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| Permit No. | Scan Date | DIN |
| CCB0072 | June 11, 2015 | 24505 |

RECEIVED
June 10, 2015
Solid Waste Section
Asheville Regional Office

526 South Church St.
Charlotte, NC 28202
P.O. Box 1006
Mail Code EC13K
Charlotte, NC 28201-1006
336-215-4576
704-382-6240 fax

June 10, 2015

North Carolina Department of Environmental and Natural Resources
Division of Waste Management
Solid Waste Section
2090 U.S. Highway 70
Swannanoa, North Carolina 28778

Attn: Mr. Larry Frost

Re: Marshall Steam Station Industrial Landfill Structural Fill
Structural Fill Permit No. CCB0072
Marshall Steam Station
Terrell, North Carolina

Dear Mr.Frost,

On June 3, 2015 during a routine inspection, facility staff at Marshall Steam Station noticed a potential area of nonconformity located in the southwestern portion of the Industrial Landfill (Phases 3 & 4) Structural Fill (ILF SF) near the toe. The ILF SF Closure Plan (CCB0072) was submitted to the Solid Waste Division on November 7, 2013.

Attached you will find a memorandum from AECOM with recommendations for evaluation of the subject area. While Duke understands the ILF SF is not currently under an active NCDENR permit, we are seeking concurrence from the Division to proceed with evaluation as noted in the attached memorandum.

Duke Energy is committed to excellent environmental stewardship and cooperation with the Division regarding the operation, maintenance, safety, and integrity of all of its facilities. We look forward to continuing to work with you regarding environmental concerns.

If there are any questions regarding this request, please contact me at (336) 215-4576.

Respectfully submitted,

Kimberlee Hutchinson, PE
Environmental Services

Attachments: AECOM Memorandum - Marshall Station Industrial Landfill/Structural Fill

cc (via e-mail): Elizabeth Werner, NCDENR
Shawn McKee, NCDENR
Tim Russell, Duke Energy
Kyle Baucom, Duke Energy
Ed Sullivan, Duke Energy

Memorandum

| | | | |
|---------|--|------|---|
| To | Tim Russell, P.E. Kyle Baucom, P.E. | Page | 1 |
| CC | Gabriel Lang - AECOM | | |
| Subject | Marshall Station Industrial Landfill/Structural Fill Evaluation of Possible Slope Nonconformity – Issue MAR-128 | | |
| From | John Bove, P.E. | | |
| Date | June 10, 2015 | | |

As requested by Duke Energy, John Bove of AECOM accompanied Mr. Tim Russell, System Owner and Mr. Kyle Baucom, CCP Landfill Engineer on June 4, 2015 to visually evaluate an apparent bulge or non-conformity of the southwest corner of the covered Structural Fill in the future Cell 3/4 Industrial Landfill area at Marshall Station. This Technical Memorandum outlines the recommended path forward for an investigation of the subject area.

Background

As part of routine vegetation maintenance, Duke Energy staff encountered a small area of exposed ash and soft cover soil near the toe of slope of the covered Structural Fill immediately downslope of a downdrain pipe inlet. The project location is shown on Figure 1.

At the time of our visual inspection, the area was generally cleared of vegetation. Probing of the surface indicated localized soft areas at the toe and on the approximately 3H:1V slope leading to the basin. Vegetation was removed from the basin and no standing water was observed, but we understand that standing water was routinely observed near the outlet pipe until the recent maintenance completed on June 3, 2015.

The area in question is shown on the photograph, Figure 2 below and is less than 25-ft in width as measured perpendicular to the embankment slope. Ash is exposed in localized spots in a very small area (less than 5 square feet) near the toe of the slope in an apparent slope irregularity shown on Figure 2. No evidence of previous washing or erosion is evident. No cracking, sloughing or other evidence of slope failure was observed.

Recommendations

AECOM recommend the following path forward for further investigation of the apparent slope irregularity area.

1. *Review Construction Documentation* – The area was constructed in 2012 through 2013 and Closure Documentation dated November 2013 is available. Obtain and review construction photographs and contact key staff from the contractors and engineer to determine if any related issues were encountered during ash placement or closure or if, for example, temporary stormwater runoff controls were in place during closure.

