

PART 373 PERMIT
MODULE VI - DISPOSAL IN LANDFILL

A. AUTHORIZED DISPOSAL OF WASTE IN LANDFILL

The Permittee may dispose of solid and debris wastes as identified in this Permit in the following landfill at the facility up to its indicated capacity, subject to the terms of this Permit:

TABLE 1.0			
DISPOSAL AREA	WASTE TYPES	UNIT SIZE (acres)	UNIT CAPACITY (acre-feet)
Residual Management Unit No. One (RMU-1)	Hazardous & Non-Hazardous, Non-Putrescible Solid Waste, including Debris ¹	47.1 ²	2223 ³

FOOTNOTES:

1. The specific wastes and waste codes authorized for disposal in the identified landfill are those listed in Attachment C, Section C-1, including Tables C-1 & C-2 of this Permit, subject to the restrictions in 6NYCRR 373-2.14, 6NYCRR 376 and the conditions in this Permit.
2. The unit size presented in this table represents the approximate size of the total landfill including waste area and perimeter berm. The actual limits of the landfill are presented on the Drawings in Attachment J, Appendix D-6 of this Permit.
3. The unit capacity presented in this table represents the approximate air volume capacity of the landfill. The actual horizontal and vertical limits which govern the amount of waste that may be disposed of in this landfill are presented on "Top of Waste Grade" Drawing No. 11 in Attachment J, Appendix D-6 of this Permit.

This Permit does **not** authorize the placement or disposal of putrescible type non-hazardous waste in RMU-1 (e.g., municipal solid waste).

B. RMU-1 DESIGN & LINER/LEACHATE COLLECTION SYSTEM REPAIR MATERIALS

The RMU-1 landfill consists of six (6) individual cells known as Cells 1, 2, 3, 4, 5 & 6, and four (4) combined cells known as Cells 7/8, 9/10, 11/13 & 12/14, which are defined by separation berms. Each individual/combined cell has a separate leachate collection and removal system. The RMU-1 landfill has been constructed with a double composite liner system and leachate collection systems above and between the liners. The RMU-1 liner/leachate collection systems consist of the following individual components from bottom to top:

- A minimum of three (3) feet of secondary soil liner material (clay) compacted to a hydraulic conductivity of equal to or less than 1.0×10^{-7} cm/sec.;
- An 80 mil. thick High Density Polyethylene (HDPE) secondary geomembrane liner (Smooth surfaced geomembrane in Cells 1-6 and Textured surface geomembrane in Cells 7/8 - 12/14);
- A geosynthetic secondary drainage layer consisting of a geonet and geotextile for Cells 1-6 and a geocomposite for Cells 7/8 - 12/14;
- A one (1) foot thick granular (stone) secondary drainage layer having a hydraulic conductivity of equal to or greater than 1.0×10^{-2} cm/sec. (Cell floors only) (8-inch diameter collection pipe within layer in Cells 7/8 - 12/14);
- A geotextile separation layer (Cell floors only);
- One and a half (1.5) feet of primary soil liner material (clay) with the upper six (6) inches compacted to a hydraulic conductivity of equal to or less than 1.0×10^{-7} cm/sec. (Cell floors only);
- An 80 mil. thick High Density Polyethylene (HDPE) primary geomembrane liner (Smooth surfaced geomembrane in Cells 1-6 and Textured surface geomembrane in Cells 7/8 - 12/14);
- A Geosynthetic primary drainage layer consisting of a geonet and geotextile for Cells 1-6 and a geocomposite for Cells 7/8 - 12/14;
- A one (1) foot thick granular (stone) primary drainage layer having a hydraulic conductivity of equal to or greater than 1.0×10^{-2} cm/sec. (Cell floors only) (8-inch diameter collection pipe within layer in Cells 7/8 - 12/14);
- A geotextile separation layer (Cell floors only); and
- A one (1) foot thick granular (crusher run stone) operations layer.

In addition to the above liner/leachate collection systems, the entire perimeter of the RMU-1 landfill is surrounded by a buried wall of clay compacted to a hydraulic conductivity of equal to or less than 1.0×10^{-7} cm/sec. with a minimum width of ten (10) feet which extends from the bottom of the secondary soil (clay) liner downward to approximately one (1) foot below the top of the native clay. This perimeter clay wall is designed to impede the lateral migration of groundwater.

The above liner/leachate collection systems have been designed and constructed in accordance with 6NYCRR 373-2.2(k), 6NYCRR 373-2.14(c) and the following documents:

- The “RMU-1 Landfill Drawings” in Attachment J, Appendix D-6 of this Permit;
- The “RMU-1 Landfill Technical Specifications” in Attachment J, Appendix D-7 of this Permit;
- The “RMU-1 Landfill Quality Assurance Manual” in Attachment J, Appendix D-8 of this Permit; and
- The “RMU-1 Engineering Report” from the Permit Application which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit.

(Note: In addition to the above the RMU-1 landfill was constructed in accordance with a previously issued Part 373 Permit known as the “RMU-1 Permit” which is now expired.)

1. RMU-1 Liner/Leachate Collection System Repair Materials

If repairs to the RMU-1 liner and/or leachate collection systems are necessary as a result of defects identified during inspections or due to response actions required by **Condition G.4** of this Module, the Permittee must use materials in making these repairs which are compatible and consistent with those materials used in the original construction of these systems. All such materials must meet requirements as specified by 6NYCRR 373-2.14(c), the documents in Attachment J of this Permit and the RMU-1 Engineering Report which is incorporated by reference into this Permit by **Module I**.

a) Geosynthetic Repair Materials

To meet the above requirements, the Permittee may use “newly purchased” geosynthetic materials for RMU-1 liner/leachate collection system component repairs. Alternatively, the Permittee may use geosynthetic materials for such repairs which are “left over” from the original construction of the RMU-1 liner/leachate collection systems, provided that samples of the “left over” geosynthetic materials taken at the time of the repair have passed Conformance Testing in accordance with **Condition B.1.a.iii** of this Module and these geosynthetic materials have been stored since delivery in accordance with the storage requirements in Attachment J, Appendix D-7 of this Permit. For “left over” geosynthetic materials, the Permittee must also produce documentation, upon Department request, which confirms that the specific geosynthetic materials to be used in a repair are remnants from the original construction.

The Permittee must perform leachate compatibility testing and provide material specification test results on “newly purchased” geosynthetic materials used to repair geosynthetic components of the RMU-1 liner/leachate collection systems. The Permittee must perform new material specification testing and provide test results on “left over” geosynthetic materials used to repair geosynthetic components of the RMU-1 liner/leachate collection system under the following circumstances:

For Geomembrane Liner Material -

- when the “left over” geosynthetic liner materials are greater than 5-years old; and
- when the Permittee cannot satisfy the above stated storage provisions for using “left over” geosynthetic liner materials.

For Leachate Collection Geosynthetic Material -

- when the “left over” geosynthetic liner materials are greater than 5-years old and more than 8000 ft² (approximately 1 roll) of “left over” geosynthetic leachate collection material is needed to affect the repair; and
- when the Permittee cannot satisfy the above stated storage provisions for using “left over” geosynthetic liner materials and more than 8000 ft² (approximately 1 roll) of new geosynthetic leachate collection material is needed to affect the repair.

The Permittee must conduct the testing outlined in “i” below on samples of “newly purchased” geosynthetic materials used to repair geosynthetic components of the RMU-1 liner and/or leachate collection systems, and submit all test results for Department approval. The Permittee must obtain manufacturer’s quality control documentation if using “newly purchased” geosynthetic materials to affect the repair or when proposing to use “left over” geosynthetic materials under the above listed circumstances, conduct material specification testing on actual material samples of “left over” geosynthetic materials, as outlined in “ii” below.

i) Geosynthetic Material Leachate Compatibility Testing

Utilizing the leachate obtained from the RMU-1 Lift Station, the Permittee shall retain an independent laboratory to immerse samples of the geosynthetic materials (geomembrane, geonet, geotextile and geocomposite) in said leachate, in strict accordance with ASTM Method D5322 and perform testing on these materials in strict accordance with ASTM Method D5747. For geocomposite materials, the testing to be performed on control samples and test samples after each immersion period, shall be identical to the testing performed on the separate geonet and geotextile materials. The Permittee shall submit to the Department a Report from the independent laboratory which includes all immersion test results. The Permittee may complete repairs using these geosynthetic materials and restore the repaired area to its previous operational or closed status at its own risk, prior to the submission to the Department of the above indicated Immersion Testing Report, provided that all other Permit conditions pertaining to the repair involving these materials have been satisfied. Subsequently, if the Report indicates that the geosynthetic materials used in the repair appear incompatible with the RMU-1 leachate, the Department may require that the Permittee repeat the repair of the effected area. In response to this requirement, the Permittee must comply by repeating the repair using geosynthetic materials determined compatible with the RMU-1 leachate.

‘a’) Geomembrane Sampling/Testing Frequency

The geomembrane material shall be sampled at a rate of one sample per resin blend of geomembrane material, but in no case shall the sampling frequency be less than one sample per 180,000 lbs (8.17×10^4 kgs) of the manufactured geomembrane material. The Construction Quality Assurance (CQA) Engineer, as defined by **Condition I.2.a** of this Module, involved in supervising the repair shall verify that the sampling frequency which is based on the weight of the geomembrane material was met and that each roll of geomembrane delivered to the facility was manufactured from resin blends which were tested in accordance with the ASTM Methods stated above based on a comparison of the geomembrane material Resin Blend #s. Any roll found to have been manufactured from other resin blends, shall not be used in the RMU-1 liner system repair. The CQA Engineer shall document the

above sampling frequency verifications in the repair certification required by **Condition C.2** of this Module. Geomembrane materials which have been approved by the Department subsequent to compatibility testing and are “left over” after completion of a repair, may be used in future repairs without repeating compatibility testing as long as these materials meet all provisions for “left over” geosynthetic materials as specified above in **Condition B.1.a** of this Module.

‘b’) Geonet, Geotextile, and Geocomposite Sampling/Testing Frequency

The geonet, geotextile and geocomposite materials shall be sampled at a minimum rate of one sample per product per year in which they are to be used in RMU-1 repair. For the purposes of this Permit condition, the term "product" means a group of materials produced by a single manufacturer that are the same material type. Geonet, geotextile and geocomposite materials which have been approved by the Department subsequent to compatibility testing and are “left over” after completion of a repair, may be used in future repairs without repeating compatibility testing as long as these materials meet all provisions for “left over” geosynthetic materials as specified above in **Condition B.1.a** of this Module.

ii) Geosynthetic Material Specification Information/Testing

‘a’) “Newly Purchased” Geosynthetic Materials

For “newly purchased” geosynthetic materials, the Permittee must obtain from each geosynthetic manufacturer, quality control documentation for smooth/textured geomembrane, geonet, geotextile and/or geocomposite materials to be used in a repair of RMU-1 liner and/or leachate collection system components. For the geosynthetic materials to be used, this quality control documentation must include all information and testing results as required by Sections 02400 (smooth geomembrane), 02401 (textured geomembrane), 02410 (geotextile), 02420 (geonet) and 02430 (geocomposite) of the RMU-1 Technical Specifications in Attachment J, Appendix D-7 of this Permit, and Sections 9.3 (geomembrane), 10.3 (geotextile), 11.3 (geonet) and 12.3 (geocomposite) of the RMU-1 Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. The Permittee must provide the above quality control documentation to the Construction Quality Assurance (CQA) Engineer supervising the repair, prior to utilizing the purchased geosynthetic(s) in the repair. The CQA Engineer must review this documentation and certify that each geosynthetic material used in a repair meets all technical specifications for each such geosynthetic as specified in the above listed Sections of the RMU-1 Technical

Specifications in Attachment J, Appendix D-7 of this Permit. Any geosynthetic material which fails to meet these technical specifications shall not be used in RMU-1 liner and/or leachate collection system repairs.

‘b’) “Left Over” Geosynthetic Materials

Under the circumstances listed in **Condition B.1.a** of this Module for “left over” geosynthetic materials, the Permittee must perform geosynthetic material testing on samples of “left over” smooth/textured geomembrane, geonet, geotextile and/or geocomposite materials to be used in a repair of RMU-1 liner and/or leachate collection system components. This testing must be conducted by an independent laboratory. For the geosynthetic materials to be used, samples of the actual material(s) shall be tested for all technical specifications which are applicable to the particular geosynthetic material as listed by Sections 02400 (smooth geomembrane), 02401 (textured geomembrane), 02410 (geotextile), 02420 (geonet) and 02430 (geocomposite) of the RMU-1 Technical Specifications in Attachment J, Appendix D-7 of this Permit, in strict accordance with the test methods specified by these Sections. The Permittee must provide all test results to the Construction Quality Assurance (CQA) Engineer supervising the repair, and to the Department. The CQA Engineer must review these test results and certify that each geosynthetic material used in a repair meets all technical specifications for each such geosynthetic as specified in the above listed Sections of the RMU-1 Technical Specifications in Attachment J, Appendix D-7 of this Permit.

