

US EPA ARCHIVE DOCUMENT

Comments:

EPA:

Cover Page – “Prepared for” should read:

U.S. Environmental Protection Agency
Office of Solid Waste and Emergency Response
Office of Resource Conservation and Recovery
1200 Pennsylvania Ave, NW
MC: 5304P
Washington, DC 20460

Page 1 – change “Request” to “Response”

Page 3, paragraph 1: change “close” to “closest”

Page 9, line 2 should say “early April 2010”

State: None

Company: See letter dated September 21, 2010

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September 21, 2010

CERTIFIED MAIL AND ELECTRONIC MAIL

Mr. Stephen Hoffman Office of Resource
Conservation and Recovery (5304P)
U. S. Environmental Protection Agency
2733 South Crystal Drive Fifth Floor
Arlington, VA 22202

Re: Comments on Draft "Report of Geotechnical Investigation Dam Safety Assessment of Coal Combustion Surface Impoundments, Georgia Power Plant Hammond"

Dear Mr. Hoffman:

On July 6, 2010, the U. S. Environmental Protection Agency ("EPA") provided to Georgia Power a draft report regarding certain facilities for the management of coal combustion byproducts at Georgia Power Plant Hammond ("Draft Report"). The Draft Report was prepared by AMEC Earth & Environmental, Inc. ("AMEC") and was dated June 2010. Georgia Power appreciates the opportunity to provide comments on the Draft Report before it is finalized. This letter and attachments provide Georgia Power's comments on that Draft Report.

Management Unit Condition and Potential Hazard Rating

We are pleased that the report concludes that the dikes for coal combustion byproduct (CCB) management units or Ash Ponds 1, 2 and 3 at Plant Hammond are in "Satisfactory" condition, which is the most favorable category. We are also pleased that AMEC's on-site inspections of all the management units were satisfactory and that AMEC recognized that Georgia Power's inspection practices for the management units at Plant Hammond were adequate. Georgia Power, however, does not agree with the "Poor" rating for Ash Pond 4. Georgia Power recognizes that the "Poor" rating for Ash Pond 4 is not a result of the physical, on-site inspections of the dam but appears to be the result of information that was requested in the Draft Report. The information requested appears to fall into two basic categories: (1) slope stability analyses and (2) hydrology/hydraulic studies. With this submittal we have provided the information requested for these two categories. This information supports a rating of "Satisfactory" for Ash Pond 4.

While Georgia Power has provided the additional information requested, it is important to understand that Georgia Power did provide appropriate slope stability analyses for the management units before the Draft Report was issued. As discussed in the attached comments, there are no regulatory criteria specifying the design storm or minimum freeboard for the Plant Hammond ash ponds, so these

studies were not provided before the Draft Report was issued.

It is important to note that guidance such as Mine Safety and Health Administration (MSHA) for mine tailing ponds is not applicable to the Plant Hammond ash ponds. The preface, on page iii, of the MSHA Engineering and Design Manual, Coal Refuse Disposal Facilities (May 2009), states as follows (emphasis added):

The guidance presented in this Manual represents information, methods and procedures that are recommended for consideration by designers, coal operators, and regulators. The guidance presented in this Manual is not regulation and cannot be enforced as such. It is not intended to preclude the application of other credible methods and procedures or the use of other and new information that will result in a safe and reliable coal refuse disposal facility. It is the responsibility of the designer to investigate the requirements of the project, recognize the unique and critical aspects of the site conditions, and prepare designs that reflect actual site conditions, features, loadings and constraints.

MSHA, therefore, is only guidance. In addition, based on our review of the other final dam CCB inspection reports posted on EPA's website, it appears that MSHA guidance was not used to determine the final rating of a CCB dam.

Hydrology/Hydraulic Studies

In AMEC's Draft Report, Georgia Power was requested "to determine what rainfall event Ash Pond 1 and Ash Pond 4 are capable of containing." (Draft Report, page 21). Since the Plant Hammond ash ponds are not classified as Category I under the Georgia EPD Safe Dams Program, there are no current regulatory requirements for any particular storm event for these ponds. In the absence of a regulatory requirement, we view the requested study as a recommendation to Georgia Power, which has now been satisfied. Given that the requested hydrology/hydraulic studies assure that the dams can safely store or control the referenced storm flow and that Georgia Power has provided the information requested by AMEC, we are confident that the rating for the Plant Hammond ash ponds will be "Satisfactory" in the final report. Additionally, we are requesting that the rating for Ash Pond 4 in the Draft Report be changed to "Satisfactory".

