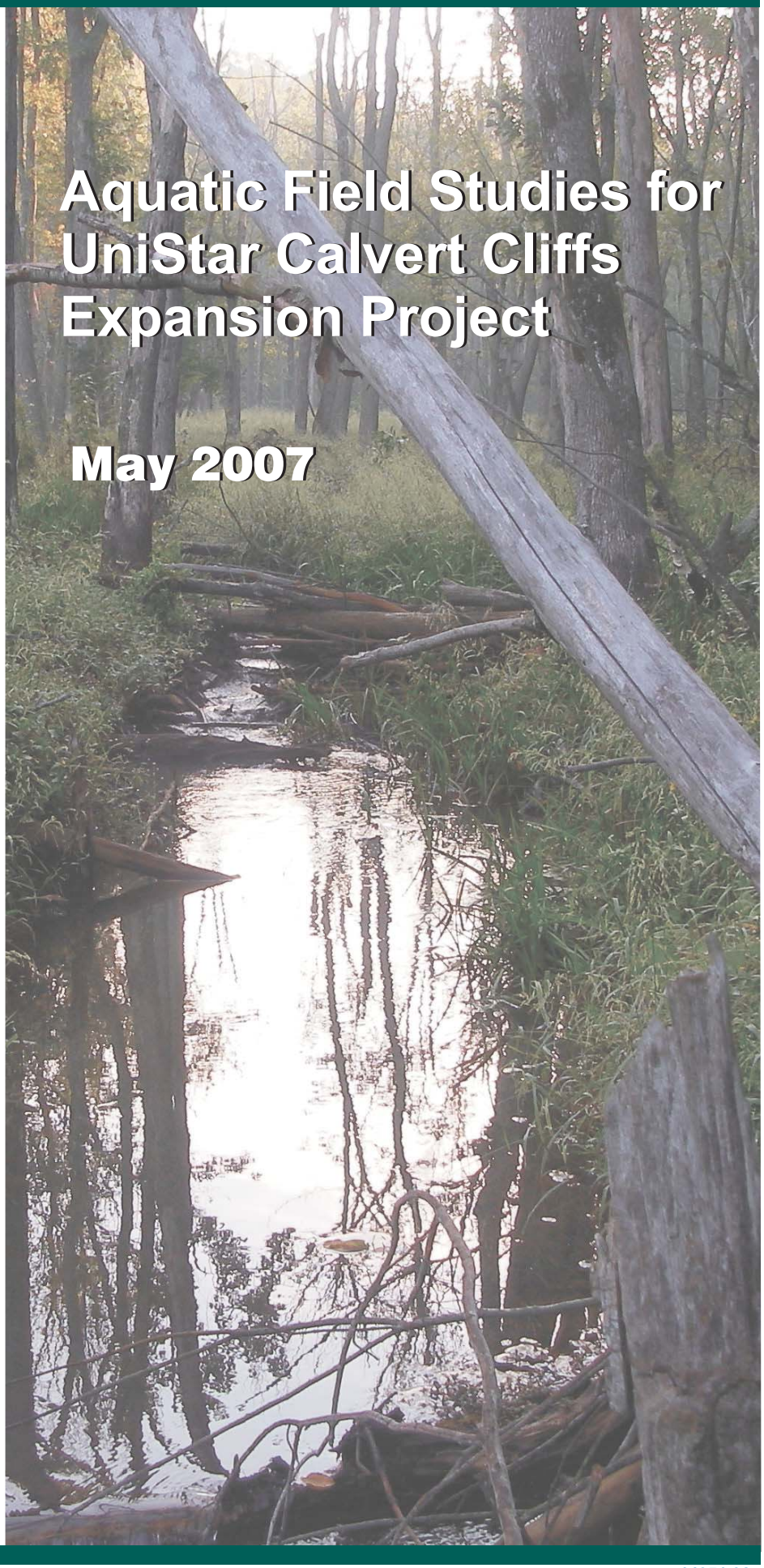

Aquatic Field Studies for UniStar Calvert Cliffs Expansion Project

May 2007

Prepared for

UniStar NUCLEAR

UniStar Nuclear Development, LLC
Baltimore, Maryland

Prepared by

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14351.02

AQUATIC FIELD STUDIES FOR UNISTAR CALVERT CLIFFS EXPANSION PROJECT
DRAFT REPORT

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LIST OF ACRONYMS AND ABBREVIATIONS

BOD	Biological Oxygen Demand
B-IBI	Benthic Index of Biotic Integrity
CCNPP	Calvert Cliffs Nuclear Power Plant
COD	Chemical Oxygen Demand
COLA	Construction/Operating License Application
CPCN	Certificate of Public Convenience and Necessity
DC	Direct Current
DGPS	Differential Global Positioning System
DLWG	Logger With Guidance
EA	EA Engineering, Science, and Technology
EPA	Environmental Protection Agency
GPS	Global Positioning System
IBI	Index of Biotic Integrity
MLLW	Mean Lower Low Water
MACS	Mid-Atlantic Coastal Streams Workgroup
MDNR	Maryland Department of Natural Resources
MBSS	Maryland Biological Stream Survey
PAH	Polynuclear Nuclear Hydrocarbons
QA/QC	Quality Assurance/Quality Control
RTE	Rare, Threatened, or Endangered
SAV	Submerged Aquatic Vegetation
SOPs	Standard Operating Procedures
SM	Standard Methods or the Analysis of Water and Wastes
TPH	Total Petroleum Hydrocarbons
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VIMS	Virginia Institute of Marine Science

1. INTRODUCTION

This report summarizes the results of the Fall 2006 and Spring 2007 aquatic surveys of the streams, ponds and nearshore Chesapeake Bay at Calvert Cliffs Nuclear Power Plant (CCNPP). The location of CCNPP and the nearshore study area is shown on Figure 1. This survey was requested by UniStar Nuclear to provide baseline information for use in the proposed Calvert Cliffs Expansion Project to support planning and preparation of an environmental report as part of the Nuclear Regulatory Commission Combined Construction/Operating License Application (COLA) and the application for a Certificate of Public Convenience and Necessity (CPCN). The studies included benthic macroinvertebrates, fish, and water quality parameters in the streams and ponds on the CCNPP site. In the nearshore Chesapeake Bay, a bathymetric survey, submerged aquatic vegetation survey (SAV), sediment quality, macrobenthos and oyster surveys were conducted. The oyster survey was conducted by Kennedy Paynter of the University of Maryland on November 1 in the nearshore bay study area. Studies were conducted in accordance with the Quality Assurance/Quality Control programs of each of the participant organizations.

On the CCNPP site, two seasonal surveys were conducted. One during the Fall of 2006 and the other in the Spring of 2007. The Fall 2006 survey consisted of four field days where representative areas of two streams and four ponds at CCNPP were sampled. The Fall 2006 survey was conducted between 26-29 September 2006. The Spring 2007 survey consisted of sampling activities at the same locations over a five day period from 12-16 March. Heavy rain delayed fish sampling at one stream location on Goldstein Branch and sampling was postponed at that location until 24 April 2007. During the course of the survey period, a team comprised of aquatic and fisheries biologists visited three locations on two streams and eight locations on four ponds. At each stream location one benthic and one fish sample were collected. At two of the larger ponds (Lake Canoy and Lake Davies), three benthic locations and three fish sampling locations were sampled at each. Benthos and fish collections were conducted at one location in each of the two smaller ponds (Pond 1 and Pond 2). Concurrent with sampling at all of the locations, *in situ* water quality data were recorded and water samples collected for laboratory analysis. In addition, physical and habitat characteristics were recorded at the stream locations only.

Three surveys were conducted on the bay. A bathymetry survey was conducted in an area bounded by the barge slip on the south, the existing intake to the north, and 1500 feet offshore. SAV were surveyed in the vicinity of the proposed discharge, and three sediment quality/ benthic macroinvertebrate samples were taken in the area of the proposed discharge.

2. STREAM AND POND SURVEYS

2.1 FIELD SAMPLING METHODS

2.1.1 Sampling Locations

Fall and Spring seasonal field investigations were conducted which consisted of surveying two stations on John's Creek, one station on Goldstein Branch, three stations on Lake Canoy, three stations on Lake Davies, and one station each at Pond 1 and Pond 2 at CCNPP (Figure 2). A list and description of the stream and pond stations are included in Table 1. Three sampling locations were originally planned for John's Creek –upstream, midstream and downstream. However, when undertaking the Fall survey, it was determined that the mid section of this creek consisted of an emergent phragmites wetland without a defined stream channel. Only the upstream and downstream segments were sampled. Stream sampling techniques were consistent with *Maryland Biological Stream Survey (MBSS) Sampling Manual (Kazyak 2001).* Pond sampling was conducted at a suitable number of locations to represent all habitat types in a given pond using sound fisheries sampling techniques.

Documentation of the field sampling programs is contained in Appendix A including data sheets, field notes and a photographic record of sampling locations.

2.1.2 Water Quality

Two habitat assessments were completed in the field for each of the stream stations during both seasonal studies to determine overall habitat quality. First, *Environmental Protection Agency* (*EPA) Rapid Bioassessment Protocols for Use In Wadable Streams and Rivers (EPA 1999*) habitat assessment for low gradient streams was used to evaluate each site's aquatic habitat. In addition, habitat assessment using *Maryland Biological Stream Survey Sampling Manual (Kazyak 2001)* was conducted to stay consistent with MBSS protocols and to capture several additional habitat characteristics. Assessments were conducted during both the Fall 2006 and Spring 2007 to note any changes in habitat that may have occurred between field surveys. Habitat parameters using the RBP method that were evaluated included: substrate and available cover characterization, pool substrate characterization, pool variability, sediment deposition, channel flow status, channel alteration, channel sinuosity, bank stability, and riparian zone characteristics. MBSS habitat assessment captured additional characters such as extent of eroded stream bank, bar formation, exotic plants, number of woody debris within the sampling location, substrate composition, and presence of aquatic vegetation. All three of the stream locations were

evaluated using both the *EPA Rapid Bioassessment Protocols for Use In Wadable Streams and Rivers (EPA 1999*) and *Maryland Biological Stream Survey Sampling Manual (Kazyak 2001).*

Physicochemical parameters were measured *in situ* at each sampling location concurrent with the biological collections. Water temperature, dissolved oxygen, pH, and conductivity and turbidity during the spring sampling were measured with a calibrated YSI 556 MPS water quality analyzer.

Water quality samples were taken and delivered to Microbac Laboratories, Inc. for chemical and physical analysis. The parameters and analytical methods were:

Parameter	Method
Alkalinity as calcium carbonate	EPA 310.1
Biochemical Oxygen Demand	EPA 405.1
Ammonia as N	EPA 350.2
Nitrate plus Nitrite as N	EPA 353.2
Dissolved Phosphorus	SM 18 4500P B+E
Total Phosphorus	SM 18 4500P B+E
Total Dissolved Solids	EPA 160.1
Total Kjeldahl Nitrogen	EPA 351.3
Total Organic Carbon	EPA 415.1
Total Suspended Solids	EPA 160.2

Additional water quality parameters were added to Spring 2007 survey as well as a wet weather sampling event at two stream stations , one on John's Creek and one on Goldstein Branch to better characterize water chemistry at the site during wet weather events. The additional parameters collected during the Spring survey and their analytical methods are as follows:

Parameter	Method
Total Mercury	EPA 245.1
Total Metals	EPA 200.7
Total ICP/MS Metals	EPA 200.8
Phosphate	SM 18 4500
Total Carbon	SW 846 9060
Total Organic Carbon	SM 18 5310 B
Total Petroleum Hydrocarbons (TPH)	EPA 1664A
Polynuclear Aromatic Hydrocarbons (PAH)	EPA 625

Hardness	EPA 130.2
Color	EPA 110.2
Chemical Oxygen Demand	EPA 410.4
Chlorides	EPA 325.3
Sulfate	EPA 375.4
Sodium	EPA 200.7
Potassium	EPA 200.7
Calcium	EPA 200.7
Magnesium	EPA 200.7
Phytoplankton (Chlorophyll A)	SM 10200 H
Total Fecal Coliform	SM 18 9221 E
Total Fecal Streptococci	SM 18 9230 B

In addition to the three stream and eight pond samples, a field duplicate sample was analyzed for these parameters. Analytical laboratory reports are presented in Appendix B. Microbac performed quality control analysis in accordance with its program as required for laboratory certification by the State of Maryland.

2.1.3 Benthic Sampling Methods

Benthic macroinvertebrates were collected in the streams during the Fall 2006 and Spring 2007 surveys using the multi-habitat D-frame dip net 20 times/sweeps representing all available habitat types (Twenty-Jab Method), a sampling technique developed by USEPA (EPA 1997). This technique was developed by the Mid-Atlantic Coastal Streams Workgroup (MACS) for low gradient, nontidal streams. Each station consisted of a 75-meter stream reach that was representative of conditions in the surrounding drainage area. Shoreline areas in the ponds were sampled during the two seasonal surveys qualitatively with a D-frame dip net. Ponds were also sampled by petit ponar grab samples. Three replicates at three locations were taken in Lake Davies and Lake Canoy and three replicates at one location was taken in each of Ponds 1 and 2. One of the replicates at each site was analyzed in the laboratory; the others were archived.

Each benthic sample was seived in the field through a 505 micron screen to remove fine sediment particles. The sample was then transferred to labeled bottles and preserved in the field using buffered 10 percent formaldehyde solution. Samples were transported to EA's Biological Laboratory in Sparks, MD for sorting and subsampling. Upon return to the laboratory, all benthic samples were cataloged for proper tracking throughout sample processing and identification procedures. In the case of high density of individuals, samples were subsampled to

100 randomly selected individuals (described in EPA, 1999). After the samples were sorted, they were then sent for taxonomic identification to EA's (EA Engineering, Science, and Technology) laboratory in Chicago, Illinois. Individual specimens were identified to species level if possible, or to the lowest practical taxa. After taxonomic identification, the 100 individuals were extrapolated to determine relative abundance.

The EA Biological Laboratory's standard operating procedure includes quality control checks and quality assurance audits. Quality control checks are performed on previously sorted samples by having the sample re-sorted by a different technician. The Average Outgoing Quality Limit is 90 percent or greater removal of organisms. Senior EA staff perform Quality Assurance audits to ensure that standard operating procedures (SOPs) are being followed.

2.1.4 Fish Sampling Methods

The fish survey was designed to provide baseline data on the condition of fish communities in the streams and ponds. The fish sampling locations coincide with the benthic sampling locations (Figure 2). The fisheries methods employed at the stream locations followed the *Maryland Biological Stream Survey Sampling Manual (Kazyak 2001).* When possible, the sampling effort was standardized for all stations such that sampling occurred in all available habitat types (riffle, run and pool) throughout the 75-meter location at each station. Since the size (width and depth of all the stream locations surveyed was relatively small, the entire 75-meter reach was sampled which included all available habitat.

The stream sites were sampled using a portable Coffelt backpack electrofishing unit, employing handheld anode and cathode using direct current (DC). The pond locations were sampled with the use of two different electrofishing units. The smaller ponds (Pond #1 and Pond #2) were sampled using the same Coffelt backpack electrofishing unit as was used in the stream stations. Since these two ponds were small and shallow, the backpack electrofishing unit provided ample energy to effectively sample the shorezone area of these two locations. The larger ponds (Lake Canoy and Lake Davies) required the use of a larger more powerful electrofishing unit. A Coffelt 2C electrofishing unit, mounted in a small jon boat, was employed to effectively sample the shorezone areas as well as other suitable habitat in the pond adjacent to the 75-M shorezone station. The pond locations were sampled with the same standardized approach among the stations as employed in the stream locations. As with stream sampling, all available habitat types were sampled. For the ponds, these consisted of shoreline areas, vegetation, woody debris and piers.

In both streams and the ponds, stunned fish were dip netted from the water and held in a live car for processing. All fish were retained until the given station was completely sampled, then processed. Processing included species level identification, enumeration, and measurement of total length of the first twenty specimens of each species at each station. In addition, gamefish species were weighed and recorded. Fish of a given species at each station above twenty were counted and recorded. Selected individuals were retained as voucher specimens or to verify identification in the laboratory. All remaining fish were returned alive to the respective stream or pond. All fish survey information was recorded on MBSS field data sheets for the streams and standard EA fisheries data sheets for the ponds.

2.1.5 Quality Assurance/Quality Control (QA/QC)

The investigations described in this report were conducted under the requirements of EA's Corporate Quality Assurance Plan (EA, 2004). The program covers project planning, execution and reporting. Periodic internal QA audits are carried out by the Program Manager or other senior technical staff to ensure the completeness and integrity of project data and files, and that project activities, including field sampling, are being carried out in accordance with the established SOPs. Standard field quality control measures included collection of a field duplicate and instrument calibration checks. For biological laboratory analyses, QC checks were conducted on previously sorted samples. This involved re-sorting samples by a designated QC checker. The goal is to achieve 90 percent or greater removal of organisms from the sample during the initial sort. An independent check of compiled data and statistical analyses including community metrics was also conducted. Analytical laboratory QA/QC procedures were carried out by Microbac in accordance with the requirements of their state certification to perform chemical analyses.

2.2 RESULTS

2.2.1 Water Quality

In situ water quality information is presented on Tables 2 and 3. *In situ* water quality measurements are representative of a healthy aquatic environment in the stream locations and Lake Canoy with dissolved oxygen greater than 5 ppm and neutral pH for both fall and spring periods. Dissolved oxygen was depressed in Lake Davies and Ponds 1 and 2 in the fall but was high and similar to the other water bodies in the spring. The total organic carbon, alkalinity and total dissolved solids at Lake Davies were notably higher than the other site waters during both

seasons. The general water quality of the three stream locations and Lake Canoy does not indicate that there are any significant adverse conditions.

Additional water quality parameters were tested in the spring survey period to obtain a more complete baseline profile of conditions. The additional testing did not reveal any adverse water quality conditions. In particular, bacteria levels, chlorophyll a, and total petroleum hydrocarbons were low. Metals were largely at nondetected concentrations. However, in Lake Davies elevated levels of barium, calcium, magnesium, potassium and sodium were observed. These findings are consistent with the high conductivity, alkalinity and total dissolved solids measurements in Lake Davies and reflect past disposal of dredged material in adjacent upgradient areas as reported by Constellation Energy staff.

In order to provide a representation of variability in these waters due to meteorological conditions, wet weather (rainfall within the previous 24 hours) and dry weather (no rainfall within the previous 72 hours) samples were taken at the downstream station on John's Creek and at the Goldstein Branch station in the spring. The wet weather results show increases in BOD, COD, fecal coliform and fecal streptococci, phosphorus, and total suspended solids as would be expected. Wet and dry weather measurements of PAH were also made and none where detected. No petroleum hydrocarbons were detected either.

2.2.2 Fish Community

A taxonomic list of the fish species collected from the streams and ponds during the Fall 2006 and Spring 2007 surveys is presented in Table 4. The abundance and distribution data for the fish collected at the stream and pond stations are presented in Table 5 (September 2006) and Table 6 (March/April 2007).

The September 2006 survey resulted in the collection of 532 fish distributed among 15 species within nine families (Table 5). The three stream sites produced 174 individuals among 10 species and the eight pond sites produced 358 individuals among 7 species. Eastern mosquitofish (*Gambusia affinis*) dominated the ponds with bluegill (*Lepomis macrochirus*) being co-dominant at Lake Canoy. Eastern mosquitofish (*Gambusia affinis*) was the only species collected at Lake Davies. The station on the downstream section of John's Creek had the most diverse and productive fish community which consisted of 105 individuals representing eight species. The sampling location on Goldstein Branch exhibited the second most diverse site in relation to numbers of species consisting of 65 individuals representing seven species. Station LC-02 on Lake Canoy had the second highest number of individuals (84) but only representing two species

and dominated by bluegill. Generally, pond locations typically have less species represented than stream locations. The upstream station on John's Creek produced only 4 fish of the same species, eastern mudminnow (*Umbra pygmaea*). The lack of species richness and diversity as well as the limited number of individuals may very well be due to the headwater nature of this stream location, where species numbers are typically limited. Other factors which may contribute to the condition of the fish community at this site are the lack of a defined channel downstream of the site (as described in the reason for not sampling the mid-zone of John's Creek) which can limit fish immigration and emigration from this site and the possible intermittent character of this location, where the stream may be dry or nearly dry at certain times of the year.

