground (DBG) Area & Landfill #3

Each project site has been maintained following the requirements set forth in the respective approved closure documents. This report provides a brief history of each site followed by a discussion of the maintenance activities performed in 2017. The site history has been condensed for ease of review, since the history of each site has been well documented in previous submittals.

A site inspection form has been prepared for each of the project sites to assess the condition of the cap/cover at the time of the inspection. Maintenance activities are discussed in the narrative portion of this report. It should be noted that the Wisconsin Department of Natural Resources (WDNR) no longer requires annual monitoring of Landfill #2, Landfill #4, and Oleum Landfill cap/covers.

LANDFILL #5 (WDNR LICENSE #2813)

Landfill #5 (WDNR License #2813), previously known as the Existing Landfill, was a solid waste disposal facility used between 1979 and 1988. In 1988, the landfill was closed with a clay barrier cap which received regulatory approval by the WDNR on September 20, 1989.

The cap is inspected annually for erosion, settlement, undesirable vegetation growth, and other deficiencies. Maintenance includes annual mowing of the vegetation and correction of cap deficiencies to maintain proper grade.

The cap was mowed and vegetation around the two gas probes was cleared during October 2017 and the annual inspection was performed on November 1, 2017. Fill material was placed in rutted areas to promote positive drainage, gas probes were painted and labeled, and site signs were straightened. No erosion of the cap was identified during the inspection. Minor settlement of the cap was identified on the east side of the landfill. Recommend monitoring this area for proper drainage and settlement. The completed inspection form is attached.

PBG RACETRACK AREA INCLUDING HWTTU

The PBG Racetrack area was used for open burning of propellant and explosive-contaminated wastes and includes the area known as the HWTTU. In 1995, three quarters of the Racetrack area was closed as part of the final closure for the HWTTU, which included the installation of a soil cover system. Closure of this portion of the Racetrack/HWTTU in the PBG area was approved by the WDNR on September 4, 1996. Contaminated soil was removed from the remaining portion of the Racetrack area in 1997 and the WDNR letter dated December 2, 1997 indicated that no additional remedial actions were required for this area.

The cover is inspected annually for erosion, settlement, undesirable vegetation growth, and other deficiencies. Maintenance includes annual mowing of the vegetation and correction of cover deficiencies to maintain proper grade.

The cover was mowed during October 2017 and the annual inspection was performed on October 31, 2017. Burrow holes were filled and the northern access path was cleared of vegetation. No erosion or settlement of the cover was identified during the inspection. The completed inspection form is attached.

LANDFILL #1

Landfill #1 was used as a demolition debris disposal facility between 1942 and 1959. The facility was closed with clay and geomembrane barrier cap in 1997. The Final Construction Report for the Landfill #1 cap, which included the long-term care requirements, was submitted to the WDNR on January 29, 1998. Regulatory approval of the Landfill #1 cap was received in a Liability, Clarification and Current Environmental Conditions letter report dated August 27, 2014.

The cap is inspected annually for erosion, settlement, undesirable vegetation growth and other deficiencies. The cap drainage system cleanouts and outlets, drainage culvert under the site access road, gas vents, site identification signs, and access roads are also inspected annually.

Maintenance includes annual mowing of the vegetation and correction of cap deficiencies to maintain proper grade and prevent ponding of storm water.

The cap was mowed during October 2017 and the annual inspection was performed on October 31, 2017. The barbed wire fence surrounding the site has been removed in accordance with the WDNR correspondence dated March 1, 2017. Marking posts for drainage pipes were repaired or replaced. Other maintenance items included repair of gas vents and installation of site signs. No erosion or settlement of the cap was identified during the inspection. The completed inspection form is attached.

1949 PIT CAP (PHASES 1 AND 2-PBG Pits)

The 1949 Pit and PBG waste pits consisted of four excavated areas that were used for open burning and debris disposal from 1944 to 1962. Metals contained in the backfill soils and buried debris in the 1949 Pit prompted the installation of a clay and geomembrane barrier cap in 1998. The Cap Construction Report for Phase 1 of the 1949 Pit Closure was approved by the WDNR on March 8, 1999.

Construction of Phase 2 of the 1949 Pit Cap, which covers the three PBG waste pits, was completed in November 2008. Consistent with Phase I, the cap consisted of clay and geomembrane barrier components. The Construction Documentation Report for Phase 2 of the PBG was reviewed by the WDNR. According to their letter dated March 25, 2009, the cap is subject to a performance standard, therefore formal approval would not be given; however, the cap was constructed according to plan and no further construction activities were necessary.

The cap is inspected annually for erosion, settlement, undesirable vegetation growth, and other deficiencies. The cap drainage system cleanouts and outlets, drainage culverts under the site access roads, gas vents, perimeter barbed wire fence and gates, site identification signs, and access roads are also inspected annually. Maintenance includes annual mowing of the vegetation and correction of cap deficiencies to maintain proper grade and prevent ponding of storm water.

The cap was mowed during October 2017 and the annual inspection was performed on October 31, 2017. Marking posts for cleanouts, drainage pipes and gas vents were repaired or replaced. Damaged or deteriorated fence posts and barbed wire were repaired or replaced. No erosion or settlement of the cap was identified during the inspection. The completed inspection form is attached.

