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August 26, 2009

Solid Waste Section

Asheville Regional Office

August 25, 2009

North Carolina Department of Environment and Natural Resources
Division of Waste Management
Solid Waste Section
2090 U.S. Highway 70
Swannanoa, NC 28778

Attention: Mr. Larry Frost

Reference: Structural Fill Facility Notification – Future Cells 3 & 4 Subgrade Retired Ash Basin (RAB) Ash Landfill - Allen Steam Station
Gaston County, North Carolina
S&ME Project No. 1356-06-825
S&ME Engineering License No. F-0176

Dear Mr. Frost:

On behalf of Duke Energy, S&ME, Inc. (S&ME) is pleased to submit this letter providing structural fill notification and summarizing the structural fill requirements for subgrade construction of future Cells 3 and 4 of the proposed Retired Ash Basin (RAB) ash landfill at Duke Energy's Allen Steam Station. The subject structural fill is proposed as a contingency in the event the anticipated Cell 1 Permit to Operate is not issued prior to completion of current Cell 2 structural fill. This letter is submitted in general accordance with the structural fill notification requirements as outlined in 15A NCAC 13B .1703.

BACKGROUND

The Allen Steam Station is located on the west bank of the Catawba River approximately 4.5 miles southeast of Belmont in Gaston County, North Carolina. The RAB is located south of the power generating units and is bounded to the north, east, and south by earthen dikes. The ash basin was retired in the 1970's and has been cleared of vegetation at the proposed Cells 3 and 4 structural fill location. The general site vicinity, RAB, constructed Cells 1 and 2, and Cells 3 and 4 structural fill location are shown on Figure 1. The RAB covers approximately 62 acres with ash depths ranging from approximately 20 to 50 feet.

Phase I (Cells 1 and 2) construction of the RAB ash landfill project has been reviewed and approved by the North Carolina Department of Environment and Natural Resources (NCDENR) Solid Waste Section as documented in the Permit to Construct, Permit No. 36-12, dated September 4, 2008. Upon completion of Cell 1 construction, S&ME submitted a Construction Certification Report for NCDENR's approval and Permit to

Operate in Cell 1 of the RAB ash landfill. The Cell 1 Construction Certification Report is currently under review. Cell 2 subgrade construction is ongoing as approved in NCDENR's Structural Fill Notification Approval Letter dated February 9, 2009. This structural fill notification for subgrade construction of future Cells 3 and 4 is a contingency plan in the event that NCDENR does not issue a Permit to Operate for Cell 1 prior to the completion of Cell 2 subgrade construction.

The future Cells 3 and 4 are located in the northern half of the RAB with approximate areas of 11.9 and 10.6 acres, respectively, and a total area of 22.5 acres for future Phase II construction. The proposed structural fill covers about 9 acres in the future Cell 3 and 4 footprint, and it will "piggyback" on the northern slopes of the constructed Cells 1 and 2. However, future Phase II construction will not take place until Cell 1 and 2 landfill capacities are near completion.

Requirements of 15A NCAC 13B Rule .1703 through .1704 are summarized and provided in the following sections.

.1703 – NOTIFICATION

The following information summarizes the 15A NCAC 13B .1703 requirements for structural fill notification and provides a corresponding response. The regulatory requirements are cited and *italicized* with the responses following.

15A NCAC 13B .1703(a)(1): A description of the nature, purpose and location of the project, including the name of the United States Geological Survey seven and one-half minute map on which the project is located and a Department of Transportation map or an eight and one-half by 11 inch topographic map showing the project.

The proposed structural fill provides subgrade fill needed for future construction of Cells 3 and 4. Cells 3 and 4 are two of four proposed cells in the RAB landfill. The RAB is located to the south of the Allen Steam Station powerhouse area and adjacent to the Catawba River.

15A NCAC 13B .1703(a)(2): The estimated start and completion dates for the project.

The estimated project start date is September 2009. The estimated project completion date is February 2010.

15A NCAC 13B .1703(a)(3): An estimate of the volume of coal combustion by-products to be used for the project.

The estimated volume of coal combustion products (CCP's) used in the construction of Phase II subgrade is approximately 170,000 cubic yards.

15A NCAC 13B .1703(a)(4): A Toxicity Characteristic Leaching Procedure (TCLP) analysis from a representative sample of each different coal combustion by-product source to be used in the project. The TCLP analysis shall be conducted and certified by

the generator to be representative of each coal combustion by-product source used in the project. A TCLP analysis shall be conducted at least annually. A minimum analysis shall include: arsenic, barium, cadmium, lead, chromium, mercury, selenium and silver.

The proposed structural fill will be constructed with CCP's, including existing ponded ash, fly ash obtained from a new dry ash handling system, flue gas desulfurization (FGD) gypsum, and wastewater treatment sludge filter cake. Results of the TCLP analyses for the aforementioned CCP's are included in Attachment I.

15A NCAC 13B .1703(a)(5): A signed and dated statement by the owner(s) of the land on which the structural fill is to be placed, acknowledging and consenting to the use of coal combustion by-products as structural fill and agreeing to record the fill in accordance with Rule .1707 of this Section.

A signed and dated statement by Duke Energy is included as Attachment II.

15A NCAC 13B .1703(a)(6): The notification shall include:

(A) Name of coal combustion by-products generator;

Duke Energy – Allen Steam Station

(B) Physical location of the generating facility;

Allen Steam Station is located east of the intersection of South Point Road and Plant Allen Road in southeastern Gaston County near the confluence of the South Fork and Catawba Rivers.

(C) Address of generator;

235 Plant Allen Road
Belmont, NC 28012

(D) Name of contact for generator;

Mr. Don L. Scruggs

(E) Telephone number of generator; and

704-829-2423

(F) Changes that occur will require subsequent notification of the Division of Solid Waste Management.

Duke Energy will notify the Division of Solid Waste Management of any changes that may occur.

15A NCAC 13B .1703(b): In addition to the notification requirements under Paragraph (a) of this Rule, at least 30 days before using coal combustion by-products as a structural fill in projects with a volume of more than 10,000 cubic yards, the person proposing the use shall submit a written notice to the Division containing construction plans for the structural fill facility, including a stability analysis when necessary, which shall be prepared, signed and sealed by a registered professional engineer in accordance with sound engineering practices. The Department of Transportation is not required to submit construction plans with the written notice. The Department of Transportation shall maintain a complete set of construction plans and shall notify the Division where the construction plans are located.

S&ME prepared a detailed engineering design for the overall landfill project as submitted in the “*Permit to Construct Application Retired Ash Basin – Ash Landfill*”, dated March 2008. This application was reviewed and approved by the Solid Waste Section. The proposed structural fill consists of subgrade fill for future Cells 3 and 4. A construction drawing illustrating the proposed structural fill plan (Drawing 1) is included in Attachment III. Technical specifications for structural construction fill (Specification Section 02320 – Backfill - Structural) are provided in Attachment IV.

Slope stability analyses representing construction conditions were prepared for the “*Permit to Construct Application Retired Ash Basin – Ash Landfill*” in the Global Slope Stability Analyses calculations. Various slope stability cross-sections and conditions were evaluated. As the structural fill construction is similar to that of Phase I construction, the aforementioned analyses are applicable.

.1704 – SITING

Rule .1704 defines several lateral and vertical setback distances between subject features and the structural fill. Many of these siting restrictions were identified and have been addressed through the RAB ash landfill permitting process. This information was originally provided in the “*Site Suitability Study, Retired Ash Basin (RAB) – Landfill*”, Dated August 31, 2007” as approved by the Solid Waste Section in the “*Notification of Site Suitability*” letter dated December, 7 2007. The regulatory requirements are cited and *italicized* with the responses following.

15A NCAC 13B.1704(a): Coal combustion by-products used as a structural fill shall not be placed:

(1): Within 50 horizontal feet of a jurisdictional wetland unless after consideration of the chemical and physical impact on the wetland, the U.S. Corps of Engineers issues a permit or waiver for the fill.

The proposed landfilling activities will not be located within 50 horizontal feet of a jurisdictional wetland (see Figure 1).

(2): Within 50 horizontal feet of the top of the bank of a perennial stream or other surface water body.

The proposed landfiling activities will not be located within 50 horizontal feet of the top of bank of a perennial stream or other surface water body (see Figure 1).

(3): Within two feet of the seasonal high ground-water table.

Seasonal high groundwater was characterized in the “*Site Suitability Study, Retired Ash Basin (RAB) – Landfill*” (S&ME, 2007). Results of the characterization indicate that seasonal high groundwater is 10 to 40 feet beneath the existing RAB surface and base of the structural fill.

(4): Within 100 horizontal feet of any source of drinking water, such as a well, spring or other groundwater source of drinking water.

The proposed landfiling activities will not be located within 100 horizontal feet of any source of drinking water, such as a well, spring or other groundwater source of drinking water.

(5): Within an area subject to a one-hundred year flood, unless it can be demonstrated to the Division that the facility will be protected from inundation, and washout, and the flow of water is not restricted and the storage volume of the flood plain will not be significantly reduced.

The proposed landfiling activities will not be located within the 100-year flood plain boundary. The flood plain was determined using the Flood Insurance Rate Map (FIRM) produced by the Federal Emergency Management Agency (FEMA) for Gaston County.

(6): Within 25 feet of any property boundary.

The proposed landfiling activities will not be located within 25 feet of any property boundary.

(7): Within 25 feet of a bedrock outcrop.

The proposed landfiling activities will not be located within 25 feet of a bedrock outcrop.

.1705 – DESIGN, CONSTRUCTION, AND OPERATIONS

Rule .1705 defines structural fill design, construction, and operations requirements. The structural fill will be subgrade for future landfill construction. The structural fill has been designed consistent with the design and construction requirements of the current landfill project as summarized in the approved “*Permit to Construct Application Retired Ash Basin – Ash Landfill*”, prepared by S&ME and dated March, 2008. The approved Permit to Construct application includes detailed design, construction, and operational

requirements that address the majority of the Rule .1705 requirements. As the proposed structural fill will be constructed in conjunction with current Cell 2 construction, the current design and construction requirements are directly applicable. The Rule .1705 requirements are addressed by detailed construction plans and an approved Erosion and Sediment Control Plan.

Drawing 1 illustrates the proposed structural fill grading plan. The structural fill grading plan ties into the Cell 2 rough subgrade grading plan, which is the completion of Cell 2 subgrade construction as approved in NCDENR's Structural Fill Notification Approval Letter dated February 9, 2009.

S&ME developed two Erosion and Sediment Control (E&SC) Plans for Phase I construction. The Stage 1 E&SC Plan gained NCDENR Land Quality Section (LQS) approval on June 4, 2008. The Stages 2 and 3 E&SC Plan gained NCDENR LQS approval on September 24, 2008. The approved E&SC Plans combine for a total permitted area of 64.4 acres. The proposed structural fill is located within these approved disturbance limits. Additionally, an E&SC Plan Amendment was sent to NCDENR LQS showing an updated grading plan for the proposed structural fill.

.1706 – CLOSURE

Rule .1706 requires structural fill closure, including an 18-inch thick soil cover. A minimum of 18-inches of soil cover will be constructed over the structural fill. Following closure of the structural fill, side slopes and top deck will be seeded per E&SC Plan to provide stabilization until future Phase II construction begins.

CONCLUSION

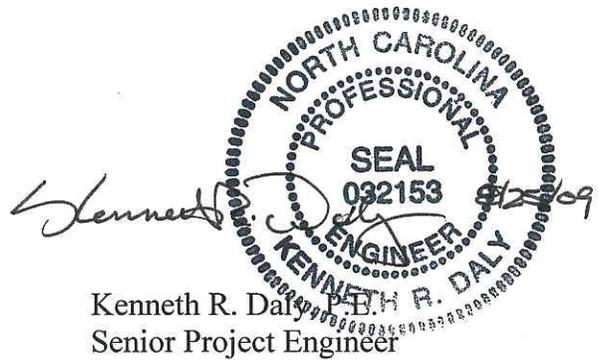
Should you have any questions regarding the information presented in this notification, please contact us at your convenience.

Sincerely,

S&ME, Inc.



Kyle Baucom
Staff Professional



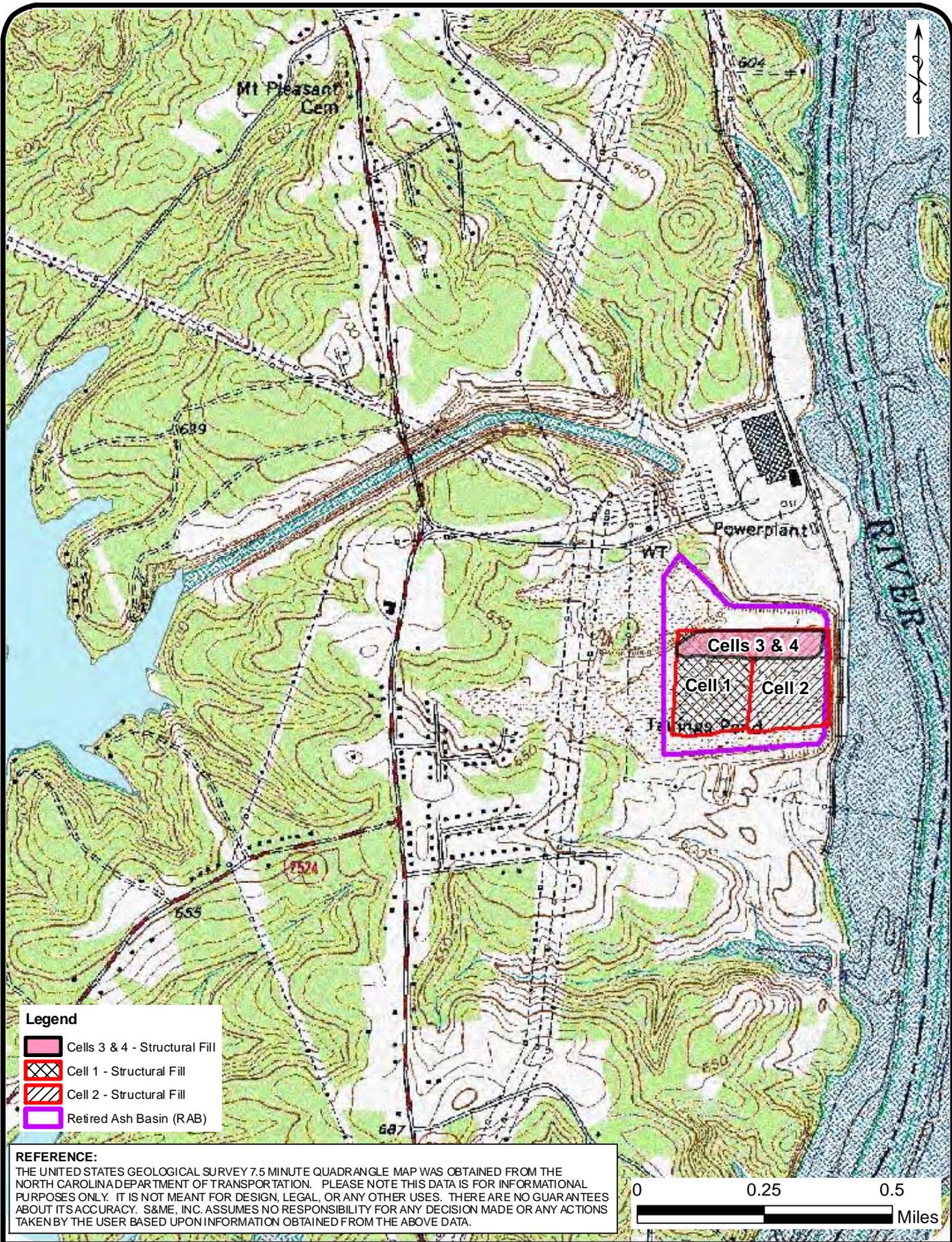
Kenneth R. Daly, P.E.
Senior Project Engineer

Senior Reviewed By: 
Jason Reeves, P.E.
Senior Project Engineer

Cc: Andy Tinsley, Duke Energy
Ted Manes, Duke Energy

Attachments:

- Figure 1 – Site Location Map
- Attachment I – CCP Laboratory Analytical Results
- Attachment II - Signed and dated statement from the landowner
- Attachment III – Drawing 1: Cells 3 & 4 Structural Fill Grading Plan
- Attachment IV – Specification Section 02320 – Backfill - Structural
- Attachment V - Erosion & Sediment Control Plan Addendum



- Legend**
- Cells 3 & 4 - Structural Fill
 - Cell 1 - Structural Fill
 - Cell 2 - Structural Fill
 - Retired Ash Basin (RAB)

REFERENCE:
 THE UNITED STATES GEOLOGICAL SURVEY 7.5 MINUTE QUADRANGLE MAP WAS OBTAINED FROM THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION. PLEASE NOTE THIS DATA IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT MEANT FOR DESIGN, LEGAL, OR ANY OTHER USES. THERE ARE NO GUARANTEES ABOUT ITS ACCURACY. S&ME, INC. ASSUMES NO RESPONSIBILITY FOR ANY DECISION MADE OR ANY ACTIONS TAKEN BY THE USER BASED UPON INFORMATION OBTAINED FROM THE ABOVE DATA.