2. *Stockpile Rip-Rap and Geotextile* – As a precaution, prior to beginning investigation, stockpile a couple of truckloads of Class 1 rip-rap and a suitable separator geotextile in the vicinity of the toe. This material can be used to construct a check dam or for backfill as needed during test pit excavation.
3. *Conduct an investigation of the area* – a proposed investigation is outlined below.
 - a. Advance hand augers on the crest, surface and toe of slope in the area in question to identify areas where the required 18-inches of soil cover is not in place. A minimum recommended investigation area is the slope starting at the existing downdrain pipe and moving north/west along the perimeter until adequate cover is confirmed.
 - b. Excavate test pits to visually examine the condition of the cover soil and ash. Test pits should be excavated using a mini-excavator with a 12 or 16-inch bucket to minimize disturbance. Test pits should be located at the toe of the slope in the slope irregularity area, mid slope and at the crest of the slope. If conditions permit, test pits within the vicinity of the pipe inlet are recommended. In all test pits, excavate through the soil cover and into the ash 2 to 3-ft. Estimate the relative degree of compaction and note the presence of water, condition of the excavation walls, etc.
 - c. Leave test pits open approximately fifteen minutes, or longer as a period of time determined by the Engineer in order to note any evidence of water in the excavation. Test pits will be backfilled before the end of the work day. Backfill the test pits with clean (free of ash) soil in thin lifts and compact to the degree practical with the excavator. Segregate and dispose of ash as directed by Duke Energy.
 - d. If the test pit program does not provide information to evaluate and mitigate the area in question, test borings advanced at the crest of the slope are recommended. It is anticipated that the test pit and borings will not be completed on the same day.
4. *Monitor the slope area* – Once the investigation is completed, monitor the slope area as follows:
 - a. Visually inspect to note changes in conditions three times per week and after any significant rain event (>0.025-inches). Observe the downdrain pipe inlet to note the presence and approximate depth of standing water.
 - b. Install stakes at an established interval at the crest, midpoint, toe and downstream of the toe. Monitor the stakes using survey methods weekly and report movement of stakes, if any. Monitor slope stakes for two months or as directed by Duke staff.

AECOM is in the process of developing details for the investigation recommended. This work will be completed in conjunction with Duke Energy and Duke Energy's on site contractor. Please do not hesitate to call me at 919-461-1335 (office) or 919-478-7765 (mobile) if you have any questions or comments.

Sincerely,
AECOM



John A. Bove, P.E.
Project Manager

Attachments:

Figures 1 and 2

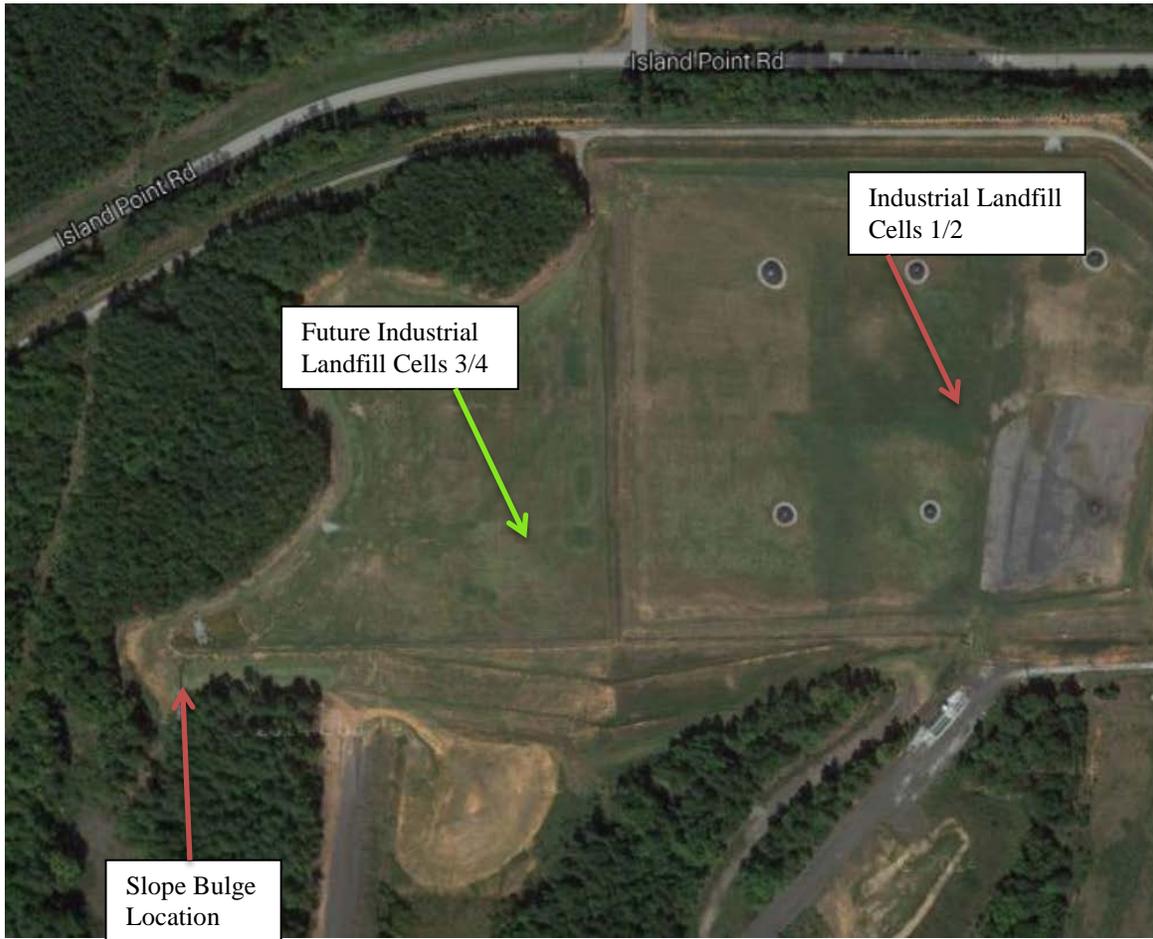


Figure 1 – Location Plan

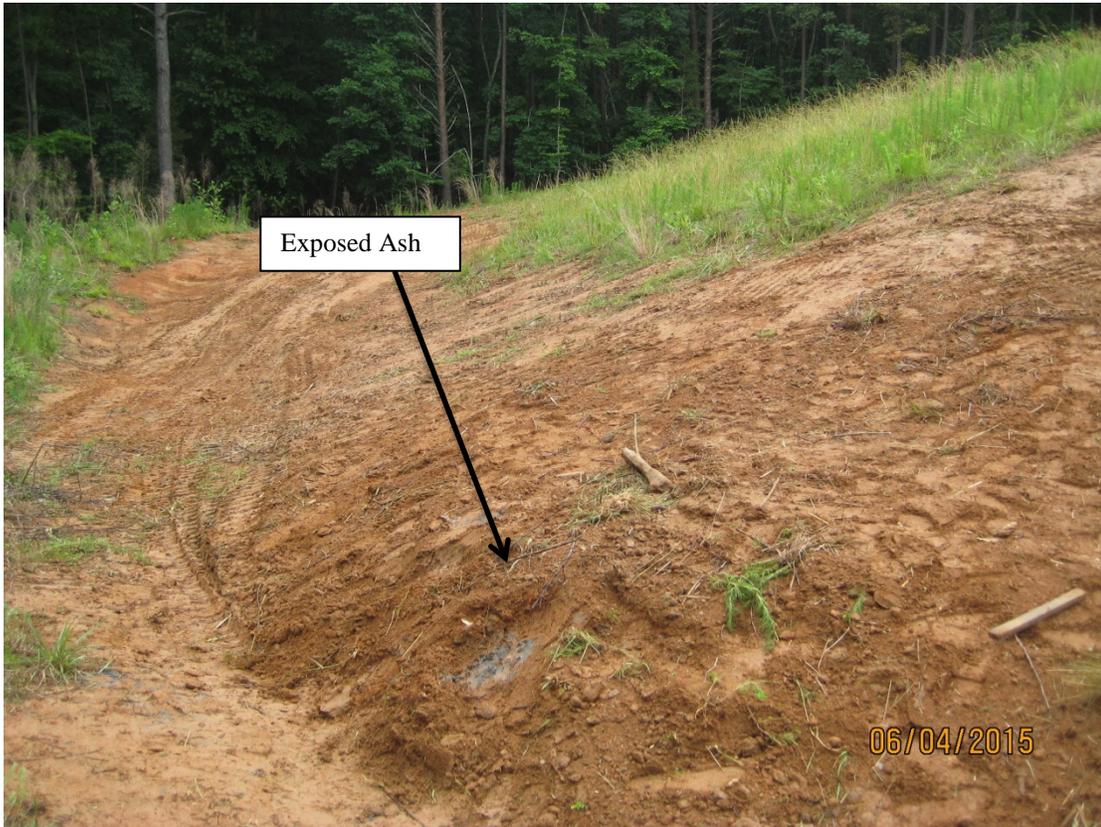


Figure 2 – View of Bulge Area at toe of slope looking generally northwest