

### 2017 VISUAL SITE INSPECTION IPL PETERSBURG RESTRICTED WASTE TYPE III LANDFILL

IPL PETERSBURG GENERATING STATION 6925 NORTH STATE ROAD 57 PETERSBURG, INDIANA 47567

ATC PROJECT NO. 170LF00444

JANUARY 8, 2018

PREPARED FOR:

INDIANAPOLIS POWER & LIGHT COMPANY 6925 NORTH STATE ROAD 57 PETERSBURG, INDIANA 47567

ATTENTION: MR. WIL TEAGUE



January 8, 2018

Mr. Wil Teague Senior Scientist Indianapolis Power and Light Company 6925 North State Road 57 Petersburg, Indiana 47567-0436

Re: 2017 Visual Inspection IPL Petersburg Restricted Waste Landfill Indianapolis Power and Light Company Petersburg Generating Station Petersburg, Indiana ATC Project No. 170LF00444

Dear Mr. Teague:

ATC Group Services LLC (ATC) is pleased to present the findings of the November 30, 2017 Visual Site Inspection of the IPL Petersburg Generating Station Type III Restricted Waste Landfill. This visual inspection and report were done in accordance with guidelines established by the Coal Combustion Residuals (CCR) Rule published by the Environmental Protection Agency (EPA) on April 17, 2015.

The scope of this inspection was limited to an examination of readily observable surficial features of the landfill and its appurtenant structures, and a review of information that you provided. Please note that the inspection did not include any test drilling, testing of materials, precise physical measurements of landfill features, detailed calculations to verify slope stability or other engineering analyses. Although the inspection was conducted by competent personnel in accordance with generally accepted methods for inspecting landfills, it should not be considered as a warranty or guaranty of the future performance/safety of the landfill.

The landfill inspection was completed by David Stelzer and Charles Dewes of ATC Group Services LLC (ATC). The weather conditions during the inspection were approximately 45°F and sunny. Contained herein is a summary of the engineering observations of the landfill including condition of the cover soils, grading and erosion, vegetation, haul roads, perimeter ditches, downdrain channels, riprap areas, culverts and other adjacent structures. The landfill system features are highlighted on the attached Site Plan in Appendix A.

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The IPL Petersburg Generating Station Type III Restricted Waste Landfill is located about four (4) miles north of the City of Petersburg in Pike County, Indiana west of State Road 57 (Figure 1). The landfill encompasses an area of approximately 122.1 acres inside the Solid Waste Boundary. The Petersburg Type III RWS Landfill operates under Indiana Department of Environmental Management (IDEM) Permit Number 63-2.

The 2017 Annual Inspection was performed to address the standards and guidelines required by the CCR Rule instituted by the Environmental Protection Agency on April 17, 2015. As a result, CCR Landfills are now required to meet the requirements of 40 C.F.R. §257 to conduct annual inspections of the landfill in accordance with 40 C.F.R. §257.84(b). Listed below are requirements specified within the CCR Rule and the observations made by David Stelzer and Charles Dewes during the third annual inspection:

- i. Any changes in geometry of the structure since the previous annual inspection;
- ii. The approximate volume of CCR contained in the unit at the time of inspection;
- iii. Any appearances of an actual or potential structural weakness of the CCR unit;
- iv. Any other change (s) which may have affected the stability or operation of the CCR Unit since the last annual inspection.

# Changes in Structural Geometry

Observed geometry changes during the 2017 Petersburg landfill inspection consisted mainly of grading measures and vegetation improvements. In the past year, intermediate cover was added to the east slope of the landfill. Engineering observations were grouped into two inspection zones called out on the Site Map in Appendix A. The zone descriptions, observations, and recommendations are as follows:

### Zone A Partial Closure Area – North and West Sideslopes

A 33.8 acre area on the northern and western slopes of the landfill have received partial closure certification from the Indiana Department of Environmental Management (IDEM). In general, this area has a good soil cover and is well-vegetated. Since the time of the 2016 inspection, additional improvements have been made to fill in ruts and overseed sparsely vegetated areas.

- 1. Good vegetation exists along the majority of the west and north slopes of the partial closure area (Locations 5, 11 and 13).
- 2. A sapling has grown at the base of one of the riprap downchute channels along the west slope of the landfill (See Location 12).
  - Recommendation: Remove the sapling to prevent root undermining of the soil cover. Continue an ongoing maintenance program to remove trees and shrubs from the cover system.

- 3. At the northeast corner of the landfill, at the base of a riprap downchute channel, a washout erosion area has formed (See Location 14).
  - Recommendation: Install erosion control protection for this area such as erosion control mat to protect the integrity of the soil liner. Overseed the bare soil area.
- 4. At the southwest corner of the landfill, erosion has occurred along the face of the slope, exposing underlying poz-o-tec material (Location 20).
  - Recommendation: Repair the soil cover and regrade areas of the slope where erosion has occurred. Install erosion control mat in exposed areas and overseed areas of sparse vegetation once soil cover has been repaired.