The March/April 2007 survey resulted in the collection of 373 fish also distributed among 15 species within ten families (Table 6). The three stream sites produced 220 individuals among 11 species and the eight pond sites produced 153 individuals among 6 species. Pond sites during the Spring sampling were dominated by bluegill although this species was only collected at the three stations located in Lake Canoy. Green sunfish (*Lepomis cyanellus*) were co-dominant during the Spring survey and were distributed among Ponds #1 and #2 as well as Lake Canoy. Electrofishing efforts at the three locations in Lake Davies resulted in no fish collected during the Spring survey. The reduction of total numbers of individuals collected during the Spring survey at the pond locations may be due to cooler water temperatures resulting in the total fish community of a given impoundment being less dispersed. Whereas during the Fall 2006 survey, populations of fish within a given impoundment may have been more widely distributed. Stream stations sampled during the Spring 2007 survey produced similar abundance and distribution of fish as the Fall 2006 survey, with a few variations. Goldstein Branch exhibited the largest number of individuals collected during the Spring sampling, 107 individuals among 8 species. Tesselated darter (*Etheostoma olmstedi*) was the most abundant species (45 individuals), followed by American eel (27 individuals) collected in Goldstein Branch in the Spring. The down stream location on John's Creek had the second most abundant fish community with 98 individuals collected during the Spring survey distributed among 8 species. The single most abundant species collected at all stream stations during the Spring 2007 survey was American eel at 72 individuals which accounted for 67 percent of the stream station fish community. Increased numbers of eels in the streams is typical for the spring time as these fish are migrating back into their freshwater habitat. Pond locations were dominated by bluegill which represented 71 individuals and accounted for 46 percent of all fish collected in the ponds.

There were no noticeable changes in the fish community at CCNPP from the Fall 2006 to the Spring 2007 survey. While total numbers of fish collected varied between the two surveys, 532 individuals in the Fall survey and 373 in the Spring survey species numbers largely

remained the same and is representative of fish assemblages in coastal plain stream habitat and ponds.

None of the fish species collected is protected by federal or state law as rare, threatened or endangered (RTE). However, 32 American eels (*Anguilla rostrata*) were collected in the Fall 2006 survey and 105 eels were collected in the Spring survey from both stream and pond locations. There is growing concern worldwide regarding the status of American eel populations and the federal government has undertaken a status review.

Ponds 1 and 2, the smaller ponds, exhibited limited fish communities during the Fall 2006 and Spring 2007 surveys probably due to their size and reduced dissolved oxygen levels. Lake Davies exhibited the least productive fish population as far as number of species and quantity of individuals. Only one species of fish eastern mosquitofish (*Gambusia affinis*) was collected in Lake Davies and only during the Fall sampling season. No fish were collected in Lake Davies during the Spring survey. Habitat at this site appeared to be ideal for a pond system which included adequate cover, depth and forage. Depressed oxygen levels due to algae and duckweed degeneration as observed during the Fall survey may be the reason for the depauperate fish fauna at this site. Water quality conditions, as described previously, are dissimilar from the other freshwater ponds on the site.

2.2.3 Benthic Community

The abundance data for the benthic macroinvertebrate taxa found at the stream stations and pond stations collected by dip net are presented in Tables 7-1 and 8-1. Table 7-2 and Table 8-2 show the community metrics for all dip net samples and the calculated IBI (Index of Biotic Integrity) for the stream stations (Stribling *et al* 2005). No IBI has been developed for pond stations. Johns Creek was rated as Fair at both upstream and downstream locations and Goldstein Branch as Poor in September 2006. In the Spring survey, all stations were rated as Fair.

For the most part, Chironomids dominated the communities particularly at Lake Davies. Only Pond 1 and Pond 2 were dominated by Oligochaetes. Ponar collections in pond stations are shown in Tables 9-1 and 10-1, and selected metrics for the ponar collections are shown in Tables 9-2 an 10-2.

2.2.4 Habitat Assessment

The stream habitat stations were evaluated in accordance with habitat quality protocols

developed by both the USEPA in the Rapid Bioassessment Method (USEPA 1999) as well as the protocols developed by the Maryland Biological Stream Survey (Kazyak 2001). Results in Table 11 show that habitat in each of the three stream locations is classified as Optimal for low gradient coastal plain streams. Habitat assessment was conducted during the Fall 2006 and Spring 2007 surveys to document any changes which may have occurred between the two surveys. While little change would be expected from the Fall to Spring, trends would be documented if further studies were conducted. The habitat assessment does show a slight reduction of score at the downstream John's Creek station and the Goldstein Branch location. Since the Rapid Bioassessment Method is somewhat subjective, some variability (margin of error) can be expected between assessments. The Goldstein Branch location showed a larger drop in score during the Spring survey than would be expected from subjective variability. Adjacent construction activities off the CCNPP site seem to be adding sediment to the stream and thus reducing its overall habitat score. However, the fish community does not reflect any negative changes since Goldstein Branch and the downstream station on John's Creek have the most diverse and productive fish communities. The downstream station on John's Creek had the highest score (best habitat) during both the Fall and Spring surveys and showed little change between the two seasonal surveys.

3. CHESAPEAKE BAY SURVEYS

3.1 BATHYMETRY SURVEY

EA performed the hydrographic survey in accordance with United States Army Corps of Engineers (USACE) Hydrographic Manual EM 1110-2-1003 specifications on September 27, 2006. Uncorrected depths were recorded using an Innerspace Technology Model 448 Depth Sounder; horizontal positions were obtained using a Trimble AG124 differential global positioning system (DGPS). Horizontal positions and depths were recorded every 2 seconds to a laptop computer using Innerspace Technology's software data logger with guidance (DLWG). In accordance with specifications from the USACE Hydrographic Manual, depth readings on the Model 448 were checked pre-survey, every 2 hours during the survey, and post-survey using a stadia rod to verify accurate readings.

Transects were surveyed every 50 ft along the north-south axis of the survey area. Upon completion of the survey sounding depths were corrected for tide using data from the closest National Ocean Survey tide gage (Solomons Island) using the correction for Cove Point; depths were corrected to Mean Lower Low Water (MLLW). The datum is Maryland State Plane, North American Datum 83, Feet. On 16 October 2006, EA transmitted ArcView shape files of the

corrected data to UniStar Nuclear's contractor Ross Dimmick of TetraTech-NUS. The final bathymetry map will be prepared by UniStar Nuclear or its contractors. Figure 3 shows the area of the bathymetric survey with raw results (depth corrected) superimposed.

3.2 SUBMERGED AQUATIC VEGETATION

A submerged aquatic vegetation (SAV) survey was conducted within the waters adjacent to the Calvert Cliffs Nuclear Power Plant, Lusby, Maryland. The survey was conducted on 28 September, 2006. The study area for the SAV survey was the right bank of the Chesapeake Bay, bounded on the north by the intake structure for Units 1 and 2, and on the south by the barge slip. The study included areas with water depths less than or equal to 2 meters within this area. The survey did include some stations with water depths in excess of 2 meters at the time of the survey. These stations were isolated pockets of deeper water within the overall study area and were included in the survey to provide a comprehensive depiction of the distribution of SAV within the study area. The primary objective of the SAV surveys was to document the presence or absence of SAV within the study area. In accordance with protocol used by Maryland Department of the Environment staff, a spring survey for SAV will be conducted during the period May 1 through June 15, 2007. Results will be presented in an addendum to this report.

Transects traversing the study area, developed prior to fieldwork, were oriented north to south with approximate 100 ft between each transect (Figure 4). Sampling along the transects occurred at random intervals. A range of six to nine stations were sampled along each transect. The station locations were established in the office prior to fieldwork. The surveys were comprised of 65 sampling stations on nine transects. At each sampling point, SAV presence or absence, species information, and density data were recorded.

The surveys were conducted from an open work boat. A Trimble® ProXR Global Positioning System (GPS) was used to navigate to station locations. The X and Y coordinates predetermined for the sampling points were uploaded to the GPS unit prior to starting the field surveys.

An iron dethatching rake was used as a collection device. The rake was thrown into the water, pulled across the bottom, and brought to the surface. Six throws of the rake were conducted at each survey station to assess the extent and species composition of the SAV species coverage. Vegetation collected by the rake, if any, was brought on board and identified to species level. The density for each rake throw was recorded on field datasheets. Measurements of density were recorded as 0 through 4, based upon methods developed by U.S. Fish and Wildlife Service (USFWS) (2002) (Figure 5). For the density classification of collected SAV, a "0" corresponded to a lack of SAV, "1" corresponded to a very sparse density class, "2" corresponded to a sparse

density class, “3” corresponded to a moderate density class, and “4” corresponded to a dense density class. Figure 5 presents examples of the various density classifications.

To summarize, at each sampling station, during the survey, the following approach was taken:

1. Six sample collection (raking) attempts occurred.
2. SAV species collected, if any, from the bottom was brought onboard and identified.
3. SAV species density for each rake throw was recorded.

No SAV was observed at any of the stations during this survey. In addition, no signs of SAV were observed along the shoreline or floating throughout the study area.

While not SAV, two species of algae were collected during the survey. Muskgrass (*Chara* sp.) and red marine algae (*Chondria* sp.) was collected from the bottom at the stations closest to the shoreline. Both of these species were anchored to the substrate and dislodged using the rake. These species are not SAV because they lack true leaves, stems, and roots.

Conclusions

SAV was not observed during this survey. In addition, a review of SAV observation data (1994 – 2006) available through the Virginia Institute of Marine Science (VIMS) reveals that SAV has not been observed along the shoreline in the vicinity of the study area during the period 1994 - 2004. VIMS uses a combination of aerial photography and field surveys to document the presence, species composition, and distribution of SAV in the Chesapeake Bay and many of its tributaries. VIMS discontinued aerial surveys on the western shore of the Chesapeake north of the Patuxent River after repeated surveys found no SAV and the area was deemed not to be likely SAV habitat (VIMS personal communication, 2007).

Based on a lack of SAV presence during the September 2006 survey and a lack of observations of SAV as part of the VIMS annual surveys, it is unlikely that SAV occurs within the study area. In accordance with protocol used by Maryland Department of the Environment staff, a spring survey for SAV will be conducted during the period May 1 through June 15, 2007. Results will be presented in an addendum to this report.

3.3 SEDIMENT QUALITY AND BENTHIC MACROINVERTEBRATES

Sediment grabs were taken at three locations for biological and chemical analysis on 29 September 2006. The samples were taken at approximately the location of the proposed discharge point and at two locations within 500 feet of this point.

Sediment samples were shipped to STL's laboratory in Pittsburgh to be analyzed for the following physical/chemical parameters:

Parameter	Method
% Solids	MCAWW 160.3 mod
Ammonia Nitrogen	MCAWW 350.1
TKN	MCAWW 351.2
Total Phosphorous	MCAWW 365.1
Metals (Cd, Cr, Cu, Hg, Pb, Zn, As)	SW846 6010B/7471A
Pesticides (PPL)	SW846 8081A
PCB Congeners (ITM List)	SW846 8082
Volatiles (PPL)	SW846 8260B
Semivolatiles - incl. PAH (PPL)	SW846 8270C
Grain size w/ hydrometer	D422, ASTM
TOC	Lloyd Kahn (USEPA 1988)
Specific Gravity	ASTM D854

Samples were analyzed in accordance with STL's quality assurance/ quality control (QA/QC) program as required by the laboratory's certifications. The analytical results are presented in Appendix C-2. A summary of sediment quality data is presented in Table 12. The results show no evidence of sediment contamination.

Benthic macroinvertebrates were collected using a standard 9-inch by 9-inch Ponar grab sampler. Samples were collected in triplicate at each location. The samples were sieved in the field through a 500-micron screen to remove fine sediment particles.

Organisms were identified to lowest practical taxon by Cove Corporation in Lusby, MD. Cove Corporation's report including QA/QC information is provided in Appendix C-1.

Results are shown on Table 13. Table 14 shows a summary of benthic community metrics including The Chesapeake Bay Benthic Index of Biological Integrity (B-IBI). The B-IBI was calculated for a High Mesohaline Sand habitat. The community rating of degraded is not

unusual for this habitat in the Chesapeake Bay. There are no chemical data indicating adverse conditions though the organic carbon content is elevated.

3.4 OYSTER SURVEY

On November 1, 2006, Dr. Ken Paynter, Oyster Specialist and Associate Professor, University of Maryland Center for Environmental Science conducted an oyster bed survey mapping and assessment for the area depicted in Figure 3. The survey was conducted aboard the R/V*Callinectes*, a 36' research vessel owned and operated by K.T. Paynter, and a waterman's boat rigged with patent tongs. The complete survey report is presented in Appendix C-3.

Methods

Using geographic information systems (GIS) software, a survey grid was superimposed over the survey area. The grid was made up of 100 ft. by 100 ft squares. The patent tong boat traveled along the grid lines making grabs at approximately 100' intervals. Surveys of this type are thought to be the most accurate for stock assessment (see Mann, et al., 2004).

Two grabs were taken at every other point. A total of 160 locations were sampled by 240 grabs. The size of the patent tongs is 1 .372 m^2. Oysters and boxes (dead oysters) were enumerated after each grab. The shell height of each oyster was determined to the nearest mm. The oysters and boxes were then returned to the water.

Results

After the collection, the number of oysters/ m^2 for each grab was calculated and entered into the ArcGIS software program running an inverse distance weighted spatial analysis. The software generated a map of the oyster bed within the survey area (Figure 6). This map reflects the density of oysters within the survey area. Oyster density was very low.

Note that the range of oyster density is between 0 and 1 oyster per square meter (m^2). Most oysters collected were large, older individuals, although two spat (young oysters) were found. Mean size was 88 mm. Based on GIS analysis of the oysters recovered from the survey, the site has an estimated population of 2,387 oysters, approximately 9.6 bushels. The total area covered by the survey was approximately 160,000 m^2 or 40 acres. The mean oyster density was 0.015 oysters/ m^2.

Conclusions

The oyster population within the survey area on Flag Pond oyster bar is very small. Moreover, the mean density of oysters on the bar (0.015) suggests that the bar is economically and ecologically non-functional. Oyster restoration efforts seek to establish oyster populations of at least 100 oysters/ m^2. These are considered densities that will create important benthic habitat, filter large amounts of Bay water, and create copious larvae to support on ongoing population. Furthermore, the population at Flag Pond is too low to support a harvest. It would cost watermen more in fuel to reach the site and return than the harvest would command.

REFERENCES

Abbe, George R. March 4,1987. Oyster Population Density Surveys in Central Chesapeake Bay Near the Calvert Cliffs Nuclear Power Plant 1986. Report No. 87-3. The Academy of Natural Sciences Benedict Estuarine Research Laboratory.

Buchman, M.F. 1999. NOAA Screening Quick Reference Tables, NOAAHAZMAT Report 99-1, Seattle WA, Coastal Protection and Restoration Division, National Oceanic and Atmospheric Administration, 12 pages.

EA Engineering, Science, and Technology (EA). 2004. Corporate Quality Assurance Plan.

Hurley, L.M. 1990. Field Guide to the Submerged Aquatic Vegetation of Chesapeake Bay. U.S. Fish and Wildlife Service, Chesapeake Bay Estuary Program. Annapolis, MD.

Kazyak, Paul F. Maryland Department of Natural Resources. February 2001. Maryland Biological Stream Survey Sampling Manual.

Llanso, Roberto. 11 November 2002. Methods for Calculating the Chesapeake Bay Benthic Index of Biotic Integrity. Versar Inc.

Mann, R., M. Southworth, J.M. Harding, and J. Wesson. 2004. A comparison of dredge and patent tongs for estimation of oyster populations. J. Shellfish Res. 23: 387-390.

Stribling, J.B., B.K. Jessup, J.S. White, D. Boward, and M. Hurd. 1998. Development of a Benthic Index of Biotic Integrity for Maryland Streams. Report to Maryland Department of Natural Resources, Monitoring and Non-Tidal Assessment Program, Annapolis, MD. CBWP-MANTA-EA-98-3.

Stribling, J.B., M.J. Paul, R.J. Klauda, P.F. Kazyak, M. Southerland and N. Roth.. 2005. Maryland Biological Stream Survey 2000-2004, Volume VIII. Prepared by Versar, Inc., Columbia, MD; Maryland Department of Natural Resources, Monitoring and Non-Tidal Assessment Program; and Versar, Inc. CBWP-MANTA-EA-05-5.

Taylor, W.R. 1960. Marine Algae of the Eastern Tropical and Subtropical Coasts of the Americas. University of Michigan Press, Ann Arbor. University of Michigan Studies – Scientific Series, Volume XXI. Second Printing 1967.

U.S. Army Corps of Engineers (USACE). 2002. Hydrographic Survey Manual. EM1110-02-1003.

U.S. Environmental Protection Agency (EPA). 1997. Field and Laboratory Methods for Macroinvertebrate and Habitat Assessment of Low Gradient, Nontidal Streams. Prepared by: Mid-Atlantic Coastal Streams Workgroup, Environmental Services Division, Region 3, Wheeling, WV; 23 pages with appendices.

U.S. Environmental Protection Agency (EPA). 1999. Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. EPA 841-B-99-002. U.S. EPA Office of Water, Washington DC.

U.S. Environmental Protection Agency (USEPA). 1988. Determination of Total Organic Carbon in Sediment (Lloyd Kahn Method). USEPA Region II, Monitoring Management Branch, Edison, N.J

USEPA/USACE. 1998. Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S.—Inland Testing Manual (ITM). EPA-823-B-98-004.

USFWS. 2002. Adaptation of Braun-Blanquet Scale to Rate SAV Density through Rake Throws. Adapted from Virginia Institute of Marine Science (VIMS) website. June 2004.

Virginia Institute of Marine Science (VIMS). 2007. Personal Communication with Bob Orth on 2 May 2007.

VIMS. 2006. Virginia Institute of Marine Science. College of William and Mary. Web Site Downloaded 12 October 2006. http://www.vims.edu/bio/sav/index.html.

