7.0 FOCUSED FEASIBILITY STUDY (FFS) WORK PLAN

In the June 29, 2007 letter to DNREC, SECOR (on behalf of AMTRAK and APU), proposed that the Presumptive Remedy will be consistent with the PMP for the site. In their July 19, 2007 response to that letter, DNREC commented that the Presumptive Remedy should be based on the findings of the remedial investigations. Considering the results of previous site investigations, it is envisioned that the FFS will focus on surface soils in unpaved areas which may contribute to PCB loading through storm water runoff. Sediment reduction and erosion control measures such as those implemented in the Outfall 004 drainage areas will be considered. However, the site remedy will be consistent with the findings of the remedial investigations.

As indicated above, the FFS likely will focus on surface soils in unpaved areas. The occurrence of LNAPL in the subsurface at the site and other potential chemicals of concern based in the remedial investigation will also be addressed. The FFS will be performed in accordance with HSCA guidelines. As is indicated in DNREC's HSCA Guidance Manual dated October, 1994, the basic components of the FS are:

- Development of remedial alternatives;
- Screening of remedial alternatives; and
- Detailed analysis of remedial alternatives

The remedial action objectives will include the reduction of PCB loading from the facility. Also, mass loading calculations will be performed (refer to Section 5.7) and included in the FFS.

7.1 Development of Remedial Alternatives

Remedial alternatives will be developed for areas of interest, media of interest and constituents of concern based on the results of remedial investigations. However, as mentioned above it is presumed that remedies for PCB occurrence in surface soils will be included.

Potential remedial alternatives for surface soils will include:

- No action
- Erosion control and sediment reduction measures (BMPs)
- Removal/disposal
- Capping/covering

7.2 Initial Screening of Remedial Alternatives

The identified potential remedial alternatives will undergo an initial screening process in order to determine which alternatives will be retained for detailed screening. The criteria used to screen remedial alternatives will include:

- Effectiveness in meeting remedial action objectives;
- Appropriate engineering practices based on applicability, feasibility for the site and reliability;

and
- Relative cost

7.3 Detailed Analysis of Remedial Alternatives

Remedial alternatives retained for detailed screening will be further evaluated. Detailed screening criteria will include the following:

- Overall protection of human health and the environment;
- Compliance with ARARs;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume through treatment;
- Short-term effectiveness;
- Implementability (technical practicability);
- Cost;
- Community acceptance;
- Compliance monitoring requirements and;
- Restoration timeframe.

8.0 PROJECT PLANS

This section of the Work Plan presents five control plans necessary to implement Phase II site investigative activities according to HSCA guidelines. The five project plans are similar to those presented in the Remedial Investigation Work Plan dated June 1997 and include professional staff that performed the RI activities, interim Fuel Oil Recovery and developed this Work Plan. These plans include the following: 1) Project Management Plan, 2) Health and Safety Plan, 3) Sampling and Analyses Plan, 4) Waste Management Plan and 5) Community Relations Plan.

8.1 Project Management Plan

This plan describes how the project will be managed by AMTRAK and APU, SECOR and the analytical laboratories. The project organization is summarized below.

AMTRAK and APU Representatives

The Project Coordinators are Mr. Andrew Enzman of AMTRAK, telephone number (302) 429-6458 and Paul M. Yaniga of W.I.S.E., Ltd., telephone number (610) 388-3824 and Kerry Hanlon of Unicorn Management Consultants, LLC, telephone number (203) 205-9000 (representatives for APU).

SECOR Personnel

The project will be managed out of SECOR's Exton, Pennsylvania office. SECOR is a DNREC approved contractor to perform HSCA investigations. The personnel who will actively manage and perform the work are licensed professionals in the State of Delaware.

Key project staff for SECOR will include the individuals identified below.

Title:	Project Director
Person:	Frank Aceto, PG (Delaware Registration S40000892)
Telephone:	(484) 875-3075
Responsibilities:	Will provide SECOR management assistance to the project manager. Mr. Aceto will provide input on technical and regulatory, review of documents to be submitted to DNREC associated with this Work Plan, and will attend meetings with regulatory agencies including DNREC.

