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VIA E-MAIL AND CERTIFIED MAIL #7010 0290 0002 0577 6226

Mr. Stephen Hoffman  
US Environmental Protection Agency (5304P)  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

[hoffman.stephen@epa.gov](mailto:hoffman.stephen@epa.gov)

RE: Response to Recommendations  
Assessment of Dam Safety of Coal Combustion Surface Impoundments  
Northern Indiana Public Service Company  
R.M. Schahfer Generating Station

Dear Mr. Hoffman,

NIPSCO is providing this response to the letter of January 7, 2011 from Suzanne Rudzinski, Director of the Office of Resource Conservation and Recovery regarding recommendations presented by CDM in their Assessment of Dam Safety of Coal Combustion Surface Impoundments at NIPSCO's R.M. Schahfer Generating Station near Wheatfield, Indiana.

Many of the impoundments at the R.M. Schahfer Generating Station are currently under the regulatory authority of the Indiana Department of Natural Resources, and as such NIPSCO is required to follow practices which comply with Indiana regulation and guidance.

## **Report Recommendations and NIPSCO Responses**

### **4.3 Maintaining and Controlling Vegetation Growth**

***EPA Recommendation<sup>1</sup>***- Large trees and/or uncontrolled vegetation have established themselves along the exterior slopes of the Final Settling Basin, Intake Settling Basin, Retired Waste Disposal Basin, Metal Cleaning Waste Basin, Recycle Basin, and Waste Disposal Area and along the interior slopes of the FGD Landfill Runoff Pond, Material Storage Runoff Basin. Tree roots can concentrate seepage through the embankments, which could lead to internal erosion. Internal erosion would weaken the embankment, reduce stability, and could result in a slope failure and potential release of stored water and ash. In addition, uprooting of trees during storms or other adverse conditions can create voids in the embankment that are then susceptible to erosion. Brush also obscures the embankment surface limiting visual observations, provides a haven for burrowing animals, and retards growth of desirable grass vegetation.

<sup>1</sup> In this document, NIPSCO quotes the EPA's January 7, 2011 recommendations directly. This should not be interpreted to indicate NIPSCO's agreement or disagreement with the facts contained in the recommendations.

CDM recommends that all trees and brush be cleared from the interior and exterior slopes of all ash pond embankments under the supervision of a Professional Engineer in accordance with the procedures outlined in "FEMA 534 Technical Manual for Dam Owners – Impacts of Plants on Earthen Dams".

CDM further recommends that stumps and all roots greater than 1 inch in diameter be removed. Disturbed areas should then be graded to adjacent contours, using compacted structural fill and reseeded with desirable grass vegetation. CDM also recommends that vegetation be cut on a regular basis to ensure that adequate visual observations can be made during scheduled inspections.

Areas of sparse vegetation were observed on the exterior slopes of the Final Settling Basin, Material Storage Runoff Basin, Metal Cleaning Basin and the Recycle Settling Basin.

CDM recommends performing reseeding maintenance as required yearly to maintain a good grass cover in these areas.

***NIPSCO Response-** Beginning in 2011 and under the guidance of a Professional Engineer, NIPSCO is preparing to implement a slope management program for its regulated structures. The initial slope rehabilitation effort will include removal of trees and brush, slope repair and reseeding. Maintenance activities will include control of woody vegetation and reseeding as necessary. It is NIPSCO's intention to use the "Indiana Dam Safety Inspection Manual" as guidance for all work performed on its regulated structures.*

#### **4.4 Erosion Protection and Repair**

***EPA Recommendation-** Erosion rills, surficial slope failures and subsequent loss of grass cover were observed on multiple embankment slopes as discussed in Section 2.*

CDM recommends NIPSCO take the following corrective actions:

-Surficial slides/scarps - Excavate un-compacted and eroded materials and organics (grass, brush, other vegetation) in the slide area to neat lines at the slide limits down to competent undisturbed materials. Place and compact structural fill to restore the embankment slope, grading to adjacent existing contours. The area should be reseeded with desirable grass vegetation.

-Erosion rills - Place and compact structural fill in the rills and grade to adjacent existing contours. Where rills exist on slopes exceeding 25 feet in length, install temporary erosion resistant matting or sod after regrading. If sod is not installed, the area should be reseeded with desirable grass vegetation.

All repairs should be designed by a professional engineer familiar with earthen dam construction.

***NIPSCO Response-** Beginning in 2011 and under the guidance of a Professional Engineer, NIPSCO is preparing to implement a slope management program for its regulated structures. The limited areas of erosion and slumping will be repaired as a part of the initial rehabilitation effort.*

#### **4.5 Seepage**

***EPA Recommendation-** Areas of possible seepage and seepage were observed on embankment slopes of the Final Settling Basin, Intake Settling Basin, and Gypsum Storage (Units 14&15) A, as discussed in Section 2. Regular monitoring is essential to detect and monitor seepage and to reduce the potential for failure. Without knowledge of the dam's history, the owner may not be able to determine whether the seepage condition is in a steady or changing state.*

CDM recommends NIPSCO take the following actions:

- Install v-notch weir(s) to facilitate quantifiable seepage volume and flow rate measurements and sample collection.
- Develop a regular surveillance program to monitor areas of seepage and potential seepage to determine the rate, volume, and turbidity of flow emerging from the embankment slopes.
- Develop and execute a geotechnical exploration program that includes test borings and installation of piezometers and other instrumentation to analyze and regularly monitor embankment seepage and stability.

All repairs should be designed by a professional engineer familiar with earthen dam construction.