The Permittee may complete repairs using these “left over” geosynthetic materials and restore the repaired area to its previous operational or closed status at its own risk, prior to receiving specification testing results, provided that all other Permit conditions pertaining to the repair involving these materials have been satisfied. Subsequently, if test results indicate that a geosynthetic material, or materials used in the repair fail to meet the RMU-1 Technical Specifications in Attachment J, Appendix D-7 of this Permit, the Department may require that the Permittee repeat the repair of the effected area. In response to this requirement, the Permittee must comply by repeating the repair using geosynthetic materials determined to meet the RMU-1 Technical Specifications in Attachment J, Appendix D-7 of this Permit, regardless of the fact that the previously repaired area has been restored to operational or closed status.

iii) Geosynthetic Material Conformance Testing

Regardless of whether the Permittee selects “newly purchased” or “left over” geosynthetic materials to make repairs to the RMU-1 liner and/or leachate collection systems, the Construction Quality Assurance (CQA) Engineer supervising the repair must obtain samples of the actual geosynthetic materials to be used in the repair for conformance testing. The CQA Engineer must conduct conformance testing on samples of geomembrane, geonet, geotextile and/or geocomposite materials to be used in a RMU-1 liner/leachate collection system repair in accordance with Sections 9.4 (geomembrane), 10.4 (geotextile), 11.4 (geonet) and 12.4 (geocomposite) of the RMU-1 Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. The CQA Engineer must obtain and review all conformance testing results and certify that each geosynthetic material to be used in a repair meets the tested for technical specifications for each such geosynthetic as specified in the applicable Sections 02400 (smooth geomembrane), 02401 (textured geomembrane), 02410 (geotextile), 02420 (geonet) and 02430 (geocomposite) of the RMU-1 Technical Specifications in Attachment J, Appendix D-7 of this Permit. Any geosynthetic material which fails to meet the tested for technical specifications shall not be used in RMU-1 liner and/or leachate collection system repairs.

b) Granular Repair Materials

For the granular material to be used in repairs of the RMU-1 leachate collection system(s), the Permittee shall obtain from the material supplier, quality documentation in accordance with Section 5.2 of the RMU-1 Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. The Permittee must provide the above quality control documentation to the Construction Quality Assurance (CQA) Engineer supervising the repair, prior to utilizing the granular material in the repair.

In addition, the CQA Engineer must conduct conformance testing on samples of the actual granular material to be used in a RMU-1 leachate collection system repair in accordance with Section 5.3 of the RMU-1 Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. The CQA Engineer must obtain and review the quality control documentation from the material supplier and all conformance testing results, and certify that the granular material to be used in a repair meets the technical specifications for such material as specified in Section 02210 of the RMU-1 Technical Specifications in Attachment J, Appendix D-7 of this Permit. Any granular material which fails to meet these technical specifications shall not be used in RMU-1 leachate collection system repairs.

c) Other Repair Materials

Other materials which may be needed for RMU-1 liner/leachate collection system repairs (e.g., clay for the soil liner(s), granular material for the operations layer, pipe for the leachate

collection system and standpipes, etc.) must meet their respective technical specifications as presented in Sections of the RMU-1 Technical Specifications in Attachment J, Appendix D-7 of this Permit. The Department may require testing as deemed appropriate to confirm that such materials meet technical specifications. In addition, any clay needed for soil liner repairs must be obtained from Department approved borrow sources for liner and/or cover soil barrier materials, and must meet all requirements as specified in **Condition I.4** of this Permit for final cover clay soil barrier material.

C. RMU-1 CONSTRUCTION & LINER/LEACHATE COLLECTION SYSTEM REPAIR

1. East Storm Water Retention Basin (ESRB) Construction

The Permittee shall construct an East Storm Water Retention Basin (ESRB) to receive storm water run-off from a portion of the RMU-1 covered area, as identified in Appendix I of the “RMU-1 Engineering Report” which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit. The ESRB and its associated inlet and outlet structures shall be constructed in strict accordance with the drawings and design parameters in Appendix I of the above referenced RMU-1 Engineering Report, and Drawing Nos. 2, 22 & 23 in Attachment J, Appendix D-6 of this Permit. The Permittee shall have all such construction supervised and under the control of a Construction Quality Assurance (CQA) Engineer, as defined by **Condition I.2.a** of this Permit. The Permittee shall complete construction of the ESRB and submit, for Department review and acceptance, the CQA Engineer's written certification with supporting documentation and as-built drawings prior to, or within 150 days of Permit issuance. This submission shall include volume calculations based on the ESRB as-built drawings which verify that the ESRB designed storm water containment capacity as specified in Appendix I of the above referenced RMU-1 Engineering Report, has been provided. The ESRB design must receive any and all necessary approvals pursuant to the State Pollutant Discharge Elimination System (SPDES) Article 17, Title 8 of the ECL, prior to commencing ESRB construction. The completed ESRB must be inspected by Department staff, and receive any and all necessary approvals pursuant to the State Pollution Discharge Elimination System (SPDES) Article 17, Title 8 of the ECL, prior to the ESRB discharging storm water.

In conjunction with or prior to ESRB construction, the Permittee shall insure that flood storage volume is being, or has been provided at all times during such construction so that it is sufficient to compensate for flood volume being displaced by the ESRB. To accomplish this, the Permittee shall remove soil from the general fill stockpile east of RMU-1 and from areas immediately surrounding this stockpile, to the grades depicted on the “East Stormwater Retention Basin - Site Plan” (Figure 1) and the “Compensatory Flood Storage Area - Plan & Section” (Figure 3) in Attachment J, Appendix D-6 of this Permit, so as to provide a minimum of 3.1 acre-feet or greater of additional flood storage volume as necessary to compensate for the flood volume which will be displaced by the RMU-1 ESRB, based on the volume calculations included in the Permittee’s submission dated May 21, 2001. In lieu of removing soil from the general fill

stockpile to the grades depicted on the above referenced Figure 1&3, the Permittee may, at its discretion, remove soil from this and/or other stockpiles south and east of RMU-1 within the Twelvemile Creek Floodplain, as long as the total additional compensatory flood storage volume provided is 3.1 acre-feet or greater as needed for the ESRB. All removed soils shall either be re-located outside of the Twelvemile Creek Floodplain or used in the construction of the ESRB berm if such soil is deemed suitable for this purpose. Any areas where soils are removed shall be seeded to establish vegetation. With the above required submission of the CQA Engineer's certification and supporting documentation regarding ESRB construction, the CQA Engineer shall also include a topographic survey of the area, or areas used to provide flood storage volume for the ESRB, volume calculations based on this survey which verify that the additional flood storage volume provided is sufficient to compensate for the flood volume displaced by the ESRB.

2. RMU-1 Liner/Leachate Collection System Repair Requirements

The Permittee must implement repairs to the RMU-1 liner and/or leachate collection system when defects are identified during landfill inspections or when such repairs are required as response actions in accordance with **Condition G.4** of this Module. The term "leachate collection system" as it is used in this particular condition, refers to components used to collect leachate (e.g., geocomposites, stone drainage layers), and not to components used to remove leachate from the landfill (e.g., pumps, electrical controls). If defects are identified in operational areas of RMU-1, the Permittee must immediately upon identification of such defects, cease all waste placement in the immediate area of the defect(s) and the surrounding area needed to facilitate repairs. Also, if such defects involve breaches of the primary and/or secondary geomembrane liner(s), the Permittee must immediately take any and all actions necessary to prevent leachate and contaminated surface water from entering the area of the defect(s) so as to prevent leakage. The Permittee shall submit for Department review and approval, a schedule for completing repairs to all identified defects in cases where it will, or it does take longer than seven (7) days to complete repairs as measured from the date the defect(s) was/were identified, in accordance with 6NYCRR 373-2.2(g)(3) and the requirements in **Module I, Condition N.2** and Attachment F of the Permit.

The Permittee must perform repairs on the RMU-1 liner and/or leachate collection system using procedures consistent with their original construction and in strict accordance with the following documents, unless otherwise modified by requirements in this Permit condition:

- The "RMU-1 Landfill Drawings" in Attachment J, Appendix D-6 of this Permit;
- The "RMU-1 Landfill Technical Specifications" in Attachment J, Appendix D-7 of this Permit;
- The "RMU-1 Landfill Quality Assurance Manual" in Attachment J, Appendix D-8 of this Permit; and
- The "RMU-1 Engineering Report" from the Permit Application which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit.

The Permittee shall use materials in making these repairs which are compatible and consistent with those materials used in the original construction of the RMU-1 liner/leachate collection systems, and must fulfill all requirements pertaining to such materials as specified by **Condition B.1** of this Module. The Permittee shall have all liner/leachate collection system repairs supervised and under the control of a Construction Quality Assurance (CQA) Engineer, as defined by **Condition I.2.a** of this Permit, unless such repairs only involve the operations layer component of the system. During such repairs, the CQA Engineer shall be responsible for fulfilling material qualification requirements as specified by **Condition B.1** of this Module, and the quality control procedures applicable to the particular component(s) being repaired as specified by the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit unless otherwise modified by requirements in this Permit condition. The Permittee shall also adhere to the following component specific repair requirements.

a) Geomembrane Liner(s) Repair Requirements

The Permittee shall patch/cap strip all identified geomembrane defects using fusion and/or extrusion welding devices which meet requirements in the RMU-1 Technical Specifications, Attachment J, Appendix D-7 of this Permit. The Permittee shall employ only welding personnel who meet the qualification requirements in the RMU-1 Technical Specifications, Attachment J, Appendix D-7 of this Permit and the RMU-1 Landfill Quality Assurance Manual, Attachment J, Appendix D-8 of this Permit. The CQA Engineer supervising the repair shall instruct qualified welding personnel to perform test seams on scraps of actual geomembrane and shall test all such seams for strength as required by Section 9.7 of the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. The CQA Engineer shall confirm that the test seam results meet the seam strength requirements in Section 02400 (smooth geomembrane) or 02401 (textured geomembrane) of the RMU-1 Technical Specifications in Attachment J, Appendix D-7 of this Permit. The CQA Engineer shall not allow welding equipment and/or welding personnel to perform actual repairs when a test seam produced by the welder does not meet the above referenced strength requirements. All actual repair seams shall be non-destructively tested by the CQA Engineer in accordance with Section 02400 (smooth geomembrane) or 02401 (textured geomembrane) of the RMU-1 Technical Specifications in Attachment J, Appendix D-7 of this Permit and Section 9.8 of the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. Destructive testing of actual repair seams shall only be performed when the total length of all such seams exceeds 500 feet, in accordance with Section 9.9 of the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit.

b) Clay Soil Liner(s) Repair Requirements

If clay soil liner repairs are needed and the Permittee determines that the area to be repaired is not of sufficient size to facilitate the use of placement and compaction equipment employed during the liner's original construction, the Permittee shall submit for Department

approval an alternate clay soil placement and compaction plan for the repair area(s) which will produce a clay soil liner that meets moisture/density and permeability requirements in this Permit.

Upon completion of RMU-1 liner and/or leachate collection system repairs, the Permittee shall submit for Department review and acceptance, the CQA Engineer's certification, along with supporting documentation, that the repair has been completed in accordance with this Permit and that the repaired area is deemed acceptable for hazardous and industrial non-hazardous waste disposal. If not all material testing results required by **Condition B.1** of this Module are available at the time repairs are completed, the CQA Engineer may issue a certification that is conditioned upon the satisfactory outcome of the pending material tests. The Permittee shall not re-commence waste placement in the area(s) of the repair and return it to operational or closed status, until the Permittee receives the CQA Engineer's certification or conditional certification. If the Permittee receives a conditional certification due to pending material testing results, the Permittee may re-commence waste placement in the area(s) of the repair at its own risk in accordance with the provisions in **Condition B.1.a** of this Module.

D. RMU-1 WASTE DISPOSAL

The Permittee may receive for disposal in RMU-1 only those solid hazardous and solid non-hazardous wastes identified as being acceptable for land burial in accordance with 6NYCRR Part 376, 6NYCRR Part 373-2.14, and the Waste Analysis Plan (WAP) in Attachment C of this Permit, subject to the restrictions and limitations of this Permit Module. The Permittee may not accept for land disposal in RMU-1 any putrescible non-hazardous waste (e.g., municipal waste).

1. Annual Waste Cap

The Permittee shall not accept for land disposal more than 425,000 tons of waste, applying credits and excluding exemptions, in any calendar year. The determination of the amount of waste land disposed on a tonnage basis will be calculated based upon gate receipt data. The 425,000 ton total shall not include any waste generated at a New York State remedial project subject to a federal or state Record of Decision (ROD), order on consent (or any other state or federally approved work plan or enforcement vehicle having the same or similar effect), a Permit condition, or that which is funded in whole or in part by New York State or any governmental subdivision of the State. Characteristic hazardous wastes that are received, de-characterized on-site, and then sent off-site for disposal at a permitted RCRA Subtitle D facility will be entitled to a ton for ton credit up to a maximum of 25,000 tons per year. The credited amount shall be based on the gate receipt weight for each characteristic hazardous waste prior to on-site treatment. In addition, all on-site remedial wastes are exempt from the 425,000 ton total.

For the purposes of determining the annual volumes of hazardous and industrial non-hazardous wastes subject to the volume restrictions contained in this condition, but without altering any of

the existing Permit provisions such as the Waste Analysis Plan, "hazardous waste" shall include all wastes meeting the definition of hazardous waste set forth in 6 NYCRR sections 371.1(c), (d) and (e) and in 40 CFR Part 261. Industrial non-hazardous wastes shall include all other wastes generated by industry.

2. Department Waste Stream Review Process

- a) Each waste stream to be landfilled in RMU-1 must be reviewed by Department staff prior to placement in the landfill. This review shall not diminish the Permittee's responsibility to fully implement the provisions of the Waste Analysis Plan in Attachment C of this Permit, or other provisions of this Permit. The Permittee may not use a waste review performed by the Department staff in defense of any non-compliance with the requirements of this Permit or any State, federal, or local laws or regulations.
- b) Requests for waste stream review shall be submitted to the Department in accordance with the Waste Analysis Plan in Attachment C of this Permit.
- c) The Permittee shall submit all waste stream review requests in a form which is acceptable to Department staff performing the review. All information that the waste generators have provided to the Permittee for pre-acceptance review shall be made available for review by the Department's waste review staff. The Permittee shall allow the Department a minimum of one (1) complete 24 hour business day for review of a waste stream. The Department shall provide the Permittee with notification of any problems associated with the land disposal of a waste stream within 5 working days after all the information needed by Department staff has been supplied.
- d) If a practical alternative method of processing, reclaiming, or destroying a specific waste stream becomes available, the Permittee shall pursue with the Department the feasibility of using such an alternative method. If technologies, as above, become available for a specific waste, the Department may restrict or limit the landfilling of that waste or require treatment of the waste prior to landfilling.
- e) Waste stream review requests for New York State remedial wastes defined as "Authorized" in **Condition D.2** of this Module shall include the designation "NYA" in the comments section.