FIGURES

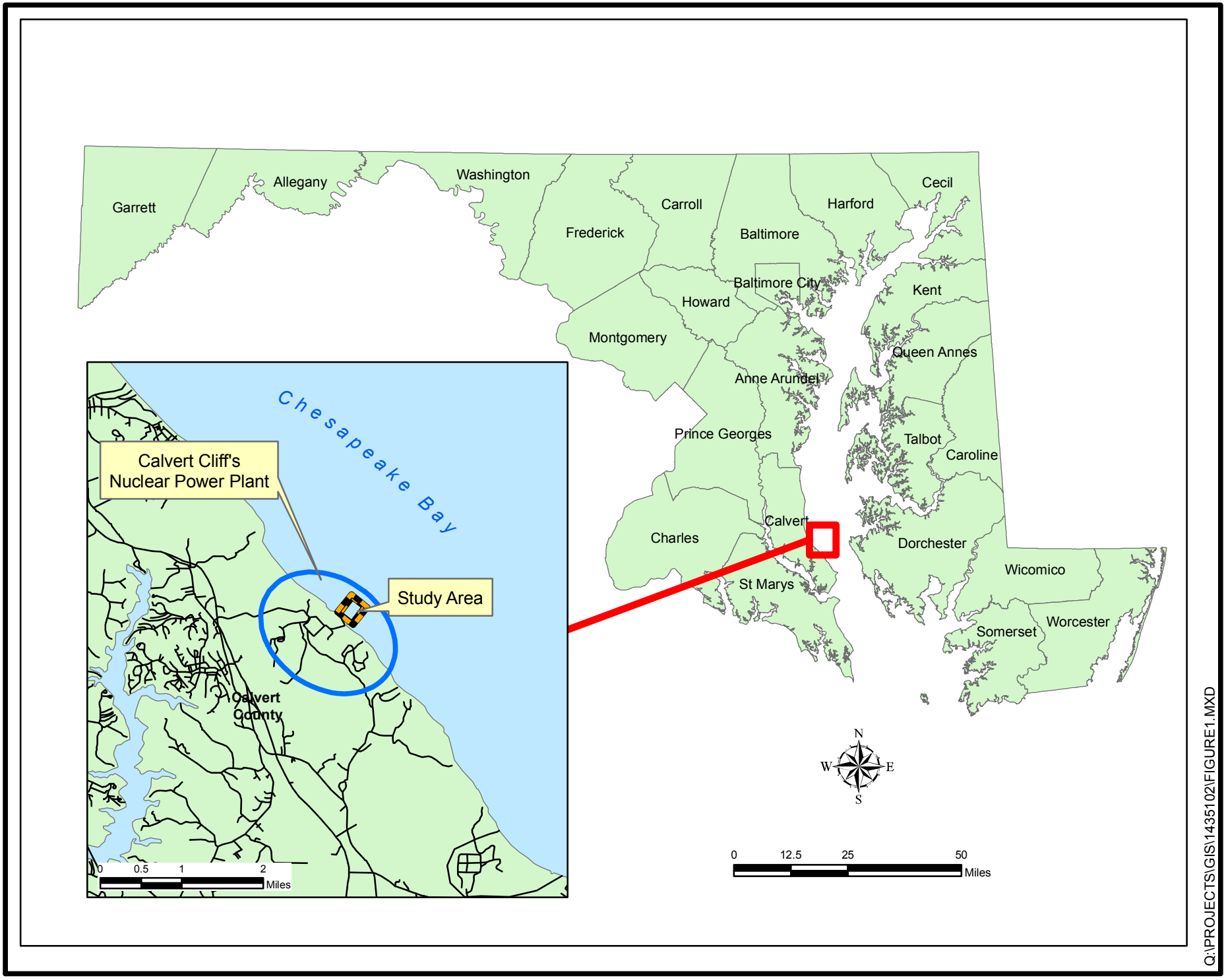
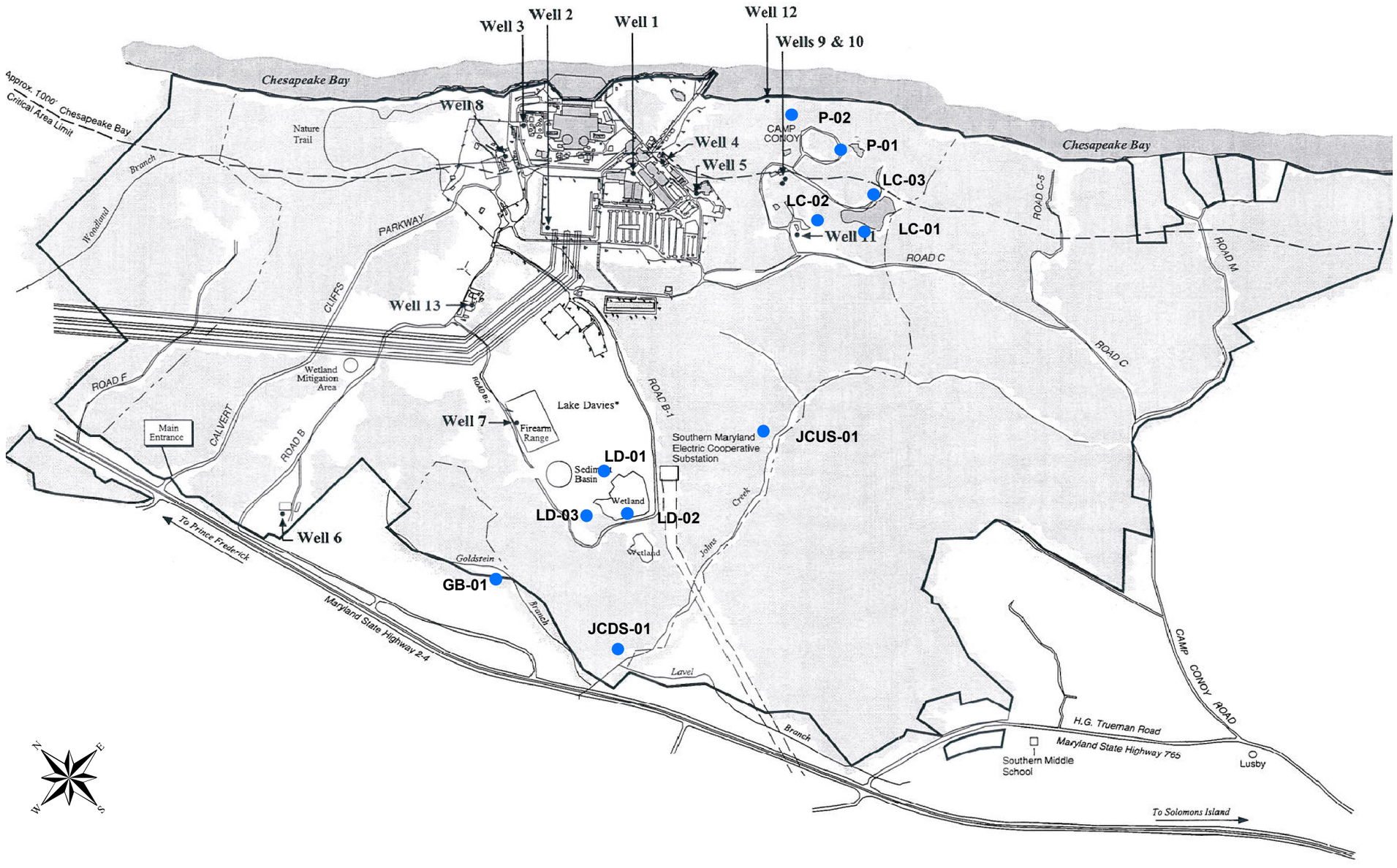


Figure 1. Calvert Cliffs Nuclear Power Plant Location Map



LEGEND

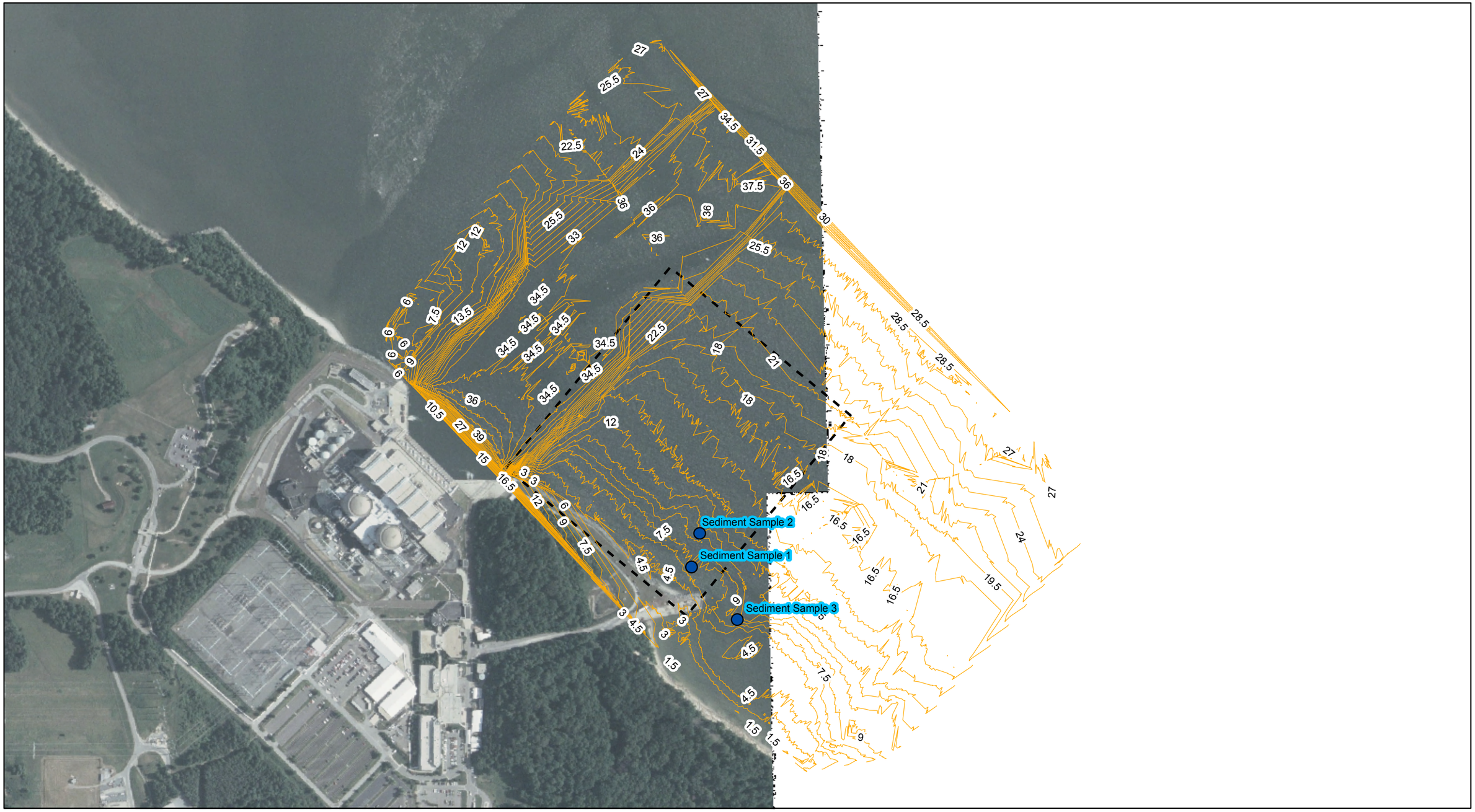
- Sampling Locations
- Wooded Area
- Current Site Boundary
- 1973 Site Boundary (Where Not Contiguous With Current Site Boundary)
- Well Locations From Source Document

SCALE: NOT TO SCALE

SOURCE: PREPARED FROM DRAFT MCCUNE WALKER, INC. "CALVERT CLIFFS NUCLEAR POWER PLANT 1995 LAND MANAGEMENT PLAN," MARCH 1995

Q:\PROJECTS\GIS\1435102\FIGURE2.MXD

Figure 2. Locations of Stream and Pond Stations at Calvert Cliffs Nuclear Power Plant.



Legend

- Oyster Survey
- Unprocessed Depth Contours
- Sediment Sample Locations
- 1.6 Soundings Corrected to MLLW (MDNAD83)

0 305 610 1,220 Feet

SOURCE: Bathymetry Survey done by EA Engineering, 2006
Aerial Photography - NAIP 2005, USDA

N W E S

Q:\PROJECTS\GIS\1435102\FIGURE3.MXD

Figure 3. Bathymetry Data and Sampling Locations.

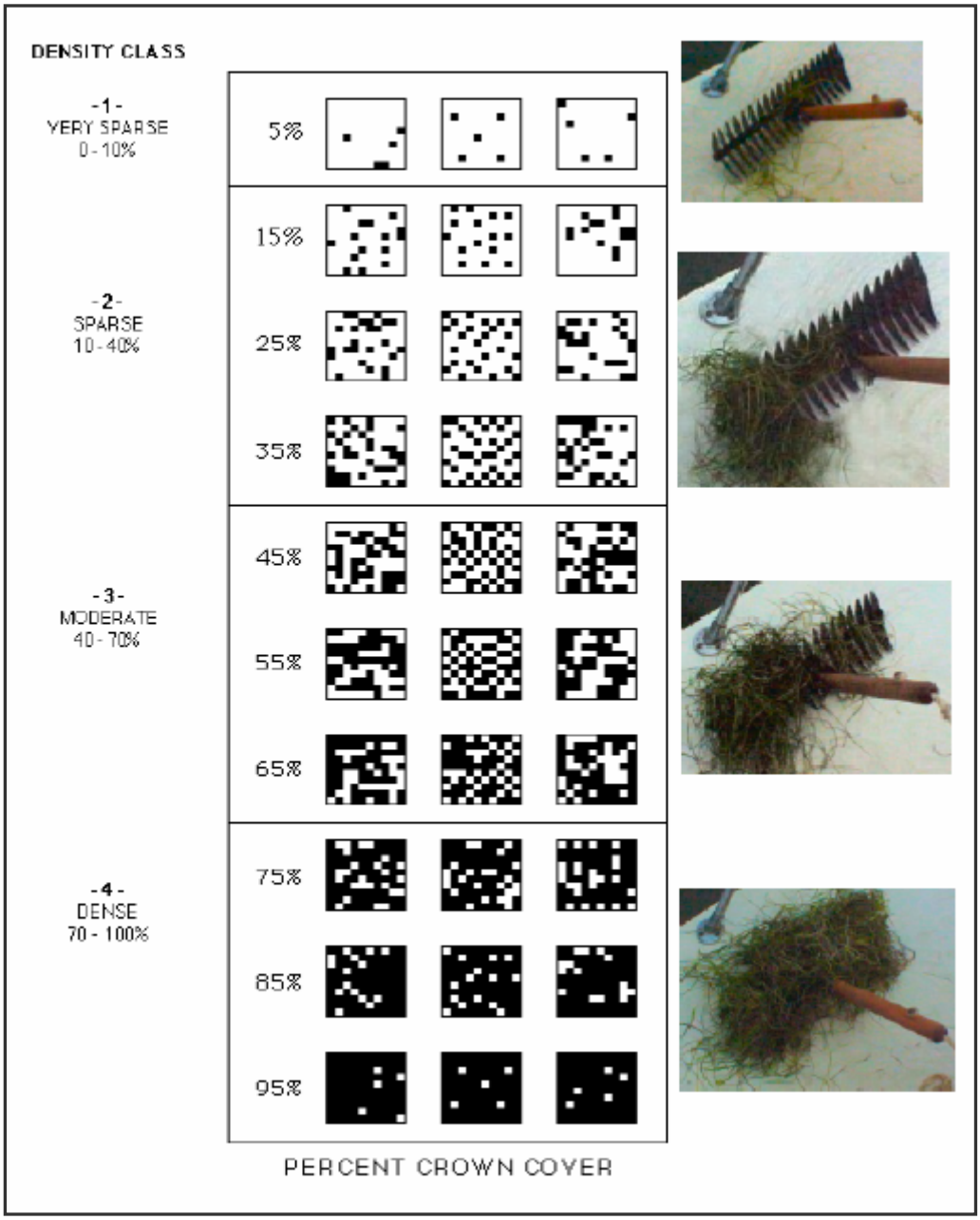
Legend

- Sampling Locations
- Transects
- Study Area

0 75 150 300 Feet

N W E S

Figure 4. Submerged Aquatic Vegetation Sampling Locations, September 2006.



Source: U.S. Fish and Wildlife Service, adapted from Braun-Blanquet scale used to rate SAV density through rake throws, adapted from Virginia Institute of Marine Science (VIMS) website.

Figure 5. Density Classification of SAV Samples

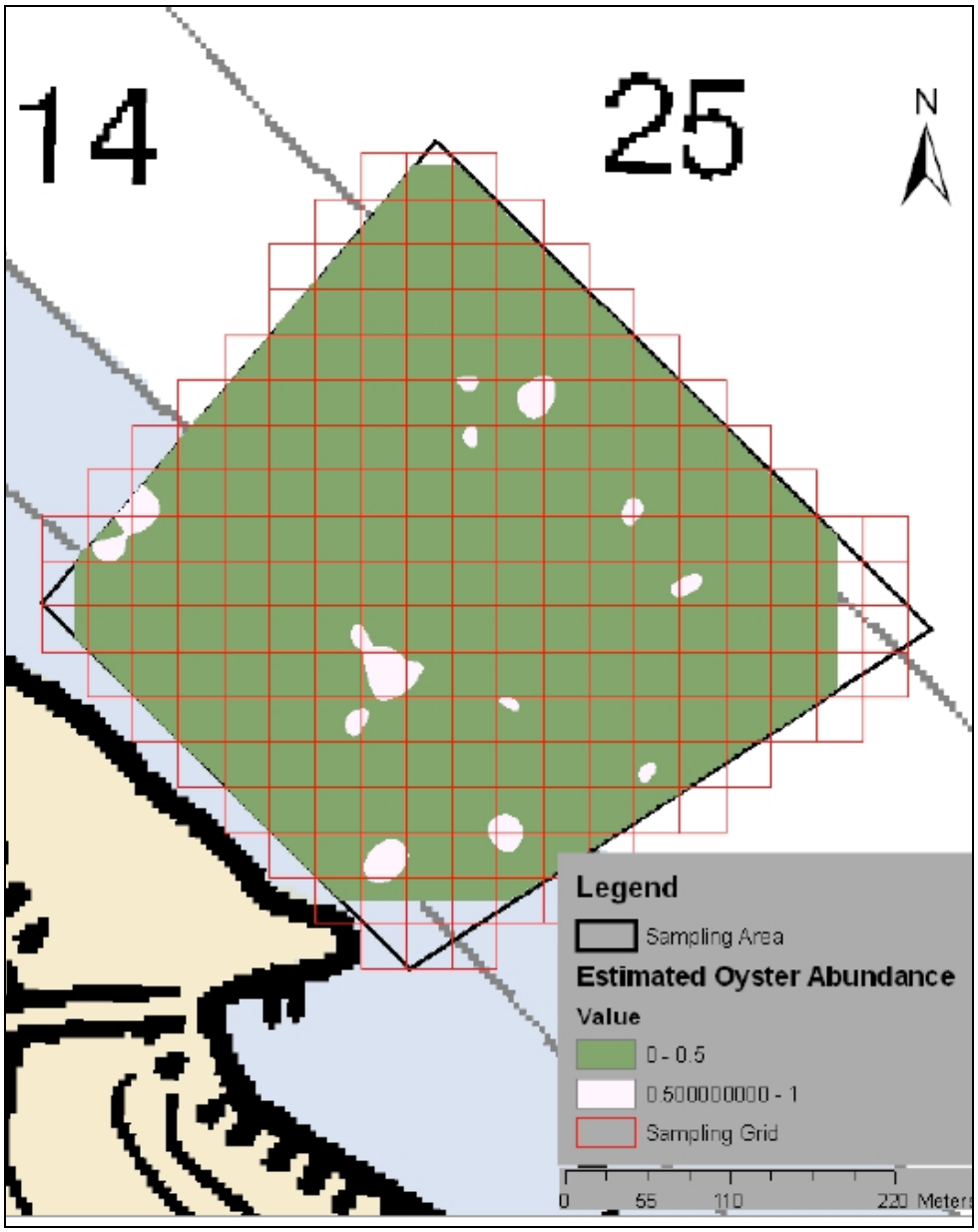


Figure 6 Oyster Density Distribution in Oysters per Square Meter

TABLES

TABLE 1: STREAM AND POND SAMPLING LOCATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT

Goldstein Branch

- **GB-01** Middle Zone – Backpack electrofish a 75 meter zone
  Dip net benthos in 75 meter zone
  In situ water quality parameters
  One analytical sample for water quality parameters in Fall 2006
  One wet weather and one dry weather sample for water quality parameters in Spring 2007

John's Creek

- **JCDS-01** Lower Zone – Backpack electrofish a 75 meter zone
  Dip net benthos in 75 meter zone
  In situ water quality parameters
  One analytical sample for water quality parameters in Fall 2006
  One wet weather and one dry weather sample for water quality parameters in Spring 2007

  Middle Zone – No stream sampling conducted because site was emergent wetland without a defined channel

