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May 16, 2014

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

Re: City of Ames (Iowa) Action Plan in Response to EPA's Recommendations Pertaining to the Final "Coal Combustion Residue Impoundment - Round 12 - Dam Assessment Report"

Dear Mr. Hoffman:

This letter contains the City of Ames' (COA) action plan in response to the U.S. Environmental Protection Agency's (EPA) recommendations in the April 15, 2014 letter written to Mr. Donald Kom from EPA's Mr. Barnes Johnson. EPA's recommendations were listed in Enclosure 1 which was attached to Mr. Johnson's letter.

The City of Ames observes that the contractor's rating for the plants' ash and lime ponds are based solely on the "lack of documentation of slope stability factors of safety" and "lack of documentation of hydrologic and hydraulic analyses" that EPA's contractor sought to review. [Dewberry Consultants, LLC Final Report at page 1-1, sections 1.1.1 and 1.1.2] According to EPA's ash pond website, a rating of "poor" relates to the "potential for harm to human health and the environment." The City again submits that equating the lack of a geotechnical study with a risk to human health or environmental danger is improper, especially in view of the fact that the ponds are not compromised, and as discussed with both EPA and its contractor, have in fact performed well during an extreme 2010 flood event, one in which the U.S. Geological Survey (USGS) categorized as a 500 to 100 year event (0.2-1 annual flood probability).

However, our action plan as described below will address each recommendation in the order that they are stated in Enclosure 1.

Recommendation 1:

Perform a study of the pond embankments to determine the slope stability factors of safety under static and seismic loading conditions.

Action:

The slope stability study will be performed this summer and the report of the results should be available late summer/early fall 2014. The City is in the process of awarding the contract

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for the work to one of three geotechnical firms. Because the price of the study is greater than $50,000, the purchasing policy of the City requires the City Council to approve the contract for the work. City Council approval for this work is expected by June 24, 2014. We anticipate that the contractor should be able to commence work on the study within 2 weeks following contract award.

Recommendation 2:

Provide hydrologic and hydraulic data to show that the ponds can contain a one percent probability storm event in any given year without overtopping the embankments.

Action:

This particular recommendation is inconsistent with the assessment of hydrologic/hydraulic safety in the final report. On page 6-3 of the report at section 6.3, the second sentence of the second paragraph states "Based on the one percent annual, 24-hour probability rain event of 6.61 inches, the 4 feet of the freeboard has proven to be adequate to contain a one percent probability, 24-hour precipitation event without overtopping the impoundment embankments. Two such events have occurred, one in 2008 and one in 2010, without the overtopping of the embankments."

The City on September 11, 2012, provided EPA's consultant, Dewberry Consultants, LLC, data from the U.S. Geological Survey (USGS) which showed that in 2010 the area experienced an actual storm event of greater magnitude than the one percent probability storm event criteria, without overtopping the embankments. According to the USGS data, the 2010 storm event had an annual flood probability range of 0.2-1 percent (which correlates to 500 to 100 years). The City has attached a copy of this data sheet from the USGS to this letter to satisfy the requirements of Recommendation 2 above.

Correction: The City's response to EPA (regarding Dewberry's "draft" report) in a letter dated January 3, 2014, was incorrect on pages 3, 4, and 9, where it mistakenly indicated that the 2008 flood was a 100 year rain/flood event. The correct interpretation of the USGS data indicates that the 2008 flood was a 50 - 25 year (2-4 percent annual flood probability) event at the ash and lime ponds site. However, the same USGS data does show that the 2008 event at approximately 1.6 miles downstream of the City's lime and ash ponds site was a 100 to 50 year event (1-2 percent annual flood probability).

Recommendation 3:

Provide documentation of construction quality control/quality assurance activities to verify the

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compaction of the soils and fill materials used to build the embankments.

Action:

The City contracted with the architectural/engineering firm who performed the engineering and construction oversight of the lime and ash pond system to conduct a thorough search of their archives for relevant documents. The City likewise conducted a search for similar records. No documents were found from the original construction (circa 1980) that would satisfy the recommendation.