Stability Analyses

In the Draft Report, AMEC requested further clarification of the lack of total shear strength parameters along with an explanation of why the test results are not indicative of the type of material expected from the USCS classification. Also, AMEC recommended that the marginally low seismic factor of safety for the dry ash slope within Ash Pond 4 be evaluated in light of current criteria and that measures be provided to mitigate the risk associated with this slope. The additional information and clarifications requested by AMEC were provided in the updated stability analyses. While this request for clarifications and additional information may be a recommendation for the utility, such a request is not a missing "critical report" that warrants a "poor" rating for Ash Pond 4. Given that all of the slope stability analyses resulted in acceptable minimum factors of safety for existing dams, we are confident that the rating for the Plant Hammond ash ponds will be "Satisfactory" in the final report. Additionally, we are requesting that the rating for Ash Pond 4 in the Draft Report be changed to "Satisfactory".

Inspection Recommendations

Georgia Power and Southern Company will continue the piezometer monitoring and inspection

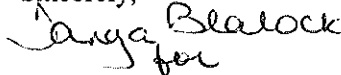
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program for Plant Hammond. The instrumentation monitoring recommendations in the Draft Report will be considered and are more fully addressed in the attached comments.

Thank you again for this opportunity to comment. Please continue to direct correspondence to my attention.

Sincerely,

A handwritten signature in black ink, appearing to read "Angela Blalock for".

Charles H. Huling

CHH/
Attachments

PLANT HAMMOND				
PAGE	SECTION	CURRENT STATEMENT READS	RECOMMENDED CHANGE	ADDITIONAL NOTES
0	Cover Page	Report of Geotechnical Investigation	Report of Dam Safety Assessment of Coal Combustion Surface Impoundments	This Report is an assessment, not a Report of Geotechnical Investigations.
3	1.3	The distance between the closes point...	The distance between the closest point...	Closest is misspelled.
3	1.4	...Generation engineers responsible for design and evaluation of the Plant Hammond facility operational processes.	...Generation engineers responsible for design, inspection and evaluation of the Plant Hammond coal combustion byproduct surface impoundments.	
3	1.4	Flue gas emission residue is contained only in Ash Pond 2. (1st bullet)	Flue gas emission control residuals (blowdown) is contained only in Ash Pond 2.	
3	1.4	Each pond was designed internally by Southern Company professional engineers. (2nd bullet)	Each pond was designed internally by Georgia Power Professional Engineers.	
3	1.4	Inspection of each of the four ash ponds is currently performed by a professional engineer. (4th bullet)	Inspection of each of the four ash ponds is currently performed semi-annually by a Professional Engineer, Professional Geologist and weekly by plant personnel.	
4	1.4.3	Currently, this pond is full, no longer receives liquid-borne material, and is considered inactive.	Currently, this pond no longer receives liquid-borne material and is inactive.	This is a more accurate description of Ash Pond 3.
4	1.4.4	Although the ash stack increased capacity, it did not expand the pond. According to reports from Georgia Power, the volume of material stored in Ash Pond 4 as of July 2007 was 1,732,000 CY.	Although the ash stack increased capacity, it did not expand the pond. According to reports from Georgia Power, the volume of material stored in Ash Pond 4 as of May 2009 was 3,936,407 CY.	
8	2.2.1	In general, the downstream embankment was covered with moderate vegetation (photo 1-35).	In general, the downstream embankment was covered with moderate vegetation (photos 1-27, 1-28, and 1-32).	
8	2.2.1	Additional wet areas, also apparently the result of rutting from maintenance trucks, were noted at the southern and eastern downstream toe (photos 1-31, 1-32, 1-36 and 1-37).	Additional wet areas, also apparently the result of rutting from maintenance trucks, were noted downstream from the toe of the southern dike (photos 1-31, 1-35 and 1-36).	Photo 1-37 is of the Emergency Filter Stockpile.
8	2.2.2	The structure contains both a 24-inch reinforced fiberglass pipe (FRP) plant reuse line (NPDES Discharge 01F)...	The structure contains both a 24-inch reinforced fiberglass pipe (FRP) plant recycle line (NPDES Discharge 01F)...	The plant refers to the 24-inch pipe as a recycle line.
8	2.2.2	...clear flow was noted moving...	...clear flow was noted moving...	Delete comma.
8	2.3.1	Two repairs had been completed at previous slide locations...	Two repairs had been completed at previous shallow surface slide locations...	
9	2.4	Ash Pond 3, commissioned in 1974, is full, inactive, and no longer receives liquid-borne materials.	Ash Pond 3, commissioned in 1974, is inactive and no longer receives liquid-borne materials.	This is a more accurate description of Ash Pond 3, since it has remaining capacity.
10	2.6	Results from this piezometer do not appear on the submitted reports.	Please delete this sentence and reference the updated records.	Updated records which include piezometer AP4-3 are being provided with these comments.
10	2.6	Figures 4 and 5 illustrate the locations of the impoundment monitoring piezometers and Appendix C contains corresponding data graphs.	Figure 10 shows the locations of the impoundment monitoring piezometers and Appendix C contains corresponding data graphs.	
10	2.5.2	Additionally, moisture from the dry stacked material and run-off from the pond surface pool in this area.	Storm water run-off from the dry stacking area and rainfall on the retention pond surface pool in this area.	
13	3.2.1	Besides the hydrologic summary for the 10-year, 24-hour storm captured in Ash Pond 1 presented above, there was no additional documentation provided by Georgia Power that included any references to or calculations for emergency discharge flow rate requirements or runoff storage volume capacities.	Besides the hydrologic summary for the 10-year, 24-hour storm captured in Ash Pond 1 presented above, there was no additional documentation provided by Georgia Power at the writing of this report that included any references to or calculations for emergency discharge flow rate requirements or runoff storage volume capacities. However, additional documentation was provided to AMEC along with comments to the Draft Report.	Additional documentation is being provided to AMEC, along with these comments
13	3.3	The regulations state that all Category I dams must be stable under all conditions of construction and/or operation of the impoundment.	The regulations state that all earthen dams must be stable under all conditions of construction and/or operation of the impoundment.	
13	3.2.4	No hydraulic requirements or hydrologic calculations for Ash Pond 4 were provided to AMEC for review.	No hydraulic requirements or hydrologic calculations for Ash Pond 4 were provided to AMEC for review prior to the preparation of this Draft Report. However, additional documentation was provided to AMEC along with the comments to the Draft Report.	Additional documentation is being provided to AMEC, along with these comments.

