



North Carolina Department of Environment and Natural Resources
Division of Energy, Mineral, and Land Resources
Land Quality Section

Tracy E. Davis, PE, CPM
Director

Pat McCrory, Governor
John E. Skvarla, III, Secretary

March 5, 2014

Mr. John Elnitsky
Vice President
Project Management and Construction
ST-28U | PO Box 1007
Charlotte, North Carolina 28202

Re: Duke Energy Coal Ash Pond Information Request

Dear Mr. Elnitsky:

Thank you for meeting with DEMLR and DWR staff on Monday, March 3, 2014 to discuss Duke Energy's system wide response to the coal ash spill incident at the Dan River plant on February 2, 2014.

During the meeting, DEMLR and DWR staff emphasized the need for a more focused and immediate response to determine the potential for another failure incident similar to that which occurred at the Dan River plant. You will recall that failure of a corrugated metal pipe (CMP) storm drain installed beneath the primary ash pond reservoir in the mid 1950's was the cause of the February 2, 2014 coal ash spill incident. As basis for discussion on this, you were provided with a document showing the results of recent visual inspections by DEMLR staff at the 14 coal combustion (or former coal combustion) plant sites focused on the condition and material makeup of decant/spillway structures. A copy of this document is attached to this letter. These inspections took place between February 20, 2014 and March 1, 2014. During the inspection process, it was noted that eight of the thirty three jurisdictional coal ash ponds were served by decant structures with CMP components, one of which was discovered by DEMLR staff on March 1, 2014 to have an active leak. Sixteen of the thirty three jurisdictional coal ash ponds were served by decant structures made of formed, cast and pipe configured concrete. The remainder of the coal ash ponds, excluding those at the Dan River plant, either had no decant structure or the decant structure was made of other materials. Determination of decant structure material could not be made at the Dan River plant due to the high level of the river. Most all decant structures appeared to have been in service for many years if not decades.

It is general knowledge in the engineering community that CMP is subject to corrosion, the intensity of which depends upon the environment of placement. This tends to shorten the design life by reducing wall thickness of the pipe which ultimately leads to failure. Given this and the extraordinary experience at the Dan River plant, it is requested that Duke Energy camera inspect

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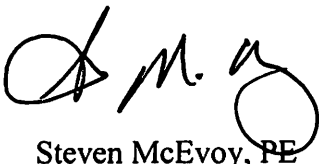
all facilities that have decant structures with CMP components. Please provide a schedule within 10 days of receipt of this letter for completing this task and reporting the results. A listing of CMP structure priority is attached as Exhibit A. Also, our experience with the Dan River plant has shown that concrete pipe can be compromised, particularly at the joints, by apparent lack of quality control during placement, including preparation of proper bedding to accommodate anticipated overburden loads. For this reason and experience with the 36-inch concrete pipe storm drain beneath the primary ash pond at the Dan River plant, it is also requested that you provide a schedule within 10 days of receipt of this letter for completing the same task for those facilities that have concrete decant structures. A listing of concrete structure priority is also included in Exhibit A.

To assist DEMLR in the ongoing inspection process, and in the event of emergency, it is requested that you provide within 15 days of receipt of this letter a schedule for delivery of: (1) copies of engineering plans you have on file for each of the coal ash and clear water dam facilities, and (2) emergency action plans with updated inundation maps for each of the coal ash and clear water dam facilities. Each of these documents should be clearly labeled with the state identification number for that particular facility. Please note that this office will treat the emergency action plans and inundation maps received as confidential information for security purposes by protecting such information during our review and storing such information in a secured location separate from public records files.

We acknowledge that some of this requested information may be subject to requirements of North Carolina Senate Bill 1004, Section 3.(b). However, in the interest of public safety, DEMLR feels this information is necessary in order to gain a full understanding of how the facilities function and how to respond in the case of emergency.

Thank you for your cooperation. If you should have any questions, please contact me at (919) 707-9220.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'S. McEvoy', written over a circular stamp or mark.

