

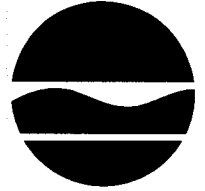
**New York State Department of Environmental Conservation**

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Alexander B. Grannis  
Commissioner

sent electronically and via first class mail

August 28, 2007

Honorable Jaclyn Brilling  
Secretary  
New York State Board on Electric Generation  
Siting and the Environment  
Three Empire Plaza  
Albany, NY 12223

**RE: Case 04-F-1178- Petition of AES NY, L.L.C. for Clarification or Amendment of the Certificate of Environmental Compatibility and Public Need Issued December 9, 1978, in Case No. 80002, as Amended, filed in Case 80002- Compliance Filing of AES NY, L.L.C.**

Dear Secretary Brilling:

The following comments are submitted on behalf of the New York State Department of Environmental Conservation (Department) staff in response to AES' Compliance Filing submitted on July 17, 2007 (Compliance Filing). The Compliance Filing was made pursuant to the Order Granting Amendment of the Certificate of Environmental Compatibility and Public Need, dated June 29, 2007 (June 29<sup>th</sup> Order). AES accepted the Amended Certificate on July 16, 2007. Public Service Law 16 NYCRR §1003.3(d) allows parties 15 days to submit comments on AES' Compliance Filing. Due to some confusion about which parties should have received the Compliance Filing, AES agreed to an extension to August 28, 2007 for the parties to submit comments.

Department staff have reviewed the Compliance Filing documents submitted by AES. Our comments relate to design and construction standards that are required of other landfill facilities. The proper techniques and standards for the design and construction of a landfill liner is extremely important to ensure the quality and effectiveness of the liner. Since the intent of the Joint Proposal, which was adopted pursuant to the June 29<sup>th</sup> Order and accepted by AES on July 16, 2007, was to ensure that SWDA II was constructed and operated in a manner that was

sufficiently protective of the environment, we strongly encourage the consideration and acceptance of our comments and suggested language.

The following comments and suggested language are submitted on behalf of the Department for consideration:

Appendix C - Revised Technical Specifications for Low Permeability Soil Section 02260

1. Section 2.01 A.2. - The first sentence should be changed to read “When placed and compacted the low permeability soil liner material must have a permeability less than or equal to  $1 \times 10^{-7}$  cm/sec.”
2. Section 2.01 A.3. - The last sentence shall be changed to read “Moisture-Density-permeability relationships shall be developed for the proposed soils to determine field control parameters for in-place moisture/density tests ....”
3. Section 3.04 C.1.c. - The second sentence should be changed to read “Field compaction shall be done with the soil moisture content in the range determined by the CQA Engineer based on the results of preconstruction testing for moisture-density-permeability relationship and the test pad test data.” This is more in line with the regulatory requirements of 6 NYCRR 360-2.13(j)(2)(iii).

Appendix C - Revised Technical Specifications for Geomembrane Section 02779

4. Section 2.02 Materials - A table should be provided showing the testing to be conducted on the resin. Specifically, testing is required for polymer density and melt flow index at a rate of 1 test per 180,000 pounds of raw material.
5. Section 3.01 B Installer Qualifications and Requirements - In addition to the qualifications for the field crew foreman, at least one seamer per shift shall have successfully installed a minimum of 25 acres of comparable geomembrane material.
6. Section 3.01 D Geomembrane Installation - Add the following to this section “No heavy equipment shall be allowed on the liner. All lightweight equipment shall be placed on rub sheets, including seaming equipment when not being used.”
7. Section 3.01 D.3.b. - Panels shall be overlapped a minimum of 3 inches for extrusion welding and 4 inches for fusion welding.
8. Section 3.01 D.5.a - Panels shall be overlapped a minimum of 3 inches for extrusion welding and 4 inches for fusion welding.
9. Section 3.01 D.5.d - Change to read “Unless approved by the Engineer, seaming shall not be attempted when either air or sheet temperature is below 32 degrees F, when air temperature is above 120 degrees F, when the sheet temperature exceeds 158 degrees F, during periods of precipitation or when winds are in excess of 20 miles per hour. At air temperatures between 32 degrees F and 40 degrees F, seaming shall be allowed if the geomembrane is preheated either by sun or a hot air device and, if there is no excessive

cooling from the wind. At ambient air temperatures above 40 degrees F, no preheating is required. In all cases, the geomembrane shall be dry and protected from wind damage. Air Temperatures shall be measured six inches above the geomembrane surface. If the Contractor plans to use methods, which may allow seaming at air temperatures below 32 degrees F or above 120 degrees F, they shall submit a procedure for approval by the Engineer.”