Title:	Project Manager and Project Hydrogeologist
Person:	Stephen M. Baggett, PG (Delaware Registration S40000770)
Telephone:	(484) 875-3075
Responsibilities:	Will be responsible for coordinating all personnel involved with the field investigation and reporting activities while considering the project schedule and budget constraints. Mr. Baggett will be responsible for all aspects of the Remedial Investigation and Focused Feasibility Study. Additionally, the Project Manager is the primary contact between AMTRAK and APU, and DNREC.

As project manager, will manage field and staff level personnel to be utilized to perform various field investigations as well as subcontractors to be utilized for field investigations, laboratory analyses and data validation.

Title:	Ecological Assessment Coordinator
Person:	Ann Schnitz, PhD (SECOR)
Telephone:	(484)875-3075
Responsibilities:	Will be responsible for overseeing the collection and review of data pertaining to the ecological assessment and will furnish his findings and recommendations to the Project Manager.

Title:	Human Health Risk Assessment and Ecological Investigation Coordinator
Person:	Ann Schnitz, PhD (SECOR)
Telephone:	(484) 875-3075
Responsibilities:	As human health risk assessment coordinator, will be responsible for overseeing the development and implementation of the proposed scope of the human health risk assessment and will report findings and recommendations to the Project Manager.

Analytical Laboratories

Analyses of groundwater, surface water, soil and sediment samples for target analytes will be performed and managed by Lancaster Laboratories, Inc. of Lancaster, Pennsylvania (laboratory who performed the Former Fueling Facility RI sample analyses) which is a DNREC approved and HSCA certified laboratory. The Lancaster Laboratories project manager is Amek Carter and the Quality Assurance manager is Kathleen Loewen. Laboratory results will be provided by the Lancaster Laboratories Project Manager to the Site Manager who will then coordinate data validation prior to the release of the data to the Project Manager. Test America, Inc. (formerly Severn Trent Services Laboratories) will perform the PCB congener analyses under EPA Draft Test Method 1668A, this laboratory performs PCB congener analyses at this site for AMTRAK for the PMP.

8.2 Health and Safety Plan

The existing SECOR site Health and Safety Plan (HASP) complies with the OSHA standard, "Hazardous Waste Operations and Emergency Response", (29 CFR 1910.120) as well as other site investigative and remedial requirements. The HASP was prepared for previous site activities. A copy of the HASP is currently at the site and will remain on-site for all future activities.

8.3 Sampling and Analyses Plan

This Sampling and Analyses Plan (SAP) is presented to summarize the data collection and analytical procedures. Media to be sampled during the course of the investigations include sediment and surface water. The objectives of the remedial investigation are presented in Section 1.0. The specific sampling procedures and rationale for selection of analytes are described in Section 5.0. Specific sampling procedures will be performed to meet the quality assurance/quality control (QA/QC) requirements specified in DNREC's Standard Operating Procedures for Analytical Programs under

the Hazardous Substance Cleanup Act dated May, revised September 2006 (SOPCAP) and any subsequent updates.

8.3.1 Field Sampling Procedures

As described in Section 5.0, various environmental media will be sampled. The following is a discussion of field procedures as they pertain sediment, soil, and surface water sample collection.

8.3.1.1 Soil Borings

Soil borings will be advanced using a hollow-stem auger drill rig to characterize subsurface soils (select borings will be subsequently converted into a monitoring well). Continuous split-spoon samples will be collected to a depth of the water table. Soil samples will be retained at two-foot intervals. All samples will be analyzed for PCB aroclors with additional analyses performed on 5% of the samples. The following is a description of the field sample collection procedures.

1) Retrieve the soil sampler and core from the subsurface.

2) Place the unopened sampler on a clean piece of aluminum foil.