Steven McEvoy, PE
State Dam Safety Engineer

Attachment

cc: Mr. Tracy Davis, PE, CPM, Division Director, Division of Energy, Mineral, and Land Resources
Mr. Tom Reeder, Division Director, Division of Water Resources

EXHIBIT A- PRIORITY FOR CAMERA INSPECTION

March 5, 2014

Priority 1 = Highest	Plant Name	Structure Name	State ID
CMP Decant Structure			
1	Cliffside Steam Station	Cliffside Inactive Ash Basin 1-4 Main Dam	CLEVE-047
2	Belews Creek Steam Station	Belews Creek Active Ash Basin Dam	STOKE-116
3	Riverbend Steam Station	Riverbend Active Ash Basin Dam 2 (Secondary)	GASTO-098
4	Mayo Power Station	Mayo Ash Pond Dam	PERSO-035
5	Marshall Steam Station	Marshall Active Ash Basin Dam	CATAW-054
6	Weatherspoon Power Station	Weatherspoon 1979 Ash Pond	ROBES-009
7	Sutton Power Station	Sutton 1984 Ash Pond	NEWHA-005
8	Buck Steam Station	Buck Steam Station Main Dam	ROWAN-047
Concrete Decant Structure			
1	Dan River Steam Station	Dan River Active Secondary Ash Basin	ROCKI-238
2	Riverbend Steam Station	Riverbend Ash Basin Intermediate Dam	GASTO-099
3	Cliffside Steam Station	Cliffside Active Ash Pond Downstream Dam	CLEVE-049
4	Allen Steam Station	Allen Active Ash Basin Dam	GASTO-061
5	Allen Steam Station	Allen Retired Ash Basin Dam	GASTO-016
6	Buck Steam Station	Buck Steam Station Basin 1 to Basin 2 Dam	ROWAN-069
7	Buck Steam Station	Buck Steam Station Basin 2 to Basin 3 Dam	ROWAN-070
8	Cliffside Steam Station	Cliffside Inactive Ash Basin #5 Main Dam	RUTHE-070
9	Cliffside Steam Station	Cliffside Inactive Ash Basin #5 Saddle Dam	RUTHE-072
10	H.F. Lee Power Station	H.F. Lee Active Ash Pond	WAYNE-022
11	Cape Fear Power Station	Cape Fear 1956 Ash Pond (Inactive)	CHATH-075
12	Cape Fear Power Station	Cape Fear 1970 Ash Pond Dam (Inactive)	CHATH-077
13	Cape Fear Power Station	Cape Fear 1978 Ash Pond Dam	CHATH-078
14	Cape Fear Power Station	Cape Fear 1985 Ash Pond Dam	CHATH-079
15	Roxboro Power Station	Roxboro West Ash Pond South Rock Filter	PERSO-039
16	Asheville Power Station	Asheville 1982 Ash Pond Dam	BUNCO-089
17	Asheville Power Station	Asheville 1964 Ash Pond Dam	BUNCO-097