3. Waste Disposal Restrictions

a) Industrial Non-Hazardous Waste Organic Content Restrictions

The Permittee shall perform a "2 percent organic limit analysis" on each landfill candidate non-hazardous waste stream which is identified as requiring organic analysis in the pre-acceptance review process. The analysis shall be a GC screening method that quantifies

organic priority pollutants and solvent constituents (taken from F001-F005 waste listings). Alternately, other approved organic analysis methods, such as volatiles by GC/MS, may be used to determine concentration of the organic constituents.

Non-hazardous wastes which exceed the "2 percent organic limit" using the "2 percent organic limit analysis" as described above shall not be accepted for landfill disposal.

The quantitative results for the non-targeted constituents which are obtained through the use of appropriate additional standards in the GC/FID screening method, or by confirmatory GC/MS methods, shall be made available for Department review. The Department may deny land disposal for non-hazardous waste streams containing significant amounts of non-target organic constituents on a case by case basis.

The Department may specify a higher or lower percent by weight limitation than in this **Condition D.3.a** of this Module for any particular organic waste constituent or non-hazardous waste stream based upon the toxicity, leachability, and mobility of such waste or constituent. Such determination may be made by the Department on its own initiative or upon the application of the Permittee as provided in 6NYCRR Part 621.

The Permittee may petition the Department for the continued land disposal of a specific non-hazardous waste stream prohibited by this condition, demonstrating that practical alternative treatment facilities do not exist. Such a demonstration must include a justification for why the waste cannot be otherwise treated and/or incinerated, and written statements from commercial facilities verifying that existing units cannot manage the waste.

b) On-site Aqueous Waste Treatment (AWT) Filter Cake

Filter cake from the Permittee's on-site wastewater treatment process shall be sampled, analyzed, and subjected to the same Permit disposal restrictions as similar off-site generated wastes.

c) Ignitable and/or Reactive Wastes

The Permittee shall not place ignitable or reactive wastes in the landfill as restricted by 6NYCRR 373-2.14(h) and shall document compliance with this condition as required by 6NYCRR 373-2.2(i)(3).

d) Liquid Wastes

The Permittee shall not place in the landfill unit, bulk or non-containerized liquid waste or waste containing free liquids (regardless of whether or not absorbents have been added) as restricted by 6NYCRR 373-2.14(j)(1). The Permittee shall not place containers holding free liquids in the landfill except as allowed by 6NYCRR 373-2.14(j)(2). The Permittee must

demonstrate compliance with this condition in accordance with 6NYCRR 373-2.14(j)(3) whenever the Permittee or Department staff consider it to be necessary based on visual observations of the waste and/or waste characterization information. Containers found to have free liquid shall be processed as required by the Waste Analysis Plan in Attachment C of this Permit.

e) Hazardous Waste Codes F020, F021, F022, F023, F026 & F027

Hazardous waste gate receipts of F020, F021, F022, F023, F026 and F027 materials shall not be placed in the landfill unit. Acceptance of materials bearing these waste codes is allowed for waste that may be classified as derived from F020-F023 and F026-F028 (i.e. leachate). No current production waste or outdated products with these codes will be accepted.

4. Waste Disposal Limitations

a) Lightweight Wastes

Waste that has the potential to become airborne dust or debris must be containerized or otherwise managed in accordance with the facility Fugitive Dust Control Plan in Attachment L, Appendix D-10 of this Permit.

b) Soluble Wastes

Prior to landfilling, soluble wastes shall be pre-treated to the extent feasible using the Permittee's on-site treatment facilities. Soluble wastes shall be placed in the landfill in such a way as to minimize pocketing of soluble material.

c) Combustible Wastes

No material that is combustible shall be placed in the acid generating zones of the landfill, as those zones are defined in **Condition D.4.d** of this Module, unless the material is a part of the actual waste stream or its packaging is approved by the Department.

d) Acid-Sensitive & Acid-Generating Wastes

An acid-sensitive zone shall be established throughout the landfill. Only acid-sensitive materials and materials compatible with such, shall be placed into this zone. A 50 foot neutral buffer zone shall be established to separate acid-sensitive waste from acid-generating waste. An acid-generating landfill zone shall be delineated on the opposite side of the acid-sensitive zone. At locations in Cell 9/10 where acid-sensitive wastes are to be disposed of at elevations above acid-generating wastes, a separation distance of less than 50 feet may be used as long as the vertical neutral buffer zone is at least one lift thick. All acid-sensitive and acid-generating wastes shall be identified in accordance with **Module I, Condition L.2** of

this Permit, to distinguish them for proper disposal. The Permittee must verify the prescribed separation distances for each waste identified as acid-sensitive or acid-generating in accordance with **Condition E.5.i** of this Module.

e) Low Strength Wastes

For each non-containerized bulk waste stream to be disposed of in RMU-1, the Permittee must determine that the strength properties of such waste satisfy minimum required bulk waste strength values in terms of the waste's cohesion and friction angle as presented on the "RMU-1 Minimum Waste Strength Curves" in Attachment K, Appendix D-11 of this Permit, whose development is based on the RMU-1 design and stability analyses presented in the "RMU-1 Engineering Report" which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit.

For bulk contaminated soils, and any dry bulk contaminated soil-like materials (e.g.,: sandblast grit, salts, etc.) as determined by the Department on a case-by-case basis, a soil identification may be performed and, based on the established strength characteristics for the soil type in terms of cohesion and friction angle, the contaminated soil or approved soil-like material may be judged to have sufficient strength using Table 9.1 from "Design Manual - Soil Mechanics, Foundations and Earth Structures", NAVFACDM-7, March 1971.

For non-soil and non-soil-like (hereafter referred to collectively as "non-soil") bulk waste streams, the Permittee shall perform a compressive strength analysis using either:

- a remolded sample from the waste generator ("sale sample"), or
- a remolded sample taken prior to placement in RMU-1 ("field mix/as received sample"). The sample shall be obtained from the actual field mixing process being utilized or from "as received" wastes not requiring stabilization prior to disposal.

"Non-soil" bulk waste streams which are received at a rate equal to or less than 100 tons per year may be landfilled without compressive strength analysis. The first 20 tons of "non-soil" bulk waste streams that will be landfilled at a rate of greater than 100 tons per year may be landfilled prior to completion of the compressive strength analysis (waste in excess of the 20 tons may not be landfilled until satisfactory compressive strength analysis results are obtained). The Permittee will indicate the use of either exclusion on the waste stream information it submits for Department review in accordance with **Condition D.2** of this Module.

Any bulk waste whose "sale sample" fails to meet the required minimum strength values for RMU-1 as depicted by the "Min. Line" on the "RMU-1 Minimum Waste Strength Curves" in Attachment K, Appendix D-11 of this Permit, using 75% cohesion after no more than one week of curing shall not be accepted for disposal in RMU-1. Any bulk waste whose "field

mix/as received sample” fails to meet the required minimum strength values as depicted by the “Min. Line” on the “RMU-1 Minimum Waste Strength Curves” in Attachment K, Appendix D-11 of this Permit, using 100% cohesion after no more than one week of curing shall have its disposal in RMU-1 immediately discontinued. Placement of such waste shall not recommence until an adequate evaluation of the failure is conducted and passing test results are achieved. The Permittee also may not dispose of any below minimum strength bulk waste in RMU-1 by placing it in macroencapsulation boxes or other non-steel containers. Results of all testing performed pursuant to this condition, and documentation on waste quantities necessary to demonstrate compliance with the restrictions contained in this condition, shall be included in the Operating Record in accordance with 6NYCRR 373-2.5(c) as required by **Condition D.5.c** in **Module I** of this Permit. The Permittee shall report any failed samples to the Department promptly.

Bulk waste that is determined to have cohesion and friction angle values which plot above the “Min. Line” but below the “1.5 Line” on the “RMU-1 Minimum Waste Strength Curves” in Attachment K, Appendix D-11 of this Permit, may be disposed by the Permittee in RMU-1 as “Acceptable Minimum Strength (AMS)” waste under the following limitations and provisions.

- i) The AMS waste shall be spread in thin lifts and blended with other gradable wastes. If the AMS waste is not adequately blended with other wastes, the AMS waste must be placed in maximum one (1) foot thick horizontal layers within a waste lift approximately parallel to the floor of the landfill and with a vertical separation between AMS waste layers of at least nine (9) feet.
- ii) The maximum volume of AMS waste shall not exceed ten percent (10%) of the waste placed within the landfill in any given month. The amount of AMS waste landfilled shall be reported to the Department on a monthly basis.
- iii) If any AMS waste is received at greater than 200 tons per year, this will be noted on the waste stream information submitted for Department review in accordance with **Condition D.2** of this Module, and a strategy for placement of such AMS waste in the landfill shall be developed by the Permittee and submitted for Department approval.

The Permittee must promptly notify the Department of any bulk waste stream, which has previously passed the soil identification or compressive strength analysis, for which visual observation and/or testing indicates changed physical or chemical characteristics and is suspected of no longer being of acceptable compressive strength. The Department may select this or any other bulk waste stream it deems appropriate for additional compressive strength analysis by the Permittee, at its discretion. The requirements of this condition do not apply to solid debris and wastes contained in steel drums or other rigid steel containers.

f) Containerized Wastes

To address void space, the Permittee must fill or crush waste containers as required by 6NYCRR 373-2.14(k).

5. Procedure for Disposal of Package Lab Chemicals in RMU-1

- a) Disposal of Package Lab Chemicals (PLCs) in RMU-1 shall be as described in Section C-1 of the Waste Analysis Plan (WAP) in Attachment C of this Permit.
- b) The packing lists will be reviewed and a confirmation made that the materials meet the criteria in “a” above. In addition, the materials will be reviewed to confirm that they are acceptable under the terms of this Permit and the above referenced WAP. The packing lists will be submitted to Department staff with the waste stream information submitted for Department review in accordance with **Condition D.2** of this Module and they will include sufficient detail to allow the Department to confirm that the wastes meet the requirements of this Permit and the above referenced WAP. Alternately, a list of chemicals will be submitted to Department staff in addition to a database of PLC compounds previously disposed in RMU-1.
- c) The contents of each lab pack will be confirmed by removing the individual items from the lab pack and checking them against the packing lists. The containers may be returned to the original drum/container or re-packed in another drum/container (e.g., a one cubic yard box). Five gallon pails of solid material may be labeled and disposed of directly in the landfill.
- d) Alternately, after steps “a” and “b”, the lab pack drums may be shredded, the bulk material fingerprinted and then disposed of in the landfill.

6. Interim Storage of Stabilized Waste in RMU-1

The Permittee may place stabilized bulk wastes in RMU-1 for interim storage while awaiting results of Toxic Characteristics Leachate Procedure (TCLP) tests to determine the waste’s compliance with land disposal restrictions in 6NYCRR 376. The placement, storage and ultimate disposition of such waste must be in accordance with the following requirements.

- a) Each stabilized bulk waste load must be placed on a geosynthetic separation material or a stone layer with a minimum thickness of 2 inches, in a distinct interim storage pile, separate from other bulk waste loads and other wastes.
- b) Each such interim storage pile must have a flag or other marker displayed with an identifier(s) that correlates to waste tracking information which indicates the specific waste in the pile and the date the pile was placed in the landfill.

- c) Daily cover must be applied to all interim storage piles on the date of their placement in the landfill and maintained for the duration of each piles storage period.
- d) If the TCLP test results on a stabilized bulk waste load in an interim storage pile indicates that the waste meets requirements for land disposal, the Permittee may place the waste in a permanent disposal location within RMU-1.
- e) If the TCLP test results on a stabilized bulk waste load in an interim storage pile indicates that the waste does not meet requirements for land disposal, the Permittee must remove the failed interim storage pile from the landfill, along with the underlying stone layer (if present), within five (5) working days or place it and the stone layer (if present), in a covered container within the same time period. If the Permittee elects to place the waste in a container, it must be removed from the landfill within two (2) weeks as measured from the date it was placed in the container. Any such failed stabilized waste load may be returned to interim storage in the landfill subsequent to re-stabilization, but may not be permanently disposed in the landfill until it is re-tested and the test results indicate the waste's compliance with the land disposal restrictions in 6NYCRR 376.

