III. MODULE III SUPPLEMENT
CORRECTIVE ACTION REQUIREMENTS

A. Introduction

1. This Module III Supplement contains the selected corrective measures for the Acid Brook Delta ("ABD") sediments and upland areas. The Acid Brook is identified as Solid Waste Management Unit ("SWMU") number 118 in the permit. Acid Brook discharges into the delta in Pompton Lake.

2. The provisions of Module III of the permit remain in effect. This Supplement carries out the provisions of Module III. E. 7, 8 and 9 of the permit concerning the basis and nature of corrective measures.

B. Corrective Action Measures Selection Factors

The criteria for selection of corrective action measures pursuant to the permit are set forth in detail in Module III. E. 7. These criteria are utilized by EPA to ensure that the corrective measures will be protective of human health and the environment by meeting protective standards or concentration levels for hazardous constituents in each medium, and by controlling sources of releases so as to reduce or eliminate, to the maximum extent practicable, any further releases of hazardous constituents that might pose a threat.

Long term reliability and effectiveness are key factors, and are evaluated in terms of the magnitude of residual risks involved in corrective measures, the type of long term management required, and potential exposure. A potential remedy is also evaluated in terms of the reduction of toxicity, mobility or volume of hazardous material. A remedy is also evaluated in terms of the concentration levels of hazardous constituents that must be achieved to be protective of human health and the environment.

The ease or difficulty of implementing potential corrective action measure(s) is assessed, and factors including difficulty of technology, operational requirements, costs, and the availability of any necessary storage or disposal services is considered in the assessment.

The corrective action measures for the ABD sediments and Upland areas that are contained in this Module III Supplement set forth the requirements that the Permittee must meet to achieve compliance.

C. Specific Corrective Action Measures for the Acid Brook Delta Sediments and Uplands Soils

1. Acid Brook Delta ("ABD") Sediments

a. Remedy Selection Process

The Permittee submitted the Revised ABD Remedial Investigation Report ("RIR"), dated January 30, 2008, and the ABD Area Remedial Action Selection Report/Corrective Measures Study ("RASR/CMS"), dated September 18, 2009. These documents provide information to support the remedial alternatives evaluated, a description of the process of evaluating remedial alternatives and the remedial alternative selected. DuPont submitted a HSWA Permit Modification Application, dated April 1, 2011, which included the remedies proposed in the RASR/CMS.

b. Qualitative Remedial Action Objectives ("RAOs")

There are no promulgated applicable remediation standards for sediment to use as quantitative RAOs. However, narrative qualitative RAOs, have been developed to set goals for protecting human health and the environment in the ABD.

The following qualitative RAOs for sediment will apply in order to be protective of ecological receptors:

- Reduce the potential for mercury methylation in near-shore sediment; and
- Reduce the area of exposure of ecological receptors to elevated mercury concentrations in sediment.

This removal is intended to:

- ☐ Remove 100% of the mercury from the near shore environment where there is the maximum potential for methylation of mercury;
- ☐ Reduce the mass of mercury in the surficial sediment (0 to 0.5 feet) by approximately 97%;
- ☐ Reduce the mercury mass in the deep sediment (> 0.5 feet) by approximately 93%; and
- ☐ Reduce the total mercury mass in the ABD by approximately 95%.

c. Selected Remedial Alternative #4 from the Remedial Action Selection Report ("RASR")/Corrective Measures Study ("CMS") -- Dredging of the ABD Sediments

The removal area consists of approximately 25.8 acres centered at the discharge point of Acid Brook into Pompton Lake. Water depth in most of this area is less than 5 feet with the exception of the southwest portion of the removal area adjacent to the shore. The removal will focus on the mercury-impacted sediments and will include all sediments located within the 25.8 acre area. See Figure 1 for the areal extent to be dredged. The underlying peat may be removed based on the ability to segregate the sediment from the peat. The total sediment removal volume will be approximately 68,800 cubic yards. If the underlying peat is also removed, the total volume will be approximately 90,000 cubic yards.

d. Confirmation of Implementation of the Remedy for the ABD Sediments

Confirmation of dredging completion will be conducted. (See Figure 1 for the area to be dredged). Both traditional and dredge mounted survey techniques will be used to verify that the horizontal and vertical limits of removal have been achieved. Upon satisfactory evidence that excavation has been completed in compliance with this permit, the Permittee will cover the dredged area with 6 inches of granular material which will serve as an eco-layer within which the benthic community will re-establish itself.

2. ABD Uplands Soils

a. Remedy Selection Process

The Permittee submitted the Revised ABD Remedial Investigation Report ("RIR"), dated January 30, 2008, and the ABD Area Remedial Action Selection Report/Corrective Measures Study ("RASR/CMS"), dated September 18, 2009. These documents provide information to support the remedial alternatives evaluated, a description of the process of evaluating remedial alternatives and the remedial alternative selected. DuPont submitted a HSWA Permit Modification Application, dated April 1, 2011, which included the remedies proposed in the RASR/CMS.

b. Quantitative Remedial Action Objectives ("RAOs") for ABD Uplands Soils

Both human health and ecological criteria have been selected as RAOs for the Uplands Soils. The Uplands Soils will be excavated so that after excavation, levels of analytes are below the surface and subsurface soil criteria set out in the Quantitative RAOs in the Table below.

Uplands RAOs and Removal Criteria

Analyte	Surface Soil Criteria (mg/kg)	Subsurface Soil Criteria (mg/kg)
Copper	1,100	3,100
Mercury	20.5	23
Lead	400	400
Selenium	5.05	390
Zinc	1,507	23,000

c. Selected Remedial Alternative #4 from the Remedial Action Selection Report ("RASR")/Corrective Measures Study ("CMS"), Excavation of the Uplands Soils

The Uplands Soils area consists of 17 specific sub-areas that total approximately one acre. For surface soils, the RAOs are the lower of the NJDEP residential direct contact soil remediation standards ("RDCSRS") or the ecological soil delineation criteria. In subsurface soil, the RAOs will be the RDCSRS. The areal extent of excavation of Uplands Soils will be in accordance with Figure 2 and the vertical extent will be in accordance with Figure 3. Excavation and off-site disposal of Uplands Soils areas exceeding the criteria in the above Table will achieve the Quantitative RAOs.

d. Confirmation of Implementation of the Remedy for the Uplands Soils

The Permittee will confirm that the Uplands Soils were excavated in accordance with Figure 2 and the Quantitative RAOs. Removal completion confirmation surveying will be used to verify that the horizontal and vertical limits of removal have been achieved. Upon demonstration to EPA's satisfaction that excavation has been completed in compliance with this permit, Permittee will backfill the excavation with clean fill.

D. Corrective Measures Implementation Work Plan ("CMI WP") and Schedule

In September 2011, the Permittee submitted a revised CMI WP containing information on the proposed implementation of the final remedies for the ABD, which are excavation of Uplands Soils and dredging of the sediments in the ABD. The document includes a Project Operations Plan, which outlines issues to be addressed during implementation, such as staging, treatment of the excavated and dredged soil and sediments, transportation and disposition of the contaminated material, restoration and monitoring, and a proposed implementation schedule. After review and approval by EPA of the Project Operations Plan and CMI WP, including revisions identified in EPA's review, the CMI WP will be revised to incorporate any revisions and the Permittee shall thereafter, implement the approved CMI WP pursuant to the schedule approved by EPA.