14	3.3.1	<i>S&ME noted that "while S&ME is not responsible for the use or interpretation of these data we note that the test results do not appear to be consistent with our expectations for materials with these unified soil classifications."</i>	Please delete this sentence, based on provided clarification. This is also discussed further in the revised stability analyses.	S&ME communicated to Georgia Power that these inconsistencies were due to the wide range of void ratios, initial saturation, and dry unit weights of the samples. Also, a few of the samples contained gravel and a couple of tests were performed on specimens from different tubes in an attempt to obtain sufficient failure circles for interpretation. S&ME suggested that these issues be taken into account when interpreting and applying these data to the design.
14	3.3.1	<i>In addition to S&ME's statement (noted above) that the lab values do not appear to be consistent with the UCS..... In any event, both of these issues require further clarification and possibly examination of the raw test data.</i>	Replace this paragraph in its entirety with: In addition, total stress parameters were not reported for five of the tests due to the inconsistencies in the specimens noted above. These variations in the specimens resulted in inconsistent total stress parameters. The revised stability analyses submitted with the comments to the draft report addressed these issues.	
15	3.3.1	Table 5	The following values should be added to Table 5 for Total Stress Parameters: AP3@6'-8': c = 150, ϕ = 14.5; AP2@4'-6': c = 300, ϕ = 21; AP3@8'-10' & 10'-12': c = 560, ϕ = 14.5; AP1@10'-12.5': c = 400, ϕ = 18.5; AP3-1@8'-10': c = 80, ϕ = 30; AP4-1@10'-12.5': c = 300, ϕ = 22.	From evaluation of lab data for test results not previously reported.
16	3.3.2	Table 6	The following values should be added to Table 6 for Total Stress Parameters: AP1@10'-12.5': c = 400, ϕ = 18.5.	From evaluation of lab data for test results not previously reported.
16	3.3.3	Table 7	The following values should be added to Table 5 for Total Stress Parameters: AP2@4'-6': c = 300, ϕ = 21.	From evaluation of lab data for test results not previously reported.
17	3.3.4	Table 8	The following values should be added to Table 5 for Total Stress Parameters: AP3@6'-8': c = 150, ϕ = 14.5; AP3@8'-10' & 10'-12': c = 560, ϕ = 14.5; AP3-1@8'-10': c = 80, ϕ = 30.	From evaluation of lab data for test results not previously reported.
17	3.3.5	Table 9	The following values should be added to Table 5 for Total Stress Parameters: AP4-1@10'-12.5': c = 300, ϕ = 22.	From evaluation of lab data for test results not previously reported.
19	3.4	<i>Ash Pond 1 is the only impoundment at Plant Hammond that was constructed by a process where the dike was formed by cutting and piling existing material from the proposed impoundment interior, thus creating a combination incised and diked impoundment.</i>	The Ash Pond 1 impoundment at Plant Hammond that was constructed by a process where the dike material was excavated from the impoundment interior and placed as compacted earthfill, thus creating a combination incised and diked impoundment.	
19	3.5	<i>SC Generation Hydro Services performs semi-annual safety and surveillance inspections of the berms at Plant Hammond and provides summary reports to Georgia Power.</i>	SC Generation Hydro Services performs semi-annual safety and surveillance inspections of the dikes at Plant Hammond and provides detailed inspection Reports to Georgia Power.	
19	3.3.5	<i>The concern with this factor of safety is that a failure during a seismic event could lead to material "flowing" over the dike into the environment, possibly reaching the Coosa River.</i>	The concern with a factor of safety of 1.0 is that a dry ash slope failure during a seismic event could result in deposition of ash into the environment.	The moisture condition of the stack ash is and would not be high enough to "flow".
19	3.3.5	<i>"It is AMEC's opinion that this issue is inadequately addressed and should be explored more thoroughly. A possible solution could be as simple as flattening the outer slope of the ash stack adjacent to the Coosa River until the calculated factor of safety is greater than or equal to 1.1. Other solutions may be feasible as well."</i>	Please delete these two sentences.	As noted in the 2010 Report submitted to AMEC during the dam inspection, the ash stack slope was slightly oversteepened during operation. However, closure of the stack under Georgia Solid Waste Management Rules will require the slopes to be flattened to at least 3H:1V. Based on a revised Stability Analysis submitted with these comments to the Draft Report, the 3H:1V slopes will provide an acceptable factor of safety of 1.1.
21	4.1	<i>I certify that the management unit referenced herein (Ash Pond 4) was personally inspected by me and was found to be in the following condition: POOR.</i>	I certify that the management unit referenced herein (Ash Pond 4) was personally inspected by me and, upon review of the additional analyses provided, was found to be in the following condition: SATISFACTORY.	Based on the results of the recommended additional studies/ information submitted with these comments, it respectfully requested that the rating of Ash Pond 4 be raised to Satisfactory.