- **JCUS-01** Upper Zone – Backpack electrofish a 75 meter zone
  Dip net benthos in 75 meter zone
  In situ water quality parameters
  One analytical sample for water quality parameters

Lake Canoy **LC-01, LC-02, LC-03**

- Electrofish 75 meter shoreline zone at three locations
- One benthic petite ponar grab locations (three replicates) off shore of fish survey zones
- Dip net shore zone (qualitative)
- In situ water quality—surface, mid-depth, bottom
- One composite analytical water quality sample at each station

Pond #1 **P-01**

- Electrofish one 75 meter shoreline zone
- One benthic petite ponar grab location (three replicates) off shore
- Dip net shore zone (qualitative)
- In situ water quality—surface, mid-depth, bottom
- One analytical water quality sample

Pond #2 **P-02**

- Electrofish entire shoreline zone
- One benthic petite ponar grab location (three replicates) off shore
- Dip net shore zone (qualitative)
- In situ water quality
- One analytical water quality sample

Lake Davies **LD-01, LD-02, LD-03**

- Electrofish 75 meter shoreline zone at three locations

- Three benthic petite ponar grab locations (three replicates) off shore of fish survey zones
- Dip net shore zones (qualitative)
- In situ water quality—surface, mid-depth, bottom
- One composite analytical water quality sample at each station

TABLE 2-1 FALL 2006 WATER QUALITY IN STREAMS AND PONDS
CALVERT CLIFFS NUCLEAR POWER PLANT

Water Body		Johns Creek		Goldstein Branch	Lake Canoy*				Lake Davies*			Pond 1	Pond 2
Parameter	**Units**	**JCUS-01**	**JCDS-01**	**GB-01**	**LC-01**	**LC-02**	**LC-02 DUP**	**LC-03**	**LD-01**	**LD-02**	**LD-03**	**P-01**	**P-02**
Temperature	Centigrade	18	15.5	16.9	24.9	21.29	NA	21.16	20	20.5	20.7	18.42	17.33
Dissolved Oxygen	ppm	6.4	6	6.7	7.6	6.1	NA	6.16	3.4	3.4	4	3.21	0.99
pH	units	6.4	7.63	7.4	7.8	7.72	NA	7.3	7.5	7.7	7.7	6.7	6.39
Conductivity	uS/cm	50	484	737	66	63	NA	62	1566	1592	1591	109	135
Alkalinity	mg/L	3.5	76	100	14	8.5	4.5	4.5	330	280	270	30	56
BOD	mg/L	<2.0	3.2	5.9	6.3	6.9	<2.	4.5	9.8	7.2	9.1	18	14
Ammonia-N	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nitrate plus Nitrite-N	mg/l	<0.05	<0.05	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phosphorus Dis -P	mg/L	0.021	0.018	0.011	<0.01	0.021	<0.01	0.011	0.22	0.19	0.21	0.011	<0.01
Phosphorus Total-P	mg/L	0.029	0.032	0.079	0.17	0.038	0.067	0.035	0.36	0.31	0.29	0.18	0.095
Total Dissolved Solids	mg/L	30	280	440	35	67	20	48	980	950	980	41	51
Total Kjeldahl Nitrogen	mg/L	2	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	2.2	1.8	1.7	3.1	1.4
Total Organic Carbon	mg/L	5.5	4	3.9	6.1	5.8	5.6	5.7	15	16	16	6.3	6.4
Total Suspended Solids	mg/L	4	5	7	27	<5.0	<5.0	150	6	6.5	8	56	11

TABLE 2-2 FALL 2006
SURFACE, MID-DEPTH AND BOTTOM IN SITU WATER QUALITY DATA FOR LAKE CANOY AND LAKE DAVIES
CALVERT CLIFFS NUCLEAR POWER PLANT

Water Body		**Lake Canoy**			**Lake Davies**		
Parameter--Surface	**Units**	**LC-01**	**LC-02**	**LC-03**	**LD-01**	**LD-02**	**LD-03**
Temperature	Centigrade	24.9	21.3	21.2	20.0	20.5	20.7
Dissolved Oxygen	ppm	7.6	6.1	6.2	3.4	3.4	4.0
pH	units	7.8	7.7	7.3	7.5	7.7	7.7
Conductivity	uS/cm	66	63	62	1566	1592	1591
Parameter--MidDepth							
Temperature	Centigrade	NA	NA	21.2	20.0	20.2	20.3
Dissolved Oxygen	ppm	NA	NA	5.7	3.1	2.5	2.5
pH	units	NA	NA	7.1	7.6	7.6	7.7
Conductivity	uS/cm	NA	NA	63	1581	1612	1581
Parameter--Bottom							
Temperature	Centigrade	25.3	21.3	21.2	19.9	20.2	19.9
Dissolved Oxygen	ppm	6.7	5.9	5.1	2.2	2.6	2.2
pH	units	7.5	7.4	6.8	7.5	7.6	7.7
Conductivity	uS/cm	65	62	62	1563	1608	1576

TABLE 3-1 SPRING 2007 WATER QUALITY IN STREAMS AND PONDS
CALVERT CLIFFS NUCLEAR POWER PLANT

Water Body		Johns Creek			Goldstein Branch		Lake Canoy**			Lake Davies**			Pond 1	Pond 2
Parameter	**Units**	**JCUS-01**	**JCDS-01 (Dry)**	**JCDS-01 (Wet)**	**GB-01(Dry)**	**GB-01(Wet)**	**LC-01**	**LC-02**	**LC-03**	**LD-01**	**LD-02**	**LD-03**	**P-01**	**P-02**
Conductivity	µS/cm	37	297	---	460	---	61	56	57	1209	1197	1202	79	89
Dissolved Oxygen	mg/L	11.1	12.1	---	13.4	---	11.6	12.8	13.4	18.8	18.6	17.4	11.8	11.5
Odor (Observation)	NA	None	None	None	None	None	None	None	None	None	None	None	None	None
pH	units	6.6	7.5	---	7.3	---	8.1	8.1	7.9	8.3	8.3	8.3	7.5	7.5
Temperature	Centigrade	6.6	13.0	---	11.1	---	14.2	11.8	12.4	11.0	10.9	10.6	9.0	9.9
Turbidity	NTU	4.1	9.9	---	8.1	---	2.4	3.3	3	3.1	3.3	2.8	18.3	10.3
Water Depth	feet	1	---	---	1	1	2	2	3.5	3	4	3	3	1.5
Alkalinity	mg/L	8.5	43	33	62	42	6.5	12	9.5	180	190	190	25	24
BOD	mg/L	<3.0	<3.0	5.6	<3.0	7.3	<3.0	<3.0	<3.0	4.1	4.1	9.1	<3.0	<3.0
Carbon, Total	mg/L	3.4	13.3	12.6	21.7	15.1	5.0	4.1	2.8	8.3	8.4	6.6	9.9	3.8
Carbon, Total Organic	mg/L	2.6	5	5.8	3.7	6.8	2.4	4.2	5.6	8.8	9.7	9.8	4.9	3.3
Chemical Oxygen Demand	mg/L	<10	21	32	<10	35	<10	23	25	37	33	23	28	28
Chloride (Titrimetric, Mercuric Nitrate)	mg/L	6.5	46	46	50	29	7.5	7.0	7.5	120	120	120	7	7.0
Chlorophyll-A	mg/M3	2.9	1.8	2.4	5.4	6.5	2.3	0.89	0.91	4.8	1.4	5.4	4.2	0.89
Color, True	color units	20	25	30	15	35	10	15	25	25	20	15	30	25
Fecal Coliform	MPN/100ml	<2.0*	<2.0*	1600	8*	500*	<2.0*	<2.0*	<2.0*	<2.0*	<2.0*	<2.0*	<2.0*	80*
Fecal Streptococcus	MPN/100ml	<2.0*	12*	90	4*	140*	<2.0*	<2.0*	<2.0*	<2.0*	<2.0*	<2.0*	33*	6.0*
Hardness, Total	mg/L	160	250	190	310	220	180	130	160	580	620	640	180	190
Nitrogen-Ammonia	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nitrogen, Total Kjeldahl	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nitrogen, Nitrate-Nitrite	mg/L	0.053	0.15	0.21	0.33	0.26	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.062	<0.050
Petroleum Hydrocarbons, Total	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Phosphorus, Dissolved	mg/L	<0.010	<0.010	0.013	<0.010	0.02	<0.010	<0.010	0.023	0.043	<0.010	<0.010	<0.010	0.013
Phosphorus, Ortho	mg/L	<0.010	<0.010	0.067	<0.010	0.024	0.010	0.010	0.030	0.031	0.040	0.077	<0.010	0.015
Phosphorus, Total	mg/L	0.044	0.034	0.19	0.077	0.21	0.024	0.054	0.086	0.070	0.063	0.014	0.073	0.037
Solids, Total Dissolved	mg/L	49	180	120	320	180	47	61	46	860	900	980	32	63
Solids, Total Suspended	mg/L	<5.0	<5.0	20	<5.0	120	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.5	11
Sulfate	mg/L	11	45	30	130	73	13	15	14	360	520	520	13	14

* Sample analyzed past recommended holding time. Data are relevant for intra-study comparison but should not be used as the basis of management decisions for water use for primary contact recreation.

TABLE 3-2 SPRING 2007 SURFACE, MID-DEPTH AND BOTTOM IN SITU WATER QUALITY DATA FOR LAKE CANOY AND LAKE DAVIES CALVERT CLIFFS NUCLEAR POWER PLANT

Water Body		Lake Canoy			Lake Davies		
Parameter	**Units**	**LC-01**	**LC-02**	**LC-03**	**LD-01**	**LD-02**	**LD-03**
Surface							
Temperature	Centigrade	NA	NA	12.4	11.0	10.9	10.6
Dissolved Oxygen	ppm	NA	NA	13.4	18.8	18.6	17.4
pH	units	NA	NA	7.9	8.3	8.3	8.3
Conductivity	µS/cm	NA	NA	57.0	1209.0	1197.0	1202.0
Turbidity	NTU	NA	NA	3.0	3.1	3.3	2.8
MidDepth							
Temperature	Centigrade	14.2	11.8	NA	11.0	11.0	10.6
Dissolved Oxygen	ppm	11.6	12.8	NA	19.3	18.8	17.5
pH	units	8.1	8.1	NA	8.3	8.3	8.3
Conductivity	µS/cm	61.0	56.0	NA	1208.0	1197.0	1201.0
Turbidity	NTU	2.4	3.3	NA	3.0	3.1	3.0
Bottom							
Temperature	Centigrade	NA	NA	10.3	11.0	10.9	10.2
Dissolved Oxygen	ppm	NA	NA	14.1	19.3	18.8	17.6
pH	units	NA	NA	7.8	8.3	8.3	8.3
Conductivity	µS/cm	NA	NA	54.0	1206.0	1194.0	1195.0
Turbidity	NTU	NA	NA	3.9	3.2	3.2	3.3

TABLE 3-3 SPRING 2007 METALS IN STREAMS AND PONDS
CALVERT CLIFFS NUCLEAR POWER PLANT

Water Body		Johns Creek			Goldstein Branch		Lake Canoy			Lake Davies			Pond 1	Pond 2
Parameter	**Units**	**JCUS-01**	**JCDS-01 (Dry)**	**JCDS-01 (Wet)**	**GB-01 (Dry)**	**GB-01 (Wet)**	**LC-01**	**LC-02**	**LC-03**	**LD-01**	**LD-02**	**LD-03**	**P-01**	**P-02**
Arsenic	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0028	0.0024	0.0027	<0.0020	<0.0020
Barium	mg/L	0.023	0.027	0.066	0.030	0.04	0.016	0.016	0.016	0.015	0.014	0.015	0.012	0.0088
Cadmium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Calcium	mg/L	0.98	22	14	52	33	1.9	1.8	1.8	84	84	85	8.7	11
Chromium	mg/L	<0.0025	<0.0025	<0.0025	<0.0025	0.0027	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Lead	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.003	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Magnesium	mg/L	1.5	7.1	4.7	16	10	2.6	2.5	2.5	62	62	62	2.7	2.7
Mercury	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Potassium	mg/L	0.83	1.8	1.9	2.8	2.5	1.0	1.0	0.99	17	17	17	0.78	0.87
Selenium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Silver	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sodium	mg/L	4.1	30	30	31	20	5.3	5.3	5.4	170	170	170	5.2	5.3

TABLE 3-4 SPRING 2007 POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS) IN STREAMS
CALVERT CLIFFS NUCLEAR POWER PLANT

Water Body		Johns Creek		Goldstein Branch	
Parameter	**Units**	**JCDS-01(Dry)**	**JCDS-01 (Wet)**	**GB-01 (Dry)**	**GB-01 (Wet)**
Acenaphthene	µg/L	<10	<10	<10	<10
Acenaphthylene	µg/L	<10	<10	<10	<10
Anthracene	µg/L	<10	<10	<10	<10
Benz(a)anthracene	µg/L	<10	<10	<10	<10
Benzo(a)pyrene	µg/L	<10	<10	<10	<10
Benzo(b)fluoranthene	µg/L	<10	<10	<10	<10
Benzo(g,h,i)perylene	µg/L	<10	<10	<10	<10
Benzo(k)fluoranthene	µg/L	<10	<10	<10	<10
Chrysene	µg/L	<10	<10	<10	<10
Dibenz(a,h)anthracene	µg/L	<10	<10	<10	<10
Florene	µg/L	<10	<10	<10	<10
Fluoranthene	µg/L	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	µg/L	<10	<10	<10	<10
Naphthalene	µg/L	<10	<10	<10	<10
Phenanthrene	µg/L	<10	<10	<10	<10
Pyrene	µg/L	<10	<10	<10	<10

TABLE 4 COMMON AND SCIENTIFIC NAMES OF FISHES COLLECTED DURING FALL 2006 AND SPRING 2007 SURVEYS AT CALVERT CLIFFS NUCLEAR POWER PLANT

Common Name	Scientific Name
Lampreys	Petromyzontidae
Least brook lamprey	*Lampetra aepyptera*
Eels	Anguillidae
American eel	*Anguilla rostrata*
Suckers	Catostomidae
Creek chubsucker	*Erimyzon oblongus*
Catfishes	Ictaluridae
Brown bullhead	*Ameiurus nebulosus*
Carps and Minnows	Cyprinidae
Blacknose dace	*Rhinichthys atratulus*
Golden shiner	*Notemigonus crysoleucas*
Pikes	Esocidae
Redfin pickerel	*Esox americanus*
Mudminnows	Umbridae
Eastern mud minnow	*Umbra pygmaea*
Livebearers	Poeciliidae
Eastern mosquitofish	*Gambusia affinis*
Perches	Percidae
Tessellated darter	*Etheostoma olmstedi*
Sunfishes	Centrarchidae
White crappie	*Pomoxis annularis*
Black crappie	*Pomoxis nigromaculatus*
Green sunfish	*Lepomis cyanellus*
Pumpkinseed	*Lepomis gibbosus*
Bluegill	*Lepomis macrochirus*
Sunfish hybrid	*Lepomis* sp.
Largemouth bass	*Micropterus salmoides*

TABLE 5: FALL 2006 ABUNDANCE AND DISTRIBUTION OF FISHES COLLECTED FROM STREAM/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT

	John's Creek		Goldstein Branch	Lake Canoy			Pond #1	Pond #2	Lake Davies		
Species	**JCUS-01**	**JCDS-01**	**GB-01**	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Lampreys											
Least brook lamprey		1									
Eels											
American eel		13	11	1		1	4	2			
Suckers											
Creek chubsucker		30	2								
Carps and Minnows											
Blacknose dace			8								
Golden shiner		13									
Pikes											
Redfin pickerel		4									
Mudminnows											
Eastern mud minnow	4		9								
Livebearers											
Eastern mosquitofish		4	1		19	17	30	1	25	20	36
Darters											
Tessellated darter		12	32								
Sunfishes											
White crappie				1		1					
Green sunfish						3	17	4			
Lepomis hybrid							1				
Pumpkinseed		28	2								
Bluegill				46	65	57	4	1			
Largemouth bass				2							
Total Specimens	4	105	65	50	84	79	56	8	25	20	36
Total Species	1	8	7	4	2	5	5	4	1	1	1

TABLE 6 SPRING 2007 ABUNDANCE AND DISTRIBUTION OF FISHES COLLECTED FROM STREAM/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT

	John's Creek		Goldstein Branch	Lake Canoy			Pond #1	Pond #2	Lake Davies		
Species	**JCUS-01**	**JCDS-01**	**GB-01**	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Lampreys											
Least brook lamprey	11		3								
Eels											
American eel		45	27	1		3	19	10			
Suckers											
Creek chubsucker		14	4								
Catfishes											
Brown bullhead		1	1								
Carps and Minnows											
Blacknose dace			25								
Golden shiner		1									
Pikes											
Redfin pickerel		2									
Mudminnows											
Eastern mudminnow	4	7									
Livebearers											
Eastern mosquitofish			1				1	3			
Darters											
Tessellated darter		15	45								
Sunfishes											
Black crappie				1							
Green sunfish				1	1	5	15	19			
Pumpkinseed		13	1								
Bluegill				33	7	31					
Largemouth bass					1	2					
Total Specimens	15	98	107	36	9	41	35	32	0	0	0
Total Species	2	8	8	4	3	4	3	3	0	0	0

TABLE 7-1 ABUNDANCE AND DISTRIBUTION OF MACROINVERTEBRATES COLLECTED (DIP NET) FROM STREAM/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT SEPTEMBER 2006

Water Body	John's Creek		Goldstein Branch	Lake Canoy			Pond 1	Pond 2	Lake Davies		
Taxon	**JCUS01**	**JCDS01**	**GB-01**	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Oligochaeta (aquatic worms)											
Lumbriculidae	196	9	--	84	9	--	--	24	--	--	--
Naididae	--	--	--	--	--	--	--	--	28	--	--
Tubificidae	--	56	--	182	158	42	1624	516	--	--	--
Lumbricidae	--	--	195	--	--	--	--	--	--	--	--
Crustacea											
Caecidotea	28	--	--	--	--	--	--	--	--	--	--
Gammarus	28	716	195	--	--	--	--	12	--	--	--
Cambarus	--	--	--	--	--	--	1	--	--	--	--
Orconectes	--	--	--	--	--	--	--	5	--	--	--
Hydracarina (water mites)											
Hydracarina	14	--	--	42	9	14	56	60	--	--	--
Collembola											
Collembola	--	9	9	--	--	--	--	--	--	--	--
Ephemeroptera (mayflies)											
Centroptilum	--	--	--	42	--	28	--	--	--	--	--
Callibaetis	--	--	--	--	47	--	28	60	56	114	7
Leptophlebiidae	56	46	--	--	--	--	--	--	--	--	--
Odonata (damselflies, dragonflies)											
Calopteryx	--	9	--	--	--	--	--	--	--	--	--
Calopteryx maculata	42	--	37	--	--	--	--	--	--	--	--
Chromagrion	--	--	--	--	9	--	--	--	--	--	--
Enallagma	--	9	--	14	9	--	--	--	--	--	--
Nehelenia	--	--	--	--	--	--	28	--	--	--	--
Nehelenia gracilis	--	--	--	--	--	--	--	--	--	--	7
Boyeria vinosa	1	--	--	--	--	--	--	--	--	--	--
Cordulegaster maculata	2	--	1	--	--	--	--	--	--	--	--
Gomphus lividus	--	--	1	--	--	--	--	--	--	--	--
Gomphus	--	2	--	--	--	--	--	--	--	--	--
Cordulia	--	--	--	--	19	--	28	--	28	31	7
Dorocordulia	--	--	--	--	--	--	--	36	--	--	--
Libellula	--	--	--	42	--	--	--	1	--	--	--
Libellula pulchella	--	--	--	--	--	15	--	--	--	--	--
Ladona	--	--	--	1	--	--	--	--	--	--	--
Ladona deplanata	--	--	--	--	--	--	1	--	--	--	--
Erythemis simplicicollis	--	--	--	--	--	28	--	--	--	--	--
Plecoptera (stoneflies)											
Leuctra	56	--	--	--	--	--	--	--	--	--	--
Hemiptera											
Belostoma	--	--	--	--	--	--	--	--	--	--	7
Abedus	--	--	--	--	--	--	--	--	--	--	7
Corixidae	--	9	--	--	--	--	--	--	--	--	--
Megaloptera (dobsonflies, alderflies)											
Saldidae	--	--	--	14	--	--	28	12	--	--	--
Nigronia serricornis	--	9	9	--	--	--	--	--	--	--	--
Sialis	--	--	9	--	--	--	--	--	--	--	--
Trichoptera (caddisflies)											
Chimarra	--	28	9	--	--	--	--	--	--	--	--
Polycentropus	--	9	19	--	--	--	--	--	--	--	--
Cheumatopsyche	--	28	9	--	--	--	--	--	--	--	--
Oxyethira	--	--	--	--	--	14	--	--	--	--	--
Neophylax	--	9	--	--	--	--	--	--	--	--	--
Oecetis	--	--	--	--	9	--	--	--	--	--	--
Ptilostomis	28	--	9	--	--	--	--	--	--	--	--

