

US EPA ARCHIVE DOCUMENT

## COMMENTS

Comments received for CHA Draft Report (*July 7, 2009*, CHA Project No. 20085.2000.1510) for the Assessment of Dam Safety of Coal Combustion Surface Impoundments Duke Energy – Riverbend Steam Station, Mount Holly, NC. Comments include;

- EPA comments received on July 13, 2009 & August 11, 2009;
- NC-DENR comments on September 14, 2009; and
- Duke Energy comments received on August 12, 2009.

Final Report  
Assessment of Dam Safety of Coal Combustion Surface Impoundments  
Duke Energy – Riverbend Steam Station  
Mount Holly, NC

*Comments Received from the EPA (July 13, 2009 & August 11, 2009)  
In Response to CHA Draft Report (July 7, 2009)*

CHA Project No. 20085.2000.1510

## Everleth, Jennifer

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**From:** Harris IV, Warren  
**Sent:** Monday, July 13, 2009 10:29 AM  
**To:** Everleth, Jennifer; Hargraves, Malcolm; Adnams, Katy  
**Subject:** FW: EPA's comments on CHA's Draft Assessment Report for: Duke Energy - Riverbend Steam Station

-----Original Message-----

From: Killeen, Deborah A [mailto:deborah.a.killeen@lmco.com]  
Sent: Monday, July 13, 2009 10:27 AM  
To: Harris IV, Warren  
Subject: FW: EPA's comments on CHA's Draft Assessment Report for: Duke Energy - Riverbend Steam Station

Warren,

Here are EPA's comments on CHA's Draft Assessment Report for: Duke Energy - Riverbend Steam Station:

- 1) The EPA Check list rates the Primary Ash Pond as "High" but the pond is marked "Significant" on the impoundment inspection form.
- 2) There is a duplicate copy of the Primary Ash Pond EPA Check-list and inspection form in the report.
- 3) EPA Check-list and inspection form for the secondary ash pond are not included in the report.
- 4) Clarify in the report the date of initial construction for the primary and secondary ash ponds.

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## Everleth, Jennifer

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**From:** Harris IV, Warren  
**Sent:** Tuesday, August 11, 2009 1:01 PM  
**To:** Everleth, Jennifer; Hargraves, Malcolm; Adnams, Katy  
**Subject:** FW: More EPA Comments on Duke Riverbend Dam Inspection Draft Report

-----Original Message-----

From: Killeen, Deborah A [mailto:deborah.a.killeen@lmco.com]  
Sent: Tuesday, August 11, 2009 12:56 PM  
To: Harris IV, Warren  
Cc: Hoffman.Stephen@epamail.epa.gov; Kohler.James@epamail.epa.gov; Miller, Dennis A  
Subject: RE: More EPA Comments on Duke Riverbend Dam Inspection Draft Report

Warren,

Attached are more EPA Comments on Duke Riverbend Dam Inspection Draft Report.

We have reviewed the comments and believe they are limited to factual/editorial issues. They should be addressed in the ways outlined below.

>>>>

Verify and correct accordingly:

Table of Contents:

There are two Section 1.2's, two Section 1.2.1's, and two Section 4.9's.

The location of the inspection checklists/forms and the photo log should be included (i.e., Where within the document can these be easily found?), along with page numbers.

A list of all Figures and their page numbers should be included.

Section 1.1:

Tamera Eolin should be Tamera Eplin

Respond to this comment by proposing clarifying language to insert into report (this clarification may be applicable to other NC reports as well):

Section 1.2 - Project Background:

Add "(NCUC)" at the end of the first sentence

Originally, the dikes at this facility were considered to be "low hazard" dams under criteria of both the U.S. Army Corps of Engineers and the State of North Carolina. Changes in the State's rating criteria/system resulted in "high hazard" ratings based upon probable environmental damage to adjacent waters, public financial loss, and/or interruption of service if the dikes were to fail. The potential for loss of human life from a potential dike failure at this facility has not been, and is not, the reason for a "high hazard" rating. This point needs to be provided in this document. Some differentiation should be made between NC's rating criteria/system and the federal rating criteria/system so that readers of the Report are not misled into believing that the "high hazard" rating is based on the potential for loss of human life.