The slope stability study this summer will provide information and data regarding the structural "health" of the embankments, which does correlate to how the embankments were constructed and compacted.

Recommendation 4:

Perform a weekly visual inspection of the embankments for signs of distress or adverse conditions that would affect the continued safe operation of the pond system.

Action:

Since October of last year (2013), the City has instituted a program to conduct weekly visual documented inspections of the ash pond embankments.

Recommendation 5:

Remove the trees on the exterior and interior slopes of the embankments.

Action:

The City's Water & Pollution Control department issued a contract in February of this year (2014) to remove the trees along the north slope of the north perimeter embankment of the lime and ash ponds. This work has been delayed and now planned for this fall to avoid the possibility of disturbing the roosting of "Indiana bats" in the trees along this embankment.

The Power Plant will select and contract with an engineering firm by the end of June (2014) to develop a scope of work and specification for the purpose of bidding and selecting a contractor to remove the trees along the exterior slope of the east embankment of the ash pond, and also along the ash pond's interior slopes. This work likely will not commence until this fall for the same reason as described above – to avoid the possibility of disturbing the

roosting of "Indiana bats" in the trees along the embankment.

Recommendation 6:

Repair eroded area along interior slope of the ash pond.

Action:

The work to repair the erosion damage along the interior embankment slopes of the ash pond will be included in the same scope of work for the removal of trees under the Power Plant's jurisdiction (described above in the Action associated with Recommendation 5).

If you have any questions or comments regarding this letter, please feel free to contact me by telephone at 515-239-5176, or by email at btrower@city.ames.ia.us.

Sincerely,

Brian Trower
Assistant Director-Electric Services
Ames Municipal Electric System
City of Ames, Iowa

Enclosure

C City of Ames Water and Pollution Control Department

Table 3. Maximum stages and discharges for 2010 and selected largest-flood years, and the corresponding annual flood-probability ranges, at streamgages in the South Skunk River Basin, Iowa.

[mi^2, square miles; ft, feet; ft^3/s, cubic feet per second; $(ft^3/s)/mi^2$, cubic feet per second per square mile; --, not determined; >, greater than; <, less than]

