APPENDIX 6

SEAFORD ASH LANDFILL GROUNDWATER, SURFACE WATER, and ASH MONITORING PLAN

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Ash Landfill Groundwater, Surface Water, and Ash Monitoring Plan

INVISTA Seaford Plant
Seaford, Delaware

Date: 28 August 2003
Revised: 30 May 2006

ARCADIS

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Ash Landfill
Groundwater, Surface Water, and Ash Monitoring Plan

INVISTA Seaford Plant
Seaford, Delaware

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1. Introduction

This work plan defines the Groundwater, Surface Water, and Ash Sampling Program for the INVISTA S.à r.l. (INVISTA) Seaford Plant Ash Landfill. This Plan fulfills Section 4.B.1.c of the Delaware Regulations Governing Solid Waste (DRGSW), described therein as a description of the proposed monitoring methods.

INVISTA purchased the assets and operations of the Seaford site, including the Ash Landfill, from I.E. DuPont de Nemours & Company ("DuPont") on April 30, 2004, and the Ash Landfill permit was transferred from DuPont to INVISTA on June 23, 2005. Therefore, by way of clarification, any references to activities, documents, data, reports, and other information contained in this application that occurred or are dated prior to June 23, 2005, were prepared or performed by or on behalf of DuPont.

The INVISTA Seaford Plant is located at 25876 DuPont Road, outside the city limits of Seaford, Delaware (Figure 1). The 650-acre plant site contains a coal-burning powerhouse that generates electricity for the facility. Coal ash is stored on site in a Delaware Department of Natural Resources and Environmental Control (DNREC) permitted industrial landfill.

The Powerhouse Ash Landfill has accepted ash under a DNREC permit since 1979. The Solid Waste Permit (SW-91/02) for the Seaford Fly Ash Landfill was renewed by DNREC and issued as Permit SW-98/01 on January 30, 1998, pursuant to Section 4.A.1.a of the DRGSW. Permit modifications have been made since this time for the following reasons:

- July 31, 2002: Permit SW-98/01 was modified to incorporate the TCLP Analysis Ash Pond Sampling Plan dated May 16, 2002. References to the Solid Waste Management Branch were replaced with the Solid & Hazardous Waste Management Branch (SHWMB). The Department considers this a minor modification of the permit.

- January 22, 2003: Permit SW-98/01 was modified to extend the expiration date until January 31, 2004. The Department considers this a minor modification in accordance with the DRGSW, Section 4.A.7.b.

- January 29, 2004: Permit SW-98/01 was modified to extend the expiration date until May 3, 2004, to allow the Department more time to review the permit application submitted by INVISTA. The Department considers this a minor modification in accordance with the DRGSW, Section 4.A.7.d.(3).

- April 30, 2004: Permit SW-98/01 was modified to extend the expiration date until July 31, 2004, to allow the Department more time to review the permit application submitted by INVISTA. The Department considers this a minor modification in accordance with the DRGSW, Section 4.A.7.d.(3).

- July 19, 2004: Permit SW-98/01 was modified to extend the expiration date until January 31, 2005, to allow the Department time to review the INVISTA application to transfer the permit from DuPont to INVISTA S.à r.l. The Department considers this a minor modification in accordance with the DRGSW, Section 4.A.7.d.(3).

- January 24, 2005: Permit SW-98/01 was modified to extend the expiration date until June 30, 2005, to allow the Department time to review the INVISTA application to transfer the permit from DuPont to INVISTA S.à r.l. The Department considers this a minor modification in accordance with the DRGSW, Section 4.A.7.d.(3).