7. Final Waste Screening Procedures

The Permittee shall perform final waste screening procedures to identify wastes that do not meet land disposal requirements or are restricted from land disposal by conditions in this Permit.

a) Containerized Wastes

The Permittee shall open and visually inspect all drums and other larger containers which were not filled on-site by the Permittee prior to landfill disposal, with the exception of some asbestos containers as noted in Section C-2e(2) of the Waste Analysis Plan (WAP) in Attachment C of this Permit. The Permittee shall use a code(s) or other means of identifying the intended method of disposal of each waste stream contained in drums or other containers. The Permittee shall also randomly select 10 percent of all such drums/containers for sampling and analysis of their contents in accordance with the WAP in Attachment C of this Permit. Exceptions to this sampling requirement are as noted in Section C-2d(1)(a) of the WAP in Attachment C of this Permit. Should the contents analysis of any randomly selected drum or container indicate waste that is unacceptable for land disposal, the Permittee shall analyze all such drums/containers from that waste stream shipment or assume that all such drums/containers from the waste stream shipment contain wastes which are unacceptable for land disposal. Any and all drums/containers that are identified as containing wastes that do not meet the land disposal requirements in 6NYCRR 376 or are restricted from land disposal by this Permit, shall not be disposed of in RMU-1.

b) Non-Containerized (Bulk) Wastes

The Permittee shall spread out all bulk waste loads in thin layers within the landfill to facilitate a final inspection. During or subsequent to the spreading of a waste load, but prior to it being covered by other wastes or daily cover, the Permittee shall have trained landfill personnel familiar with the waste disposal conditions of this Permit, visually inspect the waste for conformance with waste disposal Permit conditions. This inspection should be conducted in a manner consistent with the Personnel Training Plan in Attachment H of the Permit and the Permittee's safety policies, using field glasses (i.e., binoculars) where necessary to facilitate a safe and thorough inspection of the waste surface. Any bulk waste load or portion thereof, which is identified by landfill personnel as obviously not meeting the land disposal restrictions/requirements of this Permit, shall be placed in an appropriate container(s) and removed from the landfill. In addition, any fire or apparent reaction identified by landfill personnel as occurring within a bulk waste load or on the waste in the landfill, shall require the immediate implementation of the facilities' Contingency Plan in Attachment G of this Permit.

8. Improper Land Disposal Waste Tracking and Retrieval

a) Waste Tracking

The Permittee shall maintain records of all waste containers and bulk waste loads it receives which are designated for land disposal by the waste generator, but which are determined to be unacceptable for land disposal as a result of manifest information, information obtained in accordance with the Waste Analysis Plan (WAP) in Attachment C of this Permit, identification by the screening procedures required by **Condition D.7** of this Module, or other waste information obtained by the Permittee or the Department, prior or subsequent the waste's disposal. These records shall indicate the name and EPA identification number of the waste generator in each such case, the type of waste involved, the date and reason it was determined to be unacceptable for land disposal, a brief description of how it was identified and the associated circumstances, and the final disposition of the waste.

The Permittee shall submit to the Department with the Annual Report required by **Condition D.5.e** in **Module I** of this Permit, a listing of any and all waste generators (based on EPA ID Number) having three (3) or more occurrences during the previous calendar year of waste improperly designated for land disposal based on the Permittee's records required by this condition. These listings submitted with the Permittee's Annual Report must also include the details of each occurrence based on the Permittee's records. Based on the Department's review of this annual listing and accompanying information, the Department may require the Permittee to implement additional waste analysis and/or screening procedures for wastes it receives in the future from specific generators identified by the Department. If the Department determines that such additional waste analysis and/or screening procedures are warranted, it shall notify the Permittee in writing indicating the generator(s) and the specific

analysis and/or procedures it considers necessary for waste accepted by the Permittee from that/those generator(s). Within thirty (30) days of any such notification the Permittee must either:

- i) Indicate in writing that the Permittee will implement the additional waste analysis and/or screening procedures indicated by the Department for the identified generator(s); or
- ii) Propose in writing for Department approval, alternative additional waste analysis and/or screening procedures for identified generator(s); or
- iii) Indicate in writing to the Department that it will no longer accept waste from the identified generator(s).

b) Waste Retrieval

Subsequent to land disposal in RMU-1, any containerized or bulk waste identified as not meeting the land disposal requirements in 6NYCRR 376 or are restricted from land disposal by this Permit, must be located by the Permittee using the waste location system required by **Condition E.5.i** of this Module, and retrieved by the Permittee for appropriate disposition, unless in specific cases the waste in question is under the final cover or two (2) or more lifts below the active landfill surface **and** the Department determines that such retrieval is not necessary based on waste information provided by the Permittee.

E. RMU-1 OPERATING REQUIREMENTS

The Permittee shall operate RMU-1 in strict accordance with 6NYCRR 373-2.14(c), the conditions in this Module, and the requirements in the Permit attachments and other documents listed below:

- The “RMU-1 Landfill Drawings” in Attachment J, Appendix D-6 of this Permit;
- The “Fugitive Dust Control Plan” in Attachment L, Appendix D-10 of this Permit;
- The “RMU-1 Engineering Report” which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit;
- The “RMU-1 Operations and Maintenance (O&M) Manual” which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit; and
- The “RMU-1 Leachate Level Compliance Plan (LLCP)” which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit.

1. RMU-1 Waste Fill Progression

The Permittee shall at no time advance the RMU-1 waste fill beyond the horizontal and vertical limits depicted by the topographic contours on the “Top of Waste Grades” Drawing No.11 in

Attachment J, Appendix D-6 of this Permit. The Permittee shall not advance the RMU-1 waste fill beyond the horizontal and vertical limits depicted by the topographic contours on “RMU-1 Fill Progression and Truck Routes” Figure 1 (hereafter referred to in this Module as “Figure 1”) contained in the RMU-1 O&M Manual which is incorporated by reference into this Permit by **Module I**, without written Department approval of a revised Figure 1 and other document revisions as specified by the conditions in this Module.

a) Waste Fill Progression From Operation of Final Cell To Landfill Capacity

The Permittee may advance the RMU-1 waste fill up to, but not beyond the horizontal and vertical limits depicted by the topographic contours on the most recently approved Figure 1 associated with the Department's approval for final cell waste placement, as contained in the RMU-1 O&M Manual which is incorporated by reference into this Permit by **Module I**. The Permittee may not place wastes beyond the topographic contours on the approved Figure 1 without written Department approval of additional figures and document revisions which indicate/describe the waste fill progression strategy to achieve landfill capacity, as specified by the conditions below..

i) Submission of RMU-1 O&M Manual Revisions

The Permittee must submit for Department approval, all revisions to the RMU-1 O&M Manual necessary for waste fill progression to the landfill's capacity as depicted by the topographic contours on the “Top of Waste Grades” Drawing No.11 in Attachment J, Appendix D-6 of this Permit. These revisions must be approved by the Department prior to any waste placement beyond the horizontal and vertical limits depicted by the topographic contours on the most recently approved Figure 1 contained in the RMU-1 O&M Manual. These revisions must, at a minimum, include the following.

- ‘a’) Additional figures and descriptions indicating waste fill progression and final cover placement phases to achieve landfill capacity, the management of contaminated surface water run-off including ditches, culverts and detention basins within the operational areas of the landfill, and haul routes into and out of the landfill.
- ‘b’) Revised slope stability analyses that evaluate the stability of the waste fill progression stages prior to achieving final waste grades as depicted on Drawing No.11 in Attachment J, Appendix D-6 of this Permit, in accordance with **Condition E.2.b** of this Module.
- ‘c’) Other revisions as necessary for landfill operation to achieve landfill capacity.

ii) Submission of RMU-1 Leachate Level Compliance Plan (LLCP) Revisions

The Permittee shall submit and obtain Department approval of revisions to the RMU-1 Leachate Level Compliance Plan (LLCP) which are necessary for proper leachate/contaminated surface water run-off management up to landfill capacity, in accordance with **Condition E.3.d** of this Module.

2. RMU-1 Waste Mass Stability

The Permittee shall maintain RMU-1 waste mass stability throughout the landfill operation, closure, and post-closure periods. Any and all slope stability analyses required by the conditions of this Permit, must be conducted in accordance with the methods and assumptions used in the RMU-1 Engineering Report which is incorporated by reference into this Permit by **Module I**, including, but not limited to the landfill component input parameters presented in Table 2.0 below:

TABLE 2.0¹			
Landfill Component	Component Weight (pcf)	Component Cohesion (psf)	Component Friction Angle
Protective/Vegetative Cover Soil	125	0	25
Textured Cover System	58.7	0	15°
Compacted Clay Cover System	130	1000	10°
GCL Cover System	130	0	26 / 17.8 / 22.4 ²
Waste	111	0	24°
Granular Operations Layer	135	0	24°
Granular Primary Leachate Collection Layer	135	0	24°
Textured Primary Liner	58.7	0	15°
Smooth Primary Liner	58.7	0	10.5°
Compacted Clay Primary Liner	130	1000	10°
Granular Secondary Leachate Collection Layer	135	0	24°
Textured Secondary Liner	58.7	0	15°
Smooth Secondary Liner	58.7	0	10.5°

TABLE 2.0¹			
Landfill Component	Component Weight (pcf)	Component Cohesion (psf)	Component Friction Angle
Compacted Clay Secondary Liner	130	1000	10°
Structural Fill (berm)	130	2000	0
Native Upper Till Soils	130	800	10°
Native Glacio-Lacustrine Clay	125	320	10°
Native Glacio-Lacustrine Sand	130	0	30°
Bedrock	140	2000	40

FOOTNOTE: 1. The values in this table were derived from the RMU-1 Engineering Report. Upon Permittee request, the Department may approve other values for use in the stability analyses required by Condition E.2.b of this Module.

2. For GCL final cover stability, the peak and residual friction angles tested at a slow strain rate are 26° and 17.8° respectively, and the residual friction angle tested at a rapid strain rate is 22.4°.

In addition, any and all slope stability analyses required by the conditions of this Permit, must evaluate both “circular” and “sliding block” failure modes under both “static” and “seismic” conditions. All such stability analyses must yield a minimum static safety factor of 1.5 to demonstrate adequate bottom liner and final cover static stability. For bottom liner system seismic stability, a pseudo-dynamic analysis must yield a minimum seismic safety factor of 1.0 with zero liner system displacement. For final cover system seismic stability, a displacement analysis must yield a seismic deformation of less than 12 inches to demonstrate adequate final cover seismic stability.

a) Stability of Final RMU-1 Landfill Slopes

The stability analyses of the slopes depicting the final horizontal and vertical extent of the RMU-1 landfill as presented by the topographic contours on the “Top of Vegetative Cover Grades” Drawing No.12 in Attachment J, Appendix D-6 of this Permit, are contained in the RMU-1 Engineer Report which is incorporated by reference into this Permit by **Module I**. Any revisions to, or replacement of these stability analyses must be submitted and approved by the Department.

b) Stability of Maximum Waste Fill Progression Slopes

The stability analyses of the most critical slopes depicting the maximum approved waste fill progression as presented by the topographic contours on Figure 1 in the RMU-1 O&M Manual, are contained in the approved RMU-1 O&M Manual which is incorporated by

reference into this Permit by **Module I**. The Permittee shall not place wastes beyond the topographic contours on the approved Figure 1 without first submitting and obtaining Department approval of revised waste fill progression figure(s) and slope stability analyses of the most critical (i.e., steepest, highest, longest) waste slope as depicted on the revised figure(s). Upon Department request, the Permittee shall also submit additional slope stability analyses of other specific waste slopes depicted on the revised figure(s) which the Department considers as critical to waste mass stability.

c) Requirements for All Waste Slopes

RMU-1 waste slopes shall not exceed a 3on1 gradient, except under specific circumstances allowed by this Permit condition. The Permittee may construct waste slopes in RMU-1 with gradients between 3on1 and 2on1 as long as such slopes do not exceed the maximum vertical height from toe to crest of 45 feet, based on the stability analyses of 2on1 waste slopes in the RMU-1 Engineer Report which is incorporated by reference into this Permit by **Module I**. Under no circumstances shall the Permittee construct any waste slope in RMU-1 exceeding a 2on1 gradient. The rate of vertical waste placement in any given location within RMU-1 shall be no greater than 23 feet per month, and shall not exceed 100 feet per year, so as to allow the development of adequate shear strength in the underlying Glaciolacustrine Clay layer, based on the landfill stability analyses assumptions used in the RMU-1 Engineer Report which is incorporated by reference into this Permit by **Module I**. The Permittee must demonstrate compliance with these limits in each Periodic Waste Mass Survey submitted in accordance with **Condition H.1** of this Module.

3. Primary Leachate and Contaminated Surface Water Run-Off Management

The Permittee shall maintain and operate a primary leachate and contaminated surface water run-off collection and removal systems to collect and remove leachate and contaminated surface water from the landfill. These systems must be maintained and operated in accordance with: 1) 6NYCRR 373-2.14(c); 2) the "RMU-1 Landfill Drawings" and the "RMU-1 Technical Specifications" in Attachment J of this Permit; 3) the "RMU-1 Engineering Report", the "RMU-1 Operations and maintenance (O&M) Manual" and the "RMU-1 Leachate Level Compliance Plan (LLCP)" which are incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit; and 4) the conditions in this Module.

a) Primary Leachate Levels

The primary leachate levels, as monitored in the primary leachate standpipes, shall not exceed a depth of one (1) foot directly above the lowest elevation of the primary geomembrane within each cell (excluding each cell's sump area) for a continuous period longer than 24 hours as measured from the time when the level first exceeds the one (1) foot depth. However, until initial waste placement in the fourth waste lift in any cell commences ("waste lift" as defined by **Condition E.5.c** of this Module), the leachate level on the primary

liner in that cell may exceed the previously defined one (1) foot depth for a period of time not exceeding seven (7) consecutive days, as measured from when the level first exceeds the one (1) foot depth. Leachate levels within any sump area shall be maintained at the lowest practical levels.

b) Primary Leachate Removal

Primary Leachate in cell standpipes must be monitored and pumped automatically using permanently installed sensors, alarms, and pumping equipment. The pumping equipment shall be selected in accordance with the RMU-1 Technical Specifications in Attachment J, Appendix D-7 of this Permit, and as specified in the RMU-1 O&M Manual and the RMU-1 LLCPP which are incorporated by reference into this Permit by **Module I** of this Permit, with added pumping capacity as necessary to insure compliance at all times with 6NYCRR 373-2.14(c)(3)(ii) and **Condition E.3.a** of this Module.