SCALE:	AS SHOWN
DATE:	08/20/09
DRAWN BY:	CXR
PROJECT NO:	1356-06-825

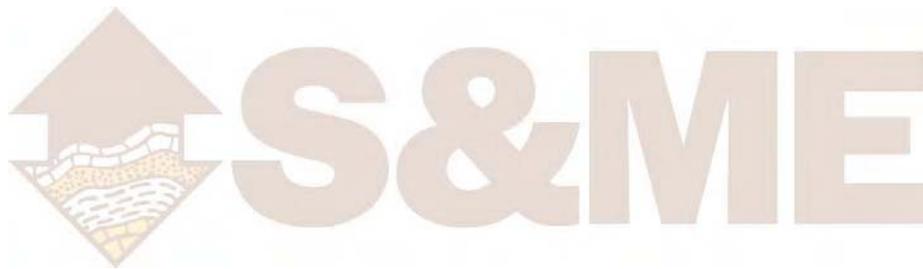


SITE LOCATION MAP
STRUCTURAL FILL
FACILITY NOTIFICATION
 DUKE ENERGY - PLANT ALLEN
 BELMONT, NORTH CAROLINA

FIGURE NO.
1

ATTACHMENT I

CCP Laboratory Analytical Results
Structural Fill Facility Notification
S&ME Project No. 1356-06-825





Case Narrative

Date: 01/11/07
Company: Duke Energy Corporation
Contact: Jay Perkins
Address: 13339 Hagers Ferry Road
Huntersville, NC 28078

Client Project ID: 06-DEC-0310
Prism COC Group No: G1206526
Collection Date(s): 12/18/06
Lab Submittal Date(s): 12/19/06
Client Project Name Or No: Allen Ash

This data package contains the analytical results for the project identified above and includes a Case Narrative, Laboratory Report and Quality Control Data totaling 16 pages. A chain-of-custody is also attached for the samples submitted to Prism for this project.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative. Quality control statements and/or sample specific remarks are included in the sample comments section of the laboratory report for each sample affected.

Semi Volatile Analysis

N/A

Volatile Analysis

N/A

Metals Analysis

Analysis Note for Q20208 MS Mercury: Matrix interference is suspected. Post-digestion spike recovery (124%) is outside the acceptance limits (85-115%).

Analysis Note for Q20208 MSD Mercury: Matrix interference is suspected.

Analysis Note for Q20210 MS Antimony: Matrix interference is suspected. Post-digestion spike recovery (92%) is within the acceptance limits.

Analysis Note for Q20210 MS Arsenic: Matrix interference is suspected. Post-digestion spike recovery (89%) is within the acceptance limits.

Analysis Note for Q20210 MS Barium: Matrix interference is suspected. Post-digestion spike recovery (84%) is within the acceptance limits.

Analysis Note for Q20210 MS Calcium: Sample concentration too high for recovery evaluation.

Analysis Note for Q20210 MS Chromium: Matrix interference is suspected. Post-digestion spike recovery (82%) is within the acceptance limits.

Analysis Note for Q20210 MS Magnesium: Sample concentration too high for recovery evaluation.

Analysis Note for Q20210 MS Manganese: Sample concentration too high for recovery evaluation.

Analysis Note for Q20210 MS Nickel: Matrix interference is suspected. Post-digestion spike recovery (87%) is within the acceptance limits.

Analysis Note for Q20210 MS Potassium: Sample concentration too high for recovery evaluation.

Analysis Note for Q20210 MS Selenium: Matrix interference is suspected. Post-digestion spike recovery (84%) is within the acceptance limits.

Analysis Note for Q20210 MSD Antimony: Matrix interference is suspected.

Analysis Note for Q20210 MSD Arsenic: Matrix interference is suspected.

Analysis Note for Q20210 MSD Calcium: Sample concentration too high for recovery evaluation.

Analysis Note for Q20210 MSD Chromium: Matrix interference is suspected.

Analysis Note for Q20210 MSD Magnesium: Sample concentration too high for recovery evaluation.

Analysis Note for Q20210 MSD Manganese: Sample concentration too high for recovery evaluation. RPD recovery outside of the control limits.

Analysis Note for Q20210 MSD Potassium: Sample concentration too high for recovery evaluation.

Notes: This report should not be reproduced, except in its entirety, without the written consent of Prism Laboratories, Inc. The results in this report relate only to the samples submitted for analysis.



PRISM
LABORATORIES, INC.

Case Narrative

Date: 01/11/07
Company: Duke Energy Corporation
Contact: Jay Perkins
Address: 13339 Hagers Ferry Road
Huntersville, NC 28078

Client Project ID: 06-DEC-0310
Prism COC Group No: G1206526
Collection Date(s): 12/18/06
Lab Submittal Date(s): 12/19/06
Client Project Name Or No: Allen Ash

Analysis Note for Q20210 MSD Selenium: Matrix interference is suspected.
Analysis Note for Q20210 MSD Sodium: Matrix interference is suspected.

Wet Lab and Micro Analysis

Analysis Note for Q20157 Sulfate: MS/MSD unavailable for reporting. Analysis Note for Q20169 Phosphorus: MS outside the control limits. Matrix interference is suspected.

Please call if you have any questions relating to this analytical report.

Date Reviewed by: <u>Robbi A. Jones</u>	Project Manager: <u>Angela D. Overcash</u>
Signature: <u><i>Robbi A. Jones</i></u>	Signature: <u><i>Angela D. Overcash</i></u>
Review Date: <u>01/11/07</u>	Approval Date: <u>01/11/07</u>

Data Qualifiers Key Reference:

- B: Compound also detected in the method blank.
- #: Result outside of the QC limits.
- DO: Compound diluted out.
- E: Estimated concentration, calibration range exceeded.
- J: The analyte was positively identified but the value is estimated below the reporting limit.
- H: Estimated concentration with a high bias.
- L: Estimated concentration with a low bias.
- M: A matrix effect is present.

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NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

01/05/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Allen Ash
 Project ID: 06-DEC-0310
 Sample Matrix: Solid

Client Sample ID: 26039740/
 2006-Ash Reuse
 Prism Sample ID: 169333
 COC Group: G1206526
 Time Collected: 12/18/06 13:00
 Time Submitted: 12/19/06 18:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Percent Solids Determination</u>									
Percent Solids	84.7	%			1	SM2540 G	12/21/06 15:00	lthao	
<u>Mercury by CVAA</u>									
Mercury	0.098	mg/kg	0.024	0.0046	1	7471A	12/28/06 14:10	jhoppel	Q20208
Sample Preparation:				0.6 g / 50 mL		7471A	12/27/06 9:15	jhoppel	P17139
<u>Metals by ICP</u>									
Antimony	0.29 J	mg/kg	0.70	0.14	3	6010B	12/30/06 1:56	mcampbell	Q20210
Arsenic	31	mg/kg	1.8	0.25	3	6010B	12/30/06 1:56	mcampbell	Q20210
Barium	350	mg/kg	1.8	1.1	3	6010B	12/30/06 1:56	mcampbell	Q20210
Boron	BRL	mg/kg	88	4.9	3	6010B	12/30/06 1:56	mcampbell	Q20210
Cadmium	0.25 J	mg/kg	0.88	0.012	3	6010B	12/30/06 1:56	mcampbell	Q20210
Calcium	1800	mg/kg	18	2.1	3	6010B	12/30/06 1:56	mcampbell	Q20210
Chromium	18	mg/kg	0.88	0.053	3	6010B	12/30/06 1:56	mcampbell	Q20210
Copper	41	mg/kg	1.8	0.13	3	6010B	12/30/06 1:56	mcampbell	Q20210
Lead	11	mg/kg	0.88	0.074	3	6010B	12/30/06 1:56	mcampbell	Q20210
Magnesium	860	mg/kg	8.8	0.84	3	6010B	12/30/06 1:56	mcampbell	Q20210
Manganese	130	mg/kg	0.88	0.18	3	6010B	12/30/06 1:56	mcampbell	Q20210
Molybdenum	4.0	mg/kg	1.8	0.17	3	6010B	12/30/06 1:56	mcampbell	Q20210
Nickel	18	mg/kg	1.8	0.060	3	6010B	12/30/06 1:56	mcampbell	Q20210
Potassium	1600	mg/kg	8.8	7.0	3	6010B	12/30/06 1:56	mcampbell	Q20210
Selenium	7.6	mg/kg	1.8	0.56	3	6010B	12/30/06 1:56	mcampbell	Q20210
Silver	0.15 J	mg/kg	0.88	0.067	3	6010B	12/30/06 1:56	mcampbell	Q20210
Sodium	230	mg/kg	53	6.7	3	6010B	01/03/07 19:22	mcampbell	Q20210
Zinc	19	mg/kg	8.8	0.88	3	6010B	12/30/06 1:56	mcampbell	Q20210
Sample Preparation:				2 g / 50 mL		3050B	12/27/06 9:45	jhoppel	P17140
Sample Preparation:				2.02					
<u>pH Value, Electrometric Method</u>									
pH	4.38	pH units			1	9045C	12/21/06 15:32	hmidl	Q20060

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449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543

Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409



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 NC Drinking Water Cert. No. 37735

Laboratory Report

01/05/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
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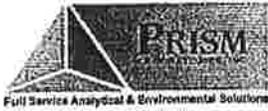
Project Name: Allen Ash
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Client Sample ID: 26039740/
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 COC Group: G1206526
 Time Collected: 12/18/06 13:00
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Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Total Phosphorus by Automated Ascorbic Acid Reduction Method</u>									
Total Phosphorus	310	mg/kg	15	2.9	5	SM4500-P F	12/28/06 12:30	celfaki	Q20169
Sample Preparation:			1.0083 g	/	50 mL	SM4500-P B5	12/27/06 9:15	celfaki	P17145
<u>SPLP Extraction for Metals</u>									
SPLP Extraction	Complete				1	1312	12/22/06 16:20	jhoppel	
<u>SPLP Leachable Mercury by CVAA</u>									
Mercury	0.000083 J	mg/L	0.012	0.000052	1	7470A	01/02/07 16:11	jhoppel	Q20235
Sample Preparation:			20 mL	/	30 mL	7470A	01/02/07 10:00	jhoppel	P17163
<u>SPLP Leachable Metals by ICP</u>									
Antimony	BRL	mg/L	0.0059	0.0035	1	6010B	01/02/07 16:20	mcampbell	Q20239
Arsenic	BRL	mg/L	0.30	0.0043	1	6010B	01/02/07 16:20	mcampbell	Q20239
Barium	0.14 J	mg/L	5.9	0.0018	1	6010B	01/02/07 16:20	mcampbell	Q20239
Boron	0.30 J	mg/L	0.59	0.19	1	6010B	01/02/07 16:20	mcampbell	Q20239
Cadmium	0.00024 J	mg/L	0.059	0.00024	1	6010B	01/02/07 16:20	mcampbell	Q20239
Calcium	31	mg/L	0.12	0.038	1	6010B	01/02/07 16:20	mcampbell	Q20239
Chromium	BRL	mg/L	0.30	0.0011	1	6010B	01/02/07 16:20	mcampbell	Q20239
Copper	0.018	mg/L	0.012	0.0020	1	6010B	01/02/07 16:20	mcampbell	Q20239
Iron	0.19	mg/L	0.059	0.0087	1	6010B	01/02/07 16:20	mcampbell	Q20239
Lead	BRL	mg/L	0.30	0.0013	1	6010B	01/02/07 16:20	mcampbell	Q20239
Magnesium	2.4	mg/L	0.059	0.0096	1	6010B	01/02/07 16:20	mcampbell	Q20239
Manganese	0.33	mg/L	0.0059	0.0015	1	6010B	01/02/07 16:20	mcampbell	Q20239
Nickel	0.027	mg/L	0.0059	0.0011	1	6010B	01/02/07 16:20	mcampbell	Q20239
Potassium	1.0	mg/L	0.59	0.019	1	6010B	01/02/07 16:20	mcampbell	Q20239
Selenium	0.015 J	mg/L	0.059	0.0066	1	6010B	01/02/07 16:20	mcampbell	Q20239
Silver	BRL	mg/L	0.30	0.00094	1	6010B	01/02/07 16:20	mcampbell	Q20239
Zinc	0.034 J	mg/L	0.035	0.0032	1	6010B	01/02/07 16:20	mcampbell	Q20239

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 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

01/05/07

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 COC Group: G1206526
 Time Collected: 12/18/06 13:00
 Time Submitted: 12/19/06 18:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Sample Preparation:				50 mL / 50 mL		3010A	12/27/06 7:00	jhoppel	P17138
<u>TCLP Extraction for Metals</u>									
TCLP Extraction	Complete				1	1311	12/21/06 16:20	jhoppel	
<u>TCLP Leachable Mercury by CVAA</u>									
Mercury	0.00009 J	mg/L	0.010	0.000042	1	7470A	01/02/07 15:05	jhoppel	Q20233
Sample Preparation:				20 mL / 30 mL		7470A	01/02/07 10:00	jhoppel	P17162
<u>TCLP Leachable Metals by ICP</u>									
Arsenic	BRL	mg/L	0.050	0.0036	1	6010B	12/30/06 2:47	mcampbell	Q20212
Barium	0.58 J	mg/L	5.0	0.0015	1	6010B	12/30/06 2:47	mcampbell	Q20212
Cadmium	BRL	mg/L	0.025	0.0002	1	6010B	12/30/06 2:47	mcampbell	Q20212
Chromium	0.0083 J	mg/L	0.25	0.0009	1	6010B	12/30/06 2:47	mcampbell	Q20212
Lead	0.010 J	mg/L	0.050	0.0011	1	6010B	12/30/06 2:47	mcampbell	Q20212
Selenium	0.021 J	mg/L	0.050	0.0056	1	6010B	12/30/06 2:47	mcampbell	Q20212
Silver	BRL	mg/L	0.25	0.0008	1	6010B	12/30/06 2:47	mcampbell	Q20212
Sample Preparation:				50 mL / 50 mL		3010A	12/27/06 7:00	jhoppel	P17137

Sample Comment(s):

