

January 15, 2017

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Subject: **Annual (2016) Earthen Berm Inspection Report**
East Stormwater Pond, North Recycle Pond, South Recycle Pond,
SSU & Settling Pond, Long Term Fly Ash Pond, North Bottom Ash Pond,
Bottom Ash Suction Pond, South Bottom Ash Pond, Long Term Bottom Ash Pond
Tampa Electric Company
Big Bend Power Station
Apollo Beach, FL
AREHNA Project No. B-15-073

As authorized by Tampa Electric Company (TECO) Work Order Number 50204 dated November 19, 2015, AREHNA Engineering, Inc. (AREHNA) is presenting this Annual Earthen Berm Inspection Report for the referenced ponds. This report summarizes the findings of the inspections performed by a qualified Professional Engineer in December, 2016. AREHNA's Annual (2016) CCR Impoundment Inspection Report for the Economizer Ash Pond System is presented under separate cover.

Project Scope

This work included the inspection of the earthen berms surrounding nine ponds located at Tampa Electric's Big Bend Power Station. The annual inspection was performed by a professional engineer. The project scope also includes three quarterly "checklist" inspections.

Attached to this Annual Inspection Report is an aerial photo outlining the ponds and perimeter earthen berms inspected by our Professional Engineer. These ponds are water filled or filled with ash byproducts from the Big Bend Power Station.

The perimeter berms were observed, either while on foot or operating a slow moving motorized vehicle. The Professional Engineer used a checklist for the following conditions:

- Embankment / Liner Penetrations
- Settlement / Subsidence
- Vegetation Overgrowth
- Liner Deficiencies
- Seepage
- Scarps
- Cracks
- Bulges
- Soil Deltas
- Animal Burrows
- Surface Erosion
- Vandalism

The visual inspection and evaluation outlined in this inspection report was performed in accordance with generally accepted engineering practice ordinarily used by geotechnical engineers practicing in this area at the time the inspections were made. No other warranty, expressed or implied, is made.

Findings and Recommendations

As shown on the attached photos, the earthen berms were found to be in generally good condition. There appeared to be ample freeboard such that overtopping does not appear to be likely. The slopes of the perimeter berms were generally well maintained and free of vegetative overgrowth. No exterior seepage or other critical conditions that would require an immediate response were noted for any of the pond areas.

Recycle Settling Pond – The repairs that were underway at the time of our last annual inspection were completed and the pond is back online.

Long Term Fly Ash Pond - A small bulge was noted beneath the central pipe that drains storm water from the South Economizer Ash Pond to the Long Term Fly Ash Pond. The bulge in the liner below this pipe was first noticed during our March 19, 2014 Quarterly Inspection. The shape of the bulge has changed somewhat over time. The reason for the bulge is not readily apparent. Since the bulge is directly below a drainage pipe, we recommend that this area be further inspected. Small tears were also observed near the top of the slope at the north end of the east and west slopes.

Long Term Bottom Ash Pond - An area designated “Long Term Bottom Ash Pond Area” is currently used occasionally for storm water overflow. This area is rimmed by low berms overgrown with vegetation which is not routinely cut / maintained. Therefore, the area cannot be inspected to the same detail as the other berms. No obvious breaches were noted during our observations of the readily accessible portions of the Long Term Bottom Ash Pond Area. Should this area be used for more permanent storage, we recommend that the east, south, and west berms be re-graded and filled to a uniform elevation, wide enough for vehicular traffic. The slopes should then be grassed. These improvements would facilitate future inspection and maintenance of these berms.

We appreciate the opportunity to support you on this project. If you have any questions with regard to this report, please do not hesitate to contact us at 813.944.3464.

Sincerely,

AREHNA Engineering, Inc.
FLORIDA BOARD OF PROFESSIONAL ENGINEERS CERTIFICATE OF AUTHORIZATION NO. 28410

Jessica A. McRory, P.E.
Geotechnical Engineer
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Attachments: Earthen Berm Inspection Plan
Photographs



ATTACHMENTS

Earthen Berm Inspection Plan
Photographs



East Stormwater Pond

North Recycle Pond

Recycle Settling Pond & SSU

South Recycle Pond

672

North Bottom Ash Pond

Btm Ash Suction Pond

South Bottom Ash Pond

Jac

Long Term Fly Ash Pond

Long Term Bottom Ash Pond

Dickman Rd

Bench Rd





East Stormwater Pond
(south side, looking west)



North Recycle Pond
(west side, looking northeast)

Photographs



AREHNA | Engineering, Inc.

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South Recycle Pond
(south side, looking west)



Recycle Settling Pond
(north side, looking east)

Photographs



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Long Term Fly Ash Pond
(west side, looking north)



Long Term Fly Ash Pond
(south side, looking east)

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Long Term Fly Ash Pond
(north side, looking east at bulge below central pipe
from South Economizer Pond)



North Bottom Ash Pond
(north side, looking west)

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North Bottom Ash Pond
(south slope, looking west)



North Bottom Ash Pond
(west slope, looking north)

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North Bottom Ash Pond
(west side, looking east)



Bottom Ash Suction Pond
(east side, looking north)

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Bottom Ash Suction Pond
(south side, looking west)



South Bottom Ash Pond
(south side, looking east)

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South Bottom Ash Pond
(west side, looking northeast)
Irregular rutting noted



Long Term Bottom Ash Pond
(south side, looking west)

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