10. Section 3.01 E.5.b - When conducting this test, the channel shall be pressurized to approximately 30 psi. After the pressure within the channel has stabilized, the pump is disconnected and a dwell time of five minutes must be observed. The maximum allowable pressure drop, over the 5 minute dwell time, shall be 3 psi.
11. Section 3.01 E.7. - Shear test results must be greater than 120 pounds per inch. Peel test results must be greater than 91 pounds per inch for fusion welds and 78 pounds per inch for extrusion welds.

#### Appendix C - Revised QA/QC Plan

12. Section 4.30 Low Permeability Soil Liners- Testing During Construction- Laboratory Tests During Construction - For thin-wall tube sample testing, the extruded sample shall be trimmed and the portion of the sample from the lower portion of the lift being tested will be placed in the flexible wall permeameter.
13. Section 5.10 Geomembrane- Pre-Construction Testing - A table should be provided showing the testing to be conducted on the resin. Specifically, testing is required for polymer density and melt flow index at a rate of 1 test per 180,000 pounds of raw material.

We believe that the test method for Tensile Properties is ASTM D6693.

The QA/QC Engineer is to obtain conformance samples of the geomembrane rolls produced for the project, at the minimum frequency of one sample per 100,000 square feet. The samples are to be obtained either at the manufacturing plant, following production of the rolls or after delivery of the rolls to the site. If samples are obtained at the manufacturing plant, only samples on rolls actually delivered to the site are to be accepted as meeting the above frequency requirement. Samples are to be obtained by cutting at least a minimum 2-foot wide piece along the entire roll width. Material is not to be taken from the inner or outer wraps of a roll. The sample shall be clearly marked with the roll number, product, manufacturer and machine direction.

The conformance sample shall be delivered to an independent geosynthetics laboratory and each sample shall be tested as follows:

Test	Specification
Thickness	ASTM D5994
Asperity Height	GRI - GM 12
Density	ASTM D1505/D792
Carbon Black Content	ASTM D1603
Carbon Black Dispersion	ASTM D5596
Tensile Strength at Yield	ASTM D6693
Tensile Strength at Break	ASTM D6693
Elongation at Yield	ASTM D6693
Elongation at Break	ASTM D6693

The QA/QC Engineer will compare the measured value to the specifications. If a conformance sample does not meet the required specifications, samples from adjoining roll numbers are to be collected and tested until the extent of material failing to meet specification is determined. Any rolls from which samples failing to meet the project specifications were obtained are to be rejected for use on the project.

In addition to the qualifications for the field crew foreman, at least one seamer per shift shall have successfully installed a minimum of 25 acres of comparable geomembrane material.

An Interface Direct Shear Test shall also be completed as part of the pre-construction testing requirements. Prior to delivery of the geomembrane, the supplier shall provide the QA/QC Engineer with representative samples of the geomembrane for direct shear testing, as described by ASTM D5321. Each sample must be at least 18 inches long by 18 inches wide. The supplier is to clearly mark the machine direction on the sample. The QA/QC Engineer is to obtain samples of clay liner material and deliver the geomembrane and soil samples to a geosynthetics laboratory for testing. The Design Engineer is to specify the compaction requirements of the soil material (highest soil moisture content acceptable during liner placement), and the normal stresses for testing (maximum expected for the interface being tested).

Direct shear testing is also required for the geomembrane/geocomposite drainage layer interface. The geocomposite drainage layer supplier shall supply the QA/QC Engineer with the necessary samples to complete this testing.

The Interface Direct Shear Testing is performed to establish that the materials provide the interface shear strength parameters equal to or greater than those used in the stability

analysis. Note that additional interface shear testing is to be performed if the material manufacturer changes, the product changes or there is notable change in the appearance of the geosynthetic material.

14. Section 5.20 Construction- Responsibilities of the Liner Installer - Ensure that no heavy equipment is allowed on the liner. All lightweight equipment shall be placed on rub sheets, including seaming equipment when not being used.
15. Section 5.20 Construction- Non-Destructive Testing- Air Pressure Tests of Fusion-Welded (Double Hot Wedge) Seams - When conducting this test, the channel shall be pressurized to approximately 30 psi. After the pressure within the channel has stabilized, the pump is disconnected and a dwell time of five minutes must be observed. The maximum allowable pressure drop, over the 5 minute dwell time, shall be 3 psi.
16. Section 5.20 Construction- Destructive Seam Testing - Shear test results must be greater than 120 pounds per inch. Peel test results must be greater than 91 pounds per inch for fusion welds and 78 pounds per inch for extrusion welds.
17. Section 6.10 Geocomposite -Pre-Construction Material Evaluation - This section should include a table that shows the minimum testing requirements to be completed by the manufacturer for the Geocomposite as follows:

Item	Test	Specification	Sampling Frequency
Geotextile	Mass/Unit Area	ASTM D5261	one sample for every 100,000 sf of geotextile produced
	Grab Strength	ASTM D4632	
	Puncture Strength	ASTM D4833	
	Trapezoidal Tear Strength	ASTM D4533	one sample for every 540,000 sf of geotextile produced
	Apparent Size Opening	ASTM D4751	
	Permittivity	ASTM D4491	
Geonet	Polymer density	ASTM D1505	one sample for every 100,000 sf of geonet produced
	Thickness	ASTM D5199	
	Mass/Unit Area	ASTM D5261	
Geocomposite	Ply Adhesion	ASTM F904	one sample for every 100,000 sf of geocomposite produced

In addition, The QA/QC Engineer is to obtain conformance samples of the geocomposite rolls produced for the project, at the minimum frequency of one sample per 100,000 square feet. The samples are to be obtained either at the manufacturing plant, following production of the rolls or after delivery of the rolls to the site. If samples are obtained at the manufacturing plant, only samples on rolls actually delivered to the site are to be accepted as meeting the above frequency requirement. Samples are to be obtained by

cutting at least a minimum 1-foot wide piece along the entire roll width. The sample shall be clearly marked with the roll number, product, manufacturer and machine direction.

The geotextile component of the geocomposite is to be tested for mass per unit area according to the procedures listed in ASTM D5261. The geonet component is to be tested for thickness in accordance with ASTM D5199. The geocomposite is to be tested for ply adhesion in accordance with ASTM D5199. At least one representative sample of the geotextile is to be tested for apparent opening size in accordance with ASTM D4751.

The QA/QC Engineer will compare the measured value to the specifications. If a conformance sample does not meet the required specifications, samples from adjoining roll numbers are to be collected and tested until the extent of material failing to meet specification is determined. Any rolls from which samples failing to meet the project specifications were obtained are to be rejected for use on the project.

18. Section 6.20 Geocomposite-Construction Quality Evaluation - The geonet overlap on long seams shall be a minimum of 6 inches.
19. Section 7.10 Geotextile- Pre-Construction Material Evaluation - This section should include a table that shows the minimum testing requirements to be completed by the manufacturer for the Geotextile as follows:

Test	Specification	Sampling Frequency
Mass/Unit Area	ASTM D5261	one sample for every 100,000 sf of geotextile produced
Grab Strength	ASTM D4632	
Puncture Strength	ASTM D4833	
Trapezoidal Tear Strength	ASTM D4533	one sample for every 540,000 sf of geotextile produced
Apparent Size Opening	ASTM D4751	
Permittivity	ASTM D4491	

In addition, The QA/QC Engineer is to obtain conformance samples of the geotextile rolls produced for the project, at the minimum frequency of one sample per 100,000 square feet. The samples are to be obtained either at the manufacturing plant, following production of the rolls or after delivery of the rolls to the site. If samples are obtained at the manufacturing plant, only samples on rolls actually delivered to the site are to be accepted as meeting the above frequency requirement. Samples are to be obtained by cutting at least a minimum 1-foot wide piece along the entire roll width. The sample shall be clearly marked with the roll number, product, manufacturer and machine direction. Conformance samples shall be tested for mass per unit area according to the procedures listed in ASTM D5261. The QA/QC Engineer will compare the measured value to the specifications. If a conformance sample does not meet the required specifications, samples from adjoining roll numbers are to be collected and tested until the extent of material failing to meet specification is determined. Any rolls from which samples

failing to meet the project specifications were obtained are to be rejected for use on the project.

20. Section 7.30 Geotextile-Seams and Repairs - Geotextile seams shall be overlapped a minimum of 4 inches before sewing. The maximum exposure time for geotextiles is to be in accordance with the manufacturer's recommendations but it is not to exceed 30 days unless results of testing indicate that the material meets the requirements of the specifications.
21. Section 11.00 Topsoil & Seeding - The sections should be 11.10- Testing During Construction and 11.20- Post-Construction and Optical Survey Measurements.

Department staff appreciates the consideration of our comments. Please contact me with any questions at (518) 402-9188.

Sincerely,



Rebecca Denué, Esq.  
Senior Attorney

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