

REPORT
2016 LANDFILL INSPECTION
MITCHELL LANDFILL

Prepared for:



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Civil & Environmental Consultants, Inc.

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FIGURES

Figure 1 – Site Layout; 2016 Landfill Inspection

APPENDICES

Appendix A – Annual Landfill Inspection Checklist

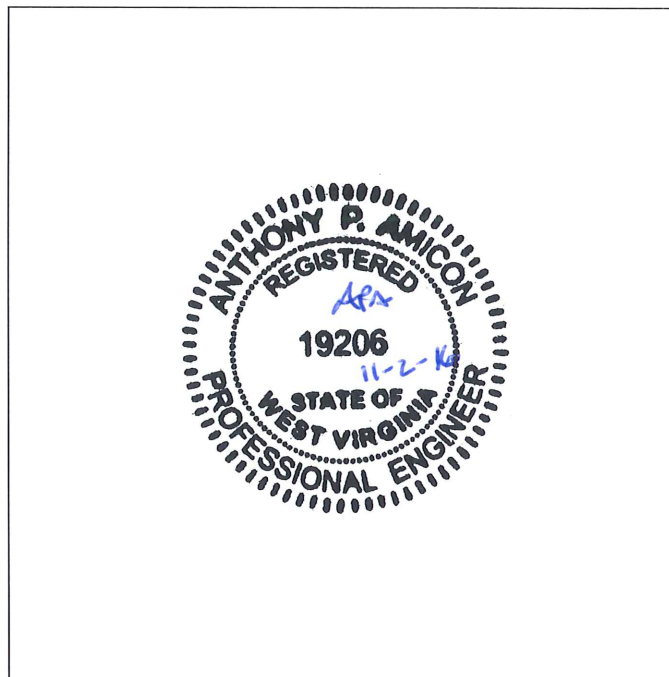
Appendix B – Recent Weather History for the Site

P:\2016\162-393\Final Documents\R-2016 LF Inspection\R - 162-393 Initial Annual LF Inspection Report.docx

ENGINEER'S VERIFICATION STATEMENT

I hereby verify that the 2016 Landfill Inspection of the Mitchell Landfill and its appurtenances owned by the Kentucky Power Company d/b/a American Electric Power as required by Title 40, Chapter I, Part 257.84 (b) of the Code of Federal Regulations (CFR), was conducted under my direction. The attached inspection report documents the following:

- 1) A review of available site data;
- 2) The conditions observed at the site on August 30, 2016;
- 3) Observations noted during the inspection; and,
- 4) Recommended remedial actions and maintenance activities.



Anthony P. Amicon, P.E.
Civil & Environmental Consultants, Inc.

1.0 INTRODUCTION

The Mitchell Landfill is owned and operated by Kentucky Power Company, doing business as (d/b/a) American Electric Power (AEP) and is regulated by the West Virginia Department of Environmental Protection (DEP) under Solid Waste Permit No. WV0116742. The landfill is located along Gatts Ridge Road (Marshall County Road 72), approximately 2 miles north of the intersection with County Road 74 (about 2 miles due east of the Mitchell Power Generation Plant) in Marshall County, West Virginia. Overall, Mitchell Landfill has a maximum disposal capacity of about 10 million cubic yards designated for excess Coal Combustion Residuals (CCR) produced from the Mitchell Power Generating Plant that are not being beneficially reused. The landfill boundary comprises about 169.6 acres with CCR being placed within a footprint of 57.6 acres. The landfill will be operated in 5 Phases with Phases 1 through 4 completing the maximum CCR Unit disposal footprint and Phase 5 comprising CCR placement atop the first four phases. Construction of the Mitchell Landfill was initiated in 2013 and operation of the landfill began in May of 2014.

In accordance with Title 40, Chapter I, Part 257.84 (b) of the Code of Federal Regulations (CFR), Civil & Environmental Consultants, Inc. (CEC) performed an inspection of the Mitchell Landfill. The inspection was performed by a qualified professional engineer⁽¹⁾. This inspection included a review of available design/operational data and a site walk. The site walk was performed on August 30, 2016, by Mr. Timothy D. Mitchell, P.E. of CEC. As part of the site walk, Mr. Mitchell visually observed the condition of the various landfill components and engineering systems in order to evaluate whether the design, construction, operation, and maintenance of the landfill is consistent with the design plans, the DEP permit, and recognized or generally accepted engineering standards. CEC performed these visual observations of the site to identify the presence of deficiencies, and the need for remedial actions or maintenance activities. Where applicable, CEC has provided recommended remedial actions and maintenance activities.

⁽¹⁾ An Engineer's inspection does not constitute a warranty or guarantee expressed or implied, nor does it relieve any other party of their responsibility to abide by contract documents, applicable codes, standards, regulations, or ordinances.

At the time of the site walk, Phase 1 and 2 (Phases 2A and 2B) waste disposal areas had been constructed with waste placement occurring in each of these phases. Additionally, the Leachate Pond, South Pond, West Pond, portions of the haul road, and various leachate management features had been previously constructed and were operational at the time of the site walk. No further investigation beyond visibly observing the conditions of these features was performed.

The following sections of this 2016 Landfill Inspection Report provide a summary of the operational data reviewed, observations made during the site walk, recommendations for remedial actions or maintenance, and supporting information.

2.0 REVIEW OF AVAILABLE INFORMATION

The 2016 Landfill Inspection included a review of available operational data. This included a review of recent CCR tonnages placed in the landfill, recent topographic data, 7-day inspection reports, and the status of previously recommended remedial and maintenance activities within the Initial 2015 Landfill Inspection Report. A summary of the data reviewed is included in the following subsections.

2.1 CCR PLACED IN THE LANDFILL

AEP has tracked CCR material produced at the Mitchell Power Generation Plant that was transported to the Mitchell Landfill for disposal on a monthly basis. The Initial 2015 Landfill Inspection Report provided disposal data through June 30, 2015. Based on the provided records, CCR material transported to Mitchell Landfill from July 1, 2015 through June 30, 2016 are as follows:

| Month | CCR Disposal Quantities to Mitchell Landfill (tons) | | | |
|----------------|--|------------|---------------|----------------|
| | Fly Ash | Bottom Ash | Gypsum | Combined |
| July 2015 | 34,805 | 0 | 825 | 35,630 |
| August 2015 | 35,632 | 0 | 1,088 | 36,720 |
| September 2015 | 33,563 | 0 | 2,372 | 35,935 |
| October 2015 | 6,511 | 0 | 95 | 6,606 |
| November 2015 | 18,829 | 0 | 0 | 18,829 |
| December 2015 | 29,386 | 0 | 1,650 | 31,035 |
| January 2016 | 35,418 | 0 | 848 | 36,266 |
| February 2016 | 45,297 | 0 | 4,161 | 49,458 |
| March 2016 | 35,686 | 0 | 2,006 | 37,692 |
| April 2016 | 20,790 | 0 | 5,136 | 25,926 |
| May 2016 | 16,316 | 0 | 310 | 16,626 |
| June 2016 | 43,380 | 0 | 0 | 43,380 |
| TOTAL | 355,613 | 0 | 18,491 | 374,104 |

From the Operating Record submitted with the DEP Solid Waste Permit Application, last revised April 2012, the following solid waste estimated maximum disposal quantities were identified:

| Solid Waste | Estimated Maximum Production Quantity (tons/year) | Estimated Maximum Disposal Quantity (tons/year) |
|-----------------------|--|--|
| Fly Ash | 450,000 | 450,000 |
| Bottom Ash | 30,000 | 30,000 |
| Gypsum ⁽¹⁾ | 450,000 | 6,000 |
| CPS Filter Cake | 50,000 | 50,000 |

Notes:

- (1) Due to the current beneficial reuse of gypsum, the planned disposal quantity will be minimal on an annual and average daily basis. However, any change to the current beneficial reuse outlet or percentage will require disposal in addition to the projected quantities of fly ash, bottom ash and CPS Filter Cake material noted in the table.