- June 6, 2005: Permit SW-98/01 had a minor modification in order to aid in the transfer of the Solid Waste Permit from DuPont to INVISTA S.à r.l. These modifications exclude surface water monitoring in April and October for Staff Gauges SG-2 and SG-4 and outfall of Ash Settling Pond No. 2; April water quality sampling at Spring No. 1 and No. 2; groundwater monitoring in April and October for water levels at Wells 14S, 15S, 16S, and 14D; April water quality sampling at Wells 14S, 15S, 16S, and 14D; and October water quality sampling at Wells 14S, 15S, 16S, and 14D. The Department considers removal of these monitoring requirements a minor modification in accordance with the DRGSW, Section 4.A.7.d.(3). The monitoring requirements that were removed from the Solid Waste Permit are still required under DuPont's Resource Conservation and Recovery Act (RCRA) Corrective Action Program which is overseen by DNREC SHWMB.

- June 23, 2005: Groundwater Monitoring Requirement B.3 was removed due to an Administrative oversight, per DRGSW Section 4.7.d.(3)., and is therefore considered a minor modification. This requirement was originally added for the installation of Monitoring Wells 15S, 16S, and 17S, which was to be completed in time for the April 1999 sampling event. This requirement is no longer relevant to SW-98/01 and was removed before issuing the transferred permit to INVISTA. Permit SW-98/01 was transferred from DuPont to INVISTA after a public notice period of 15 days in accordance with the DRGSW, Section 4.A.2, and modified to extend the expiration date until January 15, 2007, to allow time for INVISTA to complete the renewal process and the Department ample time to review the renewal application documents. The Department considers this a minor modification in accordance with the DRGSW, Section 4.A.7.d.(3).

This work plan has been revised in accordance with the requirements of the modified permit dated June 23, 2005, and the DNREC cover letter dated June 30, 2005.

2. Site Background

The Powerhouse Ash Landfill consists of approximately 60 acres of land on the INVISTA Seaford Plant located in western Sussex County, Delaware. Approximately 12.5 acres of the landfill currently contains ash. The landfill area is bordered by the Plant ash settling ponds to the north, the site effluent ditch to the east, Lewes Creek to the south, and the INVISTA Plant property boundary along Woodland Road to the west.

2.1 Geology

Delaware lies within two geologic provinces, the Piedmont and the Atlantic Coastal Plain, separated by the Fall Line in New Castle County. The rolling hills of the Piedmont, north of the Fall Line, are composed mainly of gneisses and gabbro, mantled by a residual soil (clay and sandy clay). In western Sussex County, where the INVISTA Seaford Plant is located, the thickness of the Atlantic Coastal Plain sediments (generally comprised of sand, clay, and gravel), ranges from 4,200 feet in the northwest to 5,500 feet in the southeast (Sundstrom and Pickett, 1970). The Wilmington Complex, which underlies the Coastal Plain, is equivalent to the pre-Cambrian to lower Paleozoic metamorphic and igneous rocks of the Piedmont, which are exposed in northern Delaware.

The landfill is situated in the Atlantic Coastal Plain physiographic province and is underlain by unconsolidated sediments of the Beaverdam Formation (Andres and Ramsey, 1996), as well as several thousand feet of older unconsolidated sediments. Beneath the unconsolidated sediments are the crystalline rock formations of the Wilmington Complex.

2.2 Hydrogeology

Monitor wells associated with the INVISTA Seaford Plant Ash Landfill are classified into zones according to depths of the targeted aquifer. Wells with the designation "S" (i.e., MW-2S) are screened in the Shallow Zone of the aquifer, while those with "D" designations (i.e., MW-2D) are screened in the Deep Zone of the aquifer.

Piezometric surface contour maps for the Shallow Zone of the aquifer indicate that flow in the Shallow Zone of the aquifer is generally southwest toward the Nanticoke River and the site effluent ditch (Figure 2). Groundwater within the Shallow Zone of

the aquifer ultimately discharges to the Nanticoke River. However, the Nanticoke River experiences daily tidal cycles and these cycles affect groundwater elevations beneath the Ash Landfill as well. Shallow Zone aquifer monitor wells surrounding the Ash Landfill appear to show a significant tidal response delay due to the increased resistance of passing the tidal flux through the granular aquifer material.