Verify and correct accordingly:

Section 1.2[sic] - Site Description and Location:

The "Site Plan" is actually an aerial photograph.

2nd paragraph, 3rd sentence: For clarity, add "of the primary ash pond," after "...from the secondary ash pond on the north side" to indicate the north side of what.

2nd paragraph, 4th sentence: For consistency sake throughout the document, add "(aka, divider dike)" after "...typical cross section of the intermediate dike". These terms are used interchangeably in the document, so for the first use they should be shown to be synonymous.

4th paragraph: "A map" is in actuality an aerial photograph.

Section 1.3:

First use of acronym "AEP" should be spelled out.

Section 1.4:

Last sentence: Change "is" to "are" in regard to the soil and bedrock at the site.

Figure 1 - Project Location Map:

The Riverbend Steam Plant site location is incorrect. It is shown on the map as being south of I-85 and south of the city of Belmont. This would appear to be the approximate location of Duke Energy's Allen Steam Plant. The Riverbend Steam Plant is located north of I-85, northeast of the city of Mount Holly, and northeast of SR-16 in a bend of the Catawba River (which would place it just off of the north edge of the given map).

Figure 2 - Site Plan:

The caption of this aerial photograph needs to include the actual date (even if only approximate) that the photo was taken. This photo and most other Figures within the Draft Report document have been automatically dated "July 2009". In some instances, Figures have actual dates provided elsewhere (e.g., in captions or in notes) and in other cases it is not necessarily important. However, in Figure 2 (and for some other Figures in the Draft Document, particularly the aerial photos) it is important to include the actual or approximate date of the photo or diagram. The aerial photo in Figure 2 is not indicative of existing conditions in June-July 2009, and by dating it "July 2009", readers are misled to believe that the Primary Cell was/is currently drained and being dredged out when it is actually holding water at this time.

A scale should also be provided on the Site Plan aerial photo.

Figure 6 - Critical Infrastructure Map:

An actual or approximate date of the aerial photo should be provided in the caption.

Section 2.1:

First use of acronyms "FEMA" and "FERC" should be spelled out.

2nd paragraph and Table 1: Bad weather was moving in while we were in the field on the afternoon of Day One (6/4/09) of the dam inspections. As late afternoon approached, initial signs of a significant front appeared (dark clouds, sprinkling, increased wind). The front resulted in significant rainfall amounts and flash flood warnings in the general vicinity of the facility that night. The heavy rain lasted until lunch hour on Day Two (6/5/09), prior to our returning to the field. As stated in the Draft Report, daily precipitation totals used in Table 1 were taken from [www.weather.com](http://www.weather.com). However, the 1.62 and 0.93 inches of rain on the two days of our inspections occurred after we began field inspections on the morning of 6/4/09 (with most of the rain occurring between our two main sessions in the field). Thus, the "Total for the Week Prior to Site Visit" in Table 1 should indicate 0.49 inch rather than 3.04 inches. This would seem to be pertinent information for inspections of dams because photos were taken and field observations were made on 6/4/09 (intermediate dike, primary

dike) after a relatively dry week, whereas those taken/made on 6/5/09 (primary dike, secondary dike) were taken/made immediately following a fairly significant rain event.

Section 2.2.2:

2nd sentence: "discharged" should be "discharges"

Section 2.3:

Add "the" before "...secondary dike."

Section 2.3.1:

4th paragraph: Suggest adding the phrase "that could be" in between the words "...factors contributing...".

5th paragraph: Suggest replacing "...as MW-1S and MW-6D and are approximately shown on Figure 8." with, "...as MW-1S and MW-6D and their approximate locations are shown on Figure 8."

Section 2.5 (and Section 3.4):

1st paragraph: Suggest replacing "...Figures 9A and 9B shows the plotted elevations of these piezometers." with, "...Figures 9A and 9B show the plotted elevations over time of the piezometer readings."

Make specific reference to piezometer data in discussion:

The 2nd paragraph in Section 2.5 states: "A more complete discussion of the data collected from this instrumentation is contained in Section 3.4." However, there is no discussion of collected piezometer data in Section 3.4, only a sentence that states, "Riverbend Steam Station staff make monthly inspections and piezometer readings at the primary and secondary ash ponds."