3) Open the sampler and using a clean stainless steel spatula, break up the soil core into sub-samples, placing selected portions into appropriate containers. After subsamples have been placed in appropriate containers, an additional subsample will be placed into an 8-ounce sampling jar and covered with aluminum foil. After allowing the headspace vapors to equilibrate for a minimum of 15 minutes, pierce the aluminum foil with the OVA extraction nozzle. Be careful not to insert the nozzle directly into the soils and record the OVA reading.

4) Log the soil core.

5) Label sample containers to be retained for laboratory analyses.

6) Obtain duplicate and blank samples, if necessary.

7) Place all samples to be retained for laboratory analyses in a cooler with ice.

8) Clean all sampling equipment prior to obtaining the next sample.

8.3.1.2 Monitoring Well Installation

Fourteen (14) of the soil borings will be completed as monitoring wells. Each of these soil borings will be extended to a depth of approximately 8 to 10 feet below the groundwater surface with a hollow-stem auger drill rig under the supervision of a SECOR geologist.

Monitoring wells will be installed using a drill rig equipped with hollow stem augers. Soil samples will be obtained while drilling using split-spoon soil samplers. This device is inserted into the hollow stem of the auger and collects a 2 foot interval of the soil below the advancement of the augers. Soil sampling will be performed using the methods outlined previously.

All monitoring wells are to be constructed with flush-thread joints and factory-slotted screen. Monitoring wells will be constructed with 4-inch ID schedule 40 PVC. No lubricants will be used which could introduce contaminants into subsequent groundwater samples.

Pre-washed silica sand will be placed in the annulus to a height of 2 feet above the well screen. An approximate two foot thick seal of bentonite pellets will be placed above the sand pack and will be allowed to hydrate. The well will then be grouted to the surface using a cement-bentonite mixture. A cement pad will be constructed around the outer casing at the surface. A lock and locking cap will complete the installation. In any situation where the well protrudes above ground surface, the well casing will be protected with bumping posts to prevent damage.

Monitoring well development will be performed to improve the hydraulic communication between each well and the water-bearing zone. Development will be considered complete when the discharge is turbid-free to the extent feasible. The well will be developed by operating a plunger (surge block), and pumping to remove fine particles from the screen and the sand pack. All development equipment will be decontaminated between monitoring wells.

8.3.1.3 Monitoring Well Sampling

Groundwater samples will be obtained from the newly installed monitoring wells. The following procedures will be used when collecting groundwater samples.

1) Prior to sampling, liquid levels in each well will be measured using an Interface Probe. Using the measured levels and the depth of the well, calculate the amount of water to be removed.

2) Purge a minimum of three well volumes from the well using a decontaminated pump or a bailer.

3) During purging, obtain three sets of field parameter readings. The following filed parameter measurements will be recorded:
   - pH
   - Specific c
   - Temperature ± 2°F

- Oxidation/reduction potential
- Dissolved oxygen

A sample will be secured after a minimum of three well volumes are purged from the well.

4) Disposable nitrile sampling gloves are to be worn during the entire sampling event.

5) Lower a disposable polyethylene decontaminated bailer, gently into the well, allowing it to fill, then gently remove. The bailer(s) will be of single check valve construction, and will be raised and lowered into the well using braided cotton rope of sufficient size and diameter so that the bailer may be easily raised and lowered. Any portion of the rope that comes in contact with contaminants will be discarded.

6) Place samples in containers with the appropriate preservative(s) per the SOPCAP.

7) Obtain duplicate and blank samples, if necessary. Blank samples should be clearly marked with a reference number on the sample containers and chain-of-custody forms which will correspond to identification of blanks in the field notebook.

8) Label all containers.

9) Place all samples including blanks in cooler with ice.

10) Clean all equipment for the next sample.

Product (LNAPL) samples will be collected in a similar manner although the wells will not be purged prior to sampling.