TABLE 7-1 ABUNDANCE AND DISTRIBUTION OF MACROINVERTEBRATES COLLECTED (DIP NET) FROM STREAM/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT SEPTEMBER 2006

Water Body	John's Creek		Goldstein Branch	Lake Canoy			Pond 1	Pond 2	Lake Davies		
Taxon	**JCUS01**	**JCDS01**	**GB-01**	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Coleoptera (beeetles)											
Cybister frimbriolatus	--	--	--	--	--	--	1	--	--	--	--
Dineutus	--	1	--	--	--	--	--	--	--	--	--
Peltodytes sexamaculatus	14	--	--	--	--	--	--	--	--	--	--
Haliplus	--	--	--	14	--	--	--	--	--	--	--
Ancyronyx variegata	--	9	--	--	--	--	--	--	--	--	--
Dubiraphia	--	--	56	--	--	--	--	--	--	--	--
Macronychus glabratus	--	--	56	--	--	--	--	--	--	--	--
Scirtidae	14	--	--	--	--	--	--	--	--	--	--
Diptera (true flies)											
Ephydridae	--	--	--	--	--	--	--	--	85	225	14
Ceratopogonidae	70	28	--	28	19	--	--	36	56	2	28
Chironomidae (midges)											
Chironomidae	--	--	--	--	--	--	--	--	--	2	--
Tanypus punctipennis	--	--	--	14	--	--	--	--	--	--	--
Natarsia	--	10	--	14	--	--	--	--	--	466	105
Procladius	--	--	--	--	28	60	--	13	--	--	--
Natarsia sp. A	120	--	--	--	--	--	--	--	287	--	--
Procladius (Holotanypus)	--	--	--	--	--	--	30	--	--	--	--
Clinotanypus	15	60	19	--	28	15	--	--	--	--	--
Ablabesmyia janta	--	--	--	58	--	15	--	--	--	--	--
Ablabesmyia mallochi	45	--	9	--	47	30	--	--	--	--	--
Nilotanypus	--	--	--	29	19	30	--	--	--	--	--
Thienemannimyia grp.	120	--	58	--	--	15	--	--	--	--	42
Corynoneura lobata	15	--	--	--	--	--	--	--	--	--	--
Cricotopus bicinctus grp.	15	--	9	--	--	--	--	--	--	--	--
Cricotopus bicinctus	--	10	--	--	--	--	--	--	--	--	--
Nanocladius	--	--	--	--	9	--	--	--	--	--	--
Nanocladius distinctus	--	--	--	14	--	--	--	--	--	--	--
Parakiefferiella	--	20	--	29	9	15	--	--	--	--	--
Parametriocnemus	135	--	--	--	--	--	--	--	--	--	--
Psectrocladius	15	--	--	--	--	--	--	--	--	--	--
Chironomus	--	--	--	--	19	--	30	--	236	292	21
Cladopelma	--	--	--	--	--	45	--	13	--	--	--
Cryptochironomus	--	--	--	29	9	15	--	--	--	--	--
Dicrotendipes fumidus	--	10	--	--	--	--	--	--	--	--	--
Dicrotendipes simpsoni	--	--	--	--	--	--	--	13	--	--	--
Dicrotendipes nervosus	--	--	--	14	--	--	30	--	--	--	--
Goeldichironomus holoprasinus	--	--	--	--	66	15	269	241	1436	2974	154
Kiefferulus dux	--	--	--	--	--	--	90	13	--	--	--
Microtendipes	--	49	212	14	--	--	--	--	--	--	--
Nilothauma	--	--	--	29	9	74	--	--	--	--	--
Parachironomus	--	--	--	--	--	--	--	--	57	204	7
Paralauterborniella	--	--	--	--	19	--	--	--	--	--	--
Polypedilum braseniae	--	20	--	--	--	--	--	--	--	--	--
Polypedilum flavum	--	20	--	14	--	--	--	--	--	--	--
Polypedilum illinoense	30	20	19	14	--	--	--	--	--	--	--
Polypedilum tritum	--	--	--	--	--	30	--	--	--	--	--
Polypedilum trigonus	--	--	--	--	--	30	--	40	2356	1021	336
Stenochironomus	--	10	--	--	--	--	--	--	--	--	--
Stictochironomus	--	--	--	--	--	15	--	--	--	--	--
Tribelos fuscicorne	15	--	--	--	--	--	--	--	--	--	--
Cladotanytarsus	--	--	--	44	--	--	--	--	--	--	--
Paratanytarsus	--	--	--	279	190	268	--	--	--	--	--
Rheotanytarsus	60	30	--	--	--	--	--	--	--	--	--
Stempellinella	75	40	--	--	--	--	--	--	--	--	--
Tanytarsus	--	--	--	497	--	477	--	13	--	--	--
Tanytarsus curticornis grp.	180	91	--	--	142	--	--	--	--	--	--
Zavreliella	--	10	--	--	--	--	--	--	--	--	--

TABLE 7-1 ABUNDANCE AND DISTRIBUTION OF MACROINVERTEBRATES COLLECTED (DIP NET) FROM STREAM/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT SEPTEMBER 2006

Water Body	John's Creek		Goldstein Branch	Lake Canoy			Pond 1	Pond 2	Lake Davies		
Taxon	**JCUS01**	**JCDS01**	**GB-01**	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Diptera (true flies)											
Anopheles	--	--	--	14	--	--	56	--	--	--	--
Culex	--	--	--	--	--	--	112	12	--	--	--
Simulium	210	19	9	--	--	--	--	--	--	--	--
Limonia	28	--	--	--	--	--	--	--	--	--	--
Hexatoma	1	--	--	--	--	--	--	--	--	--	--
Odontomyia	--	--	--	--	--	--	--	--	--	--	21
Chrysops	--	--	--	14	--	--	28	--	--	--	--
Muscidae	--	--	19	--	--	--	--	--	--	--	--
Gastropoda (snails)											
Cipangopaludina japonica	--	--	--	--	--	1	--	--	--	--	--
Campeloma decisum	--	--	--	3	3	--	--	--	--	--	--
Pseudosuccinea columella	--	--	--	--	--	--	--	12	--	--	--
Physa	--	--	224	42	--	--	476	180	--	--	--
Planorbella	--	--	--	142	1	70	--	--	--	--	--
Ferrissia	--	--	--	--	--	--	28	--	--	--	--
Bivalvia (clams/mussels)											
Musculium	--	9	46	140	--	--	28	505	--	--	--
Total	**1,628**	**1,414**	**1,238**	**1,910**	**886**	**1,361**	**2,972**	**1,817**	**4,625**	**5,331**	**763**
Number of Taxa	**29**	**33**	**24**	**31**	**24**	**24**	**20**	**21**	**10**	**10**	**14**

TABLE 7-2 METRICS, INDEX OF BIOTIC INTEGRITY (IBI) SCORES, HILSENHOFF BIOTIC INDEX (HBI) OF MACROINVERTEBRATES COLLECTED (DIP NET) FROM STREAM/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT SEPTEMBER 2006

Water Body	John's Creek		Goldstein Branch	Lake Canoy			Pond 1	Pond 2	Lake Davies		
Metrics	**JCUS01**	**JCDS01**	**GB-01**	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Number of Taxa	29	33	24	31	24	24	20	21	10	10	14
Number of EPT Taxa	3	5	4	1	2	2	1	1	1	1	1
Number of Ephemeroptera Taxa	1	1	0	1	1	1	1	1	1	1	1
%Intolerant Urban[a]	8.78	6.72	3.15	5.18	11.63	8.60	4.81	6.93	1.82	2.72	1.83
%Ephemeroptera	3.44	3.25	0.00	2.20	5.30	2.06	0.94	3.30	1.21	2.14	0.92
Number of Scrapers	0	2	3	3	2	2	2	1	0	0	0
%Climbers	23.59	14.78	5.25	36.39	17.16	45.63	1.88	3.58	50.94	19.15	45.87
IBI	3.00	3.86	2.71	NA	NA	NA	NA	NA	NA	NA	NA
IBI Rating	Fair	Fair	Poor	NA	NA	NA	NA	NA	NA	NA	NA
HBI[b]	5.56	5.76	6.17	NA	NA	NA	NA	NA	NA	NA	NA

NA =Not Applicable

EPT = Ephemeroptera, Pleocoptera and Trichoptera.

[a]Taxa with tolerance values between 0 and 3.

[b]The Hilsenhoff Biotic Index (HBI) is not included in the IBI calulation.

TABLE 8-1 ABUNDANCE AND DISTRIBUTION OF MACROINVERTEBRATES COLLECTED (DIP NET) FROM STREAM/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT MARCH 2007

Water Body	John's Creek		Goldstein Branch	Lake Canoy			Pond 1	Pond 2	Lake Davies		
Taxon	**JCUS01**	**JCDS01**	**GB-01**	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Turbellaria (flatworms)											
Turbellaria	--	1	21	--	--	--	--	--	--	--	--
Nematoda (round worms)											
Nematoda	--	--	--	--	--	24	--	168	--	--	--
Oligochaeta (aquatic worms)											
Naididae	22	3	14	238	60	176	3530	306	48	180	168
Tubificidae	118	10	7	182	156	120	--	6	--	--	12
Lumbricidae	--	--	--	1	12	9	--	12	--	--	--
Hirudinea (leeches)											
Erpobdella punctata coastalis	--	--	--	--	2	3	--	--	--	--	--
Crustacea											
Ostracoda	--	58	7	70	36	8	--	42	--	--	--
Caecidotea	17	5	7	--	--	--	--	--	--	--	--
Gammarus	--	67	267	--	--	--	--	--	--	--	--
Crangonyx	22	--	--	1	--	--	56	6	--	--	--
Procambarus	--	--	--	1	--	--	--	--	--	--	--
Hydracarina (water mites)											
Hydracarina	--	1	--	--	24	--	84	6	--	48	--
Collembola (springtails)											
Collembola	--	--	--	--	--	--	--	36	--	--	--
Ephemeroptera (mayflies)	--	--	--	--	--	--	--	--	--	--	--
Siphlonurus	--	31	--	--	--	--	--	--	--	--	--
Callibaetis	--	--	7	--	--	--	28	--	144	240	276
Leptophlebia	6	12	--	--	--	--	--	--	--	--	--
Odonata (damselflies, dragonflies)											
Calopteryx	--	--	7	--	--	--	--	--	--	--	--
Enallagma	--	--	--	--	24	--	--	--	--	36	84
Boyeria vinosa	--	--	2	--	--	--	--	--	--	--	--
Gomphus	--	--	2	--	--	--	--	--	--	--	--
Tetragoneuria	--	--	--	1	--	1	1	--	--	--	--
Ladona	--	--	--	1	1	3	--	--	--	--	--
Celithemis fasciata	--	--	--	--	2	--	--	--	--	--	--
Erythemis simplicicollis	--	--	--	--	--	--	--	--	3	1	1
Leuctridae	62	--	--	--	--	--	--	--	--	--	--
Plecoptera (stoneflies)											
Amphinemura	--	--	7	--	--	--	--	--	--	--	--
Hemiptera (true bugs)											
Palmacorixa	--	2	--	--	--	--	--	--	--	--	--
Corisella	--	--	--	--	--	--	--	--	--	--	25
Ranatra	--	--	--	--	--	1	--	--	--	--	--
Pelocoris	--	--	--	--	--	--	--	--	--	--	2
Trichoptera (caddisflies)											
Chimarra	--	--	1	--	--	--	--	--	--	--	--
Lype diversa	--	--	7	--	--	--	--	--	--	--	--
Diplectrona modesta	6	--	--	--	--	--	--	--	--	--	--
Cheumatopsyche	--	1	--	--	--	--	--	--	--	--	--
Oecetis	--	--	7	14	--	--	--	--	--	--	--
Coleoptera (beetles)											
Agabus	--	--	--	--	--	--	--	--	--	24	97
Ilybius	--	--	--	--	--	--	1	--	25	--	--
Neoporus	--	--	--	--	--	--	28	24	--	--	--
Dineutus	--	1	--	--	--	--	--	--	--	--	--
Peltodytes	--	--	--	14	--	--	--	6	--	--	--
Haliplus	--	--	--	--	--	8	--	--	--	--	--
Dubiraphia	--	--	14	--	--	--	--	--	--	--	--
Macronychus glabratus	--	4	42	--	--	--	--	--	--	--	--
Stenelmis	6	--	--	--	--	--	--	--	--	--	--
Diptera (true flies)											
Ceratopogonidae	50	--	--	14	24	48	--	--	72	12	--
Ceratopogon	--	2	--	--	--	--	--	--	--	--	--

TABLE 8-1 ABUNDANCE AND DISTRIBUTION OF MACROINVERTEBRATES COLLECTED (DIP NET) FROM STREAM/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT MARCH 2007

Water Body	John's Creek		Goldstein Branch	Lake Canoy			Pond 1	Pond 2	Lake Davies		
Taxon	**JCUS01**	**JCDS01**	**GB-01**	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Chironomidae (midges)											
Tanypus	--	--	--	42	--	8	56	--	--	--	--
Apsectrotanypus	11	--	--	--	--	--	--	--	--	--	--
Procladius	--	--	--	14	24	72	--	--	--	--	--
Natarsia sp. A	--	--	--	--	--	32	--	--	2184	1044	828
Clinotanypus	--	1	--	28	96	24	--	--	--	--	--
Ablabesmyia mallochi	28	2	--	--	24	8	--	--	--	--	--
Nilotanypus	--	--	--	--	--	8	--	--	--	--	--
Thienemannimyia grp.	28	--	28	--	--	--	--	--	--	--	--
Zavrelimyia	--	1	--	28	--	--	--	--	--	--	--
Orthocladiinae	--	2	--	--	--	--	--	--	--	--	--
Corynoneura	17	--	--	--	--	--	--	--	--	--	--
Corynoneura lobata	--	5	70	--	--	--	--	--	--	--	--
Chaetocladius	--	--	--	112	--	40	--	--	--	--	--
Cricotopus tremulus grp.	--	--	7	--	--	8	--	--	--	--	--
Cricotopus bicinctus grp.	--	--	7	--	--	--	--	--	--	--	--
Cricotopus sylvestris grp.	--	--	--	--	--	--	28	6	216	60	432
Diplocladius	--	2	77	--	--	--	--	--	--	--	--
Orthocladius (Symposiocladius) lignicola	11	--	--	--	--	--	--	--	--	--	--
Nanocladius	--	--	--	--	24	8	--	--	--	--	--
Parakiefferiella	--	4	--	--	36	16	--	--	--	--	--
Parametriocnemus	56	2	28	--	--	--	--	--	--	--	--
Psectrocladius	--	--	--	--	--	--	--	--	72	--	--
Chironomus	--	--	--	--	--	--	--	--	508	--	--
Chironomus (Chironomus)	--	--	--	--	--	--	--	--	--	60	121
Cryptochironomus	--	--	7	84	36	16	--	--	--	--	--
Cryptotendipes	--	--	--	28	--	8	--	--	--	--	--
Dicrotendipes modestus	--	1	--	--	12	--	--	--	--	--	--
Dicrotendipes fumidus	--	--	--	14	--	--	--	--	--	--	--
Dicrotendipes simpsoni	--	--	--	--	--	--	224	12	--	--	--
Endochironomus nigricans	--	--	--	--	--	--	28	--	--	--	--
Glyptotendipes	--	--	--	--	--	--	28	42	--	--	--
Microtendipes	--	5	--	--	--	--	--	--	--	--	--
Pagastiella	--	--	--	14	216	32	--	--	--	--	--
Parachironomus	--	--	--	--	--	--	--	--	72	--	--
Paralauterborniella	--	--	--	14	--	--	--	--	--	--	--
Paratendipes	6	--	--	--	24	24	--	--	--	--	--
Phaenopsectra punctipes	6	--	--	--	--	--	--	--	--	--	--
Polypedilum fallax grp.	--	--	7	--	--	--	--	--	--	--	--
Polypedilum flavum	--	--	28	28	--	--	--	--	72	60	--
Polypedilum halterale grp.	--	--	--	--	24	--	--	--	--	--	--
Polypedilum illinoense	6	--	--	--	--	8	--	--	216	228	--
Polypedilum nubifer	--	--	7	--	--	--	--	--	--	--	--
Polypedilum scalaenum grp.	6	--	--	--	--	8	--	--	--	--	--
Polypedilum trigonus	--	--	--	--	--	--	28	--	9408	1368	2436
Pseudochironomus	--	--	--	14	--	8	--	--	--	--	--
Tribelos fuscicorne	--	1	--	--	--	--	--	--	--	--	--
Cladotanytarsus mancus grp.	--	--	--	14	12	16	--	--	--	--	--
Paratanytarsus	--	--	49	588	360	296	--	--	--	--	--
Rheotanytarsus	--	--	7	--	--	--	--	--	--	--	--
Stempellina	--	4	7	--	--	--	--	--	--	--	--
Tanytarsus	--	--	7	--	60	16	28	--	360	84	--
Tanytarsus curticornis grp.	73	1	--	--	--	--	--	--	--	--	--
Tanytarsus glabrescens grp.	--	--	--	112	48	8	--	6	--	--	--

TABLE 8-1 ABUNDANCE AND DISTRIBUTION OF MACROINVERTEBRATES COLLECTED (DIP NET) FROM STREAM/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT MARCH 2007

Water Body	**John's Creek**		**Goldstein Branch**	**Lake Canoy**			**Pond 1**	**Pond 2**	**Lake Davies**		
Taxon	**JCUS01**	**JCDS01**	**GB-01**	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Bivalvia (clams/mussels)											
Simulium	17	3	--	--	--	--	--	--	--	--	--
Tipula	--	--	2	--	--	--	--	--	--	--	--
Chelifera	--	1	--	--	--	--	--	--	--	--	--
Odontomyia	--	--	--	--	--	--	--	--	25	12	24
Tabanus	--	--	--	--	1	--	--	--	--	--	--
Muscidae	6	--	--	--	--	--	--	--	--	--	--
Gastropoda (snails)											
Cipangopaludina japonica	--	--	--	1	1	1	--	--	--	--	--
Fossaria	--	--	1	--	--	--	--	6	--	--	--
Pseudosuccinea columella	--	--	--	3	--	--	--	--	--	--	--
Physa	--	1	59	--	--	--	3	34	--	--	--
Gyraulus	--	--	--	--	--	--	--	--	--	132	24
Helisoma	--	1	--	13	2	--	--	30	--	--	--
Bivalvia (clams/mussels)											
Musculium	--	--	--	--	--	--	2	37	--	--	--
Pisidium	11	12	28	98	--	24	28	--	--	--	--
Total	**591**	**247**	**845**	**1,786**	**1,341**	**1,090**	**4,181**	**785**	**13,425**	**3,589**	**4,530**
Number of Taxa	**23**	**32**	**34**	**30**	**27**	**34**	**17**	**18**	**15**	**16**	**14**

TABLE 8-2 METRICS, INDEX OF BIOTIC INTEGRITY (IBI) SCORES, HILSENHOFF BIOTIC INDEX (HBI) OF MACROINVERTEBRATES COLLECTED (DIP NET) FROM STREAM/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT MARCH 2007

Water Body	John's Creek		Goldstein Branch	Lake Canoy			Pond 1	Pond 2	Lake Davies		
Metrics	**JCUS01**	**JCDS01**	**GB-01**	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Number of Taxa	23	32	34	30	27	34	17	18	15	16	14
Number of EPT Taxa	3	3	5	1	0	0	1	0	1	1	1
Number of Ephemeroptera Taxa	1	2	1	0	0	0	1	0	1	1	1
%Intolerant Urban[a]	15.40	9.31	2.72	0.84	4.55	8.07	0.67	0.00	1.07	6.69	6.09
%Ephemeroptera	1.02	17.41	0.83	0.00	0.00	0.00	0.67	0.00	1.07	6.69	6.09
Number of Scrapers	1	3	5	2	2	1	1	3	0	1	1
%Climbers	13.37	0.40	5.21	1.74	6.26	2.94	1.34	0.00	74.91	49.48	55.63
IBI	3.57	3.57	3.57	NA	NA	NA	NA	NA	NA	NA	NA
IBI Rating	Fair	Fair	Fair	NA	NA	NA	NA	NA	NA	NA	NA
HBI[b]	5.69	6.33	6.09	NA	NA	NA	NA	NA	NA	NA	NA

NA =Not Applicable

EPT = Ephemeroptera, Pleocoptera and Trichoptera.