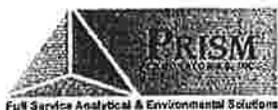
BRL = Below Reporting Limit

J = Estimated value between the Reporting Limit and the MDL

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

01/05/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Allen Ash
 Project ID: 06-DEC-0310
 Sample Matrix: Water

Client Sample ID: SPLP Extract of 169333
 Prism Sample ID: 169333-1
 COC Group: G1206526
 Time Collected: 12/18/06 13:00
 Time Submitted: 12/19/06 18:00
 Allquoted Sampl 169333

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Chloride by Ion Chromatography</u>									
Chloride	2.5 J	mg/L	10	0.11	10	300.0	12/27/06 16:08	miandreth	Q20156
<u>Fluoride by Ion Chromatography</u>									
Fluoride	0.71 J	mg/L	1.0	0.012	10	300.0	12/27/06 16:08	miandreth	Q20154
<u>Nitrate by Ion Chromatography</u>									
Nitrate	0.66 J	mg/L	1.0	0.081	10	300.0	12/27/06 16:08	miandreth	Q20155
<u>Total Phosphorus by Automated Ascorbic Acid Reduction Method</u>									
Total Phosphorus	0.029 J	mg/L	0.050	0.020	1	SM4500-P F	01/04/07 10:49	celfaki	Q20292
Sample Preparation:				50 mL / 50 mL		SM4500-P B5	01/02/07 12:15	celfaki	P17178
<u>Sulfate by Ion Chromatography</u>									
Sulfate	99	mg/L	10	0.52	10	300.0	12/27/06 16:08	miandreth	Q20157

Sample Comment(s):

BRL = Below Reporting Limit

J = Estimated value between the Reporting Limit and the MDL

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

All results are reported on a wet-weight basis

Angela D. Overcash, V.P. Laboratory Services



NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Level II QC Report

1/9/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Allen Ash
 Project ID: 06-DEC-0310

COC Group Number: G1206526
 Date/Time Submitted: 12/19/06 18:00

pH Value, Electrometric Method, method 9045C

Laboratory Control Sample						
	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
pH	6.86	6.86	pH units	100	99.21 - 100.	Q20060

Duplicate							
Sample ID:	Sample Result	Duplicate Result	Units	RPD %	RPD Range %	QC Batch ID	
169333	pH	4.38	4.66	pH units	6	0 - 20	Q20060

Fluoride by Ion Chromatography, method 300.0

Method Blank						
	Result	RL	Control Limit	Units		QC Batch ID
Fluoride	0.020	0.1	<0.05	mg/L		Q20154

Laboratory Control Sample						
	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Fluoride	4.864	5	mg/L	97	80 - 120	Q20154

Matrix Spike							
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID	
169334-	Fluoride	115.34	111.11	mg/L	99	80 - 120	Q20154

Matrix Spike Duplicate									
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID	
169334	Fluoride	115.07	111.11	mg/L	98	80 - 120	0	0 - 20	Q20154

Nitrate by Ion Chromatography, method 300.0

Method Blank						
	Result	RL	Control Limit	Units		QC Batch ID
Nitrate	ND	0.1	<0.05	mg/L		Q20155

Laboratory Control Sample						
	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Nitrate	4.624	5	mg/L	92	90 - 110	Q20155

Matrix Spike							
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID	
169334-	Nitrate	107.49	111.11	mg/L	96	80 - 120	Q20155

Matrix Spike Duplicate									
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID	
169334	Nitrate	107.47	111.11	mg/L	96	80 - 120	0	0 - 20	Q20155



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Level II QC Report

1/9/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Allen Ash
 Project ID: 06-DEC-0310

COC Group Number: G1206526
 Date/Time Submitted: 12/19/06 18:00

Chloride by Ion Chromatography, method 300.0

Method Blank		Result	RL	Control Limit	Units	QC Batch ID
Chloride		ND	1	<0.5	mg/L	Q20156

Laboratory Control Sample		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Chloride		4.512	5 mg/L		90	90 - 110	Q20156

Matrix Spike		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Sample ID:							
169334-	Chloride	201.08	111.11 mg/L		89	80 - 120	Q20156

Matrix Spike Duplicate		Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
Sample ID:									
169334	Chloride	200.98	111.11 mg/L		89	80 - 120	0	0 - 20	Q20156

Sulfate by Ion Chromatography, method 300.0

Method Blank		Result	RL	Control Limit	Units	QC Batch ID
Sulfate		ND	1	<0.5	mg/L	Q20157

Laboratory Control Sample		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Sulfate		4.842	5 mg/L		97	90 - 110	Q20157

Total Phosphorus by Automated Ascorbic Acid Reduction Method, method SM4500-P F

Method Blank		Result	RL	Control Limit	Units	QC Batch ID
Total Phosphorus		ND	0.5	<0.25	mg/kg	Q20169

Laboratory Control Sample		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Total Phosphorus		101	100 mg/kg		101	80 - 120	Q20169

Matrix Spike		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Sample ID:							
169333	Total Phosphorus	384	100 mg/kg		124 #	80 - 120	Q20169

Matrix Spike Duplicate		Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
Sample ID:									
169333	Total Phosphorus	343	100 mg/kg		83	80 - 120	11	0 - 20	Q20169



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Level II QC Report

1/9/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Allen Ash
 Project ID: 06-DEC-0310

COC Group Number: G1206526
 Date/Time Submitted: 12/19/06 18:00

Mercury by CVAA, method 7471A

Method Blank		Result	RL	Control Limit	Units	QC Batch ID			
Mercury		-0.00268	0.02	<0.01	mg/kg	Q20208			

Laboratory Control Sample		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID		
Mercury		0.48290	0.404	mg/kg	120	80 - 120	Q20208		

Matrix Spike		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID		
Sample ID:									
169603	Mercury	0.53270	0.41	mg/kg	126 #	80 - 120	Q20208		

Matrix Spike Duplicate		Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
Sample ID:									
169603	Mercury	0.51985	0.398	mg/kg	127 #	80 - 120	2	0 - 20	Q20208



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Level II QC Report

1/9/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Allen Ash
 Project ID: 06-DEC-0310

COC Group Number: G1206526
 Date/Time Submitted: 12/19/06 18:00

Metals by ICP, method 6010B

Method Blank					
	Result	RL	Control Limit	Units	QC Batch ID
Antimony	0.0423	0.2	<0.1	mg/kg	Q20210
Arsenic	0.024	0.5	<0.25	mg/kg	Q20210
Barium	0.0593	0.5	<0.25	mg/kg	Q20210
Boron	1.4507	25	<12.5	mg/kg	Q20210
Cadmium	0.0014	0.25	<0.125	mg/kg	Q20210
Calcium	1.8796	5	<2.5	mg/kg	Q20210
Chromium	0.0564	0.25	<0.125	mg/kg	Q20210
Copper	0.0136	0.5	<0.25	mg/kg	Q20210
Lead	0.0265	0.25	<0.125	mg/kg	Q20210
Magnesium	0.1041	2.5	<1.25	mg/kg	Q20210
Manganese	0.0381	0.25	<0.125	mg/kg	Q20210
Molybdenum	0.0317	0.5	<0.25	mg/kg	Q20210
Nickel	-0.0176	0.5	<0.25	mg/kg	Q20210
Potassium	0.545	2.5	<1.25	mg/kg	Q20210
Selenium	0.0646	0.5	<0.25	mg/kg	Q20210
Silver	0.0023	0.25	<0.125	mg/kg	Q20210
Sodium	0.898	15	<7.5	mg/kg	Q20210
Zinc	0.2157	2.5	<1.25	mg/kg	Q20210

Laboratory Control Sample						
	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Antimony	24.0304	25	mg/kg	96	80 - 120	Q20210
Arsenic	23.477	25	mg/kg	94	80 - 120	Q20210
Barium	24.6561	25	mg/kg	99	80 - 120	Q20210
Cadmium	23.0214	25	mg/kg	92	80 - 120	Q20210
Calcium	101.891	100	mg/kg	102	80 - 120	Q20210
Chromium	24.6972	25	mg/kg	99	80 - 120	Q20210
Copper	26.2832	25	mg/kg	105	80 - 120	Q20210
Lead	23.2654	25	mg/kg	93	80 - 120	Q20210
Magnesium	93.6179	100	mg/kg	94	80 - 120	Q20210
Manganese	24.588	25	mg/kg	98	80 - 120	Q20210
Nickel	23.1784	25	mg/kg	93	80 - 120	Q20210
Potassium	101.518	100	mg/kg	102	80 - 120	Q20210
Selenium	20.6644	25	mg/kg	83	80 - 120	Q20210
Silver	24.2855	25	mg/kg	97	80 - 120	Q20210
Sodium	102	100	mg/kg	102	80 - 120	Q20210
Zinc	23.2495	25	mg/kg	93	80 - 120	Q20210

Matrix Spike						
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
169603 Antimony	3.5236	25	mg/kg	16 #	75 - 125	Q20210
Arsenic	16.4131	25	mg/kg	69 #	75 - 125	Q20210

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 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Level II QC Report

1/9/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Allen Ash
 Project ID: 08-DEC-0310

COC Group Number: G1206526
 Date/Time Submitted: 12/19/06 18:00

Matrix Spike

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
	Barium	140.518	25 mg/kg	60 #	75 - 125	Q20210
	Cadmium	21.5747	25 mg/kg	85	75 - 125	Q20210
	Calcium	5761.65	100 mg/kg	395 #	75 - 125	Q20210
	Chromium	58.8142	25 mg/kg	68 #	75 - 125	Q20210
	Copper	66.299	25 mg/kg	120	75 - 125	Q20210
	Lead	25.534	25 mg/kg	85	75 - 125	Q20210
	Magnesium	20200	100 mg/kg	1000 #	75 - 125	Q20210
	Manganese	657	25 mg/kg	-2332 #	75 - 125	Q20210
	Nickel	85.4999	25 mg/kg	75 #	75 - 125	Q20210
	Potassium	484.546	100 mg/kg	3 #	75 - 125	Q20210
	Selenium	14.7579	25 mg/kg	70 #	75 - 125	Q20210
	Silver	24.7396	25 mg/kg	97	75 - 125	Q20210
	Sodium	355	100 mg/kg	124	75 - 125	Q20210
	Zinc	104.778	25 mg/kg	103	75 - 125	Q20210

Matrix Spike Duplicate

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
169603	Antimony	3.63	24.752 mg/kg	17 #	75 - 125	3	0 - 20	Q20210
	Arsenic	16.1589	24.752 mg/kg	69 #	75 - 125	2	0 - 20	Q20210
	Barium	150.743	24.752 mg/kg	102	75 - 125	7	0 - 20	Q20210
	Cadmium	21.5009	24.752 mg/kg	86	75 - 125	0	0 - 20	Q20210
	Calcium	6048.29	99.01 mg/kg	688 #	75 - 125	5	0 - 20	Q20210
	Chromium	56.8079	24.752 mg/kg	61 #	75 - 125	3	0 - 20	Q20210
	Copper	65.3837	24.752 mg/kg	117	75 - 125	1	0 - 20	Q20210
	Lead	25.7509	24.752 mg/kg	87	75 - 125	1	0 - 20	Q20210
	Magnesium	19600	100 mg/kg	400 #	75 - 125	3	0 - 20	Q20210
	Manganese	839	25 mg/kg	-1604 #	75 - 125	24 #	0 - 20	Q20210
	Nickel	85.9155	24.752 mg/kg	77	75 - 125	0	0 - 20	Q20210
	Potassium	547.181	99.01 mg/kg	67 #	75 - 125	12	0 - 20	Q20210
	Selenium	14.2561	24.752 mg/kg	68 #	75 - 125	3	0 - 20	Q20210
	Silver	24.543	24.752 mg/kg	97	75 - 125	1	0 - 20	Q20210
	Sodium	371	100 mg/kg	140 #	75 - 125	4	0 - 20	Q20210
	Zinc	100.659	24.752 mg/kg	87	75 - 125	4	0 - 20	Q20210

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Level II QC Report

1/9/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Allen Ash
 Project ID: 06-DEC-0310

COC Group Number: G1206526
 Date/Time Submitted: 12/19/06 18:00

TCLP Leachable Metals by ICP, method 6010B

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
Arsenic	-0.004	0.05	<0.025	mg/L	Q20212
Barium	0.0013	5	<2.5	mg/L	Q20212
Cadmium	-0.0017	0.025	<0.0125	mg/L	Q20212
Chromium	0.0041	0.25	<0.125	mg/L	Q20212
Lead	0.0083	0.05	<0.025	mg/L	Q20212
Selenium	0.0053	0.05	<0.025	mg/L	Q20212
Silver	0.0002	0.25	<0.125	mg/L	Q20212

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Arsenic	0.255	0.25	mg/L	102	80 - 120	Q20212
Barium	0.2452	0.25	mg/L	98	80 - 120	Q20212
Cadmium	0.2414	0.25	mg/L	97	80 - 120	Q20212
Chromium	0.2369	0.25	mg/L	95	80 - 120	Q20212
Lead	0.2459	0.25	mg/L	98	80 - 120	Q20212
Selenium	0.2552	0.25	mg/L	102	80 - 120	Q20212
Silver	0.256	0.25	mg/L	102	80 - 120	Q20212

Matrix Spike

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
169333	Arsenic	0.2533	0.25	mg/L	102	75 - 125	Q20212
	Barium	0.8381	0.25	mg/L	101	75 - 125	Q20212
	Cadmium	0.2341	0.25	mg/L	94	75 - 125	Q20212
	Chromium	0.233	0.25	mg/L	90	75 - 125	Q20212
	Lead	0.2404	0.25	mg/L	92	75 - 125	Q20212
	Selenium	0.2615	0.25	mg/L	98	75 - 125	Q20212
	Silver	0.2515	0.25	mg/L	101	75 - 125	Q20212

Matrix Spike Duplicate

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
169333	Arsenic	0.2512	0.25	mg/L	101	75 - 125	1	0 - 20	Q20212
	Barium	0.8124	0.25	mg/L	91	75 - 125	3	0 - 20	Q20212
	Cadmium	0.232	0.25	mg/L	93	75 - 125	1	0 - 20	Q20212
	Chromium	0.2304	0.25	mg/L	89	75 - 125	1	0 - 20	Q20212
	Lead	0.2384	0.25	mg/L	91	75 - 125	1	0 - 20	Q20212
	Selenium	0.257	0.25	mg/L	94	75 - 125	2	0 - 20	Q20212
	Silver	0.2479	0.25	mg/L	99	75 - 125	1	0 - 20	Q20212



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Level II QC Report

1/9/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Allen Ash
 Project ID: 06-DEC-0310

COC Group Number: G1206526
 Date/Time Submitted: 12/19/06 18:00

TCLP Leachable Mercury by CVAA, method 7470A

Method Blank						
	Result	RL	Control Limit	Units		QC Batch ID
Mercury	0.00007	0.01	<0.005	mg/L		Q20233

Laboratory Control Sample						
	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Mercury	0.00941	0.0094	mg/L	100	80 - 120	Q20233

Matrix Spike						
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
169334 Mercury	0.00908	0.0094	mg/L	90	80 - 120	Q20233

Matrix Spike Duplicate								
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
169334 Mercury	0.00933	0.0094	mg/L	93	80 - 120	3	0 - 20	Q20233

SPLP Leachable Mercury by CVAA, method 7470A

Method Blank						
	Result	RL	Control Limit	Units		QC Batch ID
Mercury	0.00009	0.01	<0.005	mg/L		Q20235

Laboratory Control Sample						
	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Mercury	0.00953	0.0094	mg/L	102	80 - 120	Q20235

Matrix Spike						
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
169334 Mercury	0.00880	0.0094	mg/L	92	80 - 120	Q20235

Matrix Spike Duplicate								
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
169334 Mercury	0.00870	0.0094	mg/L	91	80 - 120	1	0 - 20	Q20235