Overall, the total fly ash disposal quantity in 2016 is less than the annual estimated maximum disposal quantity reported in the Operating Record. The total gypsum disposal quantity in 2016 is greater than the annual estimated maximum disposal quantity reported in the Operating Record. However, since the Operating Record allows for additional disposal of gypsum (refer to Note 1 in the above table), the current disposal quantities appear acceptable.

2.2 2015 CCR WASTE PLACEMENT TOPOGRAPHIC DATA

Annual topographic data for the site was provided by AEP and was obtained through aerial imaging methods on May 8, 2016. No new construction has occurred since the previous inspection performed in 2015. A review of the topographic data shows that waste placement is occurring in the Phases 1, 2A, and 2B areas. Additionally, the waste placement is occurring within the limits identified on the DEP Solid Waste Permit Application Drawing set for the Phase 1 and 2 waste disposal areas.

2.3 REVIEW OF 7-DAY INSPECTION REPORTS

Starting on October 14, 2015, Mitchell Landfill personnel began conducting regular inspections and preparing 7-day inspection reports to comply with §257.84. The 2016 Landfill Inspection

included a review of these reports. Reports from October 14, 2015 through June 29, 2016 were reviewed. From this review, several issues were identified. The issues were discussed with Mitchell Landfill personnel are described below in **bold** print, followed by AEP's response.

ISSUE NO. 1 - On checklist for October 14, October 21, October 28, and December 9, 2015, Final Cover was marked as not satisfactory.

RESPONSE:

Several bare spots in the cover for the of the Phase 1 south exterior slope were identified. To correct the issue, these spots were re-seeded.

ISSUE NO. 2 - On the 7-day inspection reports for October 14, October 21, October 28, and December 9 2015, a much higher Leachate Pond pool elevation was noted than the remainder of the year.

RESPONSE:

This observation was not accurate, as the Leachate Pond has exhibited fairly steady elevation levels throughout its operating life.

ISSUE NO. 3 - For multiple 7-day inspection reports beginning on December 30, 2015, a slip and slip repair is noted near the South Pond.

RESPONSE:

An area to the southeast of the South Pond had experienced some slope movement. The slide area was over excavated and backfilled using engineering methods (i.e., controlled lift thickness and compaction). Following grading, the area was then re-seeded.

2.4 2015 ANNUAL INSPECTION RECOMMENDED REMEDIAL ACTIONS AND MAINTENANCE ACTIVITIES

Several remedial actions and maintenance recommendations were included in the Initial 2015 Landfill Inspection Report. Prior to performing the site walk, described in Section 3.3 of this report, CEC reviewed these recommendations with Mitchell Landfill personnel to discuss how each of the items was addressed. Below, each of the recommended remedial actions or maintenance activities included in the previous report are presented below in **bold**, followed by AEP's response.

RECOMMENDATION NO. 1 - It is recommended that the eroded composite liner protective cover materials on the north and east sides of the non-active waste disposal areas be repaired or re-established. New cover materials should be used to fill in the depressions and the exposed surface regraded to the design thickness. AEP should also consider using bottom ash for the protective cover material and/or should consider means to limit erosion in the future (i.e., sacrificial geotextile, Posi-shell application, etc.).

RESPONSE:

Bottom ash material was brought in and used to re-grade areas of the exposed protective cover exhibiting erosion.

RECOMMENDATION NO. 2 - It is recommended that AEP obtain confirmation that the liner stability is sufficient to accommodate the two haul roads extending from the northern end of the waste limits through Phases 1 and 2.

RESPONSE:

The previous access road on the eastern side of the waste disposal areas has been removed.

RECOMMENDATION NO. 3 - It is recommended that a designated armored channel be constructed from the inlet pipe headwall located in the southeast quadrant of the West Pond (near the top of the steep slope).

RESPONSE:

Instead of an armored inlet channel, the inlet pipe was extended down the slope and now discharges directly into the West Pond.

RECOMMENDATION NO. 4 - It is recommended that the riprap armoring for the channel from the South Pond Forebay to the South Pond be repaired. New riprap material should be placed as required to re-establish the design thickness.

RESPONSE:

The riprap for the channel between the South Pond and South Pond Forebay was repaired with additional riprap to achieve a minimum thickness of 12 inches.

RECOMMENDATION NO. 5 - It is recommended that the three culverts noted in Section 3.3.5 be evaluated to determine if adequate flow capacity in the channels exists. It is also recommended that inlet/outlet protection be constructed and that existing sediment and blockages be removed from the upstream and downstream ends. Subsequent to final repairs, it is recommended that the ground surface near these structures be stabilized.

RESPONSE:

The two culverts described to the south of Phase 1 have been removed. One culvert to the north of Phase 1 remains in place. No confirmation of flow capacity has been performed. Also, no inlet/outlet protection was installed.

RECOMMENDATION NO. 6 - CEC recommends that AEP perform regular maintenance of clay cover and associated low volume drainage swales that have been subjected to erosion. This includes: 1) identification and correction/redirection of concentrated stormwater flow; 2) construction of designated drainage swales with appropriate armoring; 3) backfilling of erosion rills with clay cover material; 4) regrading repaired areas to promote positive surface drainage; and, 4) placing topsoil and/or fertilizer as needed to re-establish vegetation. Specific locations noted during the site walk that require maintenance include:

- a. Localized erosion and erosion rills on the eastern side of the Phase 1 exterior slope, between the slope toe and the riprapped drainage channel.**
- b. Erosion and erosion rills along the toe of the western exterior slope of the Phase 1 exterior slope.**

RESPONSE:

These areas were re-graded and seeded.

RECOMMENDATION NO. 7 - CEC recommends that AEP maintain vegetation and limit soil erosion throughout the facility in accordance with the requirements established in the Operations Plan for the site, which includes: 1) repair and reseeding of areas containing sparse vegetation; 2) redirect stormwater runoff; and, 3) perform mowing of vegetated slopes every other month between April and October to control vegetation height. Specific locations noted during the site walk that require maintenance include:

- a. Sparsely vegetated areas outside the immediate limits of the West Pond.**
- b. The areas near the base of the Phase 1 exterior slope.**

RESPONSE:

Areas with sparse vegetation were re-seeded. Mowing of the vegetated slopes has occurred on an as-needed basis with two events occurring this year.