8.3.1.4 Sediment Sampling

Sediment samples will be collected in order to characterize sediments in the Outfall 002 drainage ditches and in the drainage ditch north of the Eastern Drainage Ditch Brandywine Creek. Sediment samples will be collected from the drainage ditch features and in the Brandywine Creek in a systematic fashion as described in Section 5.0. Sediment samples will be collected starting from the farthest downstream locations moving upstream to collect additional samples.

1) Sediment samples will be collected using a stainless steel hand auger. Samples will be collected at specific depth intervals as described in Section 5.6.

2) Obtain grab sediment sample from the sampling device.

3) Place the unopened sampler on a clean piece of aluminum foil

4) Record physical soil properties in addition to observations regarding hydrocarbon content.

5) Obtain duplicate and blank samples, if necessary.

6) Place all samples to be retained for laboratory analyses in a cooler with ice.

7) Clean all sampling equipment prior to obtaining the next sample. Sampling equipment will be cleaned by:

- Remove gross material by scraping or brushing
- Clean with tap water and phosphate-free laboratory detergent such as liquinox
- Rinse thoroughly with deionized water
- Allow to air dry

8.3.1.5 Surface Soil Sampling

Surface soil samples will be collected using a stainless steel hand auger to evaluate the PCB content in surface soils. Surface soil samples will be collected on the banks of the drainage features, in the hydrocarbon stained soils areas adjacent to the Eastern Drainage Ditch on the banks of the Eastern and Western Drainage Ditches and in subdrainage areas.

1) Obtain a grab sample from the stainless steel hand auger or stainless steel scoop.

2) Place the hand auger on a clean piece of aluminum foil.

3) Place the soil sample directly into the sample container.

4) Record visual observations of the sample in a log book or, such as color, grain size, odors, etc.

5) Obtain duplicate and blank samples, if necessary.

6) Label all containers.

7) Place all samples to be retained for laboratory analyses in a cooler with ice.

8) Continue the hand auger boring to a depth of 18" to 24". Repeat steps 1 through 7.

8) Clean all sampling equipment prior to obtaining the next sample. Sampling equipment will be cleaned by:

- Remove gross material by scraping or brushing
- Clean with tap water and phosphate-free laboratory detergent such as liquinox
- Rinse thoroughly with deionized water
- Allow to air dry

8.3.1.6 Surface Water Sampling

As described in Section 5.5, surface water samples will be collected from Outfalls 002 and 007 as part of the PMP program. Those samples will be 24-hour time weighted composite samples collected using procedures outlined in the PMP for the site.

Grab dry weather, wet weather, and incoming tide surface water samples will also be collected from the drainage ditch north of the Eastern Drainage Ditch and an incoming tide sample will be collected from the Outfall 002 ditch.

The following procedures will be used when collecting these surface water samples.

1) Surface water samples will be collected using a Teflon cup and placed directly into sample containers with the appropriate preservative(s). Laboratory analyses will be performed on filtered and unfiltered samples. All sample filtering will be performed by the laboratory.

2) Obtain duplicate and blank samples, if necessary. Blank samples should be clearly marked with a reference number on the sample containers and chain-of-custody forms which will correspond to identification of blanks in the field notebook.

3) Label all containers.

4) Place all samples to be retained for laboratory analyses in a cooler with ice.

8.3.2 Quality Assurance

As previously described, laboratory analyses will focus on the quantification of PCBs components in the environmental media sampled. **Table 8-1** summarizes the analytical and QA/QC requirements for the remedial investigations. **Table 8-1** provides the duplicate (blind), field, and matrix spike/matrix spike duplicate sample calibration frequency. These QA/QC samples are described below.

- Field blanks - Field blanks are used to determine if the equipment decontamination procedures have been sufficient. A field blank consists of a group of laboratory-cleaned sample containers that are transported empty into the field. At the field location, distilled water is passed through the precleaned and/or decontaminated sampling equipment and placed into the empty group of containers for analysis. Field blanks are not collected when samples are collected directly into the sample container (i.e., the sample container is used as the collection device).