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Level II QC Report

1/9/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Allen Ash
 Project ID: 06-DEC-0310

COC Group Number: G1206526
 Date/Time Submitted: 12/19/06 18:00

SPLP Leachable Metals by ICP, method 6010B

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
Antimony	0.002	0.005	<0.0025	mg/L	Q20239
Arsenic	0.0001	0.25	<0.125	mg/L	Q20239
Barium	0.0003	5	<2.5	mg/L	Q20239
Boron	0.0625	0.5	<0.25	mg/L	Q20239
Cadmium	ND	0.05	<0.025	mg/L	Q20239
Calcium	0.0238	0.1	<0.05	mg/L	Q20239
Chromium	ND	0.25	<0.125	mg/L	Q20239
Copper	0.0018	0.01	<0.005	mg/L	Q20239
Iron	0.016	0.05	<0.025	mg/L	Q20239
Lead	0.0008	0.25	<0.125	mg/L	Q20239
Magnesium	0.0057	0.05	<0.025	mg/L	Q20239
Manganese	0.0002	0.005	<0.0025	mg/L	Q20239
Nickel	-0.0008	0.005	<0.0025	mg/L	Q20239
Potassium	0.1569	0.5	<0.25	mg/L	Q20239
Selenium	0.0018	0.05	<0.025	mg/L	Q20239
Silver	0.0003	0.25	<0.125	mg/L	Q20239
Zinc	0.0054	0.03	<0.015	mg/L	Q20239

Laboratory Control Sample

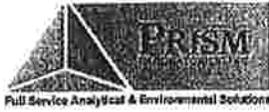
	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Antimony	0.2598	0.25 mg/L		104	80 - 120	Q20239
Arsenic	0.2641	0.25 mg/L		106	80 - 120	Q20239
Barium	0.2598	0.25 mg/L		104	80 - 120	Q20239
Boron	1.0275	1 mg/L		103	80 - 120	Q20239
Cadmium	0.2529	0.25 mg/L		101	80 - 120	Q20239
Calcium	1.0499	1 mg/L		105	80 - 120	Q20239
Chromium	0.2605	0.25 mg/L		104	80 - 120	Q20239
Copper	0.264	0.25 mg/L		106	80 - 120	Q20239
Iron	1.0755	1 mg/L		108	80 - 120	Q20239
Lead	0.2611	0.25 mg/L		104	80 - 120	Q20239
Magnesium	1.0257	1 mg/L		103	80 - 120	Q20239
Manganese	0.2585	0.25 mg/L		103	80 - 120	Q20239
Nickel	0.2465	0.25 mg/L		99	80 - 120	Q20239
Potassium	1.2	1 mg/L		120	80 - 120	Q20239
Selenium	0.2517	0.25 mg/L		101	80 - 120	Q20239
Silver	0.2626	0.25 mg/L		105	80 - 120	Q20239
Zinc	0.2569	0.25 mg/L		103	80 - 120	Q20239

Matrix Spike

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
169333	Antimony	0.2636	0.25 mg/L		105	75 - 125	Q20239
	Arsenic	0.2701	0.25 mg/L		107	75 - 125	Q20239

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NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Level II QC Report

1/9/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Allen Ash
 Project ID: 06-DEC-0310

COC Group Number: G1206526
 Date/Time Submitted: 12/19/06 18:00

Matrix Spike						
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
	Barium	0.3709	0.25 mg/L	101	75 - 125	Q20239
	Boron	1.2288	1 mg/L	97	75 - 125	Q20239
	Cadmium	0.2475	0.25 mg/L	99	75 - 125	Q20239
	Calcium	27.6159	1 mg/L	106	75 - 125	Q20239
	Chromium	0.2541	0.25 mg/L	101	75 - 125	Q20239
	Copper	0.2709	0.25 mg/L	102	75 - 125	Q20239
	Iron	1.2222	1 mg/L	106	75 - 125	Q20239
	Lead	0.254	0.25 mg/L	101	75 - 125	Q20239
	Magnesium	2.954	1 mg/L	96	75 - 125	Q20239
	Manganese	0.5297	0.25 mg/L	98	75 - 125	Q20239
	Nickel	0.268	0.25 mg/L	98	75 - 125	Q20239
	Potassium	1.8584	1 mg/L	98	75 - 125	Q20239
	Selenium	0.2563	0.25 mg/L	97	75 - 125	Q20239
	Silver	0.2539	0.25 mg/L	102	75 - 125	Q20239
	Zinc	0.2768	0.25 mg/L	99	75 - 125	Q20239

Matrix Spike Duplicate								
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
169333	Antimony	0.2643	0.25 mg/L	105	75 - 125	0	0 - 20	Q20239
	Arsenic	0.2644	0.25 mg/L	105	75 - 125	2	0 - 20	Q20239
	Barium	0.3868	0.25 mg/L	99	75 - 125	1	0 - 20	Q20239
	Boron	1.2328	1 mg/L	98	75 - 125	0	0 - 20	Q20239
	Cadmium	0.2437	0.25 mg/L	97	75 - 125	2	0 - 20	Q20239
	Calcium	27.5147	1 mg/L	96	75 - 125	0	0 - 20	Q20239
	Chromium	0.2489	0.25 mg/L	99	75 - 125	2	0 - 20	Q20239
	Copper	0.2652	0.25 mg/L	100	75 - 125	2	0 - 20	Q20239
	Iron	1.2024	1 mg/L	104	75 - 125	2	0 - 20	Q20239
	Lead	0.2488	0.25 mg/L	99	75 - 125	2	0 - 20	Q20239
	Magnesium	2.9385	1 mg/L	94	75 - 125	1	0 - 20	Q20239
	Manganese	0.5237	0.25 mg/L	96	75 - 125	1	0 - 20	Q20239
	Nickel	0.2628	0.25 mg/L	96	75 - 125	2	0 - 20	Q20239
	Potassium	1.845	1 mg/L	97	75 - 125	1	0 - 20	Q20239
	Selenium	0.2534	0.25 mg/L	96	75 - 125	1	0 - 20	Q20239
	Silver	0.248	0.25 mg/L	99	75 - 125	2	0 - 20	Q20239
	Zinc	0.2718	0.25 mg/L	97	75 - 125	2	0 - 20	Q20239



NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Level II QC Report

1/9/07

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Allen Ash
 Project ID: 06-DEC-0310

COC Group Number: G1206526
 Date/Time Submitted: 12/19/06 18:00

Total Phosphorus by Automated Ascorbic Acid Reduction Method, method SM4500-P F

Method Blank						
	Result	RL	Control Limit	Units		QC Batch ID
Total Phosphorus	ND	0.05	<0.025	mg/L		Q20292

Laboratory Control Sample						
	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Total Phosphorus	2.012	2	mg/L	101	90 - 110	Q20292

Matrix Spike						
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
169264 Total Phosphorus	2.648	2	mg/L	109	80 - 120	Q20292

Matrix Spike Duplicate								
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
169264 Total Phosphorus	2.569	2	mg/L	105	80 - 120	3	0 - 20	Q20292

#-See Case Narrative



Analytical Laboratory
13339 Hagers Ferry Road
Huntersville, NC 28078-7929
McGuire Nuclear Complex - MG03A2
Phone: 704-875-5245 Fax: 704-875-4349

Job Summary Report

Job Number: 09-APR-0374

Project Name: Ash Re-Use / Landfill
Customer Name: Don Scruggs
Copy To:
Customer Address: Allen Steam Station

Lab Contact: Jay Perkins
Lab Contact Phone: 704-875-5348

Report Authorized By:
(Printed Name) JAY PERKINS

Report Authorized By:
(Signature)  **Date:** 5-9-09

Data Package

This data package includes analytical results that are applicable only to the samples described in this narrative. An estimation of the uncertainty of measurement for the results in the report is available upon request. This report shall not be reproduced, except in full, without the written consent of the Analytical Laboratory. Please contact the Analytical Laboratory with any questions. The order of individual sections within this report is as follows:

- Job Summary Report*
- Analytical Laboratory Certificate of Analysis*
- Analytical Laboratory QC Reports (if applicable)*
- Sub-contracted Laboratory Results*
- Customer Specific Data Sheets, Reports & Documentation (if applicable)*
- Customer Database Entries*
- Test Case Narratives*
- Chain of Custody (COC)*



Analytical Laboratory
13339 Hagers Ferry Road
Huntersville, NC 28078-7929
McGuire Nuclear Complex – MG03A2
Phone: 704-875-5245 Fax: 704-875-4349

Job Summary Report

Certification

The Analytical Laboratory holds the following Certifications:

New York State Department of Health Certification # 11717(NELAC)
North Carolina Department of Health & Human Services Certification # 37804
South Carolina (DHEC) Laboratory ID # 99005
North Carolina (DENR) Certification # 248

Analytical results listed in this report may not be certified by the authorities referenced above. Contact the Analytical Laboratory for definitive information about the certification status of specific methods. The results meet all requirements of NELAC except where deviations are noted in this report.

Data Flags

Any analytical tests or individual analytes within a test flagged with an "X" or a "1" indicate a deviation from the method quality system or quality control requirement.

Calculations

All results are reported on a wet weight basis unless otherwise noted.

Sample ID's & Descriptions:

Sample ID	Plant/Station	Collection Date	Collected By	Sample Description
29010314 RE-USE	ALLEN	4/14/2009	D. SCRUGGS	DRY ASH UNIT 3, 4, 5

1 TOTAL SAMPLES				



Analytical Laboratory
 13339 Hagers Ferry Road
 Huntersville, NC 28078-7929
 McGuire Nuclear Complex – MG03A2
 Phone: 704-875-5245 Fax: 704-875-4349

Job Summary Report

Validation of Analytical Data Package

- i) COC and .pdf report are in agreement with sample totals and analyses (compliance programs and procedures). Yes No
- ii) All results are less than the laboratory reporting limits. Yes No
- iii) All laboratory QA/QC requirements are acceptable. Yes No
- iv) NPDES and TCLP results are below permit or regulatory limits respectively. Yes No

If iv) above is No, document below:

Variable	Result	Permit Limit	Notes

- v) Components of the Job Summary Report arranged in order stipulated on page one. Yes No

Indicate components included:

- Job Summary Report
- Analytical Laboratory Certificate of Analysis
- Analytical Laboratory QC Report (if applicable)
- Sub-contracted Laboratory Results
- Customer Specific Data Sheets, Reports & Documentation (if applicable)
- Customer Database Entries
- Test Case Narratives
- Chain of Custody

- vi) Notes and Additional Information



PRISM
LABORATORIES, INC.

Case Narrative

Date: 05/01/09
Company: Duke Energy Corporation
Contact: Jay Perkins
Address: 13339 Hagers Ferry Road
 Huntersville, NC 28078

Client Project ID: 09-APR-0374
Prism COC Group No: G0409554
Collection Date(s): 04/14/09
Lab Submittal Date(s): 04/17/09
Client Project Name Or No: Ash-Re-Use/Landfill

This data package contains the analytical results for the project identified above and includes a Case Narrative, Laboratory Report and Quality Control Data totaling 4 pages. A chain-of-custody is also attached for the samples submitted to Prism for this project.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative. Quality control statements and/or sample specific remarks are included in the sample comments section of the laboratory report for each sample affected.

Semi Volatile Analysis

N/A

Volatile Analysis

N/A

Metals Analysis

No Anomalies Reported

Wet Lab and Micro Analysis

N/A

Please call if you have any questions relating to this analytical report.

Data Reviewed by: Robbi A. Jones

Project Manager: Angela D. Overcash

Signature:

Robbi A. Jones

Signature:

Angela D. Overcash

Review Date:

05/01/09

Approval Date:

05/01/09

Data Qualifiers Key Reference:

B: Compound also detected in the method blank.

#: Result outside of the QC limits.

DO: Compound diluted out.

E: Estimated concentration, calibration range exceeded.

J: The analyte was positively identified but the value is estimated below the reporting limit.

H: Estimated concentration with a high bias.

L: Estimated concentration with a low bias.

M: A matrix effect is present.

Notes: This report should not be reproduced, except in its entirety, without the written consent of Prism Laboratories, Inc. The results in this report relate only to the samples submitted for analysis.



NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

05/01/09

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Ash Re-Use/Landfill
 Project ID: 09-APR-0374
 Sample Matrix: Solid

Client Sample ID: 29010314/Dry Ash Unit 3,4,5
 Prism Sample ID: 244045
 COC Group: G0409554
 Time Collected: 04/14/09 11:00
 Time Submitted: 04/17/09 16:17

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>TCLP Extraction for Metals</u>									
TCLP Extraction	Complete				1	1311	04/27/09 15:30	mbarber	
<u>TCLP Leachable Mercury by CVAA</u>									
Mercury	BRL	mg/L	0.010	0.000014	1	7470A	04/29/09 14:50	dsullivan	Q41077
Sample Preparation:			20 mL /	30 mL		7470A	04/29/09 9:55	dsullivan	P24419
<u>TCLP Leachable Metals by ICP</u>									
Arsenic	BRL	mg/L	0.050	0.0029	1	6010B	04/29/09 4:42	heasler	Q41045
Barium	BRL	mg/L	5.0	0.0019	1	6010B	04/29/09 4:42	heasler	Q41045
Cadmium	BRL	mg/L	0.025	0.00034	1	6010B	04/29/09 4:42	heasler	Q41045
Chromium	0.37	mg/L	0.25	0.0006	1	6010B	04/29/09 4:42	heasler	Q41045
Lead	BRL	mg/L	0.050	0.0021	1	6010B	04/29/09 4:42	heasler	Q41045
Selenium	BRL	mg/L	0.050	0.0035	1	6010B	04/29/09 4:42	heasler	Q41045
Silver	BRL	mg/L	0.25	0.00025	1	6010B	04/29/09 4:42	heasler	Q41045
Sample Preparation:			50 mL /	50 mL		3010A	04/28/09 8:50	mbarber	P24398

Sample Comment(s):

BRL = Below Reporting Limit

J = Estimated value between the Reporting Limit and the MDL

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

All results are reported on a wet-weight basis

Angela D. Overcash, V.P. Laboratory Services

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NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Level II QC Report

5/1/09

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Ash Re-Use/Landfill
 Project ID: 09-APR-0374

COC Group Number: G0409554
 Date/Time Submitted: 4/17/09 16:17

TCLP Leachable Metals by ICP, method 6010B

Method Blank					QC Batch ID
	Result	RL	Control Limit	Units	
Arsenic	0.0008	0.05	<0.025	mg/L	Q41045
Barium	0.0005	5	<2.5	mg/L	Q41045
Cadmium	-0.0002	0.025	<0.0125	mg/L	Q41045
Chromium	0.0001	0.25	<0.125	mg/L	Q41045
Lead	-0.0004	0.05	<0.025	mg/L	Q41045
Selenium	-0.0002	0.05	<0.025	mg/L	Q41045
Silver	-0.0002	0.25	<0.125	mg/L	Q41045

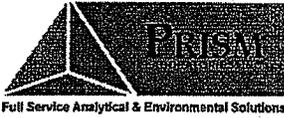
Laboratory Control Sample						
	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
Arsenic	0.2405	0.25	mg/L	96	80-120	Q41045
Barium	0.2138	0.25	mg/L	86	80-120	Q41045
Cadmium	0.2239	0.25	mg/L	90	80-120	Q41045
Chromium	0.2101	0.25	mg/L	84	80-120	Q41045
Lead	0.2106	0.25	mg/L	84	80-120	Q41045
Selenium	0.2428	0.25	mg/L	97	80-120	Q41045
Silver	0.2314	0.25	mg/L	93	80-120	Q41045