DBG AREA / LANDFILL #3

The DBG is an inactive site of seven acres that is also referred to as Landfill #3. Approximately four acres of this area was used as a borrow pit and a fly ash disposal site from the 1940s through the 1970s. The remaining three acres consisted of three open burn pits that were used for the open burning of deterrent and other plant waste. In 2003, a geosynthetic clay liner and geomembrane barrier cap was constructed over the entire seven acre site.

The cap is inspected annually for erosion, settlement, undesirable vegetation growth, and other deficiencies. The cap drainage system outlets, site identification signs and access roads,

and gates are also inspected annually. Maintenance includes annual mowing of the vegetation and correction of cap deficiencies to maintain proper grade and prevent ponding of storm water.

The cap was mowed during October 2017 and the annual inspection was performed on November 1, 2017. Drainage pipe screens were repaired or replaced. Damaged or deteriorated fence posts and barbed wire were repaired or replaced. Missing site signs were replaced. No erosion or settlement of the cap was identified during the inspection. The completed inspection form is attached.

Overall, the project sites are in good condition. During the annual inspections, minor deficiencies were identified and the necessary repairs were completed.

Please do not hesitate to contact me at 608-434-5374 if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Sitton', with a large, sweeping flourish at the end.

Robert M. Sitton
Commander's Representative

Attachments

Copy furn: Bryan Lynch, Army Environmental Command
Steven Martin, Wisconsin Department of Natural Resources

**ANNUAL CAP & COVER INSPECTION FORM
BADGER ARMY AMMUNITION PLANT
LANDFILL #5**

Date: 11/1/17 **Weather:** Scattered Clouds
Inspector: B. Jacobs **Ground Surface Conditions** Dry

Inspection Checklist

Component	Comments
Cap and Vegetation	Areas mowed and filled ruts; settlement identified (see Note #1)
Drainage Ditches	Areas mowed
Gas Probes	Good condition; repainted and labeled GP-1 & GP-2
Access Roads	Good condition
Site ID Signs	Straightened sign posts
General Housekeeping	Good condition

Notes:

1. Minor settlement of the cap was identified on the east side of Landfill #5. Recommend monitoring this area for proper drainage.

**ANNUAL CAP & COVER INSPECTION FORM
 BADGER ARMY AMMUNITION PLANT
 PBG RACETRACK AREA INCLUDING HWTTU**

Date: 10/31/17
Inspector: B. Jacobs

Weather: Overcast
Ground Surface Conditions Dry

Inspection Checklist

Component	Comments
Cap and Vegetation	Areas mowed and filled burrow hole
Drainage Ditches	Areas mowed
Site Access	Northern access path cleared
Site ID Signs	Good condition
General Housekeeping	Good condition

**ANNUAL CAP & COVER INSPECTION FORM
BADGER ARMY AMMUNITION PLANT
LANDFILL #1**

Date: 10/31/17 **Weather:** Overcast
Inspector: B. Jacobs **Ground Surface Conditions** Dry

Inspection Checklist

Component	Comments
Cap and Vegetation	Areas mowed
Cleanouts	Trimmed and clear of vegetation
Drainage Ditches	Areas mowed
Drainage Pipes	Trimmed and clear of vegetation and marking posts repaired
Gas Vents	Repaired gas vent turbine
Access Road	Good condition
Road Culvert	Trimmed and clear of vegetation and installed marking post
Gate and Fencing	Fence was removed during 2017 (see Note #1)
Site ID Signs	Signs were reinstalled after fence was removed
General Housekeeping	Good condition

Notes:

1. The WDNR approved the removal of the fence on March 1, 2017. Wood corner posts remain to delineate the boundary of Landfill #1.

**ANNUAL CAP & COVER INSPECTION FORM
BADGER ARMY AMMUNITION PLANT
1949 PIT CAP/PBG (Phases 1 and 2)**

Date: 10/31/17 **Weather:** Overcast
Inspector: B. Jacobs **Ground Surface Conditions** Dry

Inspection Checklist

Component	Comments
Cap and Vegetation	Areas mowed
Cleanouts	Trimmed and clear of vegetation & marking posts repaired
Drainage Ditches	Areas mowed
Drainage Pipes	Trimmed and clear of vegetation & marking posts repaired
Gas Vents	Repaired marking posts
Access Roads	Good condition
Road Culvert	Trimmed and clear of vegetation
Gate and Fencing	Gate is locked and working, fence line cleared and fence repaired
Site ID Signs	Good condition
General Housekeeping	Good condition, miscellaneous debris removed

**ANNUAL CAP & COVER INSPECTION FORM
 BADGER ARMY AMMUNITION PLANT
 LANDFILL #3/DBG AREA**

Date: 11/1/17
Inspector: B. Jacobs

Weather: Scattered Clouds
Ground Surface Conditions Dry

Inspection Checklist

Component	Comments
Cap and Vegetation	Areas mowed
Drainage Ditches	Areas mowed
Drainage Pipes	Trimmed and clear of vegetation, marking posts and rodent screens repaired
Access Roads	Good condition
Gates and Fencing	Fence repaired, fence posts replaced, and fence line cleared
Site ID Signs	Replaced missing signs (signs had been stolen off the fence)
General Housekeeping	Good condition, miscellaneous debris removed