Additional pumps and other spare parts shall be provided on a standby basis for ready replacement. Inoperable pumps shall be replaced within 48 hours of failure. Leachate pumps shall be fitted with power failure and high leachate level indicator alarms; leachate level indicator alarms shall be routinely monitored during each operating shift. During periods of heavy rains the monitoring frequency shall be increased. The Permittee shall maintain operation of all primary leachate pumping equipment in a “level sensor” automatic mode at all times, except for short periods of routine maintenance and pumping system repairs. Standpipes are to be covered at all times except when sampling, taking level measurements and, performing maintenance.

c) Contaminated Surface Water Run-Off Management

The Permittee shall construct Detention Basin(s) of adequate capacity within the operational areas of RMU-1 in accordance with the RMU-1 O&M Manual and the RMU-1 LLCPP which are incorporated by reference into this Permit by **Module I** of this Permit, to collect and control contaminated surface water run-off resulting from a 24-hour, 25-year storm as required by 6NYCRR 373-2.14(c)(8). The Permittee shall remove accumulated surface water run-off from all detention basins and other areas of the landfill. Any time the depth of such water first exceeds 12 inches, as measured from the low point in each detention basin or waste depression, it must be lowered to 12 inches or less in all such basins and depressions within seven (7) calendar days, in accordance with 6NYCRR 373-2.14(c)(9). The Department, on a case-by-case basis, may grant an extension of this seven (7) day period, provided that the Permittee can demonstrate to the Department’s satisfaction, that the volume of liquid resulting from precipitation and/or snow melt which requires removal, exceeds the run-off volume that would be generated by the 24-hour, 25-year storm event. The Permittee shall manage the removed liquid as leachate.

d) RMU-1 Leachate Level Compliance Plan (LLCP)

The Permittee must operate the leachate and contaminated surface water run-off collection and removal systems within RMU-1, and the associated on-site liquid transfer, storage and treatment systems, in accordance with the RMU-1 Leachate Level Compliance Plan (LLCP) which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit. In order to maintain proper leachate and contaminated surface water run-off management and control, the Permittee must submit and obtain Department approval of a revised RMU-1 LLCP as specified below:

- Subsequent to waste placement in all RMU-1 cells, but prior to reaching maximum approved fill progression waste grades as depicted on Figure 1 in the most recently approved RMU-1 O&M Manual and RMU-1 LLCP which are incorporated by reference into this Permit by **Module I**, in order to address leachate/contaminated surface water management up to landfill capacity, as required by **Condition E.1.b.ii** of this Module;
- Prior to any significant increase in size of infiltration drainage areas and/or detention basin(s) drainage areas over their respective sizes as depicted on Figure 1 in the most recently approved RMU-1 O&M Manual and RMU-1 LLCP which are incorporated by reference into this Permit by **Module I**;
- Prior to any filling in and/or significant decrease in size or capacity of any detention basin with reference to the size(s)/capacity(s) indicated in the most recently approved RMU-1 O&M Manual and RMU-1 LLCP which are incorporated by reference into this Permit by **Module I**; and
- Any time the Permittee or the Department determines that the RMU-1 leachate and/or contaminated surface water character has changed in a way that more extensive treatment is required than presently assumed in the approved RMU-1 LLCP.

Any and all revised RMU-1 LLCPS submitted by the Permittee shall conform to a strategy of minimizing run-off infiltration and leachate heads on the landfill's primary liner by maximizing the amount of run-off directed to detention basin(s). All such revised RMU-1 LLCPS must use the same evaluation methods, assumptions and Permit/engineering limitations as are contained in the currently approved RMU-1 LLCP, including, but not limited to the following:

- Precipitation rates and volumes as generated by the 24-hour, 25-year storm event;
- Storage and treatment of both RMU-1 and other on-site wastewaters generated by the storm event;
- No more than 625,000 gallons of available on-site tank capacity at the onset of the

- storm event;
- A minimum of one (1) foot of liquid in all detention basins at the onset of the storm event;
- An RMU-1 waste run-off coefficient of 90 (CN = 90);
- All cells with infiltration zones shall have cell primary leachate pumps running at capacity throughout and, if necessary, subsequent to the storm period, however base flow rates for non-infiltrating and covered cells may be considered negligible during the storm management period;
- Pumping and treatment rates based on the on-site Aqueous Wastewater Treatment (AWT) system limitations;
- A minimum of one (1) foot of freeboard in every infiltration channel maintained throughout and subsequent to the storm event;

- A minimum of one (1) foot of freeboard in every detention basin maintained throughout and subsequent to the storm event;
- Compliance with cell primary leachate level requirements in accordance with **Condition E.3.a** of this Module; and
- Compliance with detention basin liquid removal requirements in accordance with **Condition E.3.c** of this Module.

e) Primary Leachate Collection Pipe Integrity Check & Flush

For those RMU-1 cells with a primary leachate collection pipe (i.e., Cells 7/8, 9/10, 11/13 & 12/14), the Permittee shall run a video camera on a cable or a “hydroflush” device on a flexible hose along the entire length of each cell's primary leachate collection pipe subsequent to completing each cell's first waste lift, but prior to initial waste placement in each cell's third waste lift, and once every two years starting in 2006, in accordance with the procedure in the RMU-1 O&M Manual which is incorporated by reference into this Permit by **Module I**. The length of the cable or flexible hose insertion shall be measured, recorded and compared against the documented as-built length of each cell's primary leachate collection pipe to verify the pipe's integrity over its entire length. If a video camera is used, and a buildup of waste residue is observed in the pipe interior or in its perforations, the Permittee must also “hydroflush” the entire length of the pipe to remove such residues. The Permittee shall provide on-site Department staff with 24 hours advance notice of the Permittee's performance of the pipe check and/or flush. The Permittee must record the results including a video tape record if a camera is used, and submit them to the Department within thirty (30) days of completing each pipe check and/or flush. If the camera or “hydroflush” device fails to reach the end of any cell's primary leachate collection pipe, the cause of the problem shall be investigated by the Permittee and resolved to the Department's satisfaction.

f) RMU-1 Detention Basins and Infiltration Channels

The Permittee shall construct and maintain detention basins within the operational area of RMU-1 in accordance with the RMU-1 O&M Manual to the designed capacities in the RMU-1 LLCPP which are incorporated by reference into this Permit by **Module I**. Each such basin shall be lined with a temporary geosynthetic liner. An as-built topographic survey shall be performed on each completed basin to confirm that each basin has been constructed to the capacity required by the above referenced RMU-1 LLCPP. This survey must be submitted to the Department within thirty (30) days of completing a basin's construction. Detention Basins shall be operated in accordance with **Condition E.3.c** of this Module and the above referenced RMU-1 O&M Manual and RMU-1 LLCPP. Sedimentation controls must be installed and maintained on all basin inlets, and any sediment in a basin which is deeper than six (6) inches shall be removed. Upon discontinuing the use of a detention basin, the Permittee shall remove or shred the basin's geosynthetic liner to prevent restrictions of leachate flow from subsequent fill layers.

The Permittee shall construct and maintain infiltration channels within the operational area of RMU-1 in accordance with the RMU-1 O&M Manual to the designed capacities in the RMU-1 LLCPP which are incorporated by reference into this Permit by **Module I**. The Permittee shall implement infiltration channel sedimentation control measures and remove any observed accumulated sediment in accordance with the above referenced RMU-1 O&M Manual to maintain the hydraulic conductivity of the operations stone in these channels.

4. RMU-1 Operational Waste Cover Requirements

a) Daily Cover

- i) The Permittee shall apply cover material as defined by 6 NYCRR 370.2(b)(39), on all exposed waste, to sufficiently cover the waste, at the end of each day of operation. The daily cover shall be placed in accordance with the RMU-1 O&M Manual which is incorporated by reference into this Permit by **Module I**, and the conditions of this module, unless prior written approval is obtained from the Department to defer such placement. The Permittee must also restore at the end of each day of operation, any previously applied cover material on areas of the waste where it is identified as being absent or significantly deteriorated during inspections conducted in accordance with Attachment F of this Permit.
- ii) The Permittee shall apply daily cover on all lifts of waste using a graded granular material, or an alternative Department approved synthetic fabric or other alternative approved cover material. If the Permittee elects to submit a proposal(s) for Department approval of alternative cover material(s), all such submissions must demonstrate that the proposed cover material will be effective in controlling odors and capable of suppressing airborne dust and light weight debris. No alternative

cover material shall be used until it is approved in writing by the Department. If an approved synthetic cover material is used it may be removed from the working face to allow access and then replaced at the end of each day of operation.

- iii) The Permittee may leave spaces between drums or other containers unfilled and the adjacent intact drums/containers uncovered until: 1) gradable waste is available to fill the voids, or 2) potential environmental or safety concerns are identified by the Permittee, or 3) the Permittee is directed by on-site Department Staff to cover the waste. Cover material must be provided over non-containerized wastes including waste exposed in partially filled voids or voids extending to uncovered waste in a lower lift.
- iv) The Permittee shall place daily cover as required to maintain the proper slope towards run-off detention basins and infiltration channels as required by **Condition E.3** of this Module.
- v) Waste material may not be used for cover material unless a specific waste stream is demonstrated as appropriate for such use in accordance with **Condition E.4.a.ii** of this Module and is approved in writing by the Department. In addition, any such “waste cover” material candidate must have relatively low volatile organic concentrations, be odorless, and not be susceptible to dust generation under dry conditions.

b) Intermediate Cover

For a compacted clay Final Cover system, the Permittee may place intermediate cover on waste mass areas that are near, but not above, six (6) inches below the grades depicted on the “Top of Waste Grades” Drawing No.11 in Attachment J, Appendix D-6 of this Permit. For a GCL Final Cover system, the Permittee may place intermediate cover on waste mass areas that are near, but not above, the grades depicted on the “Top of Waste Grades” Drawing No.11 in Attachment J, Appendix D-6 of this Permit, however, such intermediate clay cover must meet the specifications for GCL subbase material contained in Attachment J, Appendix D-7 of this Permit. Intermediate cover may only be placed by the Permittee in cases where there is not sufficient time left in a year’s construction season (April 1 to November 30) to place final cover over the same area. In such cases where the Permittee places intermediate cover on an area of waste, the Permittee must complete placement of final cover during the subsequent year’s construction season, in accordance with **Condition I** of this Module.

i) Construction, Maintenance & Integration Into Final Cover

The Permittee shall use only clay that has been approved for use as Final Cover clay soil barrier material in accordance with **Condition I.4** of this Module, for construction of the intermediate cover. Intermediate cover material shall be placed

in a single loose lift, compacted to a thickness of twelve (12) inches and covered with a temporary geomembrane in accordance with procedures in the RMU-1 O&M Manual which is incorporated by reference into this Permit by **Module I**. Once constructed, the Permittee shall maintain, inspect and repair the intermediate cover in accordance with the above referenced RMU-1 O&M Manual. Immediately prior to the construction of the Final Cover on the area of intermediate cover placement, the Permittee must remove the temporary geomembrane to facilitate Final Cover construction. For intermediate cover areas where a compacted clay Final Cover system is to be constructed, as depicted on the “Top of Waste Grades” Drawing No.11 in Attachment J, Appendix D-6 of this Permit, the Permittee must remove the upper six (6) inches of intermediate cover and re-grade, re-compact and test the lower six (6) inches of intermediate cover clay to meet Final Cover construction requirements in **Condition I.5.a** of this Module. For intermediate cover areas where a Geosynthetic Clay Liner (GCL) Final Cover system is to be constructed, as depicted on the “Top of Waste Grades” Drawing No.11 in Attachment J, Appendix D-6 of this Permit, the Permittee must remove the upper six (6) inches of intermediate cover and re-grade, proof roll and demonstrate that the lower six (6) inches of intermediate cover clay meets the GCL placement “general fill” Final Cover construction requirements in **Condition I.5.b** of this Module. Any intermediate cover clay that does not meet Final Cover moisture/density and/or permeability requirements for a compacted clay Final Cover or GCL placement “general fill” for a GCL Final Cover system, in accordance with **Condition I.5.a and I.5.b**, respectively, of this Module, must be removed and replaced.

5. RMU-1 Waste Placement Requirements

The Permittee shall place waste within RMU-1 in horizontal lifts, in strict accordance with the procedures and figures in the RMU-1 O&M Manual which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit, and in accordance with the conditions in this Module.

- a) The Permittee shall first place wastes in a cell at the toe of slope of the separation and exterior berms of the cell. Non-containerized (bulk) waste loads containing large and/or sharp debris shall not be placed in the initial lift of waste in any cell. If such debris is identified in an initial waste lift, it shall be removed for re-location to a higher waste lift or if long thin debris (e.g., poles, etc.) it may be placed flat in the initial lift so as to prevent any primary liner damage. Subsequent to the initial waste lift, waste placement shall progress in accordance with the waste fill progression requirements in **Condition E.1** of this Module.
- b) The Permittee shall place only containerized waste and appropriate cover material as required in **Condition E.4.a** of this Module, within six feet of the primary collection sumps and riser pipes in the initial waste lift.