Matrix Spike						
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	QC Batch ID
243648 Arsenic	0.2598	0.25	mg/L	96	75-125	Q41045
Barium	0.3842	0.25	mg/L	85	75-125	Q41045
Cadmium	0.2235	0.25	mg/L	89	75-125	Q41045
Chromium	0.2155	0.25	mg/L	86	75-125	Q41045
Lead	0.2228	0.25	mg/L	86	75-125	Q41045
Selenium	0.2395	0.25	mg/L	97	75-125	Q41045
Silver	0.2334	0.25	mg/L	94	75-125	Q41045

Matrix Spike Duplicate								
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
243648 Arsenic	0.2576	0.25	mg/L	95	75-125	1	0 - 20	Q41045
Barium	0.382	0.25	mg/L	84	75-125	1	0 - 20	Q41045
Cadmium	0.2231	0.25	mg/L	89	75-125	0	0 - 20	Q41045
Chromium	0.213	0.25	mg/L	85	75-125	1	0 - 20	Q41045
Lead	0.2204	0.25	mg/L	85	75-125	1	0 - 20	Q41045
Selenium	0.2392	0.25	mg/L	96	75-125	0	0 - 20	Q41045
Silver	0.2315	0.25	mg/L	93	75-125	1	0 - 20	Q41045

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 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Level II QC Report

5/1/09

Duke Energy Corporation
 Attn: Jay Perkins
 13339 Hagers Ferry Road
 Huntersville, NC 28078

Project Name: Ash Re-Use/Landfill
 Project ID: 09-APR-0374

COC Group Number: G0409554
 Date/Time Submitted: 4/17/09 16:17

TCLP Leachable Mercury by CVAA, method 7470A

Method Blank							QC Batch ID	
	Result	RL	Control Limit	Units				
Mercury	-0.00002	0.01	<0.005	mg/L			Q41077	
Laboratory Control Sample								
	Result	Spike Amount	Units	Recovery %	Recovery Ranges %		QC Batch ID	
Mercury	0.00880	0.0093	mg/L	94	80-120		Q41077	
Matrix Spike								
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %		QC Batch ID	
244045 Mercury	0.00853	0.0093	mg/L	91	80-120		Q41077	
Matrix Spike Duplicate								
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
244045 Mercury	0.00847	0.0093	mg/L	91	80-120	1	0 - 20	Q41077

#-See Case Narrative



Analytical Laboratory
13339 Hagers Ferry Road
Huntersville, NC 28078-7929
McGuire Nuclear Complex - MG03A2
Phone: 704-875-5245 Fax: 704-875-4349

Job Summary Report

Job Number: 09-MAR-0293

Project Name: FGD Gypsum / WWT Filter Cake TCLP

Customer Name: Don Scruggs / ROBRIN JONES

Copy To:

Customer Address: Allen Steam Station

Lab Contact: Jay Perkins

Lab Contact Phone: 704-875-5348

Report Authorized By:
(Printed Name) JAY PERKINS

Report Authorized By:
(Signature) J Perkins Date: 3-26-09

Data Package

This data package includes analytical results that are applicable only to the samples described in this narrative. An estimation of the uncertainty of measurement for the results in the report is available upon request. This report shall not be reproduced, except in full, without the written consent of the Analytical Laboratory. Please contact the Analytical Laboratory with any questions. The order of individual sections within this report is as follows:

- Job Summary Report*
- Analytical Laboratory Certificate of Analysis*
- Analytical Laboratory QC Reports (if applicable)*
- Sub-contracted Laboratory Results*
- Customer Specific Data Sheets, Reports & Documentation (if applicable)*
- Customer Database Entries*
- Test Case Narratives*
- Chain of Custody (COC)*



Analytical Laboratory
13339 Hagers Ferry Road
Huntersville, NC 28078-7929
McGuire Nuclear Complex – MG03A2
Phone: 704-875-5245 Fax: 704-875-4349

Job Summary Report

Certification

The Analytical Laboratory holds the following Certifications:

New York State Department of Health Certification # 11717(NELAC)
North Carolina Department of Health & Human Services Certification # 37804
South Carolina (DHEC) Laboratory ID # 99005
North Carolina (DENR) Certification # 248

Analytical results listed in this report may not be certified by the authorities referenced above. Contact the Analytical Laboratory for definitive information about the certification status of specific methods. The results meet all requirements of NELAC except where deviations are noted in this report.

Data Flags

Any analytical tests or individual analytes within a test flagged with an "X" or a "1" indicate a deviation from the method quality system or quality control requirement.

Calculations

All results are reported on a wet weight basis unless otherwise noted.

Sample ID's & Descriptions:

Sample ID	Plant/Station	Collection Date	Collected By	Sample Description
29007356 CAKE	ALLEN	3/13/2009	R. M. JOLLY	WASTEWATER FILTER
29007357	ALLEN	3/10/2009	R. M. JOLLY	GYPSUM
----- 2 TOTAL SAMPLES -----				



Job Summary Report

Validation of Analytical Data Package

- i) COC and .pdf report are in agreement with sample totals and analyses (compliance programs and procedures). Yes No
- ii) All results are less than the laboratory reporting limits. Yes No
- iii) All laboratory QA/QC requirements are acceptable. Yes No
- iv) NPDES and TCLP results are below permit or regulatory limits respectively. Yes No

If iv) above is No, document below:

Variable	Result	Permit Limit	Notes

- v) Components of the Job Summary Report arranged in order stipulated on page one. Yes No

Indicate components included:

- Job Summary Report
- Analytical Laboratory Certificate of Analysis
- Analytical Laboratory QC Report (if applicable)
- Sub-contracted Laboratory Results
- Customer Specific Data Sheets, Reports & Documentation (if applicable)
- Customer Database Entries
- Test Case Narratives
- Chain of Custody

vi) Notes and Additional Information



Case Narrative

Date: 03/24/09
Company: Duke Energy Corporation
Contact: Jay Perkins
Address: 13339 Hagers Ferry Road
Huntersville, NC 28078

Client Project ID: 09-MAR-0293
Prism COC Group No: G0309428
Collection Date(s): 3/10/2009 thru 3/13/2009
Lab Submittal Date(s): 03/16/09
Client Project Name Or No: Allen FGD Gypsum and WWT Filter Cake

This data package contains the analytical results for the project identified above and includes a Case Narrative, Laboratory Report and Quality Control Data totaling 5 pages. A chain-of-custody is also attached for the samples submitted to Prism for this project.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative. Quality control statements and/or sample specific remarks are included in the sample comments section of the laboratory report for each sample affected.

Semi Volatile Analysis

N/A

Volatile Analysis

N/A

Metals Analysis

No Anomalies Reported

Wet Lab and Micro Analysis

N/A

Please call if you have any questions relating to this analytical report.

Data Reviewed by: Robbi A. Jones

Project Manager: Angela D. Overcash

Signature:

Signature:

Review Date: 03/24/09

Approval Date: 03/24/09

Data Qualifiers Key Reference:

- B: Compound also detected in the method blank.
- #: Result outside of the QC limits.
- DO: Compound diluted out.
- E: Estimated concentration, calibration range exceeded.
- J: The analyte was positively identified but the value is estimated below the reporting limit.
- H: Estimated concentration with a high bias.
- L: Estimated concentration with a low bias.
- M: A matrix effect is present.

Notes: This report should not be reproduced, except in its entirety, without the written consent of Prism Laboratories, Inc. The results in this report relate only to the samples submitted for analysis.



NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735

Laboratory Report

03/24/09

Duke Energy Corporation
Attn: Jay Perkins
13339 Hagers Ferry Road
Huntersville, NC 28078

Project Name: Allen FGD Gypsum and
WWT Filter Cake
Project ID: 09-MAR-0293
Sample Matrix: Solid

Client Sample ID: 29007356/Wastewater
Filter Cake
Prism Sample ID: 240720
COC Group: G0309428
Time Collected: 03/13/09 12:00
Time Submitted: 03/16/09 14:35

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>TCLP Extraction for Metals</u>									
TCLP Extraction	Complete				1	1311	03/17/09 14:00	mbarber	
<u>TCLP Leachable Mercury by CVAA</u>									
Mercury	BRL	mg/L	0.010	0.000014	1	7470A	03/20/09 15:36	dsullivan	Q40077
Sample Preparation:				20 mL /	30 mL	7470A	03/20/09 11:45	mbarber	P24058
<u>TCLP Leachable Metals by ICP</u>									
Arsenic	BRL	mg/L	0.050	0.0029	1	6010B	03/19/09 2:12	heaster	Q39995
Barium	BRL	mg/L	5.0	0.0019	1	6010B	03/19/09 2:12	heaster	Q39995
Cadmium	BRL	mg/L	0.025	0.00034	1	6010B	03/19/09 2:12	heaster	Q39995
Chromium	BRL	mg/L	0.25	0.0006	1	6010B	03/19/09 2:12	heaster	Q39995
Lead	BRL	mg/L	0.050	0.0021	1	6010B	03/19/09 2:12	heaster	Q39995
Selenium	BRL	mg/L	0.050	0.0035	1	6010B	03/19/09 2:12	heaster	Q39995
Silver	BRL	mg/L	0.25	0.00025	1	6010B	03/19/09 2:12	heaster	Q39995
Sample Preparation:				50 mL /	50 mL	3010A	03/18/09 8:00	mbarber	P24027

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

All results are reported on a wet-weight basis

Angela D. Overcash, V.P. Laboratory Services

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449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543

Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409



NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735

Laboratory Report

03/24/09

Duke Energy Corporation
Attn: Jay Perkins
13339 Hagers Ferry Road
Huntersville, NC 28078

Project Name: Allen FGD Gypsum and
WWT Filter Cake
Project ID: 09-MAR-0293
Sample Matrix: Solid

Client Sample ID: 29007357/Gypsum
Prism Sample ID: 240721
COC Group: G0309428
Time Collected: 03/10/09 14:05
Time Submitted: 03/16/09 14:35

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID	
<u>TCLP Extraction for Metals</u>										
TCLP Extraction	Complete				1	1311	03/17/09 14:00	mbarber		
<u>TCLP Leachable Mercury by CVAA</u>										
Mercury	BRL	mg/L	0.010	0.000014	1	7470A	03/20/09 15:47	dsullivan	Q40077	
Sample Preparation:					20 mL /	30 mL	7470A	03/20/09 11:45	mbarber	P24058
<u>TCLP Leachable Metals by ICP</u>										
Arsenic	BRL	mg/L	0.050	0.0029	1	6010B	03/19/09 2:19	heasler	Q39995	
Barium	BRL	mg/L	5.0	0.0019	1	6010B	03/19/09 2:19	heasler	Q39995	
Cadmium	BRL	mg/L	0.025	0.00034	1	6010B	03/19/09 2:19	heasler	Q39995	
Chromium	BRL	mg/L	0.25	0.0006	1	6010B	03/19/09 2:19	heasler	Q39995	
Lead	BRL	mg/L	0.050	0.0021	1	6010B	03/19/09 2:19	heasler	Q39995	
Selenium	BRL	mg/L	0.050	0.0035	1	6010B	03/19/09 2:19	heasler	Q39995	
Silver	BRL	mg/L	0.25	0.00025	1	6010B	03/19/09 2:19	heasler	Q39995	
Sample Preparation:					50 mL /	50 mL	3010A	03/18/09 8:00	mbarber	P24027

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

All results are reported on a wet-weight basis

Angela D. Overcash, V.P. Laboratory Services

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NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735

Level II QC Report

3/24/2009

Duke Energy Corporation
Attn: Jay Perkins
13339 Hagers Ferry Road
Huntersville, NC 28078

Project Name: Allen FGD Gypsum and WWT Filter Cake
Project ID: 09-MAR-0293

COC Group Number: G0309428
Date/Time Submitted: 3/16/200 14:35

TCLP Leachable Metals by ICP, method 6010B

Method Blank						QC Batch ID
	Result	RL	Control Limit	Units		
Arsenic	0.0008	0.05	<0.025	mg/L		Q39995
Barium	0.0015	5	<2.5	mg/L		Q39995
Cadmium	-0.0002	0.025	<0.0125	mg/L		Q39995
Chromium	0.0004	0.25	<0.125	mg/L		Q39995
Lead	-0.0004	0.05	<0.025	mg/L		Q39995
Selenium	0.0029	0.05	<0.025	mg/L		Q39995
Silver	-0.0002	0.25	<0.125	mg/L		Q39995

Laboratory Control Sample							QC Batch ID
	Result	Spike Amount	Units	Recovery %	Recovery Ranges %		
Arsenic	0.2487	0.25	mg/L	99	80-120		Q39995
Barium	0.2281	0.25	mg/L	91	80-120		Q39995
Cadmium	0.2305	0.25	mg/L	92	80-120		Q39995
Chromium	0.2236	0.25	mg/L	89	80-120		Q39995
Lead	0.2169	0.25	mg/L	87	80-120		Q39995
Selenium	0.2487	0.25	mg/L	99	80-120		Q39995
Silver	0.2344	0.25	mg/L	94	80-120		Q39995

Matrix Spike							QC Batch ID
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %		
240691 Arsenic	0.2482	0.25	mg/L	98	75-125		Q39995
Barium	0.7914	0.25	mg/L	86	75-125		Q39995
Cadmium	0.2266	0.25	mg/L	90	75-125		Q39995
Chromium	0.2262	0.25	mg/L	88	75-125		Q39995
Lead	0.2434	0.25	mg/L	86	75-125		Q39995
Selenium	0.2394	0.25	mg/L	98	75-125		Q39995
Silver	0.2312	0.25	mg/L	93	75-125		Q39995

Matrix Spike Duplicate								QC Batch ID
Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	
240691 Arsenic	0.243	0.25	mg/L	96	75-125	2	0 - 20	Q39995
Barium	0.7825	0.25	mg/L	82	75-125	1	0 - 20	Q39995
Cadmium	0.2222	0.25	mg/L	88	75-125	2	0 - 20	Q39995
Chromium	0.2221	0.25	mg/L	86	75-125	2	0 - 20	Q39995
Lead	0.2384	0.25	mg/L	84	75-125	2	0 - 20	Q39995
Selenium	0.2338	0.25	mg/L	96	75-125	2	0 - 20	Q39995
Silver	0.2273	0.25	mg/L	91	75-125	2	0 - 20	Q39995

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NC Certification No. 402
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Level II QC Report

3/24/2009

Duke Energy Corporation
Attn: Jay Perkins
13339 Hagers Ferry Road
Huntersville, NC 28078

Project Name: Allen FGD Gypsum and WWT Filter Cake
Project ID: 09-MAR-0293

COC Group Number: G0309428
Date/Time Submitted: 3/16/200 14:35

TCLP Leachable Mercury by CVAA, method 7470A

Method Blank									
	Result	RL	Control Limit	Units			QC Batch ID		
Mercury	-0.00001	0.01	<0.005	mg/L			Q40077		
Laboratory Control Sample									
	Result	Spike Amount		Units	Recovery %	Recovery Ranges %	QC Batch ID		
Mercury	0.00996	0.0093		mg/L	106	80-120	Q40077		
Matrix Spike									
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %	QC Batch ID		
240720 Mercury	0.00921	0.0093		mg/L	98	80-120	Q40077		
Matrix Spike Duplicate									
Sample ID:	Result	Spike Amount		Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
240720 Mercury	0.00930	0.0093		mg/L	99	80-120	1	0 - 20	Q40077

#-See Case Narrative



CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Analytical Laboratory Services
Mail Code MGC032 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-5038

Customer must Complete

Project Name: Alien FGD
Client: Gypsum and WWT Filter Cake TCLP
Business Unit: Don Scruggs
Project: [blank]
Activity: [blank]
Process: [blank]

Phone No: [blank]
Fax No: [blank]
Mail Code: [blank]

LAB USE ONLY

1 Lab ID	29007356
3	7357

Customer to complete appropriate columns to right

12 Chem Desktop No.	13 Sample Description or ID
240920	Wastewater Filter Cake
240721	Gypsum

Customer to complete all appropriate shaded areas.