Piezometric surface contour maps for the deep aquifer indicate groundwater generally flows east to the Nanticoke River or west to the production wells (Figure 3).

Downward hydraulic gradients are noted for all shallow and deep well pairs. The difference in potential heads at well pairs indicates that a confining unit prevents equilibrium from occurring between the two zones within the aquifer.

3. Monitoring Program

The Ash Landfill has accepted coal ash under a DNREC permit since 1979. In addition, approval was granted to DuPont (previous owners and operators of the Ash Landfill) by DNREC on November 29, 1994, to dispose of ash from the clean out of nine fuel oil fired dowtherm vaporizers into the landfill. As required by the past permits, an Environmental Monitoring Program to monitor potential effects of the landfill on groundwater flow and quality has been implemented. In accordance with the modifications provided by DNREC in its correspondence dated June 30, 2005, INVISTA will perform monitoring at the following locations:

- Semiannually gauging of 13 monitor wells and 2 plant production wells (PW-11 and PW-12) located west of the Ash Landfill.
- Collection of annual surface water quality samples from 2 locations in the effluent ditch, one upstream of the ash landfill and one downstream of the landfill, in April of each calendar year.
- Collection of annual water quality samples from 10 monitoring wells and 2 plant production wells surrounding and next to the Ash Landfill in April of each calendar year.
- Collection of semiannual water quality samples from 5 monitoring wells surrounding the Ash Landfill in October of each calendar year.

Prior to any purging or sampling activities, a full round of water levels will be collected from all wells to determine the static water level. Water level measurements are taken from 13 monitor wells surrounding the landfill and Plant Production Wells PW-11 and PW-12, as required in Permit SW-98/01. All gauging locations are listed below.

Semiannual Water Level Gauging Locations:

- 1S
- 2S
- 3S(R)
- 4S
- 5S
- 6S
- 9S
- 17S
- 2D
- 3D
- 5D
- PW-11

- 7S
- 8S
- PW-12

Production Wells PW-11 and PW-12 are located west of the Ash Landfill and are screened in the lower zone of the Aquifer Unit.

3.1 Groundwater

Shallow Aquifer Zone

All wells are sampled in April. Wells noted "*" are also sampled in October.

- 2S
- 3SR*
- 4S
- 5S
- 8S*
- 9S*
- 17S*

Deep Aquifer Zone

All wells are sampled in April. Wells noted "*" are also sampled in October.

- 2D
- 3D*
- 5D
- PW-11
- PW-12

Production Wells PW-11 and PW-12 are sampled only when they are in service. Analytical parameters for the groundwater samples are listed in Section 4.1.3.

3.2 Surface Water

The Site's discharge to the Nanticoke River is permitted under the National Pollutant Discharge Elimination System (NPDES) permit. The final effluent is sampled under the solid waste permit annually, during April, in two locations, upstream of the Ash Landfill (Ditch-Upstream) and downstream of the Ash Landfill (Ditch-Downstream).

Analytical parameters for the surface water samples are listed in Section 4.2.3.

3.3 Ash

Two settling ponds (North Pond [No. 1] and South Pond [No. 2]) exist at the INVISTA Seaford Plant. These ponds are used for collection of ash produced in the combustion of coal burned for power production for the Plant. One pond is actively being filled with ash slurry from the Powerhouse boilers. As the first pond becomes filled to capacity with ash (a process that historically takes approximately 30 months), the water-ash slurry inflow is switched to the second pond. After settling and drying out (a 3- to 6-month process), the first pond is ready for excavation and removal of ash.

Prior to excavation of an ash pond for recycling, reuse, or storage of the removed ash, field personnel collect a composite sample of the ash bed. Concentrations of TCLP metals are measured in order to document that the ash is not classified as hazardous waste under the RCRA definition. To this date, the ash has contained metals values below RCRA standards for hazardous waste.