No	Co.	Plant Name	LQS NAME	Ash Pond	Active	In-Active	LQS RO	State ID	Hazard	CMP	Date Inspected	Comments (3/2/14 - 2:30 hrs)
1	DUK	Allen Steam Station	Allen Active Ash Basin Dam	1	1		MRO	GASTO-061	H	NO	3/1/2014	Concrete riser, RCP barrel. Clear flow at outfall.
2	DUK	Allen Steam Station	Allen Retired Ash Basin Dam	1		1	MRO	GASTO-016	H	NO	3/1/2014	Concrete riser, RCP barrel. Some damage at outlet energy dissipator. Clear flow at outfall.
3	DUK	Belews Creek Steam Station	Belews Creek Active Ash Basin Dam	1	1		WSRO	STOKE-116	H	YES	3/1/2014	There are two decant structures (pipe and riser spillways). First structure with concrete riser and CMP barrel was decommissioned in 1994 and grout filled. Second structure has a concrete riser but 24-inch pipe outlet was submerged in backwater and could not be viewed. Duke Energy staff are reviewing construction records to determine pipe material.
10	DUK	Buck Steam Station	Buck Steam Station Main Dam	1	1		MRO	ROWAN-047	H	YES	2/26/2014	Concrete riser with CMP barrel. In December 2013 a camera inspection was performed by Duke Energy. Some damage in pipe outlet energy dissipator. Flow at outfall is clear.
11	DUK	Buck Steam Station	Buck Steam Station New (Additional Primary) Dam	1	1		MRO	ROWAN-068	H	NO**	2/26/2014	No outfall. Discharge flows directly to ROWAN-069.
12	DUK	Buck Steam Station	Buck Steam Station Basin 1 to Basin 2 Dam	1	1		MRO	ROWAN-069	H	NO	2/26/2014	Concrete riser with RCP barrel. Flow at outfall clear. Discharge flows to ROWAN-070. There is discharge channel erosion. MRO is considering issuance of NOD to repair channel.
13	DUK	Buck Steam Station	Buck Steam Station Basin 2 to Basin 3 Dam	1	1		MRO	ROWAN-070	H	NO	2/26/2014	Concrete riser with RCP barrel. Clear flow at outlet.
14	DUK	Buck Steam Station	Buck Steam Station Divider Dam	1		1	MRO	ROWAN-071	H	NO**	2/26/2014	No discharge from this dam. Dam is a divider dike.
17	DUK	Cliffside Steam Station	Cliffside Inactive Ash Basin #5 Main Dam	1		1	MRO	RUTHE-070	H	NO	3/1/2014	Concrete riser with RCP barrel. Clear flow at outlet.
18	DUK	Cliffside Steam Station	Cliffside Inactive Ash Basin #5 Saddle Dam	1		1	MRO	RUTHE-072	H	NO	3/1/2014	Saddle dike. No decant structure.
19	DUK	Cliffside Steam Station	Cliffside Active Ash Basin Upstream Dam	1	1		MRO	CLEVE-050	H	NO**	Planned	No decant or spillway structure. Inspection scheduled for 3/4/14.
20	DUK	Cliffside Steam Station	Cliffside Active Ash Pond Downstream Dam	1	1		MRO	CLEVE-049	H	NO	3/1/2014	Concrete riser, RCP barrel. Clear flow at outfall.
21	DUK	Cliffside Steam Station	Cliffside Inactive Ash Basin 1-4 Main Dam	1		1	MRO	CLEVE-047	H	YES	3/1/2014	Concrete riser with CMP barrel. Duke staff recently discovered leak in CMP near riser. Duke Energy staff are attempting to repair and are pumping discharge to another basin. MRO is considering a NOD.
23	DUK	Dan River Steam Station	Dan River Active Primary Ash Basin	1	1		WSRO	ROCKI-237	H	UNK		Decant structure outlets in ROCKI-238 reservoir.
24	DUK	Dan River Steam Station	Dan River Active Secondary Ash Basin	1	1		WSRO	ROCKI-238	H	UNK		Decant structure pipe outlet currently submerged by the river.
27	DUK	Marshall Steam Station	Marshall Active Ash Basin Dam	1	1		MRO	CATAW-054	H	YES	3/1/2014	Concrete riser with CMP barrel that is slip lined with 30-inch plastic pipe. Outlet is submerged and not visible.
28	DUK	Riverbend Steam Station	Riverbend Active Ash Basin Dam 1 (Primary)	1	1		MRO	GASTO-097	H	NO**	3/1/2014	No decant or spillway structure.