[a]Taxa with tolerance values between 0 and 3.

[b]The Hilsenhoff Biotic Index (HBI) is not included in the IBI calulation.

TABLE 9-1 ABUNDANCE (#/M^2) AND DISTRIBUTION OF MACROINVERTEBRATES COLLECTED (PONAR) FROM LAKE/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT SEPTEMBER 2006

Water Body	**Lake Canoy**			**Pond 1**	**Pond 2**	**Lake Davies**		
Taxon	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Turbellaria (flatworms)								
Turbellaria	--	82	--	--	--	--	--	--
Nemertea (ribbon worms)								
Prostoma	--	163	--	--	--	--	--	--
Nematoda (round worms)								
Nematoda	--	20	20	--	61	61	--	82
Oligochaeta (aquatic worms)	--	--	--	--	--	--	--	--
Lumbriculidae	--	61	163	143	184	--	--	--
Tubificidae	1428	408	245	2101	469	--	--	--
Crustacea								
Ostracoda	--	--	--	41	--	--	--	--
Collembola								
Collembola	--	--	--	--	82	--	--	--
Ephemeroptera (mayflies)								
Caenis	--	20	--	--	--	--	--	--
Odonata (damselflies, dragonflies)								
Enallagma	--	--	20	--	--	--	--	--
Anisoptera	41	--	--	--	--	--	--	--
Libellula pulchella	--	61	20	--	--	--	--	--
Ladona deplanata	--	--	20	--	--	--	--	--
Trichoptera (caddisflies)								
Oecetis	--	20	--	--	--	--	--	--
Diptera (true flies)								
Ceratopogonidae	1571	143	122	224	20	--	--	--
Chaoborus	--	--	--	--	1163	--	--	--
Chironomidae (midges)								
Procladius	41	61	184	82	102	--	--	--
Clinotanypus	5386	--	326	--	--	--	--	--
Ablabesmyia mallochi	245	61	20	--	--	--	--	--
Nilotanypus	102	61	--	--	--	--	--	--
Nanocladius distinctus	--	20	--	--	--	--	--	--
Parakiefferiella	41	20	20	--	--	--	--	--
Chironomus	--	--	--	82	41	--	--	--
Cryptochironomus	41	143	122	--	--	--	--	--
Dicrotendipes nervosus	--	--	--	--	20	--	--	--
Einfeldia natchitocheae	245	--	--	286	184	--	--	--
Glyptotendipes	--	--	--	--	184	--	--	--
Goeldichironomus holoprasinus	--	--	--	490	82	--	--	82
Nilothauma	--	--	20	--	--	--	--	--
Pagastiella	--	102	20	--	--	--	--	--
Polypedilum flavum	--	--	41	--	--	--	--	--
Polypedilum tritum	41	--	41	--	--	--	--	--
Polypedilum trigonus	--	--	--	--	--	--	82	245
Pseudochironomus	--	163	102	--	--	--	--	--
Clinotanytarsus	--	61	--	--	--	--	--	--
Paratanytarsus	102	347	102	--	--	--	--	--
Stempellinella	--	20	--	--	--	--	--	--
Tanytarsus	245	592	265	--	--	--	--	--
Gastropoda (snails)	--	--	--	--	--	--	--	--
Planorbella	--	--	20	--	--	--	--	--
Bivalvia (clams/mussels)	--	--	--	--	--	--	--	--
Musculium	41	--	--	143	224	--	--	--
Total	**9,570**	**2,629**	**1,893**	**3,592**	**2,816**	**61**	**82**	**409**
Number of Taxa	**14**	**21**	**20**	**9**	**13**	**1**	**1**	**3**

TABLE 9-2 SELECTED METRICS OF MACROINVERTEBRATES COLLECTED (PONAR) FROM LAKE/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT SEPTEMBER 2006

Water Body	Lake Canoy			Pond 1	Pond 2	Lake Davies		
Metrics	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Taxa Richness	14	21	20	9	13	1	1	3
Abundance (#/M^2)	9,570	2,629	1,893	3,592	2,816	61	82	409
%Tolerant Taxa[a]	18.98	45.74	30.11	59.66	17.39	0.00	0.00	0.00
%Intolerant Taxa[b]	0.85	3.88	10.75	2.27	3.62	0.00	0.00	0.00
%Dominant Taxa[c]	67.80	62.79	66.67	80.00	33.00	100.00	100.00	80.00

[a]Taxa with tolerance values between 7 and 10.

[b]Taxa with tolerance values between 0 and 3.

[c]Chironomidae was the dominant taxa at LC-01, LC-02, LC-03, LD-02 and LD-03; Nematoda at LD01, Diptera at P-02 and Oligochaeta at P-01.

TABLE 10-1 ABUNDANCE (#/M^2) AND DISTRIBUTION OF MACROINVERTEBRATES COLLECTED (PONAR) FROM LAKE/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT MARCH 2007

Water Body	Lake Canoy			Pond 1	Pond 2	Lake Davies		
Taxon	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Nematoda (round worms)								
Nematoda	--	82	--	--	367	61	--	--
Oligochaeta (aquatic worms)								
Lumbriculidae	41	--	245	--	--	--	--	--
Naididae	61	61	61	490	82	20	--	--
Tubificidae	20	143	286	9221	2326	--	--	--
Crustacea								
Ostracoda	41	755	--	--	41	20	--	--
Crangonyx	20	--	--	--	--	--	20	--
Hydracarina (water mites)								
Hydracarina	20	20	--	--	--	--	--	--
Collembola (springtails)								
Collembola	--	20	--	--	--	--	--	--
Ephemeroptera (mayflies)								
Callibaetis	--	20	--	--	--	--	--	--
Odonata (damselflies, dragonflies)								
Celithemis fasciata	--	--	61	--	--	--	--	--
Erythemis simplicicollis	--	--	--	--	--	41	--	--
Trichoptera (caddisflies)	--	--	--	--	--	--	--	--
Oecetis	--	41	245	--	--	--	--	--
Coleoptera (beeetles)								
Ilybius	--	--	--	--	--	20	--	--
Diptera (true flies)	--	--	--	--	--	--	--	--
Ceratopogonidae	347	408	490	326	82	61	--	1958
Chaoborus	--	--	--	--	204	--	--	--
Chironomidae (midges)								
Tanypus	--	--	--	--	41	--	--	--
Paramerina	102	--	--	--	--	--	--	--
Procladius	61	--	612	571	82	--	--	--
Natarsia sp. A	41	--	--	--	--	877	163	--
Clinotanypus	204	163	428	--	41	--	--	--
Ablabesmyia mallochi	143	61	61	--	--	20	--	1958
Nilotanypus	--	--	61	--	--	--	--	--
Thienemannimyia grp.	--	--	--	--	82	--	--	--
Chaetocladius	41	--	--	--	--	--	--	--
Cricotopus sylvestris grp.	--	--	--	--	--	20	--	--
Parakiefferiella	--	20	--	--	--	--	--	--
Chironomus	--	--	--	82	245	1081	796	61
Cladopelma	--	--	--	--	41	--	--	--
Cryptochironomus	--	82	122	--	--	--	--	--
Cryptotendipes	61	--	--	--	41	--	--	--
Dicrotendipes fumidus	41	--	--	--	--	20	--	--
Glyptotendipes	--	--	--	--	82	--	--	--
Goeldichironomus holoprasinus	--	--	--	--	--	--	20	--
Pagastiella	306	286	428	--	--	--	--	--
Paralauterborniella	61	--	--	--	--	--	--	--
Paratendipes	41	--	--	--	--	--	--	--
Polypedilum	--	--	--	--	--	--	82	--
Polypedilum flavum	--	--	122	--	--	--	--	--
Polypedilum halterale grp.	--	--	122	--	204	--	--	--
Polypedilum illinoense	--	--	61	--	--	20	--	--
Polypedilum trigonus	306	20	612	--	--	388	326	3917

TABLE 10-1 ABUNDANCE (#/M^2) AND DISTRIBUTION OF MACROINVERTEBRATES COLLECTED (PONAR) FROM LAKE/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT MARCH 2007

Water Body	**Lake Canoy**			**Pond 1**	**Pond 2**	**Lake Davies**		
Taxon	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Pseudochironomus	--	--	61	--	--	--	--	--
Stenochironomus	41	--	--	--	--	--	--	--
Cladotanytarsus mancus grp.	41	20	61	--	--	--	--	--
Paratanytarsus	1448	1816	2142	--	--	20	--	--
Tanytarsus	102	306	796	163	41	367	163	--
Diptera (true flies)								
Tabanus	20	--	--	--	--	--	--	--
Gastropoda (snails)								
Physa	--	--	61	--	20	--	--	--
Helisoma	--	--	61	--	--	--	--	--
Bivalvia (clams/mussels)								
Musculium	--	--	--	--	449	--	--	--
Total	**3,611**	**4,325**	**7,324**	**10,853**	**4,468**	**3,040**	**1,571**	**7,895**
Number of Taxa	**24**	**18**	**22**	**6**	**18**	**15**	**7**	**4**

TABLE 10-2 SELECTED METRICS OF MACROINVERTEBRATES COLLECTED (PONAR) FROM LAKE/POND STATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT MARCH 2007

Water Body	Lake Canoy			Pond 1	Pond 2	Lake Davies		
Metrics	**LC-01**	**LC-02**	**LC-03**	**P-01**	**P-02**	**LD-01**	**LD-02**	**LD-03**
Taxa Richness	24	18	22	6	18	15	7	4
Abundance (#/M^2)	3,611	4,325	7,324	10,853	4,468	3,040	1,571	7,895
%Tolerant Taxa[a]	50.85	67.45	40.67	89.47	57.08	5.37	0.00	24.81
%Intolerant Taxa[b]	2.26	0.94	8.36	5.26	1.83	0.00	0.00	0.00
%Dominant Taxa[c]	40.11	41.98	29.25	84.96	52.05	35.57	50.65	49.61

[a]Taxa with tolerance values between 7 and 10.

[b]Taxa with tolerance values between 0 and 3.

[c]Chironomidae was the dominant taxa at LC-01, LC-02, LC-03, LD01, LD-02 and LD-03, and Oligochaeta at P-01 and P-02.

TABLE 11 SUMMARY OF HABITAT QUALITY EVALUATED AT STREAM LOCATIONS, CALVERT CLIFFS NUCLEAR POWER PLANT, FALL 2006 AND SPRING 2007

		Fall 2006			Spring 2007		
		Stream Name, Station Number, Scores			Stream Name, Station Number, Scores		
		John's Creek	John's Creek	Goldstein Branch	John's Creek	John's Creek	Goldstein Branch
Habitat Parameter	**Scale**	**JCUS-01**	**JCDS-01**	**GB-01**	**JCUS-01**	**JCDS-01**	**GB-01**
Epifaunal Substrate/Available Cover	0-20	10	19	12	11	18	10
Pool Substrate Characterization	0-20	13	16	12	13	14	11
Pool Variability	0-20	5	13	5	4	13	5
Sediment Deposition	0-20	11	10	10	11	10	8
Channel Flow Status	0-20	18	16	17	18	16	17
Channel Alteration	0-20	19	20	17	19	19	17
Chanel Sinuosity	0-20	13	15	18	13	15	18
Bank Stability (left bank)	0-10	9	9	9	9	9	9
Bank Stability (right bank)	0-10	9	9	9	9	9	9
Vegetative Protection (left bank)	0-10	10	10	10	10	10	10
Vegetative Protection (right bank)	0-10	10	10	10	10	10	10
Riparian Vegetative Zone Width (left bank)	0-10	10	10	10	10	10	10
Riparian Vegetative Zone Width (right bank)	0-10	10	10	10	10	10	10
Total		147	167	149	147	163	144

Key to Ranges:

	Optimal	Sub-Optimal	Marginal	Poor
Epifaunal Substrate/Available Cover	16-20	11-15	6-10	0-5
Pool Substrate Characterization	16-20	11-15	6-10	0-5
Pool Variability	16-20	11-15	6-10	0-5
Sediment Deposition	16-20	11-15	6-10	0-5
Channel Flow Status	16-20	11-15	6-10	0-5
Channel Alteration	16-20	11-15	6-10	0-5
Chanel Sinuosity	16-20	11-15	6-10	0-5
Bank Stability	9-10	6-8	3-5	0-2
Vegetative Protection	9-10	6-8	3-5	0-2
Riparian Vegetative Zone Width	9-10	6-8	3-5	0-2
Total Habitat Score Ranges	139-170	95-129	51-85	0-41

Source: EPA Rapid Bioassessment Protocols for Use In Wadeable Streams and Rivers (1999

TABLE 12-1. GENERAL CHEMISTRY PARAMETERS IN SEDIMENT
CHESAPEAKE BAY, CALVERT CLIFFS NUCLEAR POWER PLANT, SEPTEMBER 2006

ANALYTE	UNITS	RL	CCNPP-1	CCNPP-2	CCNPP-3
AMMONIA AS NITROGEN	MG/KG	7.00	**6.1 B**	**6.8 B**	**4.9 B**
TOTAL KJELDAHL NITROGEN	MG/KG	210.0	**186 B**	**316**	ND
TOTAL ORGANIC CARBON	MG/KG	752.0	**23,600**	**30,700**	**24,100**
TOTAL PHOSPHORUS	MG/KG	140.0	**1080**	**1110**	**615**

NOTE: Bolded values represent detected concentrations.
RL = average reporting limit
B = compound was detected, but below the reporting limit (value is estimated)
ND= Not Detected

TABLE 12-2. METAL CONCENTRATIONS (MG/KG) IN SEDIMENT
CHESAPEAKE BAY, CALVERT CLIFFS NUCLEAR POWER PLANT

ANALYTE	TEL*	PEL*	UNITS	RL	CCNPP-1	CCNPP-2	CCNPP-3
ARSENIC	7.24	41.6	MG/KG	0.98	**1.2**	**1.1**	**0.95 B**
CADMIUM	0.676	4.21	MG/KG	0.49	**0.17 B**	**0.20 B**	**0.18 B**
CHROMIUM	52.3	160.4	MG/KG	0.49	**3.7**	**4.3**	**3.4**
COPPER	18.7	108.2	MG/KG	2.4	**1.2 B**	**1.2 B**	**1.3 B**
LEAD	30.24	112.18	MG/KG	0.29	**1.1**	**1.4**	**1.2**
MERCURY	0.13	0.696	MG/KG	0.33	ND	ND	ND
ZINC	124	271	MG/KG	2.00	**7.5**	**9.4**	**9.3**

**Source* : Buchman 1999

NOTE: Bolded values represent detected concentrations. Shaded and bold values represent exceedences.
RL = average reporting limit
TEL = threshold effects level
PEL = probable effects level
B= compound was detected, but below the reporting limit (value is estimated)
ND=Not Detected

TABLE 12-3. PAH CONCENTRATIONS (UG/KG) IN SEDIMENT
CHESAPEAKE BAY, CALVERT CLIFFS NUCLEAR POWER PLANT

ANALYTE	TEL*	PEL*	UNITS	RL	CCNPP-1	CCNPP-2	CCNPP-3
ACENAPHTHENE	6.71	88.9	UG/KG	640	ND	ND	ND
ACENAPHTHYLENE	5.87	127.87	UG/KG	640	ND	ND	ND
ANTHRACENE	46.85	245	UG/KG	640	ND	ND	ND
BENZO(A)ANTHRACENE	74.83	692.53	UG/KG	640	ND	ND	ND
BENZO(A)PYRENE	88.81	763.22	UG/KG	640	ND	ND	ND
BENZO(B)FLUORANTHENE	--	--	UG/KG	640	ND	ND	ND
BENZO(GHI)PERYLENE	--	--	UG/KG	640	ND	ND	ND
BENZO(K)FLUORANTHENE	--	--	UG/KG	640	ND	ND	ND
CHRYSENE	107.77	845.98	UG/KG	640	ND	ND	ND
DIBENZO(A,H)ANTHRACENE	6.22	134.61	UG/KG	640	ND	ND	ND
FLUORANTHENE	112.82	1493.54	UG/KG	640	ND	ND	ND
FLUORENE	21.17	144.35	UG/KG	640	ND	ND	ND
NAPHTHALENE	34.57	390.64	UG/KG	640	ND	ND	ND
PHENANTHRENE	86.68	543.53	UG/KG	640	ND	ND	ND
PYRENE	152.66	1397.6	UG/KG	640	ND	ND	ND

**Source* : Buchman 1999

NOTE: Bolded values represent detected concentrations. Shaded and bold values represent exceedences
RL = average reporting limit
TEL = threshold effects level
PEL = probable effects level
ND =Not Detected

TABLE 12-4. PCB CONGENER CONCENTRATIONS (UG/KG) IN SEDIMENT
CHESAPEAKE BAY, CALVERT CLIFFS NUCLEAR POWER PLANT

ANALYTE	UNITS	RL	CCNPP-1	CCNPP-2	CCNPP-3
PCB 90 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 8 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 18 (BZ)	UG/KG	0.24	**0.18 J, PG**	**0.2 J, PG**	**0.27**
PCB 28 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 44 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 49 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 52 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 66 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 77 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 87 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 101 (BZ)	UG/KG	0.24	ND	ND	**0.058 J, PG**
PCB 105 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 118 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 126 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 128 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 138 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 153 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 156 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 169 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 170 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 180 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 183 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 184 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 187 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 195 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 206 (BZ)	UG/KG	0.24	ND	ND	ND
PCB 209 (BZ)	UG/KG	0.24	ND	ND	ND

*PCB congeners used for Total PCB summation, as per Table 9-3 of the ITM (USEPA/USACE 1998)

NOTE: Bolded values represent detected concentrations.
RL = average reporting limit
J = compound was detected, but below the reporting limit (value is estimated)
PG = the percent difference between the original and confirmation analysis is greater than 40%
ND=Not detected