4. Sampling Procedures

4.1 Groundwater

4.1.1 Sampling Equipment

The following equipment shall be used as a minimum to collect groundwater samples. Additional equipment may be deemed necessary depending on field conditions.

Extraction Device

An adjustable rate submersible pump shall be used to draw samples from each well. The pump shall be capable of extracting water at 0.1 to 0.5 liter per minute (L/min).

Tubing

Polypropylene or polyethylene tubing will be placed in each of the network wells during sampling. This tubing will be 3/8 inch (inner diameter) to ensure the tubing remains liquid-filled when pumping at low rates. The tube shall be placed such that the pump intakes are positioned within the screened interval. Brand new, clean tubing will be used in each well.

Field Filtration

Groundwater to be analyzed for dissolved metals will be filtered in the field before preservation in the laboratory-prepared sample bottles. A 0.45-micrometer (µm) filter will be used to filter the sampled water from the clean, never used before plastic bottle into the laboratory-prepared sample bottle using clean tubing and a peristaltic pump or attaching the filter directly to the discharge tubing.

Water Level Probe

Water levels in each well will be measured using an electronic water level meter capable of measuring to 0.01-foot accuracy.

Flow Measurement

A graduated cylinder (approximately 1,000-milliliter [mL]) and a stopwatch will be used to measure the pumping rate.

Power Source

Electric power to be used by the submersible pump shall be provided by a gasoline-powered generator.

Monitoring Instruments

Instruments capable of measuring pH, turbidity, specific conductance, dissolved oxygen, oxidation-reduction potential, and temperature shall be used to measure field parameters prior to sampling. Use of a flow-through cell is required for all parameters except for turbidity. Each instrument shall be calibrated prior to sampling and the calibration documented in the field logbook.

Documentation

Field logbooks shall be used to record site activities such as personnel present, weather conditions, and general actions performed at the Site. Field data such as field parameters, sample times, analysis requested, bottle preservation, etc., will be recorded on field data sheets for each well.

Sample Bottles

Sample bottles needing chemical preservation will be preserved in the laboratory prior to arrival on site. To allow flexibility in sampling order, each well will have its own chain-of-custody (COC) form.

Chain of Custody

A COC form will document groundwater sample possession, time of collection, analysis, preservative, facility name, and sampling team. A sample COC form is presented in Appendix A. This form will be initiated by the laboratory and will accompany the samples to and from the Site. A signed copy will be maintained in the file with the analytical results.

4.1.2 Groundwater Sampling Procedure

Prior to collection of the samples for analysis, all wells will be purged using a low-flow (minimum drawdown) protocol with ideal purge rates of less than 0.5 L/min. The low-flow pump will be used to evacuate the groundwater from the screened area of the well. Purge water will be managed in accordance with the site-specific Waste Management Plan.

The water quality parameters (pH, specific conductivity, dissolved oxygen, and temperature) will be monitored using a flow-through cell once the water level in the well has stabilized. Purging will be considered complete and formation water accessed when all field measurements have stabilized. Stabilization will be considered achieved when three consecutive readings, taken at 3- to 5-minute intervals are within the following limits:

- Dissolved Oxygen (10 percent)
- Specific Conductance (3 percent)
- Temperature (3 percent)
- pH (±0.1 standard unit)

The sampler will collect samples in laboratory-supplied bottles by disconnecting the flow cell and sampling water directly from the pump discharge. Dissolved metals samples will be transferred from clean plastic bottles through clean tubing and a 0.45-μm filter into the laboratory-prepared sample bottle with preservative or attaching the filter directly to the discharge tubing.

Samples will be packed in wet ice and shipped to the laboratory via laboratory courier or overnight transport.