21	4.1	A poor management unit safety is recognized for any deficiency in required loading conditions (static, hydraulic, seismic) in accordance with the applicable criteria. Remedial action is necessary. Poor also applies when further critical studies or investigations are needed to identify any potential dam safety deficiencies."	A poor management unit safety rating is recognized for any deficiency in required loading conditions (static, hydraulic, seismic) in accordance with the applicable dam safety regulatory criteria. Remedial action is necessary. Poor also applies when further critical studies or investigations are needed to identify any potential dam safety deficiencies.	This wording, defining the poor rating, is in EPA's statement of work. The word "rating" was also omitted from the sentence in the report.
21	4.2	AMEC recommends that Georgia Power determine what rainfall event Ash Pond 1 and Ash Pond 4 are capable of containing. A more complete evaluation would determine the effect of the PMP rainfall event on the ash ponds and the Plant Hammond site."	Delete this recommendation.	Based on the submittal of the studies/additional information submitted with these comments, this recommendation should be deleted.
21	4.3	AMEC recommends that further clarification of the lack of total stress shear strength parameters be determined from the testing laboratory along with an explanation of why the test results are not indicative of the type of material expected from the USCS classification. Additionally, AMEC recommends that the low seismic factor of safety for Ash Pond 4 be reconsidered in light of current criteria and that measures to mitigate this risk be undertaken by Georgia Power at the Plant Hammond site.	Delete this recommendation.	The clarification of the total stress parameters is provided in the comments to Section 3.3.1. Also, with the submittal of the revised stability analysis for Ash Pond 4, which addresses the seismic factor of safety and provides a recommendation for mitigation of the ash stack slope, this recommendation should be deleted.
21	4.4	AMEC recommends additional instrumentation to monitor slope stability and landslide conditions. In order to monitor these parameters, Georgia Power should install combination slope inclinometers and additional piezometers in the river side dike of each ash pond. These instruments may be installed within the same borehole. Routine monitoring should be established with corresponding elevations within the ash ponds at the time of measurement in order to establish an understanding of the embankment behavior.	AMEC recommends that additional instrumentation, consisting of combination slope inclinometers and piezometers, be considered to monitor slope stability and landslide conditions on the river side dike of each ash pond.	These measures will be considered in light of the age of the impoundments and their past performance.
Appendix A	All CCW Impoundment Inspection Forms for each pond	Address currently reads: "Georgia Power DNR"	Please change to DNR	
Appendix A	Ash Pond 1 EPA Inspection Checklist Form	#6 is checked "No" for instrumentation present #23 is checked "Yes" for water against downstream toe. Hazard Potential is shown "Significant"	#6 Please check "Yes" for instrumentation present; it was installed prior to the inspection. #23 Please check "No" for water on the downstream toe; there was no water on downstream toe, water present was rainfall runoff that collected in low spots. Please show hazard potential as low. The location of Pisgah Church is irrelevant because it is upstream from the pond.	
Appendix A	Ash Pond 2 EPA Inspection Checklist Form	#8. is checked "No" for foundation preparation #23 is checked "Yes" for water against downstream toe.	#8 Please check "Yes" for foundation preparation; the foundation was properly prepared and this is shown on drawings H-400 and H-401 (API 030 and 031). #23 Please check "No" for water on the downstream toe; there was no water on downstream toe.	
Appendix A	Ash Pond 3 Hazard Potential Rating	Hazard potential is shown "Significant"	Please show hazard potential as low, as indicated in Section 1.2 of the Report. This refers to 1977 seepage, on page 6, which was not dike related.	
Appendix B	Photo 1-16	SLIGHT SURFACE DEPRESSION ALONG CREST OF SOUTHERN DIKE	SLIGHT SURFACE DEPRESSION DUE TO VEHICLE TRAFFIC ALONG CREST OF SOUTHERN DIKE	As stated in Report section 2.2.1
Appendix B	Photo 1-26	SLIGHT SURFACE DEPRESSION ALONG SOUTHERN DIKE	SLIGHT SURFACE DEPRESSION DUE TO VEHICLE TRAFFIC ALONG SOUTHERN DIKE	As stated in Report section 2.2.1
Appendix B	Photo 1-28	SURFACE DEPRESSION ALONG SOUTHERN DOWNSTREAM FACE	SLIGHT SURFACE DEPRESSION ALONG SOUTHERN DOWNSTREAM FACE DUE TO VEHICLE TRAFFIC	As stated in Report section 2.2.1
Appendix B	Photo 1-29	SURFACE DEPRESSION ALONG SOUTHERN DOWNSTREAM FACE	SLIGHT SURFACE DEPRESSION ALONG SOUTHERN DOWNSTREAM FACE DUE TO VEHICLE TRAFFIC	As stated in Report section 2.2.1
Appendix B	Photo 1-30	WATER ALONG SOUTHERN DIKE OF DOWNSTREAM TOE	SURFACE RUN-OFF PONDING DOWNSTREAM OF TOE OF SOUTHERN DIKE; RUTTING DUE TO MAINTENANCE TRAFFIC	As stated in Report section 2.2.1