RECOMMENDATION NO. 8 - It is recommended that staff gauges and/or sediment cleanout markers be installed and monitored as part of the regular inspections. Specific locations where a staff gauge and/or sediment cleanout marker was not observed include:

- a. A staff gauge was not observed in the West Pond and should be installed.**
- b. A sediment cleanout marker was not observed in the South Pond and should be installed.**

RESPONSE:

A sediment cleanout marker was added to the South Pond. A staff gauge was not added to the West Pond.

RECOMMENDATION NO. 9 - It appears that the South Pond is being operated more as a retention pond than a detention pond with periodic operation of the skimmer. This was evident with the observed water several days after the most recent storm event. It is suggested that the skimmer remain functional on a regular basis in order to provide the design storage capacity for the anticipated significant storm events.

RESPONSE:

The skimmer device for the South Pond is always closed. However, the water elevation is typically below or equal to the skimmer elevation.

RECOMMENDATION NO. 10 - It is recommended that designated stormwater channels and associated inlet/outlet structures be maintained to remove accumulated sediment to remain free flowing. Where necessary the channel alignment and armoring should be repaired following the sediment removal. Specific locations where an accumulation of sediment was observed and require maintenance include:

- a. The catch basin located across the haul road from the South Pond.
- b. The culvert located on the eastern side of the Phase 1 exterior slope.
- c. The channels located between the toe of the exterior slope of the Phase 1 and 2 and the South Pond Forebay.
- d. Continue the routine landfill inspections weekly and annually in accordance with the Operations Plan and CCR Rule §257.84.

RESPONSE:

The catch basin and channels described above were cleaned. The culvert on the eastern side of Phase 1 has been removed. Channels continued to be observed on a weekly basis as part of the 7-day inspections for the site.

RECOMMENDATION NO. 11 - Perform regular maintenance of the temporary cover over the landfill liner system that has been subjected to erosion.

RESPONSE:

Maintenance activities for the temporary cover over the landfill liner system are performed as needed.

RECOMMENDATION NO. 12 - Continue to monitor the inclinometers located on the fill embankment slope south of the South Pond.

RESPONSE:

Inclinometers are monitored annually at the site.

RECOMMENDATION NO. 13 - Increase the operational time of the stormwater pond skimmer devices to minimize the prolonged storage of stormwater in the ponds that exceeds the maximum sediment accumulation level.

RESPONSE:

The West Pond skimmer is in continuous operation. The South Pond water elevations are typically equal to or below the skimmer device elevation.

RECOMMENDATION NO. 14 - Continue to monitor sediment accumulation in the stormwater ponds (including forebay) and perform maintenance as needed.

RESPONSE:

Accumulated sediment is removed as needed.

3.0 SITE WALK

As part of the 2016 Landfill Inspection, a site walk was performed to visually observe and evaluate the various landfill components and engineering systems. A summary of the observations made during the site walk are included in the following subsections.

3.1 DATE AND PERSONNEL PARTICIPATING IN THE SITE WALK

The site walk was performed on August 30, 2016 and included the following personnel:

- AEP
 - Mohammad Ajlouni – Mitchell Landfill Engineering Manager (Escort)
 - Dennis Henderson – Mitchell Landfill Site Manager (Escort)
 - Danielle Roski – Environmental Compliance Manager (Escort)
- CEC
 - Timothy D. Mitchell, P.E. – Engineer Performing the 2016 Landfill Inspection

3.2 WEATHER CONDITIONS DURING AND PRIOR TO THE SITE WALK

A calendar showing recent weather history leading up to the August 30, 2016 site walk is included in Appendix B of this report. Rainfall for the 7 days prior to the site walk totaled 0.14 inches. Weather conditions during the site walk were sunny with temperatures ranging from 65° to 75° Fahrenheit.

3.3 SITE WALK OBSERVATIONS

As part of the site walk and associated reconnaissance, observations were made and recorded regarding the overall condition and operation of the various landfill components (i.e., cut/fill/waste permanent and temporary slopes, stormwater collection/conveyance/storage structures, erosion and sediment controls, leachate management system, waste placement, etc.). The site observations were limited to the areas of the site and structures that could be visually observed, and did not include invasive inspection, investigation or exploration of the site, structures or equipment. A summary of the observations made during the site walk were documented and reported on the Mitchell Landfill - Annual Landfill Inspection Checklist contained in Appendix A of this report.

A summary of general observations and applicable operational issues noted during the site walk, are described below separated by area or structure.

3.3.1 Coal Combustion Residual (CCR) Waste Placement Area

General Observations:

- At the time of the inspection, CCR waste was being disposed of in Phases 1A, 1B, and 2 of the landfill. Waste was brought to the disposal area using triaxle dump trucks. AEP's contractor onsite R.B. Jergens, Inc. (RBJ) would then blade the waste materials into place using a bulldozer. Waste was then compacted using a smooth drum roller operated in vibratory mode.
- The waste placement area appeared to be graded such that surface water drained to the interior of the active landfill area, creating a "bowl" shape. No ponding of water was observed.
- Several existing chimney drains were located in the waste area and provided drainage for contact surface water. In total, there were nine (9) operational chimney drains within the Phase 1, 2A, and 2B disposal area during the site walk. The chimney drains appeared functional without blockage from debris or sediment build-up.
- The waste in the active disposal area was smooth, hard, and unyielding, and provided a firm surface to walk on. Additionally, no pumping or rutting was observed under the operating construction equipment. No signs of settlement or tension cracks were observed.

- One access/haul road was in the waste placement area extending from the perimeter haul road on the northern side of the site extending in a southeast direction towards the Phase 1 containment berm (southern side of the waste placement area). The haul road consisted of an embankment constructed from CCR materials ranging in thickness from a few feet to approximately 10 feet, placed over the protective cover atop the liner system.
- To the west of the access road described above, AEP had created a waste material stockpile. The stockpile appeared similar to a road, but with a much steeper gradient. Speaking to Mitchell LF personnel, the stockpile was created to place waste in the disposal area at times when the active area could not be accessed (e.g., severe rains). The stockpile was being worked into the CCR disposal area as needed.

Operational Issues Noted:

- Several deep (6" - 12" deep) erosion rills were observed in the waste material placed adjacent to the Phase 1 containment berm (southern side of the waste placement area) on the southern side of the waste placement area. Mitchell Landfill staff repaired the deep erosion rills while I was onsite by undercutting the area with a bulldozer and pushing additional fill material in its place. The waste fill material was then compacted using the smooth drum roller.
- There were several shallow (1" - 2" deep) erosion rills in the exposed sideslope liner system protective cover on the northern side of Phase 1 and the southern side of Phase 2B.
- The waste material stockpile observed on the composite liner protective cover materials within the landfill may lead to instability of the liner system. AEP should regrade this waste stockpile to achieve maximum waste slope inclinations of 4H:1V as soon as practical.