TABLE 12-5 CHLORINATED PESTICIDE CONCENTRATIONS (UG/KG) IN SEDIMENT
CHESAPEAKE BAY, CALVERT CLIFFS NUCLEAR POWER PLANT

ANALYTE	TEL*	PEL*	UNITS	RL	CCNPP-1	CCNPP-2	CCNPP-3
4,4'-DDD	1.22	7.81	UG/KG	1.70	ND	ND	ND
4,4'-DDE	2.07	374.17	UG/KG	1.70	ND	ND	ND
4,4'-DDT	1.19	4.77	UG/KG	1.70	ND	ND	**0.18 J, PG**
ALDRIN	--	--	UG/KG	1.70	ND	ND	ND
ALPHA-BHC	--	--	UG/KG	1.70	**0.15 J, PG**	**0.17 J, PG**	**0.17 J, PG**
ALPHA-CHLORDANE	--	--	UG/KG	1.70	ND	ND	ND
BETA-BHC	--	--	UG/KG	1.70	ND	ND	ND
DELTA-BHC	--	--	UG/KG	1.70	ND	ND	ND
DIELDRIN	0.715	4.3	UG/KG	1.70	ND	ND	ND
ENDOSULFAN I	--	--	UG/KG	1.70	ND	ND	ND
ENDOSULFAN II	--	--	UG/KG	1.70	ND	ND	ND
ENDOSULFAN SULFATE	--	--	UG/KG	1.70	ND	ND	ND
ENDRIN	--	--	UG/KG	1.70	ND	ND	ND
ENDRIN ALDEHYDE	--	--	UG/KG	1.70	ND	**0.41 J, PG**	ND
ENDRIN KETONE	--	--	UG/KG	1.70	ND	ND	ND
GAMMA-BHC (LINDANE)	0.32	0.99	UG/KG	1.70	ND	ND	ND
GAMMA-CHLORDANE	--	--	UG/KG	1.70	ND	ND	ND
HEPTACHLOR	--	--	UG/KG	1.70	**0.29 J, PG**	**0.52 J**	**0.63 J**
HEPTACHLOR EPOXIDE	0.6	2.74	UG/KG	1.70	ND	ND	ND
METHOXYCHLOR	--	--	UG/KG	3.20	ND	ND	ND
TOXAPHENE	--	--	UG/KG	66.00	ND	ND	ND

**Source* : Buchman 1999

NOTE: Bolded values represent detected concentrations. Shaded and bold values represent exceedences.
RL = average reporting limit
TEL = threshold effects level
PEL = probable effects level
J = compound was detected, but below the reporting limit (value is estimated)
ND = compound was analyzed but not detected
PG = the percent difference between the original and confirmation analysis is greater than 40%

TABLE 12-6. SVOC CONCENTRATIONS (UG/KG) IN SEDIMENT
CHESAPEAKE BAY, CALVERT CLIFFS NUCLEAR POWER PLANT

ANALYTE	UNITS	RL	CCNPP-1	CCNPP-2	CCNPP-3
1,2,4-TRICHLOROBENZENE	UG/KG	640	ND	ND	ND
1,2-DICHLOROBENZENE	UG/KG	640	ND	ND	ND
1,2-DIPHENYLHYDRAZINE	UG/KG	640	ND	ND	ND
1,3-DICHLOROBENZENE	UG/KG	640	ND	ND	ND
1,4-DICHLOROBENZENE	UG/KG	640	ND	ND	ND
2,4,6-TRICHLOROPHENOL	UG/KG	640	ND	ND	ND
2,4-DICHLOROPHENOL	UG/KG	640	ND	ND	ND
2,4-DIMETHYLPHENOL	UG/KG	640	ND	ND	ND
2,4-DINITROPHENOL	UG/KG	3100	ND	ND	ND
2,4-DINITROTOLUENE	UG/KG	640	ND	ND	ND
2,6-DINITROTOLUENE	UG/KG	640	ND	ND	ND
2-CHLORONAPHTHALENE	UG/KG	640	ND	ND	ND
2-CHLOROPHENOL	UG/KG	640	ND	ND	ND
2-METHYL-4,6-DINITROPHENOL	UG/KG	3100	ND	ND	ND
2-NITROPHENOL	UG/KG	640	ND	ND	ND
3,3'-DICHLOROBENZIDINE	UG/KG	3100	ND	ND	ND
4-BROMOPHENYL PHENYL ETHER	UG/KG	640	ND	ND	ND
4-CHLORO-3-METHYLPHENOL	UG/KG	640	ND	ND	ND
4-CHLOROPHENYL PHENYL ETHER	UG/KG	640	ND	ND	ND
4-NITROPHENOL	UG/KG	3100	ND	ND	ND
BENZIDINE	UG/KG	640	ND	ND	ND
BIS(2-CHLOROETHOXY)METHANE	UG/KG	640	ND	ND	ND
BIS(2-CHLOROETHYL) ETHER	UG/KG	640	ND	ND	ND
BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	640	ND	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	640	ND	ND	ND
BUTYL BENZYL PHTHALATE	UG/KG	640	ND	ND	ND
DIETHYL PHTHALATE	UG/KG	640	ND	ND	ND
DIMETHYL PHTHALATE	UG/KG	640	ND	ND	ND
DI-N-BUTYL PHTHALATE	UG/KG	640	ND	ND	ND
DI-N-OCTYL PHTHALATE	UG/KG	640	ND	ND	ND
HEXACHLOROBENZENE	UG/KG	640	ND	ND	ND
HEXACHLOROBUTADIENE	UG/KG	640	ND	ND	ND
HEXACHLOROCYCLOPENTADIENE	UG/KG	3100	ND	ND	ND
HEXACHLOROETHANE	UG/KG	640	ND	ND	ND
INDENO(1,2,3-CD)PYRENE	UG/KG	640	ND	ND	ND
ISOPHORONE	UG/KG	640	ND	ND	ND
NITROBENZENE	UG/KG	640	ND	ND	ND
N-NITROSODIMETHYLAMINE	UG/KG	640	ND	ND	ND
N-NITROSODI-N-PROPYLAMINE	UG/KG	640	ND	ND	ND
N-NITROSODIPHENYLAMINE	UG/KG	640	ND	ND	ND
PENTACHLOROPHENOL	UG/KG	3100	ND	ND	ND
PHENOL	UG/KG	640	ND	ND	ND

RL = average reporting limit

ND = compound was analyzed but not detected

TABLE 12-7. VOC CONCENTRATIONS (UG/KG) IN SEDIMENT
CHESAPEAKE BAY, CALVERT CLIFFS NUCLEAR POWER PLANT

ANALYTE	UNITS	RL	CCNPP-1	CCNPP-2	CCNPP-3
1,1,1-TRICHLOROETHANE	UG/KG	7.00	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	UG/KG	7.00	ND	ND	ND
1,1,2-TRICHLOROETHANE	UG/KG	7.00	ND	ND	ND
1,1-DICHLOROETHANE	UG/KG	7.00	ND	ND	ND
1,1-DICHLOROETHENE	UG/KG	7.00	ND	ND	ND
1,2-DICHLOROETHANE	UG/KG	7.00	ND	ND	ND
1,2-DICHLOROPROPANE	UG/KG	7.00	ND	ND	ND
2-CHLOROETHYL VINYL ETHER	UG/KG	14.0	ND	ND	ND
ACROLEIN	UG/KG	140.0	ND	ND	ND
ACRYLONITRILE	UG/KG	140.0	ND	ND	ND
BENZENE	UG/KG	7.00	ND	ND	ND
BROMODICHLOROMETHANE	UG/KG	7.00	ND	ND	ND
BROMOFORM	UG/KG	7.00	ND	ND	ND
BROMOMETHANE	UG/KG	7.00	ND	ND	ND
CARBON TETRACHLORIDE	UG/KG	7.00	ND	ND	ND
CHLOROBENZENE	UG/KG	7.00	ND	ND	ND
CHLOROETHANE	UG/KG	7.00	ND	ND	ND
CHLOROFORM	UG/KG	7.00	ND	ND	ND
CHLOROMETHANE	UG/KG	7.00	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	UG/KG	7.00	ND	ND	ND
DIBROMOCHLOROMETHANE	UG/KG	7.00	ND	ND	ND
ETHYLBENZENE	UG/KG	7.00	ND	ND	ND
METHYLENE CHLORIDE	UG/KG	7.00	**4.5 J**	**5.0 J**	**4.5 J**
TETRACHLOROETHENE	UG/KG	7.00	ND	ND	ND
TOLUENE	UG/KG	7.00	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	UG/KG	7.00	ND	ND	ND
TRANS-1,3-DICHLOROPROPENE	UG/KG	7.00	ND	ND	ND
TRICHLOROETHENE	UG/KG	7.00	ND	ND	ND
VINYL CHLORIDE	UG/KG	7.00	ND	ND	ND

NOTE: Bolded values represent detected concentrations.
RL = average reporting limit
J = compound was detected, but below the reporting limit (value is estimated)
ND = compound was analyzed but not detected

TABLE 12-8. PHYSICAL PROPERTIES MEASURED IN SEDIMENT
CHESAPEAKE BAY, CALVERT CLIFFS NUCLEAR POWER PLANT

ANALYTE	UNITS	CCNPP-1	CCNPP-2	CCNPP-3
GRAVEL	%	5.1	4.6	1.5
SAND	%	93.9	93.5	96
SILT	%	-	-	0.2
CLAY	%	2.7	2.1	2.3
SPECIFIC GRAVITY		2.681	2.667	2.679
PERCENT SOLIDS	%	71.6	67.3	73.4

TABLE 13 -1 BENTHIC MACROINVERTEBRATES IN CHESAPEAKE BAY STATION 1
CALVERT CLIFFS NUCLEAR POWER PLANT

SIEVE SIZE = 0.5mm
COLLECTION GEAR = Ponar ($0.05m^2$)

TAXA	REP A	REP B	REP C	MEAN
ANNELIDA				
Neanthes succinea	22	21	1	14.7
Streblospio benedicti	5	5	9	6.3
Heteromastus filiformis	5	1	2	2.7
Polydora cornuta	3	2	0	1.7
Glycinde solitaria	2	0	2	1.3
Eteone heteropoda	2	1	0	1.0
GASTROPODA				
Doridella obscura	0	2	0	0.7
Sayella chesapeakea	0	0	1	0.3
BIVALVIA				
Gemma gemma	33	31	23	29.0
Macoma mitchelli	1	0	2	1.0
Mulinia lateralis	1	1	0	0.7
CRUSTACEA				
Paracereis caudata	4	6	4	4.7
Edotea triloba	3	2	0	1.7
Balanus improvisus	3	1	0	1.3
Apocorophium lacustre	0	3	0	1.0
Hargeria rapax	1	1	0	0.7
Melita nitida	0	0	1	0.3
TOTAL NUMBER OF TAXA	13	13	9	
TOTAL NUMBER OF INDIVIDUALS	85	77	45	
SHANNON-WEINER DIVERSITY	1.882	1.790	1.549	
SIMPSON'S DOMINANCE INDEX	0.232	0.251	0.317	
SPECIES RICHNESS	2.70	2.76	2.10	
EVENNESS	0.73	0.70	0.70	

TOTAL STATION STATISTICS

TOTAL NUMBER OF TAXA	17
MEAN NUMBER OF INDIVIDUALS	69.0
SHANNON-WEINER DIVERSITY	1.923
SIMPSON'S DOMINANCE INDEX	0.239
SPECIES RICHNESS	3.00
EVENNESS	0.68

TABLE 13-2 BENTHIC MACROINVERTEBRATES IN CHESAPEAKE BAY STATION 2
CALVERT CLIFFS NUCLEAR POWER PLANT

SIEVE SIZE = 0.5mm
COLLECTION GEAR = Ponar (0.05m^2)

TAXA	REP A	REP B	REP C	MEAN
PLATYHELMINTHES				
Stylochus ellipticus	3	0	0	1.0
NEMERTINEA				
Micrura leidyi	1	7	6	4.7
ANNELIDA				
Glycinde solitaria	4	8	5	5.7
Streblospio benedicti	1	9	6	5.3
Heteromastus filiformis	1	6	4	3.7
Neanthes succinea	0	3	2	1.7
Paraprionospio pinnata	0	2	0	0.7
Eteone heteropoda	0	1	0	0.3
GASTROPODA				
Acteocina canaliculata	1	0	2	1.0
BIVALVIA				
Gemma gemma	26	32	25	27.7
Macoma mitchelli	1	4	5	3.3
Mulinia lateralis	1	3	4	2.7
Mya arenaria	0	1	0	0.3
CRUSTACEA				
Ameroculodes spp. complex	0	0	5	1.7
Edotea triloba	1	1	1	1.0
Apocorophium lacustre	1	0	0	0.3
TOTAL NUMBER OF TAXA	11	12	11	
TOTAL NUMBER OF INDIVIDUALS	41	77	65	
SHANNON-WEINER DIVERSITY	1.432	1.938	2.021	
SIMPSON'S DOMINANCE INDEX	0.422	0.218	0.192	
SPECIES RICHNESS	2.69	2.53	2.40	
EVENNESS	0.60	0.78	0.84	

TOTAL STATION STATISTICS

TOTAL NUMBER OF TAXA	16
MEAN NUMBER OF INDIVIDUALS	61.0
SHANNON-WEINER DIVERSITY	1.987
SIMPSON'S DOMINANCE INDEX	0.239
SPECIES RICHNESS	2.88
EVENNESS	0.72

TABLE 13 -3 BENTHIC MACROINVERTEBRATES IN CHESAPEAKE BAY STATION 3
CALVERT CLIFFS NUCLEAR POWER PLANT

SIEVE SIZE = 0.5mm
COLLECTION GEAR = Ponar ($0.05m^2$)

TAXA	REP A	REP B	REP C	MEAN
NEMERTINEA				
Micrura leidyi	3	4	5	4.0
ANNELIDA				
Streblospio benedicti	16	14	17	15.7
Heteromastus filiformis	12	1	9	7.3
Neanthes succinea	4	7	1	4.0
Tubificoides spp.	5	1	3	3.0
Leitoscoloplos robustus	1	0	0	0.3
Glycinde solitaria	1	0	0	0.3
GASTROPODA				
Nassarius vibex	0	0	1	0.3
Haminoea solitaria	0	1	0	0.3
BIVALVIA				
Gemma gemma	6	2	5	4.3
Mulinia lateralis	6	1	3	3.3
Mya arenaria	1	0	0	0.3
Macoma mitchelli	0	1	0	0.3
Macoma balthica	1	0	0	0.3
CRUSTACEA				
Edotea triloba	2	0	1	1.0
Ameroculodes spp. complex	2	0	0	0.7
TOTAL NUMBER OF TAXA	13	9	9	
TOTAL NUMBER OF INDIVIDUALS	60	32	45	
SHANNON-WEINER DIVERSITY	2.172	1.669	1.793	
SIMPSON'S DOMINANCE INDEX	0.148	0.264	0.218	
SPECIES RICHNESS	2.93	2.31	2.10	
EVENNESS	0.85	0.76	0.82	

TOTAL STATION STATISTICS

TOTAL NUMBER OF TAXA	16
MEAN NUMBER OF INDIVIDUALS	45.7
SHANNON-WEINER DIVERSITY	2.077
SIMPSON'S DOMINANCE INDEX	0.179
SPECIES RICHNESS	3.05
EVENNESS	0.75

TABLE 14. SUMMARY OF BENTHIC COMMUNITY METRICS AND SCORES USED TO CALCULATE THE CHESAPEAKE BAY B-IBI CALVERT CLIFFS NUCLEAR POWER PLANT

Metric	Metric Values		
	1	2	3
Abundance (#/m^2)	1,258.0	1,217.2	931.6
Shannon-Wiener Diversity	1.48	1.71	1.88
Pollution-Sensitive Taxa Abundance (%)	3.78	11.99	5.00
Pollution–Indicative Taxa Abundance (%)	14.40	13.42	42.66
Carnivore/Omnivore Abundance (%)	27.83	23.17	23.98

Metric	B-IBI Scores		
	1	2	3
Abundance (#/m^2)	3	3	1
Shannon-Wiener Diversity	1	1	1
Pollution-Sensitive Taxa Abundance (%)	1	3	1
Pollution–Indicative Taxa Abundance (%)	3	3	1
Carnivore/Omnivore Abundance (%)	3	3	3
B-IBI[(a)(b)]	2.2	2.6	1.4

NOTE: Shaded and bold value indicates that the sample meets the Chesapeake Bay B-IBI Restoration Goal.

(a) Mean of the metric scores.

(b) B-IBI Scores: ≥ 3.0 = meets restoration goals; 2.7-2.9 = marginal; 2.1-2.6 = degraded; ≤ 2.0 = severely degraded

APPENDIX A-1:

FALL 2006

DATA SHEETS

ATTACHMENT 5

MBSS SUMMER INDEX PERIOD DATA SHEET

Page 1 Of 1

	Watershed Code	Segment	Type	Year
SITE				

JCUS-01

Reviewed By: _____

2nd Reviewer: _____

BASIN: PX (see back for codes)

CREW: RB, AS, KM

	Year	Month	Day
DATE	06	09	27

COMMENTS: _____

TIME: 1630 (Military)

SAMPLEABILITY

s = Sampleable
1 = Dry Streambed
2 = Too Deep
3 = Marsh, no defined channel
4 = Excessive Riparian Vegetation
5 = Impoundment
6 = Tidally Influenced
7 = Permission Denied
8 = Unsafe (describe in comments)
9 = Beaver
10 = Other _____

S	Electrofishing
S	Habitat Assessment
S	Water Quality
S	Herpetofauna
NA	Mussels
S	Aquatic Plants

AQUATIC PLANTS

(A, P, or E)

Submerged Aquatic Vegetation	A
Emergent Aquatic Vegetation	P
Floating Aquatic Vegetation	A

(Absent, Present, Extensive)

HERPETOFAUNA

Taxa Observed	Number retained or Photo
Frogs	

WATER QUALITY

Temp (C): 18.0

DO (ppm) mg/L: 6.4

pH: 6.4

Cond (umho/cm): 50

Turbidity (NTU): ___

Meter Calibrations by: _____

MUSSELS

Taxa Observed	(N,O,R, or L)	Retained? (Y/N)
Unionids	N	
Corbicula	N	

None, Old Shell, Recent Shell, Live

ATTACHMENT 16

MBSS SUMMER HABITAT DATA SHEET

Page 1 Of 1

SITE (Watershed Code / Segment / Type / Year): ____

BASIN: PX (see back for codes) JCUS-01

DATE (Year / Month / Day): 06 09 27

TIME: 1630 (Military)

Reviewed By: ____

2nd Reviewer: ____

CREW: ____

BANK EROSION

	Left Bank	Right Bank
Extent (m)	0	5
Severity (1=min 2=mod 3=severe)	1	2
Eroded Area (m^2) x 10		

BAR FORMATION & SUBSTRATE

- [X] None
- [ ] Minor
- [ ] Moderate
- [ ] Extensive
- [ ] Cobble
- [ ] Gravel
- [X] Sand
- [X] Silt/Clay

EXOTIC PLANTS Relative Abundance (A, P, E)

- A Multiflora Rose
- A Mile-a-Minute
- A Japanese Honeysuckle
- A Phragmites
- A Thistle
- P Japanese Stilt Grass
- [ ] ____

- 19 No. of Instream Woody Debris
- 22 No. of Dewatered Woody Debris
- 2 No. of Instream Rootwads
- 1 No. of Dewatered Rootwads

HABITAT ASSESSMENT

* See RBP Sheet

1. Instream Habitat (0-20) ____
2. Epifaunal Substrate (0-20) ____
3. Velocity/Depth Diversity (0-20) ____
4. Pool/Glide/Eddy Quality (0-20) ____
   Extent (m) ____
5. Riffle/Run Quality (0-20) ____
   Extent (m) ____
6. Embeddedness (%) ____
7. Shading (%) ____

STREAM CHARACTER

- A Braided
- P Riffle
- E Run/Glide
- A Deep Pool(>= .5m)
- P Shallow Pool(< .5m)
- A Boulder >2m
- A Boulder <2m
- A Cobble
- A Bedrock
- A Gravel
- E Sand
- E Silt/Clay
- P Undercut Bank
- P Overhead Cover
- A Beaver Pond

A = Absent
P = Present
E = Extensive

FLOW

Lat Loc (m)	Depth (cm)	Velocity (m/s)
0 0 0 0	0 0 0	0 0 0

Maximum Depth (cm) ____

	Wetted Width (m)	Thalweg Depth (cm)	Thalweg Velocity (m/s)
0 m			
25 m			
50 m			
75 m			

Alternative Flow Measurements

Distance

Depth (cm) ____

Width (cm) ____

Time (sec) 1. ____ 2. ____ 3. ____

COMMENTS ____

ATTACHMENT 11

MBSS FISH DATA SHEET

Page ___ Of ___

SITE Watershed Code ___ Segment ___ Type ___ Year ___

Reviewed By: _____

DATE Y Y 0 6 M M 0 9 D D 2 7 JCUS-01

2nd Reviewer: _____

	(Y/N)
Fish Move. During Net Install.?	
Bottom Visible in all Areas of Seg.?	
Same Water Clarity - 2nd Pass?	
Volt. ___ Waveform	
Len. of Seg. Actually Samp. (m)	

Anodes/Unit	Unit ___	Unit ___	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.	1615	1626			
Begin 2nd p.	1647	1656			
End 2nd p.					