29	DUK	Riverbend Steam Station	Riverbend Active Ash Basin Dam 2 (Secondary)	1	1		MRO	GASTO-098	H	YES	3/1/2014	Concrete riser with CMP barrel. Gray material in the barrel at the outlet but flow is clear.
30	DUK	Riverbend Steam Station	Riverbend Ash Basin Intermediate Dam	1	1		MRO	GASTO-099	H	NO	2/19/2014	Concrete riser with RCP barrel. No outlet observation noted.
36	PGN	Asheville Power Station	Asheville 1982 Ash Pond Dam	1	1		ARO	BUNCO-089	H	NO	3/1/2014	No CMP spillway components. BUNCO-89 and 97 served by a combined multiple riser, single pipe spillway discharging at a single point. Pipe material is RCP and HDPE. Discharge is clear.
37	PGN	Asheville Power Station	Asheville 1964 Ash Pond Dam	1		1	ARO	BUNCO-097	H	NO	3/1/2014	See BUNCO-089
39	PGN	Cape Fear Power Station	Cape Fear 1956 Ash Pond (Inactive)	1		1	RRO	CHATH-075	H	NO	2/21/2014	A steel pipe barrel from the retired decant structure is covered by soil material and growth, but it is not flowing and appears to be in satisfactory condition. The dam has two additional small steel conduits through the embankment just below the crest; they are both not flowing and are in satisfactory condition.
40	PGN	Cape Fear Power Station	Cape Fear 1963 Ash Pond Dam (Inactive)	1		1	RRO	CHATH-076	H	NO**	2/21/2014	There are no spillway conduits. Runoff passes through an old breached separation dike into the inactive impoundment area associated with CHATH-077.
41	PGN	Cape Fear Power Station	Cape Fear 1970 Ash Pond Dam (Inactive)	1		1	RRO	CHATH-077	H	NO	2/21/2014	A 24" fiberglass-composite pipe from the decant structure passes through the embankment toward the river; however, it is not flowing and is in satisfactory condition.
42	PGN	Cape Fear Power Station	Cape Fear 1978 Ash Pond Dam	1		1	RRO	CHATH-078	H	NO	2/21/2014	Concrete riser and 24-inch RCP barrel. Some leakage has occurred in the riser. The reservoir level has been lowered to facilitate investigation of needed maintenance to stop the leakage. The CMP trash rack is significantly corroded and should be replaced, but is not significant structurally. The barrel was flowing slightly and flow was clear. The conduit appears to be in satisfactory condition.
43	PGN	Cape Fear Power Station	Cape Fear 1985 Ash Pond Dam	1	1		RRO	CHATH-079	H	NO	2/21/2014	48" concrete riser and 30" RCP barrel appear to be in satisfactory condition. As with CHATH-078, the reservoir level has been lowered for maintenance. The riser has a metal trash rack that has experienced some corrosion. The barrel was flowing, and flow was relatively clear.
45	PGN	Sutton Power Station	Sutton 1984 Ash Pond	1	1		WiRO	NEWHA-005	L	YES	2/20/2014	CMP riser and barrel. CMP in good condition. Reservoir level below riser. No discharge at outlet.
49	PGN	Mayo Power Station	Mayo Ash Pond Dam	1	1		RRO	PERSO-035	H	YES	3/1/2014	The 48" CMP riser and barrel decant structure penetrate a shallow, crescent shaped dike at the internal canal to the main freshwater reservoir. The pipe does not penetrate the main ash pond dam. Although the outlet is submerged, the structure appears to be functioning properly and is in satisfactory condition. The metal trash rack on the riser is significantly corroded.

54	PGN	Roxboro Power Station	Roxboro West Ash Pond Dam	1	1		RRO	PERSO-038	H	NO**	3/1/2014	No spillway conduits serve this structure. Internal canals direct runoff into the impoundment served by PERSO-039. New HDPE structures penetrate the dams associated with the FGD settling and flush ponds that are present within the footprint of this ash pond. They deliver liquid from the plant to the treatment system, and outflow from the skimmers passes through the treatment facility via DI pipes. The ultimate treated discharge passes through the ash pond dam into the perimeter canal. Although slight leakage was observed where the outlet pipe attaches to a 16" HDPE that discharges into the perimeter canal, the connection is outside of any embankment and the structures appear to be in satisfactory condition. Flow was clear.
55	PGN	Roxboro Power Station	Roxboro West Ash Pond South Rock Filter	1	1		RRO	PERSO-039	I	NO	3/1/2014	The dual RCP riser/barrel structures with flap gates appear to be in satisfactory condition and are operating properly. Flow was clear.
59	PGN	Roxboro Power Station	Roxboro East Ash Pond	1		1	RRO	PERSO-033	L	NO**	3/1/2014	No spillway conduits. There are several high level RCP storm culverts associated with the access road on the crest of the dam. The pipes all appear to be in satisfactory condition.
62	PGN	Weatherspoon Power Station	Weatherspoon 1979 Ash Pond	1	1		FRO	ROBES-009	I	YES	2/21/2014	CMP riser, RCP barrel. CMP riser in fair condition. Reservoir level below riser. Small, clear discharge at outlet.
64	PGN	H.F. Lee Power Station	H.F. Lee Active Ash Pond	1	1		WaRO	WAYNE-022	H	NO	2/25/2014	Concrete riser and RCP barrel. No discharge at outlet.

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