3.3.2 CCR Waste Clay Cover (Exterior Slope of Waste Placement Area)

General Observations:

- The exterior slope to the south of Phase 1 had a good stand of vegetation on the lower portion of the slope. The upper portion of the slope was lacking a strong stand of vegetation and had numerous shallow erosion rills present.
- It was observed that the berm had recently been extended.
- No scarps, cracks, subsidence, sloughs or seeps were observed.
- There were no observed signs of CCR material or contact water on the slopes.

Operational Issues Noted:

- The upper portion of the exterior slope to the south of Phase 1 had limited vegetation and numerous shallow (1" – 2" deep) erosion rills were present.
- Several shallow (1" – 2" deep) to moderate (2" – 6" deep) erosion rills were observed on the eastern and western side of the Phase 1 exterior slope.

3.3.3 West Pond

General Observations:

- The West Pond had a relatively low water level, with the water surface covering a majority of the floor area.
- The sediment level (below the water level) was well below the clean stake located on the side of the pond opposite of the West Pond outlet structures.
- The inlet culverts, headwalls and channels appeared free flowing without blockage.
- The outlet to the West Pond was provided by a skimmer and vertical riser pipe that appeared to be unclogged and free of debris.
- The pond interior slopes and inlet channels were well armored with riprap: no observed sign of excessive erosion.
- No settlement, bulges, tension cracks, sloughs or seeps were observed around the perimeter embankments, dam and exterior slopes.
- The areas surrounding around the immediate pond limits showed good vegetation coverage. Most areas appeared to have sufficient vegetative growth with a few isolated non-vegetative patches.
- A culvert extension had been installed to convey flow from a culvert at the top of the slope (northeastern corner), down the slope in into the West Pond discharging directly onto the West Pond riprap lining.

Operational Issues Noted:

- The West Pond did not have a staff gauge to readily determine the water elevation in the pond.

3.3.4 South Pond and South Pond Forebay

General Observations:

- The forebay contained water that was above the sediment cleanout level and the sediment level appeared to be well below the designated cleanout level.
- The forebay inlet channel was constructed with grouted riprap that was intact.
- The riprap in the forebay outlet channel leading to the South Pond was in good condition.
- A staff gauge was present in the South Pond with the current water elevation at approximate Elevation 1031.5.
- The interior slopes of the South Pond and the South Pond Forebay were well covered with riprap and there were no signs of erosion.
- A sediment cleanout stake was present in the South Pond. However, the sediment level in the South Pond was unable to be observed, due to the current water level.
- The primary and emergency outlet structures for the South Pond appeared to be functional and free of blockage or debris.
- The skimmer in the South Pond was floating and free of debris.
- The long fill slope south of the pond (exterior slope of the South Pond) appeared to be in good condition. With the exception of a localized barren area at the top of the slope, there was good vegetative coverage throughout. Additionally, there were no signs of significant erosion, localized seepage, ponded water, slope instability, or surficial sloughing.
- The riprap lined stormwater channels bounding the east and west sides of the long fill slope were well armored with no signs of erosion.
- An area southeast of the South Pond, just below the slope crest, had previously experienced a small landslide (as told by AEP personnel). The area had previously been over-excavated and backfilled with compacted soil. The ground surface in the repair area was re-seeded.

Operational Issues Noted:

- An approximate 10-foot by 10-foot area on the western side at the top of the South Pond southern exterior slope showed an area with no vegetation.

3.3.5 Stormwater Run-On Management Features

General Observations:

- Most of the designated stormwater channels were armored with riprap and free flowing with limited signs of ponded water, blockage or erosion. Where present, the check dams had accumulated some sediment build-up, but not to a significant thickness.

Operational Issues Noted:

- One culvert was observed at a road crossing in the inboard stormwater channel near the entrance of the temporary haul road leading into the waste area on the northern side of Phase 1. This culvert was not on the design plans for the site; and therefore, flow capacity of the culvert is in question. Also, the culvert did not include inlet and outlet protection. Further, there was partial blockage of the inlet with riprap and of the outlet with accumulated sediment.
- A drainage swale on the slope immediately east of the Phase 1 exterior slope, outside the limits of waste, had a section of the channel with no lining (i.e., riprap lining above and below the described section of channel).
- Sediment build-up was noted on the northern end of two stormwater channels on each side of a site access road to the south of Phase 1 exterior slope.
- An onsite borrow area was observed with sparse vegetation.

3.3.6 Leachate Collection and Management System

General Observations:

- The aboveground pipes, including the gravity drain pipes from the waste disposal area and the forcemain pipes from the leachate lift station to the Leachate Pond appeared free of damage with no signs of leakage or precipitate build-up.
- The concrete vault for the lift station contain leachate but the liquid level was well below the overflow invert elevation.
- The pump controls appeared to be operational with no alarms noted.
- There was no observed ponded water, leakage or overflow noted around the leachate pump station.

Operational Issues Noted:

- None.

3.3.7 Leachate Pond

General Observations:

- The Leachate Pond liquid level was at approximate Elevation 1221.
- Previous water levels, as indicated by water stains on the liner system, appeared to provide adequate freeboard between the crest of the Leachate Pond and the emergency pipe outlet.
- The liner system was exposed without ballast. Based on observations of the areas above the water level, no damage to the liner system was noted.
- No blockage or debris was noted around the inlet pipe to the Leachate Pond.
- No blockage or debris was noted around the in-take pipes in the Leachate Pond.
- No evidence of leakage was observed near the truck filling area or the pump station.

Operational Issues Noted:

- None.

4.0 RECOMMENDED REMEDIAL ACTIONS AND MAINTENANCE ACTIVITIES

No deficiencies were identified with respect to the operation and maintenance of the Mitchell Landfill. However, based on our observations described in Section 3.3, CEC did observe operational issues that should be considered for remedial action or maintenance. The following sections provide recommendations to improve operational performance of the Mitchell Landfill.

4.1 RECOMMENDED REMEDIAL ACTIONS

Below is a list of recommended remedial actions.

- It is recommended that the localized erosion areas noted in the side slope liner protective cover materials on the north side of Phase 1 and on the southern side of Phase 2B be repaired. New cover materials should be used to fill in the depressions and the exposed surface re-graded to the design thickness.
- It is recommended that AEP should regrade this waste stockpile to achieve maximum waste slope inclinations of 4H:1V as soon as practical.
- It is recommended that the culvert noted in Section 3.3.5 be evaluated to determine if adequate flow capacity in the culvert exists. It is also recommended that inlet/outlet protection be constructed and that existing blockages be removed from the upstream and downstream ends.
- CEC recommends that AEP repair the clay cover that has been subjected to erosion. This includes: 1) backfilling of erosion rills with clay cover material; 2) regrading repaired areas to promote positive surface drainage; and, 3) placing topsoil and/or fertilizer as needed to re-establish vegetation. AEP should also consider the use of erosion control matting. Specific locations noted during the site walk that require maintenance include:
 - Shallow erosion rills on the upper portion of the Phase 1 south exterior slope.
 - Shallow to moderate erosion rills along the east and west sides of the Phase 1 exterior slope.
- CEC recommends areas where little to sparse vegetation was noted be re-seeded. These areas include the following:
 - Localized area at the top of the southern slope to the South Pond; and
 - The upper exterior slope for the Phase 1 containment berm (most recent constructed berm section).