- c) A waste lift shall consist of one (1) drum or macroencapsulation box height for containers, or sufficient bulk waste to limit the lift thickness to six (6) feet. On a case-by-case basis, the Permittee may request and the Department may approve waste items which are larger than the above defined waste lift height as part of the waste stream review process described in **Condition D.2** of this Module.
- d) The Permittee shall not allow wastes to be off-loaded outside of the landfill liner perimeter.
- e) The Permittee shall remove ice, snow, or ponded water accumulations greater than 12 inches, from the operations layer of each new cell prior to the initial placement of waste in that area of the cell.
- f) The Permittee may place drummed and/or stabilized bulk waste in the landfill 24 hours per day, on all days except Sundays and Legal Holidays. Special written approval is required from the Department on a case-by-case basis for waste placement in RMU-1 on Sundays and Legal Holidays. Bulk wastes not requiring stabilization shall be placed in the landfill only during the hours of 5:30 a.m. to 8:00 p.m. Monday through Saturday. Artificial lighting shall be utilized any time landfill operations are conducted during other than daylight hours. The Permittee shall notify on-site Department staff by 3:00 p.m. every Friday of its intended work schedule for the following Saturday through Friday.
- g) The Permittee shall maintain waste slopes during waste placement in accordance with the requirements in **Condition E.2** of this Module to insure waste mass stability.
- h) Unless the Permittee provides adequate financial assurance for off-site land disposal of hazardous wastes which would be generated as a result of closure of the facility as approved by the Department, the Permittee must retain sufficient disposal capacity in RMU-1 to accept such wastes. The total volume of all such wastes is expressed in the "Site-Wide and RMU-1 Closure Cost Estimates, which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit. Quarterly, in accordance with **Condition H.1** of this Module, the Permittee shall submit the most recent topographic survey of the waste mass in the operational area of RMU-1, along with the calculated remaining landfill capacity based on the survey and the "Top of Waste Grades" Drawing No. 11 in Attachment J, Appendix D-6 of this Permit. As part of the Facility's Annual Report, required by **Condition D.5.e** in Module I of this Permit, and additionally upon Department request, the Permittee shall submit the current estimate of the volume of site-generated wastes that would require land disposal and information to demonstrate that there is sufficient capacity in RMU-1 to dispose of those wastes. The available RMU-1 capacity may include utilization of existing operational run-off control volume, but may not include volume in closed or non-operational cells or waste placement that might impact landfill stability.
- i) The location of each waste load placed in RMU-1 subsequent to the issuance of this Permit shall be identified and recorded by the Permittee using a Global Positioning System (GPS)

capable of determining the latitude and longitude to an minimum accuracy of 5 feet (1.5 meters), and the elevation to an minimum accuracy of 12 feet (3.5 meters). Using a computerized data base, the Permittee shall record the GPS reading (latitude, longitude & elevation), the horizontal grid location identifier and the waste lift number, of each large container/item (e.g., a macroencapsulation box, etc.) and each truck load of drums placed in the same location (if drums from a single truck load are separated and placed in different locations, each such location must be identified and recorded). For each bulk waste load, the Permittee shall record the horizontal grid location identifier and the waste lift number, using the GPS device and computerized data base. Each waste load disposal location record shall also include the date of disposal and the identity of the wastes in each load, in accordance with intra-facility waste tracking requirements in **Condition L.2** in **Module I** of this Permit. The Permittee shall use this information to document compliance with waste segregation requirements in **Condition D.4.d** of this Module, and to retrieve improperly landfilled wastes in accordance with **Condition D.8.b** of this Module.

6. RMU-1 Run-On Control Requirements

The Permittee shall maintain the surface water diversion berm around the Perimeter of the landfill depicted on the RMU-1 Landfill Drawings in Attachment J, Appendix D-6 of the Permit, to provide run-on control as required by 6 NYCRR 373-2.14(c)(7) until closure.

7. Requirements for Vehicles and Equipment Operating in the Landfill

Vehicles and equipment operating directly on the operations layer within the landfill must adhere to the special operating requirements in the RMU-1 O&M Manual which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit. Commuter and personal vehicles shall be restricted from entering the operational area of the RMU-1 landfill, except for employee or contractor vehicles authorized by the Permittee and State vehicles used by Department staff in monitoring compliance with this Permit.

All vehicles and equipment entering the RMU-1 operational area must be cleaned at the Department approved Truck Wash facility prior to leaving the landfill. Gross contamination on wheels or other vehicle/equipment exterior surfaces shall be physically removed for appropriate disposal in the landfill before washing these surfaces. All visible waste on exterior surfaces must be removed prior to vehicles/equipment leaving RMU-1 to prevent contamination of on-site and off-site roads. The approved RMU-1 Truck Wash facility as depicted on Figure 1 in the RMU-1 O&M Manual which is incorporated by reference into this Permit by **Module I**, must be operated in accordance with the referenced RMU-1 O&M Manual. This or any new or replacement Department approved facility must have sloped pavement to direct washwater to a collection point and a sump to retain washwater sediments along with discharge sedimentation controls.

F. RMU-1 MONITORING AND INSPECTION

The Permittee shall inspect RMU-1 in accordance with the requirements in 6NYCRR 373-2.14(e)(2), the inspection schedule in Attachment F of this Permit and the conditions of this Permit. The Permittee shall monitor RMU-1 primary leachate levels in accordance with **Condition E.3** of this Module and the RMU-1 O&M Manual which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit. The Permittee shall monitor RMU-1 groundwater in accordance with 6NYCRR 373-2.6, the conditions in **Module VIII** of this Permit and the Groundwater Sampling and Analysis Plan (GWSAP) which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit.

1. RMU-1 Perimeter Berm Inspection & Repair

If structural problems are observed on the berms of RMU-1 the Permittee shall:

- a) Notify the Department's Region 9 Office in writing within one working day after first observing the problem;
- b) Prepare and submit to the Department the necessary engineering plans and specifications for the repair of the berm(s) for Department approval;
- c) Perform repairs in accordance with the approved plans and specifications; and,
- d) Within one week of completing any necessary repairs, submit a report to the Department describing in detail the completed work and procedures followed.

2. Primary Leachate Monitoring

The Permittee shall monitor the leachate in all primary standpipes in accordance with the following requirements.

- a) The leachate level in each cell shall be monitored on a continuous basis using automatic data read-out equipment;
- b) The Permittee shall sample and analyze the primary leachate on a quarterly basis for pH, specific conductance, PCBs, and Priority Pollutant volatile organics;
- c) The Permittee shall sample and analyze the primary leachate on a semiannual basis for Priority Pollutant Metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, zinc); and
- d) On a quarterly basis and every time the leachate level indicator probes are moved, the liquid level shall be manually measured and compared to the results of the automatic data read-out

to calibrate the leachate level indicators (probes).

The results of the above measurements and analyses shall be submitted to the Department on a monthly basis. The level measurements required by **Condition F.2.a** of this Module shall be monitored from the automatic data read-out and the results shall be made available to on-site Department staff. Also, the results of the level measurements required by **Condition F.2.d** of this Module shall be presented to on-site Department staff.

Upon Department acceptance of the certification of closure for any cell, or cells, as required by 6NYCRR 373-2.7(f)(1), the monitoring for that cell, or cells, required by **Condition F.2.b-d** of this Module, shall be performed semiannually. At anytime after the first semi-annual monitoring event during the cell(s)' post-closure period, the Permittee may request Department approval to decrease the frequency or suspend the monitoring activities required by **Condition F.2.b-d** of this Module altogether based on a data supported demonstration of consistent leachate character.

3. Monitoring & Inspection of RMU-1 Appurtenances

The Permittee shall inspect and monitor the following appurtenant items of RMU-1.

a) Leachate Transfer System Inspection Requirements

The leachate transfer pipelines and the Leachate Pump Station shall be inspected in accordance with the Inspection Plan in Attachment F of this Permit and the conditions in **Module IV** of this Permit. Proper operation of all electronic leak detection systems installed at vaults and piping manholes, shall be verified at least quarterly by visually checking for liquids at all locations where a visual check can be performed without entering a confined space. In addition, alarms for leak detection systems will be verified annually by either manually placing the probe in water or by electrical simulation in locations where a manual check would require a confined space entry.

b) Leachate Transfer System Testing Requirements

Subsequent to the repair of any leaks in the leachate transfer line, the Permittee must test the pipe as required by **Condition K.2.c** in **Module IV** of this Permit in accordance with the procedures in Attachment D, Appendix D-3, Section VIII of this Permit.

4. Detention Basin(s) and Accumulated Surface Water Monitoring

The Permittee shall monitor the level of accumulated surface water run-off in detention basins and other waste depression areas in accordance with the Inspection Plan in Attachment F of this Permit. For all run-off detention basins, the Permittee shall provide a visible demarcation of each basin's one (1) foot depth, to evaluate compliance with **Condition E.3.c** of this Module. The level measurements shall be manually estimated and recorded on the inspection forms for

inclusion in the daily operating record.

G. RMU-1 SECONDARY LEACHATE COLLECTION SYSTEM (SLCS)

The Permittee shall monitor, report and evaluate the flow from each RMU-1 cell's Secondary Leachate Collection System (SLCS) in accordance with 6NYCRR 373-2.14(e)(3), 6NYCRR 373-2.14(n)(2), the RMU-1 O&M Manual which is incorporated by reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit, and the conditions in this Module. The Permittee shall also implement SLCS Response Actions as necessary in accordance with 6NYCRR 373-2.14(o)(2)&(3), the RMU-1 Response Action Plan in Attachment K, Appendix D-9 of this Permit, and the conditions in this Module.

1. RMU-1 SLCS Monitoring

The Permittee shall monitor the SLCS in each RMU-1 cell and sample and analyze accumulated liquids to obtain accurate and reliable data on the quantity and chemical composition of the liquid in each cell's SLCS. At a minimum, the Permittee must perform the following tasks at the specified frequencies.

- a) On a weekly basis, the Permittee must remove all pumpable liquid from each cell's SLCS sump and record the volume.
- b) On a monthly basis, the Permittee shall sample the liquid removed from each cell's SLCS sump and analyze each sample for pH and specific conductance.
- c) On a quarterly basis, the Permittee shall sample the liquid removed from each cell's SLCS sump and analyze each sample for pH, specific conductance, and Priority Pollutant volatile organics.
- d) On a yearly basis, the Permittee shall sample the liquid removed from each cell's SLCS sump and analyze each sample for pH, specific conductance, Priority Pollutant organics and Priority Pollutant metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, zinc).

Upon Department acceptance of the certification of closure for any cell, or cells, as required by 6NYCRR 373-2.7(f)(1), the monitoring for that cell, or cells, required by **Condition G.1.b&c** of this Module, shall be performed semiannually.

2. RMU-1 SLCS Evaluation and Reporting

a) SLCS Flow Rate Evaluation

Each time liquid is manually removed from a cell's SLCS in accordance with **Condition G.1.a** of this Module, the Permittee shall record the volume pumped. If a cell's SLCS pumping system operates automatically in-between manual weekly pumping events due to level sensor activation, the Permittee must add the volume pumped automatically to the recorded weekly volume. The Permittee shall take the total weekly volume pumped from each cell's SLCS and divide it by the area of the cell in acres and by the number of days since the cell's last SLCS pumping event, to derive each cell's average daily SLCS flow rate in gallons per acre per day (gpad). For each SLCS manual pumping event, the Permittee must compare each cell's average daily SLCS flow rate to the Response Rate for the cell as defined by **Condition G.3** of this Module. If a cell's average daily SLCS flow rate exceeds the defined Response Rate for that cell, the Permittee shall implement the RMU-1 Response Action Plan (RAP) in Attachment K, Appendix D-9 of this Permit, as required by **Condition G.4** of this Module.

b) SLCS Reporting

The Permittee shall report the results of the SLCS monitoring and flow rate evaluation required by **Conditions G.1 & G.2.a** of this Module to the Department. The results of all such RMU-1 SLCS monitoring and evaluations that occur during a month must be submitted to the Department within ten (10) weeks from the end of that month. The sampling data must be submitted as a hard (paper) copy and an electronic copy in a compatible computer software format as required by **Condition H.2 in Module I** of this Permit. Along with the above results, the Permittee shall submit the results of pH and specific conductance which were obtained at the time SLCS sampling occurred.

3. Response Rates (RRs) for RMU-1 Cells

The Response Rate for any RMU-1 cell from the time it begins operation (i.e. initial waste placement) until exactly one (1) year after the Department's acceptance of the certification of closure for the cell, shall be 75 gpad. This Response Rate value was set based on safety margins for discharge over the cell's operational life of water trapped between the primary and secondary liners (e.g. primary clay moisture), as required by 6NYCRR 373-2.14(n)(1). The Response Rate for any RMU-1 cell subsequent to one (1) year after the Department's acceptance of the certification of closure for the cell, shall be 20 gpad.

4. RMU-1 SLCS Response Actions

On any occasion, should the SLCS average daily flow rate for a cell exceed its Response Rate, the Permittee must implement the RMU-1 Response Action Plan (RAP) in Attachment K, Appendix D-9 of this Permit for the involved cell. In addition, the Permittee must take any and

all response actions as deemed necessary by the Department to protect human health and the environment.

H. RMU-1 SURVEYING, REPORTING AND RECORDKEEPING

The Permittee shall maintain an operating record for RMU-1 as required by 6 NYCRR 373-2.5(c), 6NYCRR 373-2.14(f) and **Condition D.5.c** of this Permit. The Permittee shall also make written submissions to the Department concerning RMU-1 as indicated in this Module, in both paper and electronic forms for data and other large submissions, in accordance with **Condition H.2** in **Module I** of this Permit.