Map number (fig. 1)	Streamgage number and name	Peak-flow record (water years)	Drainage area (mi^2)	Date of peak	Peak stage (ft)	Peak discharge (ft^3/s)	Annual flood probability range[1] (percent)	Unit runoff [$(ft^3/s)/mi^2$]
1	05469860 Mud Lake drainage ditch 71 at Jewell, Iowa	1966–2009	65.4	6/27/1975	90.04	[2]2,300	4–10	35.2
				7/9/1993	91.32	3,700	0.2–1	56.6
				6/8/2008	91.87	3,120	1–2	47.7
2	05469970 Long Dick Creek near Ellsworth, Iowa	[3]1991–2001, 2003–10	6.08	8/17/1993	94.73	[3]--	[3]--	[3]--
				6/8/2008	94.33	[3]--	[3]--	[3]--
				3/11/2010	94.05	[3]--	[3]--	[3]--
3	05469990 Keigley Branch near Story City, Iowa	1966–2010	31.0	6/27/1975	91.38	2,250	4–10	72.6
				7/9/1993	91.89	3,200	2–4	103.2
				6/17/1996	92.26	[2]3,440	2–4	111.0
				8/10/2010	**91.31**	**2,170**	**4–10**	**70.0**
4	05470000 South Skunk River near Ames, Iowa	1921, 1930, 1933–2010	315	5/20/1944	[4]13.90	8,060	4–10	25.6
				6/28/1975	[4]9.98	5,230	>10	16.6
				6/17/1990	[4]11.84	6,600	>10	21.0
				7/9/1993	[4]14.15	11,100	1–2	35.2
				8/16/1993	[4]14.23	11,200	1–2	35.6
				6/17/1996	[4]15.89	[2]14,000	0.2–1	44.4
				6/9/2008	16.93	11,000	2–4	34.9
				8/11/2010	**19.04**	**14,800**	**0.2–1**	**47.0**
5	05470500 Squaw Creek at Ames, Iowa	1918, 1920–27, 1965–2010	204	6/27/1975	14.00	11,300	2–4	55.4
				6/17/1990	15.97	12,500	1–2	61.3
				7/9/1993	18.54	24,300	<0.2	119.1
				6/17/1996	15.29	12,700	1–2	62.3
				5/30/2008	15.85	12,600	1–2	61.8
				8/11/2010	**18.13**	**22,400**	**<0.2**	**109.8**
6	05471000 South Skunk River below Squaw Creek near Ames, Iowa	1944, 1953–79, 1990, 1992–2010	556	5/19/1944	[5,6]13	10,000	>10	18.0
				6/27/1975	[6]25.57	14,700	4–10	26.4
				6/17/1990	[6]25.40	[2]13,000	4–10	23.4
				7/9/1993	25.53	26,500	0.2–1	47.7
				6/17/1996	25.13	24,400	0.2–1	43.9
				5/30/2008	24.70	19,800	1–2	35.6
				8/11/2010	**26.72**	**36,200**	**<0.2**	**65.1**
7	05471040 Squaw Creek near Colfax, Iowa	1996–2005	18.40	6/18/1998	13.94	7,020	0.2–1	381.5
				5/31/2000	12.85	4,740	2–4	257.6
8	05471050 South Skunk River at Colfax, Iowa	1986–2010	803	7/12/1993	21.53	14,200	4–10	17.7
				6/14/2008	20.25	10,900	>10	13.6
				8/14/2010	**23.85**	**24,000**	**0.2–1**	**29.9**
9	05471200 Indian Creek near Mingo, Iowa	1944, 1958–75, 1986–2010	276	5/20/1944	21.40	--	--	--
				6/4/1991	19.16	23,500	<0.2	85.1
				7/9/1993	18.64	18,600	0.2–1	67.4
				5/23/2004	17.27	11,700	4–10	42.4
				8/12/2010	**17.71**	**11,000**	**4–10**	**39.9**
10	05471500 South Skunk River near Oskaloosa, Iowa	1944, 1946–2010	1,635	5/--/1944	25.80	37,000	<0.2	22.6
				6/15/1947	21.26	20,000	4–10	12.2
				7/15/1993	24.78	20,700	2–4	12.7
				6/12/2008	24.61	17,300	4–10	10.6
				8/16/2010	**26.40**	**25,200**	**1–2**	**15.4**

Annual flood-probability ranges reflect the uncertainty of estimating annual flood-probability discharges. The annual flood probability is calculated using stablished techniques but then reported in one of the following ranges: greater than 10 percent, 4 to 10 percent, 2 to 4 percent, 1 to 2 percent, 0.2 to 1 ercent, and less than 0.2 percent. Unless noted otherwise, annual flood-probability ranges are based on a weighted average of two independent probability stimates. The WIE (weighting of independent estimates) program was used to estimate annual flood probabilities following guidelines in appendix 8 of Bulletin 17B (Interagency Advisory Committee on Water Data, 1982; Charles Berenbrock and Tim Cohn, U.S. Geological Survey, written commun., 2008) . The WIE program uses the variance and estimate of the Bulletin 17B annual streamgage-probability analysis and the variance and estimate of the regional-egression annual probability calculation (Eash, 2001) to compute a weighted probability estimate and variance at a streamgage.

Dishcarge is an estimate (U.S. Geological Survey, 2005).

Annual-peak discharges are not determined because stage-discharge relation is not determined.

Prior to Oct. 1, 2003, streamgage at different site and at datum 5.00 ft higher.

Prior to Oct. 1, 1973 at datum 10.00 ft higher.

Prior to Oct. 1991, at site 500 ft upstream.