- It appears that the South Pond is being operated more as a retention pond than a detention pond with periodic operation of the skimmer. It is suggested that the skimmer remain functional on a regular basis in order to provide the design storage capacity for the anticipated significant storm events.
- It is recommended that designated stormwater channels and associated inlet/outlet structures be maintained to remove accumulated sediment to remain free flowing. Where necessary the channel alignment and armoring should be repaired following the sediment removal. Specific locations where an accumulation of sediment was observed and require maintenance include:
 - The twin channels located on both sides of the access road between the toe of the Phase 1 exterior slope and the South Pond Forebay.
 - The Channel on the eastern side of the Phase 1 exterior slope.

4.2 RECOMMENDED MAINTENANCE ACTIVITIES

Below is a list of recommended maintenance activities.

- Continue to monitor sediment accumulation in the stormwater ponds (including forebay) and perform maintenance as needed.

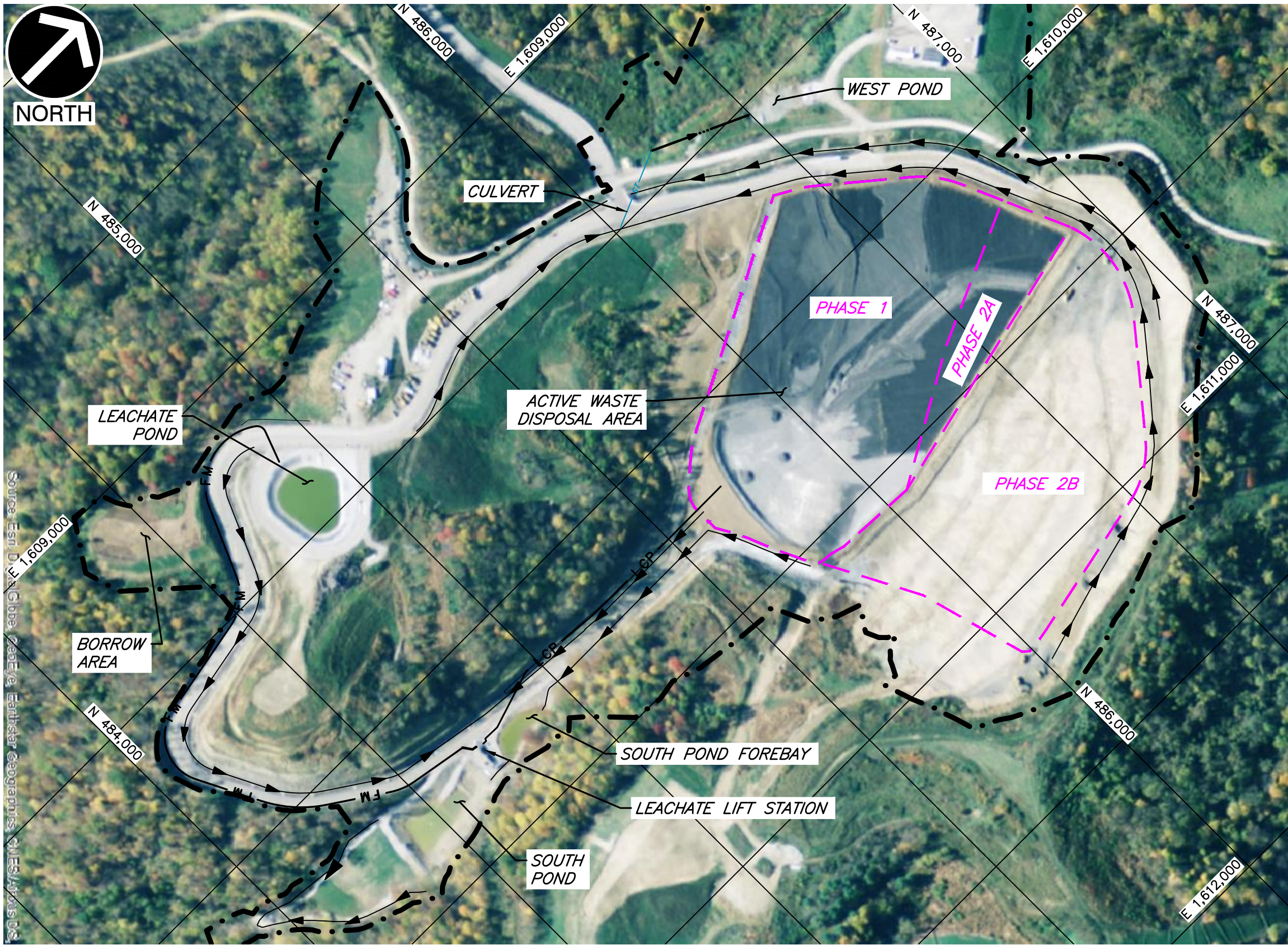
5.0 SUMMARY AND CONCLUSIONS

CEC provided a qualified Professional Engineer to perform the 2016 Landfill Inspection of Mitchell Landfill. Based on our observations of the landfill, the site features and engineering systems appeared to be constructed and/or operating in general accordance with the design plans, Operations Plan, WV DEP Solid Waste/NPDES Permit, and generally accepted industry standards. No signs of site instability or significant operational concerns were observed. CEC has provided several remedial actions and maintenance activities, described in Section 4.0 of this report, to improve the operational performance of the Mitchell Landfill.

We trust this report and supporting data are sufficient for your needs at this time. The services provided for this project were performed with the care and skill ordinarily exercised by reputable members of the profession practicing under similar conditions at the same time and the same or similar locality. No warranty, expressed or implied, is made or intended by rendition of these consulting services or by furnishing oral or written reports of the findings made. This report has been prepared for exclusive use by AEP.

FIGURE

\\sr-cinc\projects\2016\162-393\--CADD\DWG\SW01\162393 Site Layout Plan.dwg[Layout1] LS:(11/2/2016 - jgilligan) - LP: 11/2/2016 10:29 AM

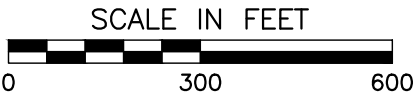


LEGEND

- EX. STORMWATER CHANNEL
- LCP EX. ABOVE GROUND LEACHATE PIPE
- FM EX. ABOVE GROUND LEACHATE FORCE MAIN
- PROP. LIMITS OF DISTURBANCE THROUGH PHASE 2
- PHASE LIMITS

REFERENCE

- 2015 AERIAL IMAGE PROVIDED BY AMERICAN ELECTRIC POWER, INC. (NO NEW AERIAL IMAGE PROVIDED FOR 2016 REPORT).