- Matrix Spike/Matrix Spike Duplicates - matrix spike/matrix spike duplicates are used to assess laboratory accuracy and precision. The sample(s) to be utilized for matrix spike/matrix spike duplicate analysis will be collected from areas where contamination is suspected to be present. The sample label will note that the sample is to be used for matrix spike/matrix spike duplicate analysis by the laboratory.

- Duplicate samples - duplicate samples help to evaluate field and laboratory precision.

To maintain a record of sample collection, transfer between personnel, shipment, and receipt by the laboratory, a Chain-of-Custody will be completed for each sample cooler that is shipped to the laboratory. Each time the samples are transferred to another custodian, signatures of the person relinquishing the sample and receiving the sample, as well as the time and date, should document the transfer.

The project team member performing the sampling is personally responsible for the care and custody of the samples collected until they are transferred or dispatched properly. In follow-up, the site manager leader reviews all field activities to confirm that proper custody procedures were followed during the field work.

The top original signature of the Chain-of-Custody is enclosed in plastic and secured to the inside of the cooler lid. A copy of the custody record is retained for SECOR's files.

All analytical laboratory analyses with the exception of PCB congener analyses will be performed by Lancaster Laboratories, Inc. of Lancaster, Pennsylvania which is a DNREC-approved and HSCA-certified laboratory. As such, the laboratory data quality, data documentation, equipment calibration, and preventative maintenance requirements of the DNREC Contract Laboratory protocol will be adhered to. In addition, all field meters used during the groundwater sampling will be calibrated according to the manufacturer's specifications.

PCB congener analyses (using EPA Draft Test Method 1668A for 209 congeners) will be performed by Test America, Inc. (formerly STL) in Knoxville, Tennessee.

Data validation will be completed according to the *Hazardous Substance Cleanup Act Guidance Manual.* A Data Validation Report will be provided in the Remedial Investigation Report. Based upon the intended use of the data, the following analytical data will be validated:

- Groundwater samples
- Sediment samples
- Soil Samples
- Surface Water Samples (those not associated with PMP program)

8.4 Waste Management Plan

Waste generated during the proposed activities will be managed in an efficient and environmentally sound manner. Wastes generated during site activities will consist of the following.

- Decontamination fluids
- Purge water
- Monitoring well drilling cuttings

- Used personnel protection equipment (PPE) and other domestic trash

Monitoring well purge water will be routed through granular activated carbon (GAC) and allowed to drain to the ground surface. Decontamination fluids (water/alconox) will not be containerized and will be allowed to drain directly to fill materials/soils in the Maintenance Facility. Monitoring well drilling cuttings will be placed on and covered with plastic. Disposal characterization samples will be collected and drilling cuttings will be disposed off-site at an AMTRAK-approved facility based on soil characterization results. Used PPE will be drummed at the site and disposed accordingly. Domestic trash will be placed in plastic trash bags and disposed in on-site municipal trash dumpsters.

8.5 Community Relations/Public Relations Plan

The remedial investigation will be performed in accordance with the Delaware Voluntary Cleanup Program (VCP) by AMTRAK and APU under agreement with DNREC. As described in Section 1.2 of the Work Plan, the site is zoned General Industrial by the City of Wilmington and is surrounded by current or former industrial operations. As such, interaction with the community is anticipated to be minimal. Record of any inquiries about the project by the public and the response given will be forwarded by Andrew Enzman, Senior Environmental Coordinator at the AMTRAK Wilmington Shops to SECOR's Exton, Pennsylvania office which will serve as the repository for public inquiries. The designated project manager of SECOR will be responsible to ensure the record of inquiries is complete as well as function as the interface (point of contact) for such inquiries.

If it is considered necessary, by DNREC further community relations activity will be coordinated by DNREC.

9.0 SCHEDULE

The schedule to implement remedial investigations will depend on receipt of DNREC approval of this Work Plan. On behalf of AMTRAK and APU, SECOR will develop and provide a schedule to DNREC upon receipt of DNREC approval for this Work Plan.

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