14 Collection Information		
Date	Time	Signature
3/16/09	1200	[Signature]
3/16/09	1405	[Signature]

16 Grab	17 Comp.	18 Analyses Required	19	20 Total # of Containers
X	X	TCLP Metals	5	1
X	X			1

Analytical Laboratory Use Only

ILMS # 09-MAR-0293
Logged By: [Signature]
Date & Time: 3/16/09 10:55
Vendor: PRISM PO# [blank]
Cooler Temp (C): [blank]
Plant/ Gypnl Inertone: [blank]
Samples Originating From: Water
SAMPLE PROGRAM: NC-X
NPDES: SC
Drinking Water: [blank]
Plant Support: [blank]

21 Reinquished By: [Signature] Date/Time: 3/13/09 1600
Reinquished By: [Signature] Date/Time: 3-16-09 1030
Reinquished By: [Signature] Date/Time: 3-16-09 14:00
23 Seal Locked By: [Signature] Date/Time: 3-16-09 11:18
24 Cognizant: [Signature] Date/Time: 3-16-09 1435

Accepted By: [Signature] Date/Time: 3-13-09 PM.
Accepted By: [Signature] Date/Time: 3-16-09 1031
Accepted By: [Signature] Date/Time: 3-16-09 1400
Seal Lock Opened By: [Signature] Date/Time: 3/16/09 1435

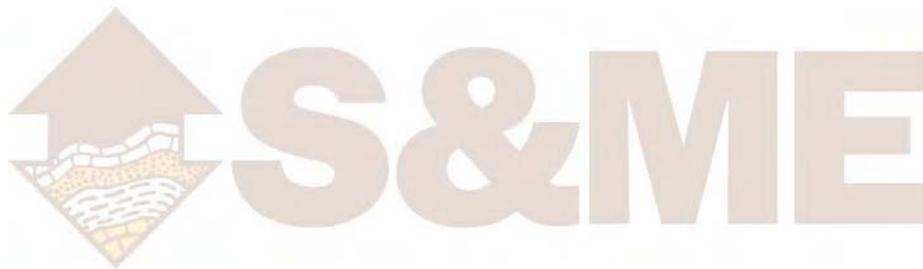
Customer, important please indicate desired turnaround
22 Requested Turnaround: 3/23
Add. Com.: G0309428

Send pdf and excel spreadsheet
labcustomer@duke-energy.com

19 Page 1 of 1
DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

ATTACHMENT II

**SIGNED AND DATED STATEMENT
FROM THE LANDOWNER**
Structural Fill Facility Notification
S&ME Project No. 1356-06-825



Attachment II

In accordance with 15A NCAC 13B .1703(a)(5), I hereby acknowledge and consent to the use of coal combustion products at the Duke Energy Allen Steam Station in Belmont, North Carolina for the purpose of structural fill. The structural fill will also be recorded with the Gaston County Register of Deeds in accordance with the requirements of 15A NCAC 13B.1707.



Signature

Allen Station General Manager

Title

8/24/09

Date

Stephen J. Immel

ATTACHMENT III

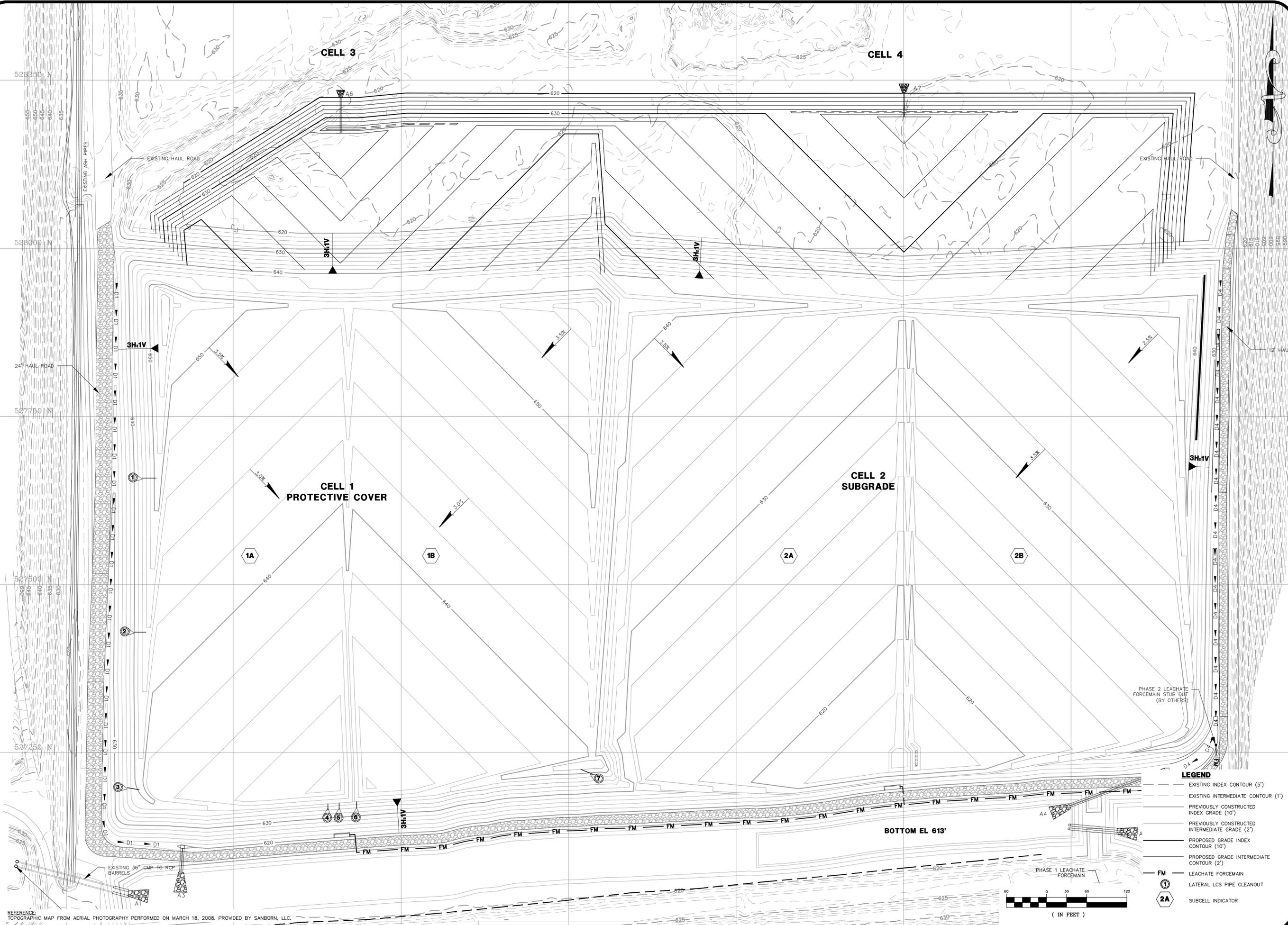
DRAWING
Structural Fill Facility Notification
S&ME Project No. 1356-06-825

Drawing 1

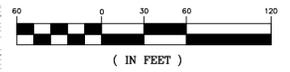
CELLS 3 & 4 STRUCTURAL FILL GRADING PLAN &
EROSION & SEDIMENT CONTROL PLAN



S&ME



REFERENCE:
TOPOGRAPHIC MAP FROM AERIAL PHOTOGRAPHY PERFORMED ON MARCH 18, 2008. PROVIDED BY SANBORN, LLC.



- LEGEND**
- - - - - EXISTING INDEX CONTOUR (5')
 - - - - - EXISTING INTERMEDIATE CONTOUR (10')
 - - - - - PREVIOUSLY CONSTRUCTED INDEX GRADE (10')
 - - - - - PREVIOUSLY CONSTRUCTED INTERMEDIATE GRADE (2')
 - - - - - PROPOSED GRADE INDEX CONTOUR (10')
 - - - - - PROPOSED GRADE INTERMEDIATE CONTOUR (2')
 - FM - LEACHATE FORCEMAIN
 - L - LATERAL LCS PIPE CLEANOUT
 - 2A - SUBCELL INDICATOR



9761 SOUTHERN PIKE BLDG.
CHARLOTTE, N.C. 28273
(704)523-4726



NO.	DATE	DESCRIPTION	BY

CELLS 3 & 4 STRUCTURAL FILL & E&SC PLAN	
DUKE ENERGY - ALLEN STEAM STATION	
BELMONT, NORTH CAROLINA	
ENGINEERING LICENSE NO: F-0176	
DRAWN BY: CLD	CHECKED BY:
DESIGNED BY: KB	APPROVED BY:
PROJECT NUMBER: 1356-06-825	
SCALE: AS SHOWN	DATE: 8-24-09
DRAWING: 1	OF: 1

DRAWING PATH: Q:\3356\DUKE ENERGY\06-825 PLANT ALLEN\DWG\CELL 3&4\STR FILL PLAN (CELLS 3 & 4).DWG

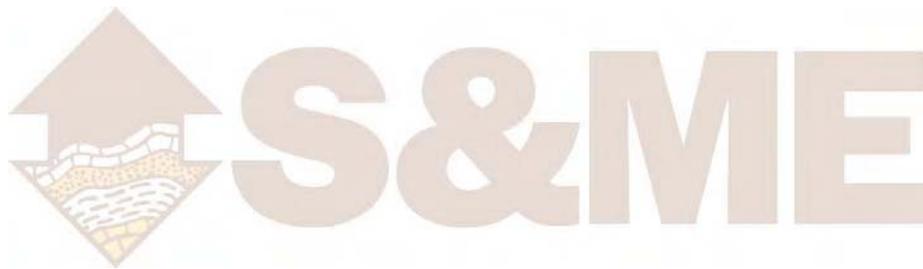
ATTACHMENT IV

SPECIFICATION SECTION 02320

BACKFILL - STRUCTURAL

Structural Fill Facility Notification

S&ME Project No. 1356-06-825



SECTION 02320
BACKFILL - STRUCTURAL

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Fill Type S1, structural fill, defined as compacted fill for perimeter berms, surface water control systems, roadways, area fill not within the landfill cells, or other systems not intended to function as a migration barrier. Any fill material containing ash will not be considered as Fill Type S1.
 2. Fill Type S2, subgrade fill, defined as compacted fill placed to achieve proposed liner system subgrade elevations. Fill Type S2 may include fill material containing ash.
 3. Fill Type S5, topsoil/vegetative soil, defined as soil material capable of sustaining vegetation as specified in these Specifications.
- B. Related Sections:
1. Section 02060 – Aggregate.
 2. Section 02315 - Excavation.
 3. Section 02321 – Backfill – Compacted Soil Liner.
 4. Section 02322 – Backfill – Protective Cover.
 5. Section 02324 - Trenching.
 6. Section 02374 – Erosion Control Devices.
 7. Section 02500 – High Density Polyethylene (HDPE) Piping and Miscellaneous Items.
 8. Section 02610 – Pipe Culverts.
 9. Section 02670 - High Density Polyethylene (HDPE) Geomembrane.
 10. Section 02924 – Seeding and Soil Supplements.
 11. Section 03300 – Cast-In-Place Concrete.
 12. Section 03480 – Pre-Cast Concrete Structures.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Fill Type S1, Structural Fill:
1. Basis of Measurement: By the cubic yard filled. The quantity of structural fill will be based upon the in-place volume between the excavated surface or prepared subgrade and the structurally filled surface as determined by the difference between the Stripped Surface Survey and the Subgrade Survey. A grid pattern as approved by the Engineer of ground surface elevations in the area shall be surveyed and reference points installed by the Earthwork Contractor prior to structural backfill placement and prior to placement of any overlying material. The Engineer shall check the as-built finished grades and determine the backfilled volume of ash based on survey data provided by the Earthwork Contractor.
 2. Basis of Payment: By the cubic yard placed times the unit price for fill Type S1 placement.
 - a. Includes borrow excavation, hauling, scraping, stockpiling, dust control, scarifying substrate surface, moisture conditioning, placing where required, compacting, maintenance, and removing accumulated water during construction.
 - b. Requested payment quantities will be submitted by the Contractor with final approval by the Engineer. If a dispute exists relative to payment quantities, the Earthwork Contractor, at his expense, will uncover any buried or covered material for re-evaluation.
- B. Fill Type S2, Subgrade Fill:

1. Basis of Measurement: By the cubic yard filled. The quantity of structural fill will be based upon the in-place volume between the excavated surface or prepared subgrade and the structurally filled surface as determined by the difference between the Stripped Surface Survey and the Subgrade Survey. A grid pattern as approved by the Engineer of ground surface elevations in the area shall be surveyed and reference points installed by the Earthwork Contractor prior to structural backfill placement and prior to placement of any overlying material. The Engineer shall check the as-built finished grades and determine the backfilled volume of ash based on survey data provided by the Contractor.
 2. Basis of Payment: by the cubic yard placed times the unit price for fill Type S2 placement.
 - a. For ash includes excavation and removal from active ash basin and/or reshaping of existing grade, hauling, scraping, stockpiling, dust control, scarifying substrate surface, moisture conditioning, placing where required, compacting, maintenance, and removing accumulated water during construction.
 - b. For natural soil materials includes borrow area excavation and removal, hauling, scraping, stockpiling, dust control, scarifying substrate surface, moisture conditioning, placing where required, compacting, maintenance, and removing accumulated water during construction.
 - c. Requested payment quantities will be submitted by the Contractor with final approval by the Engineer. If a dispute exists relative to payment quantities, the Contractor, at his expense, will uncover any buried or covered material for re-evaluation.
- C. Fill Type S5, Topsoil:
1. Basis of Measurement: By the cubic yard filled as determined by the difference between the Subgrade Survey and the As-Built Survey.
 2. Basis of Payment: By the cubic yard placed times the unit price for fill Type S5 placement.
 - a. Includes borrow excavation and/or furnishing, hauling, scraping, scarifying fill material, placing, compacting, and maintenance of topsoil.
 - b. Requested payment quantities will be submitted by the Contractor with final approval by the Engineer. If a dispute exists relative to payment quantities, the Contractor, at his expense, will uncover any buried or covered material for re-evaluation.