1. Periodic Waste Mass Surveys

The Permittee shall perform topographical surveys of the waste mass that has not received final cover on a quarterly basis and at other times as requested by the Department. From each survey a topographic map of the waste shall be prepared which shall depict the actual drainage areas for each infiltration zone and each detention basin, the actual waste slope gradients and slope set back dimensions, and the locations and dimensions of all run-off control channels and culverts. In conjunction with these surveys, the Permittee shall perform a thorough inspection of the operational area of the landfill with special attention to identifying any accumulated sediments in channels, basins and culverts, as well as the condition of sediment control features. From the results of each survey/inspection the Permittee shall prepare a report which includes the following:

- The topographic waste map prepared from the survey;
- An evaluation of the surveyed waste mass for compliance with **Condition E.1** of this Module regarding maximum waste mass topographic limitations;
- An evaluation of the actual waste height increases and slope gradients for compliance with **Condition E.2** of this Module regarding the rate of vertical waste placement and slope gradient limitations pertaining to waste mass stability;
- An evaluation of the actual dimensions and condition of all drainage areas, run-off control channels, culverts and basins for compliance with **Conditions E.3.d & E.3.f** of this Module, and the RMU-1 O&M Manual and RMU-1 LLCP which are incorporated by reference into this Permit by **Module I**, regarding flow/volume capacity requirements and sedimentation prevention requirements; and
- A calculation of the landfill's remaining capacity based on the topographic survey as required by **Condition E.5.h** of this Module.

The Permittee shall submit each survey/inspection report to the Department within thirty (30) days from the end of each quarter, and in the case of a survey performed per a Department request, within thirty (30) days subsequent to such a survey. The Permittee must correct any compliance or other problems identified by a survey/inspection prior to the end of the next

consecutive quarter and note any such corrections in that quarter's survey/inspection report, unless the Permittee requests and the Department grants an extension to make certain corrections based on adverse weather conditions or other circumstances beyond the Permittee's control.

2. Waste Disposal Records and Reporting

With the submission of the facilities Annual Report required by **Condition D.5.e** in **Module I** of this Permit, the Permittee shall submit a summary of the actual total volume and weight of all waste placed in the landfill. The weight of all wastes shall be determined prior to landfilling.

Within six months after the end of waste placement in a cell of RMU-1, the Permittee shall submit to the Department a complete report of all wastes disposed in the cell in accordance with 6NYCRR 373-2.14(f) including the three-dimensional (3-D) location and a concise description of each waste. Alternately, disposal can be submitted on a monthly basis throughout the life of the landfill. Disposal reports are to be available during inspections. The actual 3-D location and concise description of each waste shall be contained in the report using the waste identification and recording system required by **Condition E.5.i** of this Module with appropriate nomenclature, map coordinates, and waste descriptions.

I. RMU-1 CLOSURE REQUIREMENTS

The Permittee shall close RMU-1 in accordance with 6NYCRR 373.2.7(a)-(f), 6NYCRR 373-2.14(g), **Condition D.7** in **Module I** of this Permit, the RMU-1 & Site Wide Closure Plan in Attachment I, Section I.1 of this Permit, and the conditions in this Module.

Within 60 days after certification of RMU-1 final closure (i.e., entire landfill), the Permittee shall submit to the local zoning authority or the authority with jurisdiction over land use, and to the County Clerk in the County in which the facility is located, and to the Commissioner, a survey plat indicating the location and dimensions of landfill with respect to permanently surveyed benchmarks. The plat must be prepared and certified by a professional land surveyor registered in New York as required by 6NYCRR 373-2.7(f)(2).

The Permittee shall construct the RMU-1 Final Cover in strict accordance with the following:

- The "RMU-1 & Site Wide Closure Plan" in Attachment I, Section I.1 of this Permit;
- The "RMU-1 Landfill Drawings" in Attachment J, Appendix D-6 of this Permit;
- The "RMU-1 Landfill Technical Specifications" in Attachment J, Appendix D-7 of this Permit;
- The "RMU-1 Landfill Quality Assurance Manual" in Attachment J, Appendix D-8 of this Permit;
- The "RMU-1 Engineering Report" from the Permit application which is incorporated by

- reference into this Permit by **Condition B** (Table 2.0) in **Module I** of this Permit; and
- The conditions in this Module.

1. Final Cover Construction Schedule

The Permittee shall submit a construction schedule for Department review at least 30 days prior to the start of the closure of any portion of RMU-1. Activity scheduling shall provide a reasonable opportunity for supplemental inspection by Department staff prior to burying or otherwise obscuring the work. This schedule shall be revised as necessary to reflect new tasks, new initiation dates or new completion dates and re-submitted within one week of any such changes, and all revisions should accompany the weekly construction reports. If no revision is received, the Commissioner shall assume that the project is on schedule.

2. Final Cover Construction Quality Assurance (CQA) Engineer & Progress Reports

a) The CQA Engineer

In order to ensure that the construction is performed in conformance with the Permit and with sound engineering principles that safeguard life, health, and property, the Permittee shall ensure that the RMU-1 Final Cover shall be constructed under the direct supervision and control of an independent person and firm registered to practice Professional Engineering in the State of New York who will certify construction. This person or firm is referred to in this Module of this Permit as the Engineer.

b) Requirements of Engineers, Assisting Personnel, Laboratories, and Other Consultants

The Permittee and the Engineer shall ensure that persons employed or supervised by the Engineer are licensed professional engineers or meet the requirements of exemption from the practice of engineering under Title VIII of the New York State Education Law, Article 145 Section 7208 Paragraph f.

c) Engineer's Personnel Experience Information, Training, and Procedures Report

The following information shall be submitted to the Department (for information purposes only) at least two weeks prior to the start of each phase of final cover construction. Also, at least two weeks prior to employing new Engineering Personnel which have not been part of any previous submission, the Permittee shall also submit to the Department the following information:

- i) Regarding each professional engineer involved in the certification of the construction in any capacity:

- the name,

- work address,
 - professional engineer license number assigned by the University of the State of New York Education Department,
 - the date registration period ends,
 - date of first issuance of license, and
 - a resume of experience related to the types of construction involved in this facility.
- ii) Regarding all persons that will provide field observations and measurements under the Engineer's direction (such as intern engineers, geologists, soil scientists, liner installers, etc.) and all laboratories, or other consultants that will perform analyses or observations upon which the Engineer will depend:
- the names of firms or individuals,
 - their addresses, and
 - their qualifications.
- iii) The components or steps of construction which will be inspected or observed by each of the following:
- the Engineer,
 - subordinate professional engineers and intern engineers,
 - others without professional engineer licenses.
- iv) The training and instructions that will be given to any field observers who are not registered professional engineers, including instructions to contact the professional engineer on-call (either the Engineer or one of the subordinate professional engineers) when the field observers are aware that the requirements of this Permit are not being met.
- v) The instructions that will be given to any subordinate professional engineers to contact the Engineer when the subordinate professional engineers are aware that the requirements of this Permit are not being met.

d) Availability of the Engineer

The Engineer, or one of his/her subordinate professional engineers, shall be available continually during any construction of the RMU-1 Final Cover, and shall inspect any suspected sub-standard work promptly when notified by the trained field observers.

e) Witnessing of Critical Aspects by the Engineer

The Engineer or his or her subordinate professional engineer shall be present and witness

initial installation of any significant components, critical aspects of work, and all completed components prior to burying, covering, or otherwise becoming obscured. As required by **Condition I.2.c.iii** of this Module, the Engineer must submit to the Department a list of items that he or she will inspect in the field.

f) Availability of Design Engineer

The person or firm that was the registered professional engineer who certified the final cover design reports and drawings shall be available to the Engineer on an as needed basis to answer questions that may arise about the details or intent of the final cover design or to revise the design, if necessary.

g) Field Observer Reports

Written reports from field observers and subordinate professional engineers shall be made and submitted to the Engineer on a daily basis.

h) Weekly Construction Reports

The Permittee shall ensure that weekly construction reports, prepared and approved by the Engineer, are submitted for review and acceptance to the Department every week that construction occurs. These reports shall address the applicable items listed in the bullet for Weekly Construction Reports in **Condition I.8** of this Module, and shall be used to track items or issues to resolution. These reports shall be submitted to the Department's Central and Region 9 office within 2 weeks of the end of the construction work week.

3. Final Cover Design Clarification Procedure

For all clarifications and additions to details, the Permittee shall implement the following procedure.

- a) Make a thorough verbal or written presentation to the Department demonstrating the need for the clarification/addition, the engineering basis for the clarification/addition, and that the clarification/addition will provide equal or better service (the Permittee must have the Design Engineer or the Engineer make supporting portions of the presentation).
- b) Obtain the Design Engineer's written approval and submit to the Department. The Department, at its discretion, may accept the verbal concurrence of the Design Engineer prior to receiving the written approval.
- c) Obtain the written approval of the Department or, at its discretion, the Department, may give verbal approval to institute the clarification/addition prior to giving its written approval.
- d) Record the details of clarification or addition in weekly or special construction reports.

- e) Detail clarifications or additions in as-built drawings.

Failure in any of above can be basis for qualification of acceptance of closure certification by the Department.

4. Final Cover Material Requirements

All natural and synthetic materials used to construct the RMU-1 Final Cover must meet all technical specifications for final cover components as presented in the RMU-1 Landfill Technical Specifications in Attachment J, Appendix D-7 of this Permit. The Engineer must certify that all such technical specifications have been met by reviewing material manufacturer's/supplier's test results and performing all testing as indicated by the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. No material which fails to meet these technical specifications shall be used in the construction of the RMU-1 Final Cover. The Engineer must also oversee and certify that the following material specific qualifications have been met.

a) Clay Soil Cover Material Additional Requirements

i) Clay Test Fill

The Permittee shall construct a representative test fill for each clay source and construction equipment and methods to demonstrate that the design parameters will be met in the actual construction of the clay barrier layers in RMU-1. The Permittee shall notify the Department in writing of the time when each test fill will be conducted. Each test fill shall be constructed and evaluated in conformance with the specifications in the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit.

A report including all information specified in the procedures in the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit must be submitted and approved by the Department before placement of any clay barrier layer material in the landfill final cover. The field hydraulic conductivity should be determined using the Sealed Double Ring Infiltrometer Test or the Boutwell Two Stage Borehole Test specified in Attachment J, Appendix D-8 of this Permit and must be observed by, and approved by the Engineer. Construction of clay barrier shall be performed using only the methods and parameters of construction quality assurance from a test fill where the above field hydraulic conductivity test results demonstrate a hydraulic conductivity of 1×10^{-7} cm/sec, or less was achieved.

ii) Clay Soil Cover Material Qualification

Material removed from a borrow source and intended for use in RMU-1 shall be excavated to the full extent of the clay deposits in the borrow source and in a manner

that will not exceed the limits of these deposits as identified through testing and field observations of the Engineer (i.e. Test Pits and/or Soil Borings). Test pits and/or soil borings shall be conducted in advance of the excavation to the full depth of the borrow source layer to be excavated. The number and location of the test pits and/or soil borings shall be determined by the sampling frequency requirements in Section 4.3 of the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. Additional test pits and/or soil borings shall be performed at any location in the borrow source to further define the extent of any unacceptable material, upon the request of the Engineer. Conformance testing samples shall be obtained and subjected to analysis as required by Section 4.3 of the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. The Engineer shall record observations made at each test pit and/or soil boring and specifically note the type and thickness of any obviously unsuitable material, so that it can be segregated during the excavation. The Engineer must determine the suitability of the material in the area represented by each test pit or soil boring based on visual observations and conformance testing results, and grant acceptance, or qualified acceptance of the represented area of the borrow source prior to excavation of that area. The Engineer shall present the recorded field observations along with conformance testing results of each area for Department review prior to excavation of the represented area. Material identified from test pit and soil boring observations or observations of the actual borrow source excavation, which obviously does not meet the specifications given in the RMU-1 Landfill Technical Specifications in Attachment J, Appendix D-7 of this Permit, as well as material which conformance testing has shown does not meet these specifications, shall be put aside in a separate spoil pile or piles, or avoided during the borrow source excavation. The Department reserves the right to inspect any borrow source to be used in the construction of RMU-1 Final Cover at any time during the normal working hours.

If stockpiles are constructed, suitable clay soil material shall be placed in lifts in the stockpile area in a manner that allows control of the material and its moisture content. Stockpiles of material from different borrow sources, or from markedly different sub-areas within one source, shall be kept separate from each other. Proctor moisture/density tests shall be performed on stockpiled clay material prior to and during placement to establish the acceptable moisture/density zone as required by Appendix C of the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit.

b) Textured Geomembrane Cover Material Additional Requirements

The textured geomembrane cover shall consist of new, first-quality products designed and manufactured specifically for the purpose of this work, which shall have been satisfactorily demonstrated to be suitable and durable for such purposes. The material provided shall meet the requirements of the RMU-1 Landfill Technical Specifications in Attachment J, Appendix D-7 of this Permit and the RMU-1 Landfill Quality Assurance Manual in Attachment J,

Appendix D-8 of this Permit. The Department may reject outright improperly handled or stored rolls or sheets of textured geomembrane.

c) Additional Testing of Cover Materials' Frictional Properties

The Permittee must test all the cover materials to be used for final cover on RMU-1 to determine the interfacial friction angles between the materials. The Permittee shall submit to the Department, at least 30 days prior to the installation of the compacted clay or Geosynthetic Clay Liner (GCL) in any portion of RMU-1 final cover, the results of this test. For the compacted clay Final Cover system, the interfacial friction angles must be a minimum of 25°. For the GCL Final Cover system, friction angles determined from testing conducted in accordance with ASTM D5321 and D6243 over a load range up to 1000 psf, must be a minimum of 26° peak and 17.8° residual under slow strain rate testing conditions (0.0004 in./min.), and 22.4° residual under rapid strain rate testing conditions.

d) Gradient Ratio Testing of the Geocomposite

The Permittee must perform Gradient Ratio testing on the selected geocomposite, using the selected protective soil cover materials. The Permittee must submit the results to the Department for review and acceptance prior to installation of the geocomposite in the RMU-1 Final Cover. The most current version of the Gradient Ratio Test ASTM 5101 or other Department approved methodology must be used for the testing, and the Gradient Ratio must be less than or equal to 3, as recommended by the U. S. Army Corps of Engineers, or other Department approved criteria. After the initial testing is completed and accepted by the Department, it shall be repeated if the geocomposite to be used is different from the one previously tested or if the percentage of fines (i.e. particles passing #200 sieve) in the protective soil is greater than the percentage of fines in the soils previously tested.