Civil & Environmental Consultants, Inc.
5899 Montclair Blvd. - Cincinnati, OH 45150
513-985-0226 · 800-759-5614
www.cecinc.com

| | | | | | | |
|-----------|-----------|-------------|---------|--------------|---------|-------------|
| DRAWN BY: | JHG | CHECKED BY: | TDM | APPROVED BY: | *APA | FIGURE NO.: |
| DATE: | OCT. 2016 | DWG SCALE: | 1"=300' | PROJECT NO: | 162-393 | 1 |

AEP SERVICE CORPORATION
MITCHELL LANDFILL
MARSHALL COUNTY, WEST VIRGINIA

SITE LAYOUT
2016 LANDFILL INSPECTION

*HAND SIGNATURE ON FILE

APPENDIX A

ANNUAL LANDFILL INSPECTION CHECKLIST



MITCHELL LANDFILL ANNUAL LANDFILL INSPECTION CHECKLIST

1.0 PROJECT INFORMATION

PROJECT NAME: 2016 Landfill Inspection CEC PROJECT NO.: 162-393
 DATE OF INSPECTION: August 30, 2016 ARRIVE: 9:00 AM DEPART: 12:30 PM
 WEATHER: Sunny TEMP. RANGE (°F): 65 TO 75
 CEC FIELD REPRESENTATIVE: Timothy D. Mitchell, P.E. CEC ENGINEER: Anthony P. Amicon, P.E.
 OTHER ATTENDEES: Dennis Henderson [American Electric Power (AEP)]; Danielle Roski (AEP); Mohammad Ajlouni (AEP)

2.0 COAL COMBUSTION RESIDUAL (CCR) WASTE PLACEMENT:

GENERAL DESCRIPTION:

Waste placement in the CCR disposal area was ongoing during my site walk today. Waste was brought to the disposal area using triaxle dump trucks. Mitchell LF personnel would then blade the waste materials into place using a bulldozer. Waste was then compacted using a smooth drum roller operated in vibratory mode. Waste was being placed in the general Phase 1 and 2 area of the landfill. The waste placement area appeared to be graded such that surface water drained to the interior of the operating phase, towards several existing chimney drains. The waste surfaced was smooth and provided a firm surface to walk on. No pumping or rutting of construction vehicles was observed. The chimney drains appeared to be operating correctly without sediment build up. No ponding of water was observed. I observed 9 constructed operational chimney drains at the time of the site walk.

Several deep (6" - 12" deep) erosion rills were observed in the waste material placed adjacent to the containment berm on the southern side of the waste placement areas. While I was onsite, Mitchell Landfill staff repaired the rills by undercutting the area with a bulldozer and pushing additional fill material in its place. The waste fill material was then compacted using the smooth drum roller operated in vibratory mode.

There were several shallow (1" - 2" deep) erosion rills in the exposed sideslope liner system protective cover on the northern side of Phase 1 and on the southern side of Phase 2B.

AEP had one access road graded out of waste material to provide access from the northern side of the Phase 1 near the site entrance to the active disposal area. The access road consisted of an embankment constructed from CCR materials ranging in thickness from a few feet to approximately 10 feet. The access road was placed over the protective cover material part of the liner system.

Additionally, to the west of the access road, AEP had created a waste material stockpile. The stockpile appeared similar to a road, but with a much steeper gradient. Speaking to Mitchell LF personnel, the stockpile was created to place waste in the disposal area at times when the active area could not be accessed (e.g., severe rains). The stockpile was being worked into the CCR disposal area on an as-needed basis.

| | | | | |
|--|-------------------------------------|----|-------------------------------------|-----|
| Any scarps, cracks, or significant subsidence? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any damp areas or seeps? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any excessive erosion? | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> | YES |
| Any visible misalignments? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any excessive erosion, deterioration or blockage for the chimney drains? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |



ANNUAL LANDFILL INSPECTION CHECKLIST

| | | | | |
|--|-------------------------------------|----|-------------------------------------|-----|
| Any visible issues noted with the inside portion of the temporary containment berms? | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> | YES |
| Any observed functional problems with the chimney drains? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any observed CCR or contact water beyond containment berms surrounding the waste placement area? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any observed excessive fugitive dusting of the waste surface? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible deficiencies noted with temporary cover on the liner system? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |

SUGGESTED REMEDIAL ACTIONS:

- 1) The protective cover materials that have eroded on the norther sideslope of Phase 1 and the southern sideslope of Phase 2B should be repaired. To correct these erosion rills in the protective cover, it is suggested that new cover materials be placed to fill in the depressions and the exposed surface be regraded.
- 2) The current waste material stockpile, located atop of the protective cover material, was not included in the phasing plans for the site. Because this structure include embankments ranging from a few feet to approximately 10 feet of CCR material placed on the sloping liner without a toe buttress, it is suggested that AEP remove this waste stockpile.
- 3) Monitor the inside portion, of the containment berm comprised of waste materials, on the southern side of the waste disposal area for erosion.

3.0 CONTAINMENT BERM (EXTERIOR SLOPE OF WASTE PLACEMENT AREA):

GENERAL DESCRIPTION:

At the time of the site walk, the top of the clay for the containment berm was approximately 4 vertical feet above the active waste placement area (visual estimation). The top of the berm had limited vegetation.

I traversed the exterior slope of the containment berm. Numerous shallow erosion rills were noted near the top of the slope (more recent construction). Additionally, vegetation was sparse near the top of the containment berm slope. Vegetation conditions improved to good as I moved down slope (i.e., to the south). Several shallow (1" – 2" deep) to moderate (2" – 6" deep) erosion rills were observed on the eastern and western side of the containment berm exterior slope. These erosion rills were limited and localized.

| | | | | |
|---|-------------------------------------|----|-------------------------------------|-----|
| Any scarps, cracks, or significant subsidence? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any damp areas or seeps? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any excessive erosion? | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> | YES |
| Any visible deficiencies noted with the outside portion of the temporary containment berms? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible signs of CCR not covered or contained by the phasing berms and/or cover? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |

SUGGESTED REMEDIAL ACTIONS:

- 1) CEC suggests that AEP repair the erosion rills and poor vegetation on the containment berm exterior slope. These erosion rills should be backfill with clay cover material, then covered with topsoil and/or fertilizer as needed to re-establish vegetation. AEP should also consider the use of an erosion control blanket.

4.0 WEST POND:



ANNUAL LANDFILL INSPECTION CHECKLIST

GENERAL DESCRIPTION:

Overall, the West Pond appeared to be functioning well. The West Pond had some water in the pond, but there was no staff gauge in the pond to determine water elevations. There was a sediment cleanout stake on the east side of the pond. The sediment level in the pond was not observable due to the water elevation, but it was clear that the sediment level was below the sediment stake location.

Inlet and outlet features appeared to be unclogged and free of debris. The interior slopes of the pond were well covered with riprap and there were no signs of erosion. The areas immediately surrounding West Pond and positioned above the riprap interior pond slopes appeared to have sufficient vegetation present on the slopes. However, limited bare ground areas were observed at localized locations.