1.3 REFERENCES

- A. ASTM D422 - Standard test Method for Particle-Size Analysis of Soils (Grain Size with Hydrometer).
- B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³).
- C. ASTM D1556 – Standard Test Method for Density of Soil In Place by the Sand-Cone Method.
- D. ASTM D2216 - Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
- E. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- F. ASTM D2487 – Standard Practices for Classification of Soil for Engineering Purposes (Unified Soil Classification System)

- G. ASTM D2937 - Standard Test Method for Density of Soil in place by the Drive-Cylinder Method.
- H. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.4 SUBMITTALS

- A. Section 01300 – Administrative Requirements: Submittal procedures.
- B. Samples: Submit, in air-tight containers, 50 lb sample of each type of excavated material to testing laboratory to determine suitability for use as structural fill material.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Fill Type S1, Structural Fill:
 - 1. Structural fill is defined as compacted fill for perimeter berms, surface water control systems, roadways, area fill not within the landfill cells, or other systems not intended to function as a migration barrier.
 - 2. Natural soil material from designated on-site borrow areas and/or stockpiles. Any fill material containing ash shall not be considered as Type S1 Fill
 - 3. Structural fill shall be classified as SP, SM, SW, SC, SW-SM, SW-SC, SP-SM, ML, or CL soils according to the Unified Soil Classification System (ASTM D2487).
 - 4. Free of topsoil, organic material, roots, stumps, brush, rocks larger than 4 inches, subsoil, debris, vegetation, and other foreign matter.
 - 5. Structural fill located within 1-foot of geosynthetics components shall have a maximum particle size of 3 inches. The material shall be screened by the Earthwork Contractor, if necessary, to remove particle sizes greater than 3 inches in diameter. No more than 5 percent of the material should be retained on the No. 4 sieve.
 - 6. All material clods will be broken down with tillers and/or discs to provide a homogeneous soil that is free of clods greater than 4 inches in diameter with no more than 15% retained on the No. 4 sieve.
- B. Fill Type S2, Subgrade Fill:
 - 1. Subgrade fill is defined as compacted fill placed to achieve proposed liner system subgrade elevations.
 - 2. May consist of fly ash and bottom ash from within the retired ash basin, active ash basin, or other on-site sources as directed by the Engineer.
 - 3. May consist of natural soil material from designated on-site borrow areas and/or stockpiles.
 - 4. Shall be classified as SP, SM, SW, SC, SW-SM, SW-SC, SP-SM, ML, or CL soils according to the Unified Soil Classification System (ASTM D2487).
 - 5. Free of topsoil, organic material, roots, stumps, brush, rocks larger than 4 inches, subsoil, debris, vegetation, and other foreign matter.
 - 6. All material clods will be broken down with tillers and/or discs to provide a homogeneous soil that is free of clay clods greater than 4 inches in diameter with no more than 15% retained on the No. 4 sieve.
- C. Fill Type S5, Topsoil/Vegetative Soil:

1. Topsoil / vegetative soil is defined as compacted fill placed to achieve final grades on the final cover system or to otherwise support vegetation establishment in areas not within the landfill cells.
2. Excavated and reused materials from designated on-site or off-site borrow areas and/or stockpiles and/or approved soil from trenching operations.
3. Shall be classified as SM, SC, SW-SM, SW-SC, SP-SM, ML, or CL soils according to the Unified Soil Classification System (ASTM D2487).
4. Free of roots, stumps, brush, rocks larger than 2 inches, debris, and other foreign matter.
5. Topsoil material shall have nutrient content and pH capable of supporting vegetation.
6. Shall have a minimum organic content of 2% by weight.
7. All material clods will be broken down with tillers and/or discs to provide a homogeneous soil that is free of clods greater than 2 inches in diameter with no more than 15% retained on the No. 4 sieve.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions
- B. The Engineer will assist the Earthwork Contractor in the determination of Structural Fill and non-select material during excavation operations (see Section 02315). The Earthwork Contractor will be responsible for excavating, transporting, stockpiling, placing and compacting all materials as needed.

3.2 PREPARATION

- A. Prepare and compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Type S1 or S2 fill (as specified by the Engineer) and compact to density equal to or greater than requirements for subsequent fill material.
- C. Scarify subgrade surface to depth of 6 inches.
- D. Proof roll subgrade to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.
- E. Begin backfilling after acceptance of the Stripped Surface Survey.

3.3 BACKFILLING

- A. Backfill areas to contours and elevations as shown on Drawings with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Fill Type S1 and S2: Place and compact material in loose lifts not exceeding 8 inches in thickness and not exceeding 6 inches compacted thickness. Manually compacted fill near pipes and other structures will be placed in loose lifts not exceeding 4 to 6 inches in thickness.
- D. Fill Type S5: Scarify subgrade, place material in one lift and track in with backhoe or other equipment approved by Engineer.
- E. Fill Type S1, backfill for drop inlets, and culverts:

1. Backfill of the drop inlets and culverts shall be placed and compacted in 6 inch thick loose lifts around the drop inlets and up to 2 feet above the culverts.
 2. Compaction shall be performed by hand tampers or small hand operated compactors.
- F. Employ placement method that does not disturb or damage other work.
- G. Backfill against supported structures. Do not backfill against unsupported structures.
- H. Backfill simultaneously on each side of unsupported structures until supports are in place.
- I. Protect backfill from desiccation, crusting, or cracking.
- J. Make gradual grade changes. Blend slope into level areas.
- K. Remove surplus backfill materials from site unless authorized by Owner to dispose of on-site in an Owner designated location.
- L. Leave fill material stockpile areas free of excess fill materials.
- M. Perform Subgrade Survey before placement of overlying materials.

3.4 TOLERANCES

- A. Section 01400 - Quality Requirements: Tolerances.
- B. Top Surface Type S1 fill shall be plus or minus 1 inch from required elevations. Top surface of Type S2 fill shall be -1 to plus 0 inches.

3.5 FIELD QUALITY CONTROL

- A. Section 01400 - Quality Requirements: Testing and observation services.
- B. Laboratory Testing
1. Perform laboratory material tests in accordance with ASTM D422, ASTM D698, ASTM D2216, and ASTM D4318.
 2. Test at a frequency of:
 - a. 10,000 cubic yards of type S1 and S2 placed;
 - b. When materials using for structural fill change; and/or
 - c. when directed by the Engineer.
 3. Sample size shall be 50-lb.
- C. In Place Compaction and Natural Moisture Content Tests
1. Perform in place compaction tests in accordance with ASTM D1556, ASTM D2922, or ASTM D2937.
 2. Perform in place natural moisture content test in accordance with ASTM D2216.
 3. Frequency of compaction/natural moisture content tests:
 - a. Area fills outside landfill cells, landfill subgrade, surface water control systems, or other systems not intended to function as a migration barrier, in-place density and moisture: Each lift at a minimum frequency of 1 per acre per lift, or as otherwise indicated in these Specifications.
 - b. Perimeter berms and roadways: Each lift at a minimum frequency of 1 per 5000 sq. ft.
 - c. Pipe backfill: Each lift at a minimum frequency of 1 per 50 linear feet.
 4. Landfill and Embankments:

- a. Type S1 and S2 fill shall be compacted to minimum 95 percent of its Standard Proctor (ASTM D 698) maximum dry density.
 - b. Fill Type S5 should be placed in one continuous loose lift and tracked in by backhoe or other equipment approved by Engineer.
 - c. Compacted moisture content shall be within 3 percent of optimum moisture content for all fill placed, or as otherwise approved by Engineer.
5. Drop Inlets, and Culverts:
- a. Compaction shall be at a minimum 95 percent of the Standard Proctor maximum dry density.
 - b. Compacted moisture content shall be within 3 percent of optimum moisture content for all fill placed, or as otherwise approved by Engineer.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

3.6 PROTECTION OF FINISHED WORK

- A. Section 01700 - Execution Requirements: Protecting finished work.
- B. Reshape and re-compact fills subjected to vehicular traffic.

END OF SECTION

ATTACHMENT V

EROSION & SEDIMENT CONTROL PLAN ADDENDUM STAGES 1 RAB ASH LANDFILL – PHASE I

&

STAGES 2 & 3 RAB ASH LANDFILL – PHASE I

Structural Fill Facility Notification

S&ME Project No. 1356-06-825





August 25, 2009

North Carolina Department of Environmental and Natural Resources
Land Quality Section
610 East Center Avenue
Mooresville, North Carolina 28115

Attention: Mr. Zahid Khan

Reference: **EROSION & SEDIMENT CONTROL PLAN ADDENDUM**
Stage 1 RAB Ash Landfill (Phase 1) – Addendum
Stages 2 & 3 RAB Ash Landfill (Phase 1) – Addendum
Duke Energy –Allen Steam Station
Gaston County, North Carolina
S&ME Project No. 1356-06-825, S&ME Engineering License No. F-0176

Dear Mr. Khan:

S&ME is submitting this Erosion & Sediment Control (E&SC) Plan Addendum for review. The site is the Allen Steam Station Retired Ash Basin (RAB) Ash Landfill which was originally approved by the North Carolina Department of Environmental and Natural Resources (NCDENR) for the Stage 1 E&SC Plan on June 4, 2008 (GASTO-2008-017). Additionally, Stages 2 & 3 E&SC Plan was approved by NCDENR on September 24, 2008 (GASTO-2009-001).

Upon approval of this E&SC Addendum, Duke Energy plans to place structural fill in the areas previously denoted as the Stage 1 clearing stockpile, Stage 2 organics stockpile, and Stage 3 organics stockpile. These areas are within the previously permitted disturbance limits. If any stockpile material needs to be removed for structural fill placement, it will be either removed and stockpiled in the on-site borrow area or disposed of off site.

This addendum contains modifications to the engineering drawings (previously approved by NCDENR) that describe the construction, operation, and maintenance of erosion control measures for this project. Drawing 4A contains the structural fill grading plan located within the previously permitted disturbance limits. Drawing 8 and 10A contains additional measures for structural fill placement.

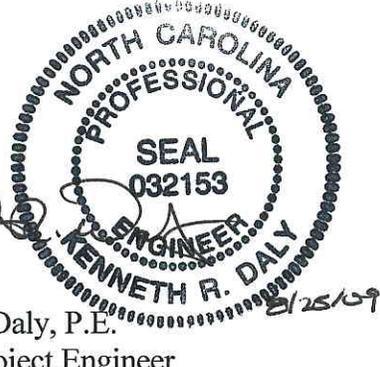
Please contact us at your earliest convenience if you have any questions or need additional information regarding this addendum.

Sincerely,

S&ME, Inc.



Kyle Baucom, E.I.
Staff Professional



Kenneth R. Daly
Kenneth Daly, P.E.
Senior Project Engineer

Senior Reviewed By:
Jason Reeves, P.E.
Senior Project Engineer



Enclosures: E&SC Addendum

**EROSION AND SEDIMENT CONTROL PLAN ADDENDUM
STAGE 1 – CELL 1 SUBGRADE FILL CONSTRUCTION
AND
STAGES 2 & 3 – CELL 2 SUBGRADE FILL, BORROW AREA, CONSTRUCTION
ENTRANCE AND HAUL ROAD CONSTRUCTION & ADDITIONAL E&S MEASURES
ALLEN STEAM STATION – PHASE I RAB ASH LANDFILL**

**DUKE ENERGY
GASTON COUNTY, NORTH CAROLINA
S&ME PROJECT NO. 1356-06-825**

Prepared for:

North Carolina Department of Environmental and Natural Resources
Land Quality Section
610 East Center Avenue
Mooresville, North Carolina 28115

Prepared by:

S&ME, Inc.
9751 Southern Pine Boulevard
Charlotte, North Carolina 28273
(704) 523-4726

August 25, 2009



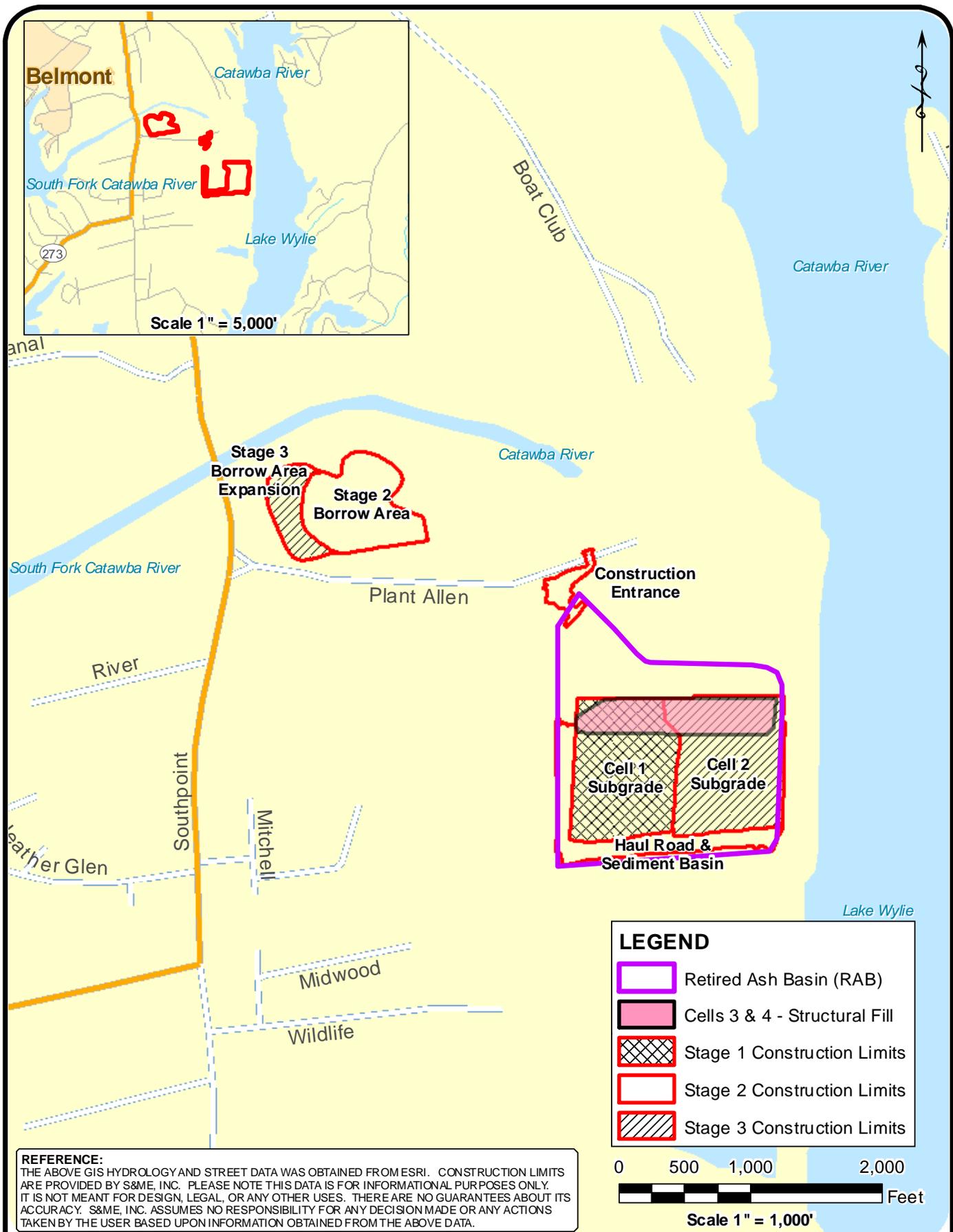
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FIGURES

<u>Figure</u>	<u>Title</u>
1	Site Location Map

APPENDICES

<u>Appendix</u>	<u>Title</u>
I	Drawing 4A of 10: Stage 3 – Cell 2 Construction E&SC Plan
	Drawing 8 of 10: E&SC Details I
	Drawing 10A of 10: E&SC Details IV