5. Final Cover Construction

The Permittee shall construct the RMU-1 Final Cover in accordance with the RMU-1 Landfill Drawings in Attachment J, Appendix D-6 of this Permit, the RMU-1 Landfill Technical Specifications in Attachment J, Appendix D-7 of this Permit, the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit, and the conditions in this Module, under the direct supervision of the Engineer as required by **Condition 1.2** of this Module.

a) Compacted Clay Soil Cover System Material Placement and Compaction

The natural clay material shall be placed and compacted in conformance with, and to the specifications found in the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit, to the lines and grades shown in the RMU-1 Landfill Drawings in Attachment J, Appendix D-6 of this Permit. The Construction Testing (Soil Compaction and Moisture Content, and Lab Hydraulic Conductivity) shall be as specified in Section 4.6

of the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit, and shall meet the pass criteria specified therein.

All laboratory hydraulic conductivity tests on the undisturbed clay samples, must be 1×10^{-7} cm/sec, maximum or less and must be performed by a laboratory independent from the Permittee and approved by the Engineer. The test methods and parameters shall be appropriate for the sample location or intended material location and shall not alter the sample beyond the condition that would be expected to occur in the clay at the actual unit.

b) Geosynthetic Clay Liner (GCL) Cover System Material and Installation

The GCL material provided and the sub-grade on which it is to be placed must: meet the specifications in the RMU-1 Landfill Technical Specifications in Attachment J, Appendix D-7 of this Permit; be installed to the lines and grades shown on the RMU-1 landfill Drawings in Attachment J, Appendix D-6 of this Permit; and be tested and demonstrated as satisfying requirements in accordance with the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. The Department's on-site representative and/or the CQA Engineer may reject damaged or improperly handled/stored rolls/sheets of GCL material and/or withhold approval for GCL placement in any area where the sub-grade has been observed to contain items that could damage the GCL.

c) Geomembrane Cover Seaming Procedures

The cover seaming and monitoring shall meet the requirements of the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. Wherever feasible, the membrane panels shall be joined by automatic, self-propelled double weld fusion welding equipment. The surface of the lapped edges of the membrane sheets shall be prepared as recommended by the manufacturer. All seam connections must be continuous and must meet the seam requirements of the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. The air channel of the double fusion weld shall be sealed off by an extrusion weld at its end, at any location where the seam terminates at a T-connection or under a patch or cap strip. At T-connection locations, the hot wedge device must either be removed or the hot wedge device roller pressure must be released, approximately 6 inches from the intersecting seam where the third panel meets the intersection of the first two. The hot wedge device should then be reinserted or roller pressure re-engaged a short distance (approximately 6 inches) beyond the intersection point. This T-connection must be completed by extrusion fillet seaming as is depicted in Figure 7.7 of the document entitled Technical Guidance Document: Inspection Techniques for the Fabrication of Geomembrane Field Seams, USEPA, EPA/530/SW-91/051, May 1991. As depicted in this figure, the un-bonded free overlaps of the sheets are to be cut away to expose the edge of the outside of the hot wedge seam. The surface must be ground to remove the surface oxide and the extrudate bead must be placed in a continuous fashion in accordance with the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. The bead must provide complete coverage of areas not completed by the hot wedge device.

d) Geomembrane Cover Test Seams, Visual Inspection, and Non-Destructive Testing

A Passing test seam shall be an indicator of the adequacy of the seaming unit and seamer working under prevailing site conditions, but not necessarily an indicator of seam adequacy.

If the laboratory tests of the test seams fail, they shall be taken as an indicator of the possible inadequacy of the entire seamed length of installed cover corresponding to the test seam. Destructive test portions shall then be taken by the Geomembrane Cover Installer at locations suggested by the Engineer and the same laboratory tests required of test seams shall be performed. Passing tests shall be taken as an indicator of adequate installed cover seams. Failing tests shall be an indicator of non-adequate seams and the seams represented by the destructive test location shall be repaired with a cap strip. The cap strip shall be non-destructively tested and repaired, as required, until adequacy of the seams is achieved.

Locations where field seams can be seen to be separated or can be pulled or peeled apart by hand shall be treated as if they were a location where a laboratory test had failed.

A passing non-destructive test of field seams and repairs and a passing seam inspection shall be taken to indicate the adequacy of field seams and repairs.

e) Geomembrane Cover Destructive Seam Testing

The portion of each seam sample designated in the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit, for laboratory testing should be examined and tested by a laboratory independent from the Permittee and designated by the Engineer. The samples should be examined for holes, grooves, melt through, wavering welds, small welds, and any other unusual characteristics. All occurrences of the aforementioned characteristics shall be reported to the Department. The laboratory tests in the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit, to be performed, "Bonded Seam Strength" and "Peel Adhesion," shall be performed in accordance with ASTM D4437 as indicated in Attachment J, Appendix D-7 of this Permit. A report, or a series of reports, shall be prepared by the laboratory, of the results of examination and testing. This report, or reports, shall be submitted to the Engineer and to the Department on a timely basis for review and consideration of further action. No installation of materials above the Geomembrane Cover shall be done until all destructive testing of the Geomembrane Cover section is completed, reported on, accepted by the Engineer, and accepted in writing by the Department.

Failure to meet either of the above testing requirements in any more than one of five of the tests in both peel adhesion and shear strength testing shall indicate a defective seam. A failed seam or other defects shall be evaluated and repaired as required by the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit. The Department reserves the right to specify further sampling and testing based on the frequency of defective seams and/or to require the Permittee's Project Manager, in coordination with the Engineer,

to call an immediate Problems Resolution Meeting to which all principal parties to the problem are gathered. At the Problems Resolution Meeting corrective actions shall be discussed and a specific course of action to the noted problem(s) shall be chosen. The Engineer shall follow up and provide documentation to assure that corrective actions or procedures are carried out, in a timely fashion in the field. Subsequent to the Resolution Meeting, the Department reserves the right to temporarily halt seaming operations if, for whatever reason, the chosen corrective action can not be implemented in a timely manner or if the implemented corrective action fails to provide an adequate resolution to the problem based on the frequency of defective seams..

f) Protection of Geosynthetic Cover Components

No equipment shall be allowed to operate on or above geosynthetic cover components until at least one (1) foot of protective soil has been placed above these components. The size of equipment operating on or above the 1-foot of protective soil on the final cover shall be limited to a CAT D8K dozer or smaller.

6. Surface Water Management During Final Cover Construction

Surface water management during final cover construction shall focus on the restriction of sediment discharge from the work area. No surface water shall be allowed to exit the landfill until a minimum of one (1) foot of clay cover soil has been placed and compacted. Construction surface water management measures to be taken by the Permittee shall involve sediment control barriers consisting of silt fences, hay bales or other Department approved sediment control measures. The number and location of these shall be determined by the progress of construction in order to cover the perimeter of construction zones.

Placement procedures for any silt fence used shall involve the use of 2-foot wide geotextile either supported by a 3/4-inch polypropylene mesh with a nylon top cord and 4-foot wooded posts at 3-foot maximum spacing or by a 6-inch mesh with a 14-gauge wire support fence and a steel top cord, secured by 4-foot wooded posts at a 8-foot spacing. Additional bracing shall be added as required. Anchoring of the geotextile shall consist of a 4-inch wide by 6-inch deep trench with backfill compacted over the folded fabric.

Any erosion prevention hay bales used shall be placed with twine parallel to the ground and shall be secured with two 2"x2" stakes per bale each 30 inches in length, driven through the top of the bale.

Removal of silt fences, hay bales or other Department approved sediment controls shall only be done after vegetation is firmly established on the final cover topsoil areas, and the soil areas of these removed sedimentation controls shall be re-vegetated.

Unless otherwise approved by the Department on a case specific basis, synthetic mesh, jute mesh, cellulose or wood fiber, or other biodegradable meshes must be installed in channels

designed to have a vegetative cover to enhance the establishment of such vegetation.

7. Fugitive Dust Control During Final Cover Construction

The Permittee must reduce impacts on air quality for all construction activities for the final cover through proper operation and maintenance of construction equipment and fugitive dust control techniques, and must comply with the Fugitive Dust Control Plan in Attachment L, Appendix D-10 of this Permit.

8. Final Cover Construction Reporting Requirements

The Permittee shall submit to the Department the following construction reports and certifications as listed in the Permit and the RMU-1 Landfill Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit.

- Construction Schedules
- Engineer's Personnel Experience Information, Training, and Procedures Report
- Design Clarifications or Additions
- Clay or GCL Protective Soil Test Fill Report (when required)
- Borrow Area(s) and Stockpile(s) Report(s)
- GCL Material Properties Report and Quality Control Certificates
- GCL Conformance Testing Results Report
- Geomembrane Cover Material Properties Report and Quality Control Certificates
- Geomembrane Cover Conformance Testing Results Report
- Geocomposite Properties Report and Quality Control Certificates
- Geocomposite Conformance Testing Results Report
- Geomembrane Cover Installer Qualifications
- Inspection of Waste Surface Report
- Guarantees on Geomembrane Cover by Installer, unless the Department approves a case specific exemption

- Engineer's Acceptance of Geomembrane Cover
- Engineer's and Permittee's Certification
- Weekly Reports on Construction including inspection of all installation practices and quality assurance and quality control monitoring including:
 - clay placement and compaction
 - prepared surface inspection
 - material shipment and storage
 - GCL installation
 - geomembrane cover
 - geomembrane cover installation and seam testing
 - geocomposite installation
 - miscellaneous installation issues
 - tracking of significant Final Cover issues to resolution

Note: Weekly construction reports will be submitted to the Department's Central and Region 9 office within two (2) weeks of the end of the construction work week.

9. Seasonal or Adverse Weather Requirements

Whenever the construction schedule indicates that placement and compaction of earthen materials and installation of geomembrane cover will be performed after November 30 and before April 1, the Permittee must submit to the Department for review and approval a description of the activities that will be performed to ensure compliance with this Permit. This description shall include, but not necessarily be limited to, a description of any special construction procedures and/or materials that may be utilized, and a description of any special quality control/quality assurance procedures that will be performed. No construction or quality assurance or quality control activities shall be conducted in the field during these periods until the Department has approved the submittal.

10. RMU-1 Closure Certifications

Within 60 days of completion of final closure of RMU-1 or within 60 days of any RMU-1 partial closure, the Permittee shall submit to the Commissioner certifications by the Permittee and by

an independent NYS registered professional engineer that RMU-1 (or the applicable portion thereof) has been closed in accordance with: 6NYCRR 373.2.7(a)-(f); 6NYCRR 373-2.14(g); **Condition D.7** in **Module I** of this Permit; the “RMU-1 & Site Wide Closure Plan” in Attachment I, Section I.1 of this Permit; the “RMU-1 Landfill Drawings” in Attachment J, Appendix D-6 of this Permit; the “RMU-1 Landfill Technical Specifications” in Attachment J, Appendix D-7 of this Permit; the “RMU-1 Landfill Quality Assurance Manual” in Attachment J, Appendix D-8 of this Permit; and the conditions in this Module. The Permittee must also submit the following.

a) Guarantees on Geomembrane Cover

Unless the Department approves a case specific exemption, the Engineer and the Permittee shall submit to the Department certification by the Geomembrane Cover Installer that the installed Geomembrane Cover and field seams have been constructed in accordance with the specifications and requirements of this Permit, especially the RMU-1 Quality Assurance Manual in Attachment J, Appendix D-8 of this Permit.

b) Acceptance of Geomembrane Cover

Any portion of the Geomembrane Cover shall be accepted by the Department when: that portion of the installation is finished in accordance with the schedule prepared pursuant to the Construction Schedule required by **Condition I.1** of this Module; the Engineer's acceptance and supporting documentation for that portion is submitted to the Department; and, the Department notifies the Permittee of its acceptance. No burying or otherwise obscuring of the cover shall take place prior to supplemental inspection pursuant to the Construction Schedule required by **Condition I.1** of this Module and documentation by one of the Department's on-site staff of preliminary acceptance by the Department of that portion of the Geomembrane Cover.

J. COST ESTIMATE FOR RMU-1 CLOSURE

The Permittee must fully comply with **Condition D.8** and **Condition T.1** in **Module I** of this Permit with regard to the cost estimate for RMU-1 closure.

K. FINANCIAL ASSURANCE FOR RMU-1 CLOSURE

The Permittee must fully comply with **Condition D.8** and **Condition T.2** in **Module I** of this Permit with regard to the financial assurance for RMU-1 closure.

L. PERPETUAL POST-CLOSURE CARE REQUIREMENTS

The Permittee must fully comply with **Condition D.7** and **Condition U** in **Module I** of this Permit with regard to the perpetual post-closure care for RMU-1.

M. COST ESTIMATE FOR RMU-1 PERPETUAL POST-CLOSURE MONITORING, MAINTENANCE, AND CARE

The Permittee must fully comply with **Condition D.8** and **Condition W** in **Module I** of this Permit with regard to the to the cost estimate for RMU-1 perpetual post-closure care.

N. FINANCIAL ASSURANCE FOR PERPETUAL POST-CLOSURE CARE

The Permittee must fully comply with **Condition D.8** and **Condition X** in **Module I** of this Permit with regard to the financial assurance for RMU-1 perpetual post-closure care.