A culvert extension had been installed to convey flow from a culvert at the top of the slope (northeast corner), down the slope in into the West Pond discharging directly onto the West Pond riprap lining.

| | | | | |
|---|-------------------------------------|----|-------------------------------------|-----|
| Any scarps, cracks, bulges or signs of instability on steep cut slopes? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any scarps, cracks, bulges or signs of instability for the embankment slopes? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any signs of seepage on the exterior embankment slopes? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any signs of significant changes in vegetation type/color/growth on the exterior embankment slopes? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any excessive erosion on interior pond slopes? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any excessive erosion on exterior pond slopes? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible problems with the inlet pipe or headwall structures? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any blockage at or near the inlet pipe or headwall structures? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any deficiencies with the inlet channel flow or armoring? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible problems with the outlet skimmer? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible problems or blockage with the primary outlet structure? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible problems or blockage with the pond emergency spillway? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible problems with the staff gauge? | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> | YES |
| Is the water level in the pond too high? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible problems with sediment cleanout marking? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Is the sediment level above the cleanout level? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |

SUGGESTED REMEDIAL ACTIONS:

1) Add a staff gauge to the West Pond so that the water elevation in the pond can easily be determined.

5.0 SOUTH POND FOREBAY AND SOUTH POND:

GENERAL DESCRIPTION:

Both the South Pond Forebay and the South Pond contained water at the time of the site walk. The South Pond staff gauge showed an elevation of approximately 1031.5. The forebay inlet channel had a grouted riprap lining and the interior of the South Pond Forebay had a riprapped lining. Both appeared to be in good condition with no signs of erosion. The interior slopes of the South Pond were well covered with riprap and there were no signs of erosion. The primary and emergency outlet structures appeared



ANNUAL LANDFILL INSPECTION CHECKLIST

to be in good working conditions and free of blockage or debris. The skimmer in the South Pond was floating and free of debris. Overall, the South Pond and South Pond Forebay appeared to be functioning well.

A staff gauge was present in the South Pond. The water elevation appeared to be near the inlet elevation for the skimmer device (i.e., the sediment cleanout elevation). A sediment cleanout stake was observed in the South Pond Forebay and the South Pond. The sediment levels in the South Pond Forebay and the South Pond were beneath the current water level and were therefore not observable. However, the sediment levels were well below the sediment cleanout elevations denoted by the sediment cleanout stakes.

The long fill slope south of the South Pond (exterior slope) appeared to be uniformly graded with intermediate benches. There was generally good vegetative coverage throughout and there were no signs of significant erosion, localized seepage, ponded water, slope instability or surficial sloughing. The upper slope was recently mowed while the lower slope was not. A few barren soil areas were noted near the top of slope. The riprap lined stormwater channels bounding the east and west sides of the long fill slope were in good condition with no signs of erosion.

I also observed a repair area to the east of the South Pond where I was informed that a small shallow landslide had previously occurred. AEP informed me that the slide area was undercut. The area was then backfilled with compacted soil and the surface was re-seeded. At the time of the site walk, limited vegetation was observed on the repair area.

Additionally, AEP personnel informed me that the skimmer valve for the South Pond was closed.

No obstructions were observed at the outlet point at the toe of the South pond exterior slope.

FOREBAY:

| | | | | |
|--|-------------------------------------|----|--------------------------|-----|
| Any scarps, cracks, bulges or signs of instability with the interior slopes? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any excessive erosion on interior pond slopes? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any deficiencies noted for the vegetation on non-armored slopes and surrounding areas? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any deficiencies noted for the inlet and outlet channel armoring or flow? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible problems with cleanout marking? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Is the sediment level above the cleanout level? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |

SOUTH POND:

| | | | | |
|--|-------------------------------------|----|-------------------------------------|-----|
| Any scarps, cracks, bulges or signs of instability with the interior slopes? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any excessive erosion on interior pond slopes? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any deficiencies noted for the vegetation on non-armored slopes and surrounding areas? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any deficiencies noted for the inlet channels armoring and flow? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any deficiencies noted for the inlet channel from the forebay? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible problems with the inlet pipe or headwall structures? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any blockage at or near the inlet pipe or headwall structures? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible problems with the outlet skimmer? | <input type="checkbox"/> | NO | <input checked="" type="checkbox"/> | YES |
| Any visible problems or blockage with the primary outlet weir structure? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible problems or blockage with the pond emergency spillway? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible problems with staff gauge? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Is the water level in the pond too high? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |



ANNUAL LANDFILL INSPECTION CHECKLIST

Any visible problems with sediment cleanout marking?

☒ NO ☐ YES

Is the sediment level above the cleanout level?

☒ NO ☐ YES

SOUTH POND EMBANKMENT SLOPE:

Any scarps, cracks, bulges or signs of instability with the embankment slope.

☒ NO ☐ YES

Any excessive erosion on embankment slopes and benches?

☒ NO ☐ YES

Any signs of standing water, seepage or significant changes in vegetation?

☒ NO ☐ YES

Any deficiencies noted for the stormwater channels armoring or flow?

☒ NO ☐ YES

Any visible problems with the energy dissipation/outlet structure?

☒ NO ☐ YES

Any visible problems with the riprapped toe of the embankment?

☒ NO ☐ YES

Any visible problems with the underdrain outlet?

☒ NO ☐ YES

SUGGESTED REMEDIAL ACTIONS:

- 1) Vegetation on limited areas on the slope south of the South Pond, as well as the vegetation on the slip repair area should be monitored and repaired as necessary.
- 2) The South Pond skimmer valve should be opened during normal operation of the pond.

6.0 STORMWATER RUN-ON AND RUN-OFF MANAGEMENT FEATURES:

GENERAL DESCRIPTION:

The stormwater run-on and run-off management features observed as part of this annual landfill inspection not included as part of the previous sections included: 1) stormwater conveyance (e.g., channels and culverts) features on the eastern side of the exterior slope of the containment berms and to the north and east of Phases 1, 2A, and 2B; 2) stormwater conveyance features leading to the South Pond; 3) stormwater conveyance features adjacent to roadways; and 4) check dams. Evaluations of the stormwater features associated with specific structures, (e.g., channels bounding the South Pond exterior slope, West Pond inlet channels, etc.) are included in those specified sections. At the time of the site walk, a majority of the stormwater conveyance features did not have flowing stormwater. Partial blockages were noted at the inlet and outlet of a culvert below a road crossing on the north side of the Phase 1 disposal area. A drainage swale on the slope immediately east of the Phase 1 exterior containment berm slope, outside the limits of waste, had a section of the channel with no lining (i.e., riprap lining above and below the described section of channel). Sediment build-up was noted on the northern end of two stormwater channels on each side of a site access road to the south of Phase 1 exterior slope.

With the exceptions noted above, generally, the designated and armored channels were functioning well without ponding, blockage, or erosion observed. The exception being the above referenced observations. Several check dams were in the channels with low sediment levels.

Any excessive erosion, deterioration or blockage for site ditches or swales?