4.1.3 Groundwater Analytical Requirements

The analytes listed below were required per the last DNREC Solid Waste Permit No. SW-98/01. INVISTA proposes the same analytes for the new permit renewal. Analysis will be performed using the most current edition of U.S. Environmental Protection Agency (USEPA) Publication Number SW-846. If SW-846 does not contain a test method for a required parameter, that parameter shall be tested according to methods described in the most recent edition of the USEPA Publication "Methods of Chemical Analysis for Water and Wastes" or of "Standard Methods for Examination of Water and Wastewater."

- Arsenic
- Barium
- Boron
- Calcium
- Iron
- Magnesium
- Manganese
- Sodium
- Alkalinity as $CaCO_3$ at pH 4.5
- Alkalinity as $CaCO_3$ at pH 8.3
- Chloride
- Nitrate (N)
- pH (field and lab)
- Conductivity (field and lab)
- Sulfate
- Temperature (field)
- Total Dissolved Solids (TDS)
- Turbidity (field)
- Zinc

Field parameters to be measured include specific conductance, pH, and temperature.

To evaluate analytical precision and integrity, one field duplicate, matrix spike, and matrix spike duplicate sample will be collected for every 20 samples. To evaluate potential sampling bias, one equipment blank will be collected on each day of sampling. If pre-cleaned disposable equipment or dedicated equipment is used, no equipment blank need be collected.

4.2 Surface Water

4.2.1 Sampling Equipment

Monitoring Instruments

Instruments capable of measuring pH, turbidity, specific conductance, dissolved oxygen, and temperature shall be used to measure field parameters during surface water sampling. Each instrument shall be calibrated prior to sampling and the calibration will be documented in the field logbook.

Documentation

Field logbooks shall be used to record site activities such as personnel present, weather conditions, and general actions performed at the Site. Field data such as field parameters, sample times, analysis requested, bottle preservation, etc., will be recorded on field data sheets.

Sample Bottles

Sample bottles needing chemical preservation will be preserved in the laboratory prior to arrival on site. To allow flexibility in sampling order, surface water samples will have a separate COC form.

Field Filtration

Surface water to be analyzed for dissolved metals will be filtered in the field before preservation in the laboratory-prepared sample bottles. A 0.45-µm filter will be used to filter the sampled water from the clean, never used before plastic bottle into the laboratory-prepared sample bottle using clean tubing and a peristaltic pump or attaching the filter directly to the discharge tubing.

Chain of Custody

A COC form will document surface water sample possession, time of collection, analysis, preservative, facility name, and sampling team. A copy of a generic COC form is presented in Appendix A. This record will be initiated by the laboratory and will accompany the samples to and from the Site. A signed copy will be maintained in the file with the analytical results.

4.2.2 Surface Water Sampling Procedure

Effluent ditch surface water samples will be collected by a Teflon© coated disposable bailer. The bailer will be extended far enough from the bank to minimize the amount of silt entering the bailer. The water will then be transferred to the laboratory-supplied bottles.

After analytical samples have been collected, a sample for field parameters will be collected. Field parameters will include temperature, specific conductance, and pH.

Samples will be packed in wet ice and shipped to the laboratory via laboratory courier or overnight transport.

4.2.3 Surface Water Analytical Requirements

The analytes listed below were required per the last DNREC Solid Waste Permit No. SW-98/01. INVISTA proposes the same analytes for the new Permit renewal. Analysis will be performed using the most current edition of USEPA Publication

Number SW-846. If SW-846 does not contain a test method for a required parameter, that parameter shall be tested according to methods described in the most recent edition of the USEPA Publication "Methods of Chemical Analysis for Water and Wastes" or of "Standard Methods for Examination of Water and Wastewater."

- Arsenic
- Barium
- Calcium
- Iron
- Magnesium
- Sodium
- Zinc
- Chloride
- pH (field + lab)
- Conductivity (field + lab)
- Sulfate
- Temperature (field)
- TDS
- Hardness as $CaCO_3$

Field parameters to be measured include specific conductance, pH, and temperature.