Appendix B	Photo 1-31	WATER ALONG SOUTHERN DIKE OF DOWNSTREAM TOE	SURFACE RUN-OFF PONDING DOWNSTREAM OF TOE OF SOUTHERN DIKE; RUTTING DUE TO MAINTENANCE TRAFFIC	As stated in Report section 2.2.1
Appendix B	Photo 1-35	WATER ALONG SOUTHERN DIKE OF DOWNSTREAM TOE	SURFACE RUN-OFF PONDING DOWNSTREAM OF TOE OF SOUTHERN DIKE; RUTTING DUE TO MAINTENANCE TRAFFIC	As stated in Report section 2.2.1
Appendix B	Photo 1-36	WET AREA ALONG SOUTHERN DOWNSTREAM TOE	WET AREA DOWNSTREAM OF TOE OF SOUTHERN DIKE; RUTTING DUE TO MAINTENANCE TRAFFIC	As stated in Report section 2.2.1
CHECKLIST	Ash Pond 3	A "Significant" Classification is shown for Ash Pond 3 and states that a "Failure would most likely cause landslide, possibility of environmental impact does exist, but would be limited."	The checklist and the hazard rating form should both designate Ash Pond 3 as a "Low Potential Hazard" in order to be consistent with section 1.2.	Piezometer AP3-1 indicates water within the ash is El 584± which is about the bottom of the dike section. The stability Factor Of Safety (FOS) is greater than minimum criteria. The FOS, dike cross-section, and absence of impounded water do not indicate a safety deficiency. The "Low Potential Hazard" rating should, therefore, apply since only minor environmental impact would be expected. A significant slide is not anticipated due to "dry" conditions, and if one did occur, it would not significantly impact adjacent property.
0	Figure 6		Please revise the drawing to remove rip rap on the downstream slope.	
0	Figures			The figures provided by Georgia Power to AMEC should be treated as CBI and redacted. Please see separate submittal to the EPA on CBI matters, for this report. Also, for all figures and documents that were developed by Georgia Power or Southern Company Services, Georgia Power or Southern Company Services needs to be referenced on that figure or document as the author.