☐ NO ☒ YES

Any excessive erosion, blockage, or sediment build-up for check dams?

☒ NO ☐ YES

Are culvert inlet and outlet structures obstructed or blocked?

☒ NO ☐ YES

Any excessive erosion or deterioration of inlet/outlet or catch basin structures?

☒ NO ☐ YES

Any excessive sediment buildup in channels?

☐ NO ☒ YES



ANNUAL LANDFILL INSPECTION CHECKLIST

SUGGESTED REMEDIAL ACTIONS:

- 1) The culvert noted above with partial blockage is not included in the permit design plans. This culvert should be reviewed to determine if adequate flow capacity exists and adequate inlet/outlet protection should also be constructed. Partial blockages around this culvert should be removed.
- 2) A section of the drainage swale on the slope immediately east of the Phase 1 exterior slope, should have a channel lining added to the channel where missing.
- 3) Noted channels with sediment build-up should have the sediment removed.

7.0 LEACHATE COLLECTION AND MANAGEMENT SYSTEM:

GENERAL DESCRIPTION:

The exposed leachate conveyance features and management system observed as part of this annual landfill inspection was limited to: 1) the aboveground pipes positioned between Phase 1 and 2 and the leachate pump station; 2) the aboveground portion of the leachate pump station; and, 3) the aboveground force main pipes positioned between leachate pump station and the Leachate Pond. The Leachate Pond observations are included in a separate section. Regarding the aboveground pipes, including the gravity drain pipes from the waste disposal area and the forcemain pipes from the leachate lift station to the leachate pond, no signs of leakage, damage, or precipitate were observed. Leachate stainings in the leachate lift station, denoting recent high levels, were well below the invert for the overflow structure. The pump controls appeared to be operational with no alarms noted. There was no observed ponded water, leakage or overflow noted around the leachate pump station.

| | | | | |
|---|-------------------------------------|----|--------------------------|-----|
| Is there excessive precipitate build up for visible portions of leachate pipes? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Is there any damage or irregularities for visible portions of leachate pipe? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible current or past leakage of the exposed leachate conveyance pipes and connections? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any visible current or past overflow or leakage of leachate around the pump station vault? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any observed problems with the leachate pump station or operation? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |

SUGGESTED REMEDIAL ACTIONS:

No remedial actions are required at this time.

8.0 LEACHATE POND:

GENERAL DESCRIPTION:

The Leachate Pond liquid level was at approximate Elevation 1021.0. The previous maximum liquid level, as evident from watermarks on the liner system, appeared to be several feet below the emergency outlet pipe inverts. No blockage or debris was noted around the outlet of the inlet pipe from the leachate lift station or emergency outlet pipe. No damage to the liner system was visually observed. No evidence of leakage was observed near the truck filling area or the pump station. The pump system to remove leachate from this pond was not being utilized during the site walk. Overall, the Leachate Pond appeared to be functioning well.

| | | | | |
|----------------------------------|-------------------------------------|----|--------------------------|-----|
| Any visible signs of subsidence? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
|----------------------------------|-------------------------------------|----|--------------------------|-----|



ANNUAL LANDFILL INSPECTION CHECKLIST

| | | | | |
|--|-------------------------------------|----|--------------------------|-----|
| Are there any deficiencies noted with the leachate pond inlet features? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any irregularities or damage noted with the exposed leachate pond polypropylene liner? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Are leachate levels in the pond abnormally high? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Are the sediment levels in the leachate pond too high? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Are there any noted deficiencies for the leachate pond outlet structure? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any blockage noted around the pump station intake pipe? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any noted deficiencies for the pump station? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |
| Any noted deficiencies for the leachate pond loadout facility? | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | YES |

SUGGESTED REMEDIAL ACTIONS:

No remedial actions required at this time.

APPENDIX B

RECENT WEATHER HISTORY FOR THE SITE

report this ad
































Windsor Heights, WV

Wheeling-Ohio County

© 6:25 AM EDT on October 05, 2016 [GMT -0400]

 Today
  Forecast

Weather History for KHLG - August, 2016

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--|--|--|--|--|--|--|
| | 1  Actual: 87° 68° 0.08 in Average: 82° 62° 0.09 in | 2  Actual: 89° 65° 0.00 in Average: 82° 62° 0.09 in | 3  Actual: 88° 67° 0.00 in Average: 82° 62° 0.10 in | 4  Actual: 84° 71° 0.18 in Average: 82° 62° 0.09 in | 5  Actual: 85° 69° 0.00 in Average: 82° 62° 0.10 in | 6  Actual: 84° 67° 1.36 in Average: 82° 62° 0.12 in |
| 7  Actual: 85° 61° 0.00 in Average: 82° 62° 0.11 in | 8  Actual: 84° 66° T in Average: 82° 62° 0.11 in | 9  Actual: 89° 67° 0.00 in Average: 82° 62° 0.10 in | 10  Actual: 89° 75° 0.01 in Average: 82° 62° 0.09 in | 11  Actual: 93° 74° 0.00 in Average: 82° 62° 0.08 in | 12  Actual: 91° 77° T in Average: 82° 62° 0.09 in | 13  Actual: 92° 76° T in Average: 82° 62° 0.10 in |
| 14  Actual: 82° 70° 0.84 in Average: 82° 62° 0.10 in | 15  Actual: 82° 70° 0.66 in Average: 81° 62° 0.11 in | 16  Actual: 89° 72° 0.80 in Average: 81° 61° 0.12 in | 17  Actual: 76° 70° 0.44 in Average: 81° 61° 0.13 in | 18  Actual: 85° 69° 0.00 in Average: 81° 61° 0.13 in | 19  Actual: 85° 67° 0.42 in Average: 81° 61° 0.12 in | 20  Actual: 86° 70° T in Average: 81° 61° 0.13 in |
| 21  Actual: 79° 65° 0.03 in Average: 81° 61° 0.12 in | 22  Actual: 79° 59° 0.00 in Average: 81° 61° 0.13 in | 23  Actual: 82° 59° 0.00 in Average: 81° 61° 0.12 in | 24  Actual: 86° 60° 0.00 in Average: 80° 60° 0.12 in | 25  Actual: 88° 72° 0.14 in Average: 80° 60° 0.13 in | 26  Actual: 88° 71° 0.00 in Average: 80° 60° 0.14 in | 27  Actual: 91° 68° 0.00 in Average: 80° 60° 0.12 in |
| 28  Actual: 91° 70° T in Average: 80° 60° 0.13 in | 29  Actual: 86° 66° 0.00 in Average: 80° 60° 0.12 in | 30  Actual: 87° 61° 0.00 in Average: 79° 59° 0.12 in | 31  Actual: 87° 60° 0.37 in Average: 79° 59° 0.12 in | | | |

Calendar Legend

Sunny
Clear

Mostly Cloudy



Partly Cloudy



Cloudy



Rain



Snow



Hail Flurries



Thunderstorms

Hazy
Fog

Sleet

'?' denotes
'chance of'

Unknown