4.3 Ash

4.3.1 Sampling Equipment

The equipment necessary for the sampling described above is listed below:

- Stainless steel bucket auger
- Stainless steel bowl
- Stainless steel spoon
- Two (2) sterile 500-mL wide-mouth sample jars
- Ice chest with ice
- COC form(s)

Chain of Custody

A COC form will document ash sample possession, time of collection, analysis, preservative, facility name, and sampling team. A copy of a generic COC form is presented in Appendix A. This record will be initiated by the laboratory and accompanies the samples to and from the Site. A signed copy will be maintained in the file with the analytical results.

4.3.2 Ash Sampling Procedure

For the Ash Sampling Program, six sampling locations will be selected for the INVISTA Seaford Plant ash pond prior to excavation (Figure 4). Samples will be collected from the ash pond after a sufficient amount of evaporation has occurred (3 to 6 months after shutdown of influx of slurry), which allows for the ash to consolidate. Previous studies indicate that there is little spatial variability in metals content in the ash pond. As a result, the sampling combines the systematic grid shown on Figure 3 with an averaging factor, homogenization. The composite sample incorporates nearly the full vertical recovery from each boring.

A clean stainless steel bucket auger is used to advance each boring and is collected by field samplers who have received 40-hour HAZWOPER Training and adequate sampling training (per Occupational Health and Safety Administration Regulation 1910.120). The top 2 inches of each boring are discarded. As the bucket auger is advanced, each bucket is mixed with an uphole sample in a clean stainless steel bowl. Once all six auger holes are completed, a composite sample is prepared using a stainless steel spoon. A portion of this homogenized material is transferred into each of two laboratory-cleaned 500-mL wide-mouth sample jars. These containers have pre-assigned unique identification numbers and sample date. The sealed bottles are placed on ice and stored in a secure area until overnight shipment to an independent laboratory for analysis.

Decontamination Procedures

The stainless steel bucket auger, bowl, and spoon are completely decontaminated prior to sampling in the INVISTA Seaford Plant ash pond. Field personnel are to use the following protocol for decontaminating the equipment prior to sampling. The equipment is:

- Washed using laboratory grade detergent and tap water;
- Rinsed with generous amounts of tap water;
- Rinsed with de-ionized American Society for Testing and Materials ([ASTM] II) water;
- Rinsed with 10 percent nitric acid;

- Rinsed again with de-ionized (ASTM II) water; and
- Allowed to air dry completely.

Because individual samples collected during the sampling at the INVISTA Seaford Plant ash pond are to be composited, cleaning the auger using a combination of wiping with towels or gloved hands and rinsing with de-ionized water is adequate decontamination between samples. Cross-contamination is not an issue and this decontamination simply allows for equal quantities of sample from each hole.

4.3.3 Ash Analytical Requirements

The homogenized sample and the duplicate will be analyzed for the following metals (TCLP metals, SW-846):

- Arsenic
- Barium
- Cadmium
- Chromium
- Lead
- Mercury
- Selenium
- Silver

Extraction and analysis of metal concentrations follow the SW-846 protocol of Methods 1312 and 6010B, respectively.

Method 1312 is designed to determine the mobility of both organic and inorganic analytes. This method is a digestion process that approximates the leaching metals into solution in a natural setting such as within a landfill. Method 6010B uses inductively coupled plasma-atomic emission spectrometry (ICP-AES) to measure the concentrations of trace metals in the leach solution. Both of these methods are performed at an independent laboratory.

5. Data Deliverables

INVISTA uses a third party to collect groundwater samples, collect water level measurements, conduct data evaluations, and prepare sampling reports. The selected third party maintains the database for sample results associated with the groundwater sampling. A third party, accredited laboratory is also retained to conduct the analytical program.

All analytical data will be provided in a standard deliverable format (i.e., hardcopy) and provided as an electronic deliverable. The data will then be summarized, checked for accuracy, and tabulated upon receipt by the third party Quality Assurance (QA) Officer. The following section describes the QA Officer's function in more detail.