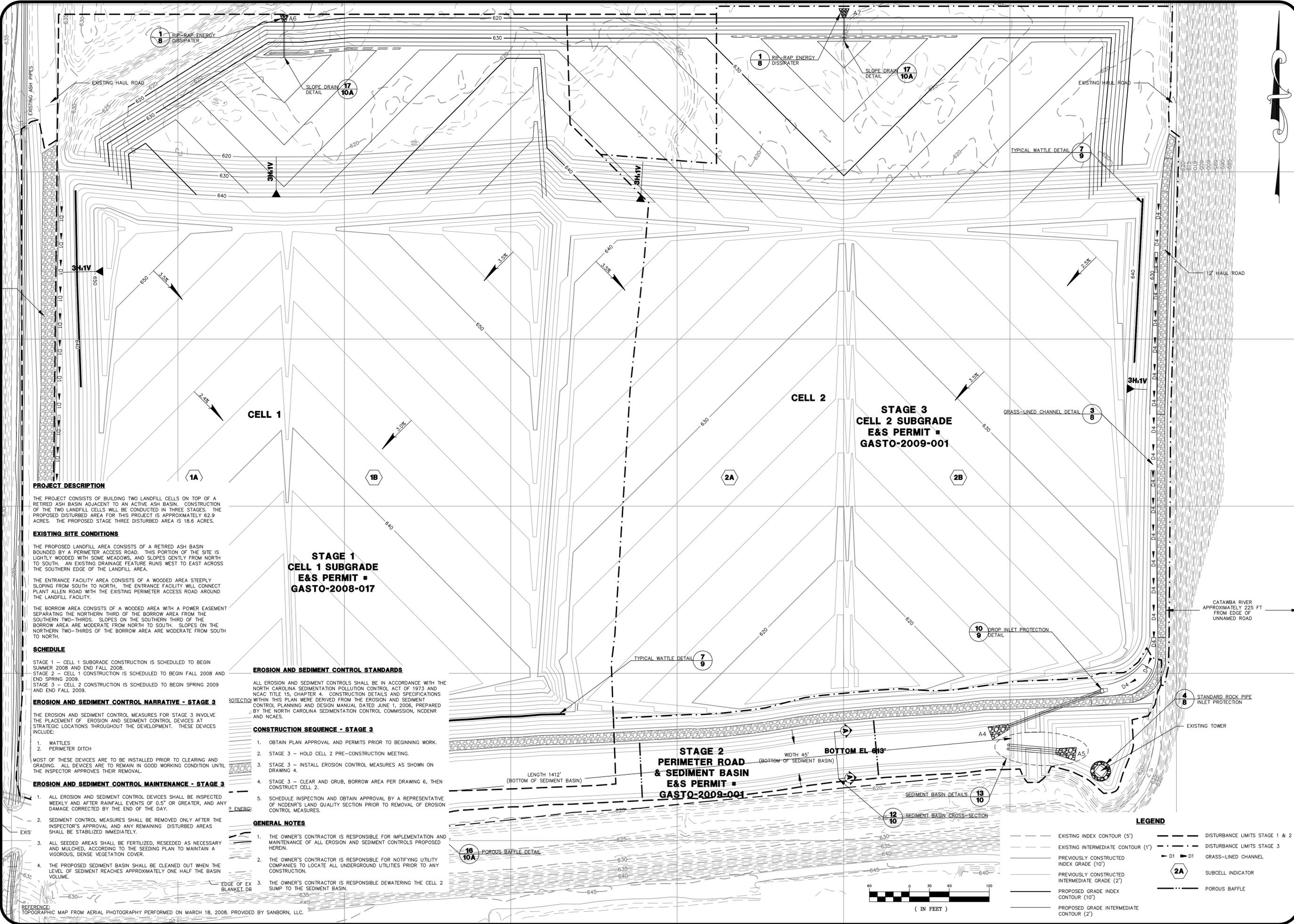


SCALE:	AS SHOWN
DATE:	08/20/09
DRAWN BY:	CXR
PROJECT NO:	1356-06-825



SITE LOCATION MAP
 PHASE I RAB ASH LANDFILL
 STAGE 1 & STAGES 2 & 3 - ADDENDUM
 DUKE ENERGY - ALLEN STEAM STATION
 BELMONT, NORTH CAROLINA

FIGURE NO.
1



PROJECT DESCRIPTION

THE PROJECT CONSISTS OF BUILDING TWO LANDFILL CELLS ON TOP OF A RETIRED ASH BASIN ADJACENT TO AN ACTIVE ASH BASIN. CONSTRUCTION OF THE TWO LANDFILL CELLS WILL BE CONDUCTED IN THREE STAGES. THE PROPOSED DISTURBED AREA FOR THIS PROJECT IS APPROXIMATELY 62.9 ACRES. THE PROPOSED STAGE THREE DISTURBED AREA IS 18.6 ACRES.

EXISTING SITE CONDITIONS

THE PROPOSED LANDFILL AREA CONSISTS OF A RETIRED ASH BASIN BOUNDED BY A PERIMETER ACCESS ROAD. THIS PORTION OF THE SITE IS LIGHTLY WOODED WITH SOME MEADOWS, AND SLOPES GENTLY FROM NORTH TO SOUTH. AN EXISTING DRAINAGE FEATURE RUNS WEST TO EAST ACROSS THE SOUTHERN EDGE OF THE LANDFILL AREA.

THE ENTRANCE FACILITY AREA CONSISTS OF A WOODED AREA STEEPLY SLOPING FROM SOUTH TO NORTH. THE ENTRANCE FACILITY WILL CONNECT PLANT ALLEN ROAD WITH THE EXISTING PERIMETER ACCESS ROAD AROUND THE LANDFILL FACILITY.

THE BORROW AREA CONSISTS OF A WOODED AREA WITH A POWER EASEMENT SEPARATING THE NORTHERN THIRD OF THE BORROW AREA FROM THE SOUTHERN TWO-THIRDS. SLOPES ON THE SOUTHERN THIRD OF THE BORROW AREA ARE MODERATE FROM NORTH TO SOUTH. SLOPES ON THE NORTHERN TWO-THIRDS OF THE BORROW AREA ARE MODERATE FROM SOUTH TO NORTH.

SCHEDULE

STAGE 1 - CELL 1 SUBGRADE CONSTRUCTION IS SCHEDULED TO BEGIN SUMMER 2008 AND END FALL 2008.
 STAGE 2 - CELL 1 CONSTRUCTION IS SCHEDULED TO BEGIN FALL 2008 AND END SPRING 2009.
 STAGE 3 - CELL 2 CONSTRUCTION IS SCHEDULED TO BEGIN SPRING 2009 AND END FALL 2009.

EROSION AND SEDIMENT CONTROL NARRATIVE - STAGE 3

THE EROSION AND SEDIMENT CONTROL MEASURES FOR STAGE 3 INVOLVE THE PLACEMENT OF EROSION AND SEDIMENT CONTROL DEVICES AT STRATEGIC LOCATIONS THROUGHOUT THE DEVELOPMENT. THESE DEVICES INCLUDE:

1. WATTLES
2. PERIMETER DITCH

MOST OF THESE DEVICES ARE TO BE INSTALLED PRIOR TO CLEARING AND GRADING. ALL DEVICES ARE TO REMAIN IN GOOD WORKING CONDITION UNTIL THE INSPECTOR APPROVES THEIR REMOVAL.

EROSION AND SEDIMENT CONTROL MAINTENANCE - STAGE 3

1. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS OF 0.5" OR GREATER, AND ANY DAMAGE CORRECTED BY THE END OF THE DAY.
2. SEDIMENT CONTROL MEASURES SHALL BE REMOVED ONLY AFTER THE INSPECTOR'S APPROVAL AND ANY REMAINING DISTURBED AREAS SHALL BE STABILIZED IMMEDIATELY.
3. ALL SEEDED AREAS SHALL BE FERTILIZED, RESEED AS NECESSARY AND MULCHED, ACCORDING TO THE SEEDING PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATION COVER.
4. THE PROPOSED SEDIMENT BASIN SHALL BE CLEANED OUT WHEN THE LEVEL OF SEDIMENT REACHES APPROXIMATELY ONE HALF THE BASIN VOLUME.

EROSION AND SEDIMENT CONTROL STANDARDS

ALL EROSION AND SEDIMENT CONTROLS SHALL BE IN ACCORDANCE WITH THE NORTH CAROLINA SEDIMENTATION POLLUTION CONTROL ACT OF 1973 AND NCAC TITLE 15, CHAPTER 4. CONSTRUCTION DETAILS AND SPECIFICATIONS WITHIN THIS PLAN WERE DERIVED FROM THE EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL DATED JUNE 1, 2006, PREPARED BY THE NORTH CAROLINA SEDIMENTATION CONTROL COMMISSION, NCDENR AND NCAES.

CONSTRUCTION SEQUENCE - STAGE 3

1. OBTAIN PLAN APPROVAL AND PERMITS PRIOR TO BEGINNING WORK.
2. STAGE 3 - HOLD CELL 2 PRE-CONSTRUCTION MEETING.
3. STAGE 3 - INSTALL EROSION CONTROL MEASURES AS SHOWN ON DRAWING 4.
4. STAGE 3 - CLEAR AND GRUB, BORROW AREA PER DRAWING 6, THEN CONSTRUCT CELL 2.
5. SCHEDULE INSPECTION AND OBTAIN APPROVAL BY A REPRESENTATIVE OF NCDENR'S LAND QUALITY SECTION PRIOR TO REMOVAL OF EROSION CONTROL MEASURES.

GENERAL NOTES

1. THE OWNER'S CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROLS PROPOSED HEREIN.
2. THE OWNER'S CONTRACTOR IS RESPONSIBLE FOR NOTIFYING UTILITY COMPANIES TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO ANY CONSTRUCTION.
3. THE OWNER'S CONTRACTOR IS RESPONSIBLE DEWATERING THE CELL 2 SUMP TO THE SEDIMENT BASIN.

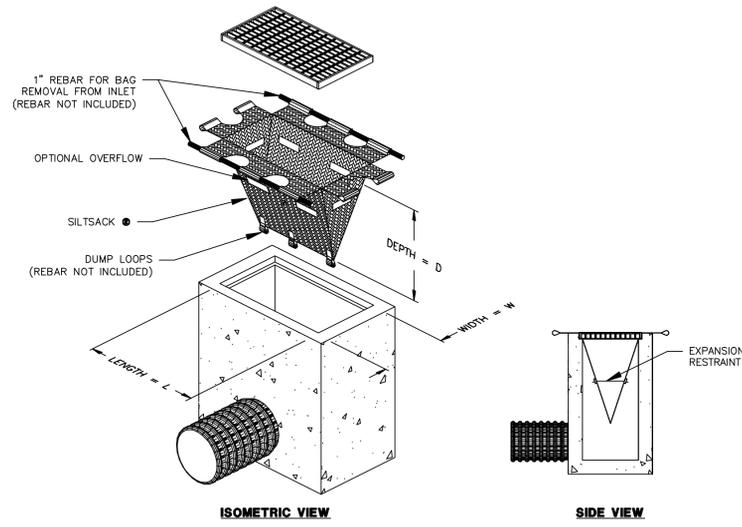
REFERENCE: TOPOGRAPHIC MAP FROM AERIAL PHOTOGRAPHY PERFORMED ON MARCH 18, 2008. PROVIDED BY SANBORN, LLC.



NO.	DATE	DESCRIPTION	BY
1	08/24/09	ADDED STRUCTURAL FILL GRADING PLAN	

STAGE 3 - CELL 2 CONSTRUCTION EROSION AND SEDIMENT CONTROL PLAN	
PHASE I RAB ASH LANDFILL DUKE ENERGY - ALLEN STEAM STATION BELMONT, NORTH CAROLINA	
DRAWN BY: CLD	CHECKED BY: JMB
DESIGNED BY: JMB	APPROVED BY: [Signature]
PROJECT NUMBER: 1356-06-825	
SCALE: AS SHOWN	DATE: 08/01/08
DRAWING: 4A	OF: 10

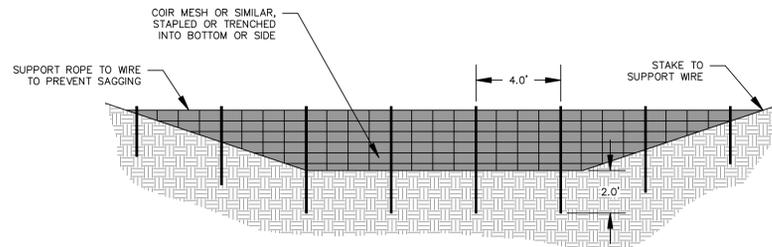
DRAWING PATR. 05 1356/06 ENERGY-06-825 PLANT ALLEN/06/08-825 STAGE 3 CELL 2 CONSTRUCTION EROSION AND SEDIMENT CONTROL PLAN



15 DROP INLET SEDIMENT COLLECTION BAG DETAIL
10A NTS

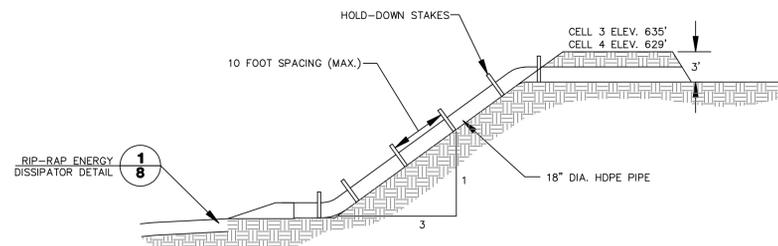
MAINTENANCE:
INSPECT SEDIMENT COLLECTION BAGS AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
BE SURE TO MAINTAIN ACCESS TO THE SEDIMENT COLLECTION BAGS. SHOULD THE FABRIC OF A SEDIMENT COLLECTION BAG COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE SEDIMENT COLLECTION BAGS. TAKE CARE TO AVOID DAMAGING THE SEDIMENT COLLECTION BAGS DURING CLEANOUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.
AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL SEDIMENT COLLECTION BAGS AND UNSTABLE SEDIMENT DEPOSITS.

CONSTRUCTION SPECIFICATION:
1. INSTALL SEDIMENT COLLECTION BAGS IMMEDIATELY AFTER INSTALLATION OF EACH DROP INLET.

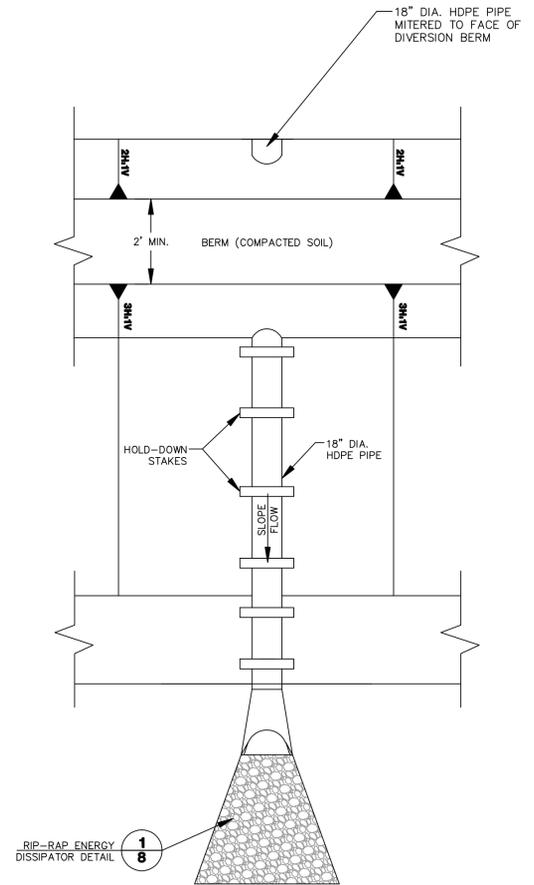


MAINTENANCE:
INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE BAFFLES. TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING CLEANOUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.
AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.

16 POROUS BAFFLE DETAIL
10A NTS



17 SLOPE DRAIN DETAIL
10A NTS



NO.	DATE	DESCRIPTION	BY
2	08/24/09	ADDED SLOPE DRAIN DETAIL	
1	09/29/08	RESPONSE TO NCDENR 9/18/08 COMMENTS	

EASC DETAILS IV
EROSION AND SEDIMENT CONTROL PLAN
PHASE I RAB LANDFILL
DUKE ENERGY - ALLEN STEAM STATION
BELMONT, NORTH CAROLINA

DRAWN BY: ELH
DESIGNED BY: JMB
CHECKED BY: [Signature]
APPROVED BY: [Signature]
PROJECT NUMBER: 1356-06-825
SCALE: AS SHOWN
DATE: 09/23/08

DRAWING PATH: Q:\1356\DUKE ENERGY\06-825 PLANT ALLEN\DWG\EASC\STAGE 2 & 3\31R RLL JORDAN\VA04 ESC & SW DETAILS.DWG