Verify and correct accordingly:

"Coal Combustion Dam Inspection Checklist Form" and "Coal Combustion Waste (CCW) Impoundment Inspection" Forms:

There are two sets of these two documents in the Draft Report. Information provided in the forms appears to be accurate. However, the second set of the two forms is a duplicate set of the first set (i.e., both sets are for the Primary Ash Disposal Pond). Completed forms for the Secondary Ash Disposal Pond need to be provided in the Report.

Figure 7 - Photo Location Plan:

An actual or approximate date of the aerial photo in Figure 7 should be provided in the caption. Also, the caption should indicate that all photos were taken on June 4-5, 2009.

The written compass orientations given for some photos (as provided in the captions of the photos) appear to be about 45 degrees off from the directional arrows shown on Figure 7. This is not significant enough to make numerous changes, as the general orientation direction given in the photo captions is acceptable except for Photo 43 (see below) and the following three. The directional arrows on Figure 7 for Photos 16, 63 and 64 need to be rotated 180 degrees (see these individual photos to compare views with the arrow directions shown on Figure 7).

Photos 1 through 64:

Indicate correct date on all photos:

All of the pages with photographs in the Draft Report are dated "June 4, 2009". Pages with photographs taken June 5, 2009 (which was after the significant rain event) should be

dated "June 5, 2009". Alternatively, all of the photo pages could simply be dated "June 4-5, 2009".

Verify and correct accordingly:

Photo 8 caption: Add, ", looking east."

Photo 16 is looking south.

Photo 28 caption: Needs to indicate if this beach erosion is on the upstream or downstream slope of the intermediate dike. Also, to explain floating foam-like material, suggest adding, "Floating material is composed of cenospheres."

Photo 37 caption: Suggest adding, "Booms are in place to contain floating cenospheres in forefront of pond."

Photo 39 caption: Add, ", looking south."

Photo 43 caption: Change "northeast" to "southeast".

Photo 47 caption: Add, " shown in photo 46."

Photo 54 caption: Add, " of secondary dike."

Photo 63 is looking S-SW (toward Secondary Cell) and Photo 64 is looking N-NE (toward Catawba River).

Section 3.2:

1st paragraph, last sentence: "The drainage area [Of what? The Plant? Clarify.] appears to primarily flow into the primary pond."

2nd paragraph: See comments above pertaining to Section 1.2 - Project Background.

3rd paragraph: Add "by" after "attenuated". Change "...for a couple reasons as listed below." to, "...for a few reasons as listed below."

3rd bullet: Spell out first use of "cfs".

Section 3.3:

Delete "al" at end of "...Department of Environmental...".

Add "(NC DENR)" after "...Resources".

Change "regulations require" to "regulations state" (note that "required" is used in the regulatory quote).

Change "NCDENR also requires..." to, "NC DENR regulations also state,..." (note that "required" is used in the regulatory quote.)

First use of acronym "EM" should be spelled out.

Section 3.3.2:

Add a period after 0.108g.

Re-write: "While some shear strength data was performed in 1979 for..." (data are not performed; data are generated/collected/gathered; perhaps tests were performed?)

Same sentence: "...performed in 1979 for the raising of the primary dike, strength tests under current conditions would be justified." This appears to be a recommendation that is not later reflected in the Draft Report in Section 4.0 - Conclusions/Recommendations.

Table 6:

The verbiage in the first box immediately under "Load Case" should be consistent with that shown in Table 7.

Answer questions and provide discussion:

Table 6 and Section 3.3.2 narrative:

As shown in Table 6, the three numbers provided under "Calculated Minimum Factor of Safety" all trend slightly higher than the "Required Minimum Factor of Safety" numbers given. Other than the final sentence in Section 3.3.2 that begins, "It is unclear why....", in reference to the difference in the two numbers given for steady state condition factor of safety, there is no discussion as to the significance (if any) in regard to the consistent trend for all three sets of numbers or the significance (if any) for higher calculated values versus the required minimums. Some discussion should be provided in the narrative to explain what (or what could) the three higher calculated numbers mean when compared to the minimum numbers.

Table 7 and Section 3.3.3 narrative:

For the Secondary Dike, is there any significance that the "Calculated Minimum Factor of Safety" is lower (albeit slightly) than the "Required Minimum Factor of Safety under steady state conditions? How does this result relate to the calculations shown in Table 6 for the Primary Dike, which were all higher than the required minimum factor of safety? Some degree of discussion of the results of the calculations and their significance (or lack thereof) is warranted in the Draft Report, otherwise, what was/is the purpose of doing these calculations?