5.1 Quality Assurance

The QA Officer will review all analytical data for:

- Precision
- Accuracy
- Completeness
- Batch Integrity
- Appropriateness

The steps taken to assess each of the above items are detailed in the following sections.

Precision

Precision is defined as the agreement between numeric values for two of more measurements that have been made in an identical fashion. The laboratory's objective for precision is to equal or exceed the guidelines of the analytical methods. The laboratory routinely monitors precision for each of the methods by means of relative percent difference measurements for laboratory control spikes (LCSs) versus lab control spike duplicates (LCSDs), matrix spike (MS) versus matrix spike duplicate (MSD) samples, or samples and sample duplicates (DUP) in each analytical batch.

Accuracy

Accuracy is the degree of agreement of a measurement with an accepted true value. The accuracy check consists of the following.

- Checking that the date analyzed/date sampled from the certificate of analysis matches the electronic disk deliverable. Hold times are also verified.
- Reviewing the reported detection limits/dilution factors on the certificate of analysis to ensure that they match the electronic deliverable.
- Reviewing the reported results for all analytes for a given analytical methodology on the certificate of analysis to ensure that they match the electronic deliverable.

Completeness

Completeness is a measure of the amount of valid data obtained from the measurement system compared with the amount that was expected under normal conditions. Analytical data for a given project are reviewed for completeness by the QA Officer. The definition of completeness consists of the following.

- Checking that the collected field samples were analyzed by the correct analytical method as stated in the project specifications.
- Checking that the required analytes for each collected field sample were reported by the laboratory for a given analytical method.
- Checking that the appropriate preparation method was performed for the requested analytical method.
- Reviewing the analytical data to ensure that the analytical method required holding time was achieved.

Batch Integrity

The QA Officer reviews the batch quality control (QC) on all of the analytical methods used for a given project. The batch process is per SW-846. For MS/MSD samples collected in the field at a rate of 1 per 20, the laboratory shall have an MS/MSD to incorporate into each analytical batch.

The QA Officer's review consists of reviewing the analytical data on a batch basis to ensure that the necessary QC samples (method blank [MB], LCS, LCSD, MS, MSD, or DUP) were performed for every batch of 20 or fewer field samples in a given project. The purpose of this review is to ensure that the accuracy and precision data are associated with every batch of samples for a given analytical method. A batch equals 20 or fewer field samples that have associated precision and accuracy QC data including:

- MB
- LCS
- LCSD
- MS
- MSD
- DUP

Appropriateness

Appropriateness considers the usability of the data for the project, given the results of precision and accuracy measurements, and batch QC review. The batch QC data are reviewed by the QA Officer to determine if the accuracy and precision measurements associated with every 20 field samples are within the prescribed QC limits. All batch QC sample comments made by the laboratory are also reviewed for their appropriateness for a given accuracy or precision QC measurement which is not within the designated limits.

If batch QC limits are not within the prescribed limits, it will be noted by writing a comment in the QC section of the analytical report or by writing a case narrative.

The reported practical quantitation limits (PQLs) from the laboratory are also reviewed by the QA Officer and compared against project specifications. A checklist is certified by the QA Officer who ensures that all of these steps are completed for each sample batch. Appendix B provides an example of the checklist that will be used to evaluate data.

5.2 Analytical Reports

As stated in Section 5, the laboratory will provide all analytical data in two formats (standard deliverable and electronic).

5.3 Data Evaluation Report

The data and conclusions will be included in the Annual Operations Report, as required in Permit SW-98/01, condition IV.A.9, to be submitted to the Solid Waste Management Branch of the Delaware DNREC.

The Annual Operations Report is produced and approved by INVISTA for submittal to DNREC.

6. References

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Sundstrom, R. W., and T. E. Pickett, 1970, The Availability of Groundwater in Western Sussex County, Delaware: University of Delaware Water Resources Center.