***NIPSCO Response-*** *Under the guidance of a Professional Engineer, initial geotechnical investigation has already taken place and a more comprehensive program is being developed for 2011. NIPSCO intends to conduct this work under approval of the Indiana Department of Natural Resources.*

#### **4.6 Animal Control**

***EPA Recommendation-*** Evidence of rodent burrows was observed on the south and southwest embankment exterior slope of the Final Settling Basin, the south embankment exterior slope of Intake Settling Basin, and the west embankment exterior slope of the Gypsum Storage Area (Units 14&15) A. Although not observed on other embankments, vegetation cover may have hidden additional rodent burrows.

CDM recommends NIPSCO accurately document burrows and other areas disturbed by animal activity, remove the burrowing animals, and backfill the burrows with compacted structural fill to protect the integrity of the embankments.

***NIPSCO Response-*** *Beginning in 2011 and under the guidance of a Professional Engineer, NIPSCO is preparing to implement a slope management program for its regulated structures. Animal control and slope repairs will be an integral part of the initial rehabilitation effort.*

#### **4.7 Instrumentation**

***EPA Recommendation-*** NIPSCO provided CDM the most recent 12 months of pond level readings for the Final Settling Basin, Intake Settling Basin, and Recycle Settling Pond. No information regarding further instrumentation was available to CDM.

An earth embankment that is safe under current conditions may not be safe in the future if conditions change. Conditions that may change include changes in the phreatic surface, embankment deformation, or changes in seepage patterns.

CDM recommends the installation of staff gauges to all outlet structures to monitor the water levels in all active impoundments and routinely monitoring water levels installed as recommended in Section 4.5 of this report.

***NIPSCO Response-*** *By the end of the second quarter of 2011, staff gauges will be installed to monitor the operating levels of all regulated impoundments.*

#### 4.8 Impoundment Hydraulic and Stability Analysis

**EPA Recommendation-** NIPSCO was not able to provide CDM with a hydraulic analysis showing the ability of the ash ponds to safely pass the 50% or 100% PMP event. However, a preliminary evaluation performed by CDM suggests there is enough storage capacity at the current operating pool levels to safely store precipitation. CDM recommends NIPSCO perform a complete study to confirm this opinion and update the study if operating parameters of the ponds change in the future.

CDM was not provided with information regarding stability analyses performed prior to or following construction of the R.M. Schahfer Generating Station's CCW surface impoundments or information regarding properties of the embankment and foundation materials.

It is recommended that detailed stability analyses be performed for these embankments utilizing the results of the subsurface program noted Section 4.5 above. The geotechnical investigation should also evaluate the existing soil conditions and engineering characteristics in the embankments and their supporting foundation soils. Stability analyses should consider all appropriate operating and loading conditions including rapid drawdown if applicable, and a seismic stability and liquefaction analysis of the upstream and downstream embankment slopes and foundation.

**NIPSCO Response-** *Under the guidance of a Professional Engineer, initial geotechnical investigation has already taken place and a more comprehensive program is being developed. The investigation will result in detailed stability analyses for each of the regulated structures at the site, and will be performed under the approval of the Indiana Department of Natural Resources.*

*It should be noted that not all of the information provided to CDM was referenced in the report, and that additional records pertaining to the structures continue to be recovered.*

#### 4.9 Retired Waste Disposal Basin Closure

**EPA Recommendation-** The Retired Waste Disposal Basin has been back-filled and is inactive. Although it has been back-filled, an undetermined volume of water is likely still held within the embankments as evidenced by the seepage observed on the west embankment of Retired Waste Disposal Basin.

If NIPSCO does not plan to re-activate these impoundments, then CDM recommends that NIPSCO cap and decommission the Retired Waste Disposal Basin impoundment in a manner consistent with Indiana and USEPA regulations. Closure should include a geotechnical evaluation of the long term stability of the embankments. The evaluation should include test borings and piezometers to characterize subsurface conditions for use in the stability analysis.

**NIPSCO Response-** *NIPSCO is currently evaluating future needs regarding the Schahfer site, including the inactive impoundment. The final closure of this unit is subject to approval by the Indiana Department of Environmental Management (IDEM). NIPSCO will work with IDEM on the design of any final closure.*

#### 4.10 Inspection Recommendations

**EPA Recommendation-** Based on the information reviewed by CDM it appears that NIPSCO is currently performing periodic informal inspections, however they are not fully documented.

CDM recommends that NIPSCO develop detailed inspection documentation procedures to aid in ensuring that they are adequately documenting observations over time. Documentation should include a sketch of relevant features observed, and the documentation should be periodically reviewed to identify if conditions are worsening and/or if significant changes are occurring that could lead to additional maintenance issues or safety concerns.

Inspections should be made following heavy rainfall and/or severe weather and should be documented. It is recommended that inspection records be retained at the facility for a minimum of three years.

**NIPSCO Response-** *Required inspections will be performed on the regulated structures in accordance with Indiana regulations. In addition, facility personnel will perform regular visual inspections on the structures. All inspections and resultant corrective action will be properly documented and will be retained as required or for a minimum of three years.*

#### 4.11 Emergency Action Plan

**EPA Recommendation-** NIPSCO does not have an Emergency Action Plan (EAP) for the Final Settling Basin and Intake Settling Basin, judged by CDM to be High Hazard structures.

CDM recommends that NIPSCO develop an EAP for the Final Settling Basin and Intake Settling Basin.

**NIPSCO Response-** *Under the guidance of a Professional Engineer, NIPSCO is developing an Emergency Action Plan (EAP) for its High Hazard structures.*

If you have any questions regarding Northern Indiana Public Service Company's responses in this matter, please feel free to contact me at 219-956-5125 or via e-mail at [gcostakis@nisource.com](mailto:gcostakis@nisource.com).

Thank you,

Gregory Costakis  
Manager, Environmental  
NIPSCO Generation