Verify and correct accordingly:

Section 4.1:

Section 1.2 refers to the primary and secondary ash ponds as two individual management units. Thus, "management unit" should be made plural in Section 4.1. Also, a "d" needs to be added to the word "reference".

Section 4.5:

The last sentence needs to be re-written/edited for better clarity.

Section 4.7:

The last sentence needs editing/re-wording for better clarity and/or converted into two sentences.

Section 4.9[sic] - Stability Analyses:

Shouldn't a recommendation be included here reflecting the apparent recommendation in Section 3.3.2 of the Draft Report (see comments above) that strength tests under current conditions for the Primary Dike are justified?

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Final Report  
Assessment of Dam Safety of Coal Combustion Surface Impoundments  
Duke Energy – Riverbend Steam Station  
Mount Holly, NC

*Comments Received from the NC ENR (September 14, 2009)  
In Response to CHA Draft Report (July 7, 2009)*

CHA Project No. 20085.2000.1510



FW No state comments on Riverbend

Jim:

I have no comments on the these three inspection reports. We look forward to receiving the final reports. Thanks

Steven M. McEvoy, PE  
State Dam Safety Engineer  
NC Land Quality Section  
(919) 733 4574 ext. 711  
Please note new email address as of April 3, 2009  
Steve.McEvoy@ncdenr.gov

E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties.

-----Original Message-----

From: Kohler, James@epamail.epa.gov [mailto:Kohler, James@epamail.epa.gov]

Sent: Thursday, August 20, 2009 9:23 AM  
To: McEvoy, Steve; Harrell, Scott  
Subject: Progress Energy - Asheville Electric Plant

Steve and Scott:

I just want to be sure you have no comments on these reports:

Progress Energy - Asheville Electric Plant  
Duke Energy - Riverbend Steam Station  
Duke Energy - Dan River Steam Station

If not, I will let you know when the final reports have been posted... thanks-

Jim

\*\*\*\*\*  
Jim Kohler, P. E.  
Environmental Engineer  
LT, U. S. Public Health Service  
U. S. Environmental Protection Agency  
Office of Resource Conservation and Recovery  
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Final Report  
Assessment of Dam Safety of Coal Combustion Surface Impoundments  
Duke Energy – Riverbend Steam Station  
Mount Holly, NC

*Comments Received from the Duke Energy (August 12, 2009)  
In Response to CHA Draft Report (July 7, 2009)*

CHA Project No. 20085.2000.1510

FW Company Comments on Duke Energy Riverbend (CHA) Report  
From: Harris IV, Warren  
Sent: Friday, September 11, 2009 4:43 PM  
To: Everleth, Jennifer  
Subject: FW: Company Comments on Duke Energy: Riverbend (CHA) Report

-----Original Message-----

From: Killen, Deborah A [mailto:deborah.a.killen@lmco.com]  
Sent: Wednesday, August 12, 2009 1:58 PM  
To: Harris IV, Warren  
Cc: Hoffman, Stephen@epamail.epa.gov; Kohler, James@epamail.epa.gov; Miller, Dennis A  
Subject: Company Comments on Duke Energy: Riverbend (CHA) Report

Warren,

For the Riverbend (CHA) report, EPA has reviewed the following comments and believe they are limited to factual/editorial issues. They should be verified and incorporated accordingly.

Remember not to finalize any reports until we inform you that all comments (from EPA/state/company) have been received.

Review of USEPA Inspection Report - Riverbend (CLA)

1. Figure 1 shows a map of Allen Steam Station mislabeled to say "Riverbend Steam Plant." Place the correct map of Riverbend on the figure.
2. Figure 6 has a label at the bottom that says "Church & School." The label actually points to a Harris Teeter grocery store/shopping center.
3. The report contains a form from the USEPA called, "Coal Combustion Dam Inspection Checklist Form." The form has the Hazard Potential Classification incorrectly circled showing "High." According to the USEPA form called, "Coal Combustion Waste (CCW) Impoundment Inspection" the correct Hazard Potential Classification is correctly marked as "Significant."

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