#### Zone B Intermediate Cover Area – Top East and South Sideslopes

In accordance with IDEM permit conditions, in 2016, the majority of the alternative intermediate cover on the top and east sideslope of the landfill consisted of fixated scrubber sludge. In 2017 a soil cover was applied to this area and new vegetation added. Terrace and riprap downchute channels were added or improved to accommodate the addition of the new soil and vegetative cover.

- 1. Good vegetation exists along the majority of the south end of the landfill, top of landfill and east slope, where new soil cover has been installed (Locations 1, 4, 7, and 18).
- 2. Downcutting has occured along a flowpath leading to the top of the landfill (See Locations 2 and 3). Some hay bales and riprap piles have been used to control flow however, much of the channel is exposed with no armouring.
  - Recommendation: Repair the soil cover in areas where downcutting has occurred in the channel. Install erosion control mat and additional armouring on exposed reaches of the channel.
- 3. Downcutting has occured along the ditch adjacent to the haul road along the south side of the landfill (See Location 9). Some riprap has been used to control flow however much of the channel is exposed with no armouring.
  - Recommendation: Repair the soil cover in areas where downcutting has occurred in the channel. Install erosion control mat and additional armouring on exposed reaches of the channel.
- 4. Erosion has formed along the riprap downchute channel at the southwest corner of the landfill. Flow has eroded the channel and sections of riprap armouring have been displaced, leaving soil cover vulnerable in that area (See Location 10).
  - Recommendation: Repair the soil cover in areas of the channel where erosion has occurred and install additional riprap armouring overtop gravel or erosion control mat in exposed areas. Overseed areas adjacent to the channel at the edge of riprap.

- 5. Riprap downchute channels on the top of the landfill are in good condition with no obvious erosion (Location 6).
- 6. Downcutting has occurred along the lower level terrace berm channel on the landfill east slope (See Location 8).
  - Recommendation: Repair the soil cover in areas where downcutting has occurred in the channel. Install erosion control mat and gravel check dams where needed to control excessive velocities. Overseed on exposed reaches of the channel.
- 7. The perimeter ditch near the northeast corner of the landfill has channel erosion. Silt fence check dams have been installed in some locations to prevent erosion however, flow has overtopped and bypassed the silt fencing, creating undercutting of soil cover (Location 15).
  - Recommendation: Repair soil cover and regrade channel slopes in areas where erosion has occurred. Armour the channel with erosion control mat and gravel in areas with the most significant erosion. Consider replacement of the silt fence control sections with a more effective best management practice such as rock check dams to reduce channel velocities.
- 8. Erosion has formed along the backside of lower level terrace berms near the northeast corner of the landfill (Locations 16 and 17). In some areas pooling has occurred where terrace channels are unable to connect with riprap downchute channels.
  - Recommendation: Repair the soil cover, install erosion control mat and overseed areas of sparse vegetation. Consider regrading terrace berms where necessary to adequately convey flow to riprap downchute channels.
- 9. A sapling has grown along the backside of one of the lower level terrace berms near the northeast corner of the landfill (See Location 17).
  - Remove the sapling to prevent root undermining of the soil cover. Continue an ongoing maintenance program to remove trees and shrubs from the cover system.
- 10. An erosion gulley has formed along a flow path at the top of the landfill leading towards the southwest corner. Flow in the gulley has undermined soil cover to the point of exposing the underlying poz-o-tec material (See Location 19).
  - Recommendation: Repair the soil cover to fill in the erosion gulley. Install erosion control mat and gravel or riprap armouring, where needed, to prevent future erosion.

# CCR Volume

There is an approved 43 acre expansion area east of the existing landfill however that area has had no development at this time. Currently, landfill operations are limited to the original landfill footprint.

Based on IPL surveying information at the time of the inspection, there is approximately 7,043,808 cubic yards of CCR material placed in the landfill unit.

### Structural Integrity

The newly added soil cover along the top and east slopes of the landfill has been well graded and compacted.

All landfill slopes appear to be stable and no signs of sloughing or subsidence were detected during the 2017 visual inspection.

# Stability and Operation

The landfill is generally in good condition and well vegetated in most places. No significant deficiencies were noted and operation of the landfill unit at this time is not expected to be adversely affected by any items detected during the 2017 inspection.

We appreciate the opportunity to assist you with this project. If you have any questions concerning information contained in this report, please do not hesitate to call either of the undersigned at 317.849.4990.

Sincerely,

**ATC Group Services LLC** 

Charles Dewes

Charles Dewes, P.E., CFM, CESSWI Project Engineer

Copies:

Wil Teague (1) Erwin Leidolf (1)



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David Stelzer, P.E., PhD. Senior Project Engineer

Appendices

Appendix A: Site Plan

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