11 x 1m

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
Fish Captured? (Y/N) Y					
Eastern Mudminnow	50				
	53				
	57				
					No [illegible]

Aggregate Fish Biomass ___ ___ (g)

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME John's Creek		LOCATION JCUS-01	
STATION # _____	RIVERMILE —	STREAM CLASS	
LAT _____	LONG _____	RIVER BASIN Patuxent	
STORET #		AGENCY EA/CCNMP	
INVESTIGATORS RB, KM			
FORM COMPLETED BY RB		DATE 9/26/06 TIME 1255 AM (PM)	REASON FOR SURVEY Community Assessment

Parameters to be evaluated in sampling reach	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE 10	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
	SCORE 13	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
	SCORE 5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE 11	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE 18	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE 19	20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE 13	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 9 (LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
SCORE 9 (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 10 (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE 10 (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0

Total Score _____

ATTACHMENT 16

MBSS SUMMER HABITAT DATA SHEET

Page 1 Of 1

SITE (Watershed Code / Segment / Type / Year): GB-01

Reviewed By:

BASIN: P X (see back for codes)

2nd Reviewer:

DATE (Year / Month / Day):

CREW: RB, KM, AS

TIME (Military):

BANK EROSION

	Left Bank	Right Bank
Extent (m)	10	5
Severity (1=min 2=mod 3=severe)	1	1
Eroded Area (m^2) x 10		

BAR FORMATION & SUBSTRATE

- [X] None
- [ ] Minor
- [ ] Moderate
- [ ] Extensive
- [ ] Cobble
- [✓] Gravel
- [✓] Sand
- [✓] Silt/Clay

EXOTIC PLANTS

Relative Abundance (A, P, E)

- A Multiflora Rose
- A Mile-a-Minute
- A Japanese Honeysuckle
- A Phragmites
- A Thistle
- [illegible]anese Stilt Grass
- [ ]

12 No. of Instream Woody Debris

[illegible] No. of Dewatered Woody Debris

18 No. of Instream Rootwads

2 No. of Dewatered Rootwads

HABITAT ASSESSMENT

1. Instream Habitat (0-20)
2. Epifaunal Substrate (0-20)
3. Velocity/Depth Diversity (0-20)
4. Pool/Glide/Eddy Quality (0-20)
   - Extent (m)
5. Riffle/Run Quality (0-20)
   - Extent (m)
6. Embeddedness (%)
7. Shading (%)

STREAM CHARACTER

- A Braided
- P Riffle
- P Run/Glide
- A Deep Pool (>.5m)
- P Shallow Pool (<.5m)
- A Boulder >2m
- A Boulder <2m
- A Cobble
- A Bedrock

Sand prevalent

- P Gravel
- E Sand
- E Silt/Clay
- P Undercut Bank
- P Overhead Cover
- A Beaver Pond

A = Absent
P = Present
E = Extensive

FLOW

Lat Loc (m)	Depth (cm)	Velocity (m/s)
0 0 0 0	0 0 0	0 0 0

Maximum Depth (cm): N/A

	Wetted Width (m)	Thalweg Depth (cm)	Thalweg Velocity (m/s)
0 m			
25 m			
50 m			
75 m			

Alternative Flow Measurements

Distance

Depth (cm)

Width (cm)

Time (sec) 1. 2. 3.

COMMENTS

ATTACHMENT 5

MBSS SUMMER INDEX PERIOD DATA SHEET

Page 1 Of 1

	Watershed Code	Segment	Type	Year
SITE				

Reviewed By: _____

2nd Reviewer: _____

BASIN: P X (see back for codes) GB-01

CREW: RB, KM, AS

	Year	Month	Day
DATE	06	09	27

COMMENTS: _____

TIME: 1725 (Military)

SAMPLEABILITY

s = Sampleable
1 = Dry Streambed
2 = Too Deep
3 = Marsh, no defined channel
4 = Excessive Riparian Vegetation
5 = Impoundment
6 = Tidally Influenced
7 = Permission Denied
8 = Unsafe (describe in comments)
9 = Beaver
10 = Other _____

S	Electrofishing
S	Habitat Assessment
S	Water Quality
S	Herpetofauna
N/A	Mussels
N/A	Aquatic Plants

AQUATIC PLANTS

(A, P, or E)

Submerged Aquatic Vegetation	A
Emergent Aquatic Vegetation	A
Floating Aquatic Vegetation	A

(Absent, Present, Extensive)

HERPETOFAUNA

Taxa Observed	Number retained or Photo
Salamanders	
Frogs	

WATER QUALITY

Temp (C): 16.9

DO ~~(ppm)~~ mg/L: 6.7

pH: 7.4

Cond (umho/cm) uS/cm: 737

Turbidity (NTU): ____

Meter Calibrations by: JW

MUSSELS

Taxa Observed	(N,O,R, or L)	Retained? (Y/N)
Unionids	N	
Corbicula	N	

None, Old Shell, Recent Shell, Live

GB-01

Jar of preserved - [illegible] [illegible] on 11/3/06
fish to be measured [illegible]

ATTACHMENT 11

MBSS FISH DATA SHEET

	Watershed Code	Segment	Type	Year
SITE				

Reviewed By: _____

2nd Reviewer: _____

	Y	Y	M	M	D	D
DATE	0	6	0	9	2	7

GB-01

	(Y/N)
Fish Move. During Net Install.?	N
Bottom Visible in all Areas of Seg.?	Y
Same Water Clarity - 2nd Pass?	N
Volt.	
Waveform	
Len. of Seg. Actually Samp. (m)	75

	Unit 1	Unit	Unit	Unit	Unit
Anodes/Unit	2				
Time (sec) Begin 1st p.					
Time (sec) Begin 2nd p.					
Time (sec) End 2nd p.					

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
Fish Captured? (Y/N) Y					
Am. Eel	160				
	340				
	300				
	10				
	310				
	190				
	260				
	150				
	190				
	130				
	90				
Creek Chub Sucker	130				
	131				
Eastern MA Minnow	80				
	88				
	77				
	86				
	69				
	73				
	75				
	77				
	60				
Blacknose dace	22				
	34				
	36				

Aggregate Fish Biomass 32 35 31 34 25 (g)

GB-01

ATTACHMENT 11

MBSS FISH DATA SHEET

SITE Watershed Code ____ Segment ____ Type ____ Year ____ Reviewed By: ____

DATE Y Y 06 M M 09 D D 27 GB-01 2nd Reviewer: ____

	(Y/N)
Fish Move. During Net Install.?	
Bottom Visible in all Areas of Seg.?	
Same Water Clarity - 2nd Pass?	
Volt. ____ Waveform ____	
Len. of Seg. Actually Samp. (m)	

Anodes/Unit	Unit ___	Unit ___	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.					
Begin 2nd p.					
End 2nd p.					

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
Fish Captured? (Y/N) Y					
mosquito fish	35	1			
Pumpkinseed	108	18.69			
	97	17.35			
Tessellated darter	35				
	65				
	74				
	53				
	52				
	50				
	32				
	49				
	39				
	55				
	54				
	67				
	69				
	74				
	75				
	65				
	75				
	60	trap			
	56	12			

Aggregate Fish Biomass 37 47 ____ ____ (g)

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME Goldstein Branch	LOCATION CCNRF
STATION # GB-01 RIVERMILE —	STREAM CLASS
LAT — LONG —	RIVER BASIN PX
STORET # —	AGENCY N/A
INVESTIGATORS RB, KM, AS	
FORM COMPLETED BY RB	DATE 9/21/06 TIME 12:25 AM (PM) / REASON FOR SURVEY Community Assessment

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 12	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE 12	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE 5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 10	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 17	20 19 18 (17) 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE 17	20 19 18 (17) 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE 18	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 9 (LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
SCORE 9 (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 10 (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE 10 (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0

Total Score _____

ATTACHMENT 5

MBSS SUMMER INDEX PERIOD DATA SHEET

Page 1 Of 1

	Watershed Code	Segment	Type	Year
SITE				

JCDS-01

Reviewed By:

2nd Reviewer:

BASIN: PX (see back for codes)

CREW: RB, Km, AS

	Year	Month	Day
DATE	06	09	27

COMMENTS:

TIME: 0845 (Military)

SAMPLEABILITY

0 = Sampleable
1 = Dry Streambed
2 = Too Deep
3 = Marsh, no defined channel
4 = Excessive Riparian Vegetation
5 = Impoundment
6 = Tidally Influenced
7 = Permission Denied
8 = Unsafe (describe in comments)
9 = Beaver
10 = Other _____

S	Electrofishing
S	Habitat Assessment
S	Water Quality
S	Herpetofauna
M	Mussels
S	Aquatic Plants

AQUATIC PLANTS

(A, P, or E)

Submerged Aquatic Vegetation	A
Emergent Aquatic Vegetation	E
Floating Aquatic Vegetation	A

(Absent, Present, Extensive)

HERPETOFAUNA

Taxa Observed	Number retained or Photo
Frogs	N

WATER QUALITY

Temp (C): 15.5

DO (ppm): 6.0

pH: 7.63

Cond (umho/cm): 484 µS/cm

Turbidity (NTU): ____

Meter Calibrations by: _____

MUSSELS

Taxa Observed	(N,O,R, or L)	Retained? (Y/N)
Unionids	N	
Corbicula	N	

None, Old Shell, Recent Shell, Live

ATTACHMENT 16

MBSS SUMMER HABITAT DATA SHEET

Page 1 Of 1

SITE (Watershed Code / Segment / Type / Year): JCDS-01

Reviewed By: AWS

2nd Reviewer: KEN

BASIN: P X (see back for codes)

DATE (Year / Month / Day): 06 09 27

CREW:

TIME: 0845 (Military)

BANK EROSION

	Left Bank	Right Bank
Extent (m)	0	0
Severity (1=min 2=mod 3=severe)	1	1
Eroded Area (m^2) x 10		

BAR FORMATION & SUBSTRATE

- [X] None
- [ ] Minor
- [ ] Moderate
- [ ] Extensive
- [ ] Cobble
- [ ] Gravel
- [X] Sand
- [X] Silt/Clay

EXOTIC PLANTS

Relative Abundance (A, P, E)

- A Multiflora Rose
- X Mile-a-Minute
- A Japanese Honeysuckle
- A Phragmites
- A Thistle
- A Japanese Stilt Grass
- [ ]

- 41 No. of Instream Woody Debris
- 21 No. of Dewatered Woody Debris
- 3 No. of Instream Rootwads
- 1 No. of Dewatered Rootwads

HABITAT ASSESSMENT

*See RBP data sheet

1. Instream Habitat (0-20)
2. Epifaunal Substrate (0-20)
3. Velocity/Depth Diversity (0-20)
4. Pool/Glide/Eddy Quality (0-20)
   - Extent (m)
5. Riffle/Run Quality (0-20)
   - Extent (m)
6. Embeddedness (%)
7. Shading (%)

STREAM CHARACTER

- A Braided
- P Riffle
- E Run/Glide
- P Deep Pool(>= .5m)
- A Shallow Pool(< .5m)
- A Boulder >2m
- A Boulder <2m
- A Cobble
- A Bedrock
- A Gravel
- P Sand
- E Silt/Clay
- P Undercut Bank
- P Overhead Cover
- A Beaver Pond

A = Absent
P = Present
E = Extensive

FLOW

Lat Loc (m)	Depth (cm)	Velocity (m/s)
0 0 0 0	0 0 0	0 0 0

Maximum Depth (cm)

	Wetted Width (m)	Thalweg Depth (cm)	Thalweg Velocity (m/s)
0 m			
25 m			
50 m			
75 m			

Alternative Flow Measurements

Distance

Depth (cm)

Width (cm)

Time (sec) 1. 2. 3.

COMMENTS

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME John's Creek	LOCATION ~~JCDS-01~~ CCNPP
STATION # JCDS-01 RIVERMILE	STREAM CLASS
LAT LONG	RIVER BASIN Patuxent
STORET #	AGENCY n/a
INVESTIGATORS RB, KM, AS	
FORM COMPLETED BY RB	DATE 9/27/05 TIME AM PM
REASON FOR SURVEY Community Assessment	

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat, well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 19	20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE 16	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE 13	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 10	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 16	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 9 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 9 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 10 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE 10 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score _____

JCDS-01

ATTACHMENT 11

MBSS FISH DATA SHEET

SITE Watershed Code [ ] Segment [ ] Type [ ] Year 2006

Reviewed By: _____

DATE Y Y 06 M M 09 D D 27

2nd Reviewer: _____

	(Y/N)
Fish Move. During Net Install.?	
Bottom Visible in all Areas of Seg.?	
Same Water Clarity - 2nd Pass?	
Volt. [ ] Waveform [ ]	
Len. of Seg. Actually Samp. (m)	

Anodes/Unit	Unit 1	Unit	Unit	Unit	Unit
	2				
Time (sec) Begin 1st p.	0924	1010			
Begin 2nd p.	1056	1114			
End 2nd p.					

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
Fish Captured? (Y/N)					
redfin pickerel 1 kept	195				
" "	173				
golden shiner	157				
	90				
	110				
	12				
	135				
	82				
	15				
(V) pumpkinseed 5.9	142				
34.5	21				
6.2	82				
18.3	102				
14.3	100				
1.3	70				
14.6	96				
15.5	96				
32.0	120				
7.1	76				
22.3	116				
15.8	93				
22.4	117				
17.1	93				
(V) 21.7	99				
16.6	85				

Aggregate Fish Biomass 18.6 95 (g)

JCD5-01

ATTACHMENT 11

MBSS FISH DATA SHEET

SITE Watershed Code ____ Segment ____ Type ____ Year ____

Reviewed By: _____

DATE Y Y M M D D

2nd Reviewer: _____

	(Y/N)
Fish Move. During Net Install.?	
Bottom Visible in all Areas of Seg.?	
Same Water Clarity - 2nd Pass?	
Volt. ____ Waveform ____	
Len. of Seg. Actually Samp. (m)	

Anodes/Unit	Unit ___	Unit ___	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.					
Begin 2nd p.					
End 2nd p.					

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
Fish Captured? (Y/N) [ ] wt 11.4					
pumpkinseed (cont)	75				
7.8	59				
9.4	61				
8.0	53				
21.2	92				
17.2	88				
14.2	76				
Plus Ct - + 1					
✓ adder shiner	77				
	100				
✓ creek chub (Y) sculpin	118				
	90				
	103				
	112				
	101				
	142				
	133				
	145				
	172				
(✓)	125				
	135				
	118				
	107				
	110				

Aggregate Fish Biomass 132 ____ ____ (g)

JCDS-01

ATTACHMENT 11

MBSS FISH DATA SHEET

SITE — Watershed Code: ____ Segment: ____ Type: ____ Year: ____

DATE — Y Y M M D D

Reviewed By: _____

2nd Reviewer: _____

	(Y/N)
Fish Move. During Net Install.?	
Bottom Visible in all Areas of Seg.?	
Same Water Clarity - 2nd Pass?	
Volt. ____ Waveform ____	
Len. of Seg. Actually Samp. (m)	

Anodes/Unit	Unit ___	Unit ___	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.					
Begin 2nd p.					
End 2nd p.					

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
Fish Captured? (Y/N)					
creek chub	112				
	110				
	145				
	115				
	118				
	135				
American Eels	240				
	220				
	150				
	260				
	280				
	300				
	250				
	290				
	270				
	240				
	170				
TESS. darter sp (V)	42				
(V)	35				
(V)	41				
(V)	45				
(V)	55				
(V)	58				

Aggregate Fish Biomass ____ ____ (g)

JCDS-01

ATTACHMENT 11

MBSS FISH DATA SHEET

SITE Watershed Code ____ Segment ____ Type ____ Year ____

Reviewed By: _____

DATE Y Y M M D D

2nd Reviewer: _____

	(Y/N)
Fish Move. During Net Install.?	
Bottom Visible in all Areas of Seg.?	
Same Water Clarity - 2nd Pass?	
Volt. ____ Waveform ____	
Len. of Seg. Actually Samp. (m)	

Anodes/Unit	Unit ___	Unit ___	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.					
Begin 2nd p.					
End 2nd p.					

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
Fish Captured? (Y/N)					
Least Brook lamprey sp. (V)	125				
TCSS. darter sp. (V)	36				
↓ (V)	59				
↓ (V)	40				
✓ redfin pickerel	176				
	181				
creek chub sucker	140				
	130				
	99				
	134				
	120				
	129				
	122				
	127				
	100				
✓ golden shiner	107				
	130				
	111				
	90				

Aggregate Fish Biomass ____ ____ (g)

JCDS-01

ATTACHMENT 11

MBSS FISH DATA SHEET

SITE Watershed Code ____ Segment ____ Type ____ Year ____

Reviewed By: _____

DATE Y Y M M D D

2nd Reviewer: _____

	(Y/N)
Fish Move. During Net Install.?	
Bottom Visible in all Areas of Seg.?	
Same Water Clarity - 2nd Pass?	
Volt. ____ Waveform ____	
Len. of Seg. Actually Samp. (m)	

Anodes/Unit	Unit ___	Unit ___	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.					
Begin 2nd p.					
End 2nd p.					

Fish Captured? (Y/N) ____

SPECIES (See Back for Name Spelling)	wt	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
✓ pumpkinseed	21.8	104				
	16	128				
	25.0	130				
	14.0	87				
mosquitofish		27				
		31				
		32				
		32				
TCSS. darter sp.	(V)	35				
	(V)	33				
	(V)	40				
American Eel		245				
		130				

Aggregate Fish Biomass ____ ____ (g)

FISHERIES

Station Number: P-02 CCNPP
Identified By: RNB

Sheet 1 **of** 1
Date: 9 / 28 / 06

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	Bluegill		35	0.6	
2	Green Sunfish		63	4.5	
3	"		46	1.7	
4	"		36	0.5	
5	American Eel		160	.	
6	Mosquitofish		[illegible]	.	
7	Green Sunfish		35	0.6	
8	American Eel		170	.	
9				.	
10				.	
11				.	
12				.	
13				.	
14				.	
15				.	
16				.	
17				.	
18				.	
19				.	
20				.	
21				.	
22				.	
23				.	
24				.	
25				.	
26				.	
27				.	
28				.	
29				.	
30				.	
31				.	
32				.	
33				.	
34				.	
35				.	

FISHERIES

Station Number: P-01 CCHFF
Identified By: RMB

Sheet 1 **of** 2
Date: 9 / 28 / 06

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	Green Sunfish		38	0.7	
2	Hybrid Sunfish		65	4.7	
3	Green Sunfish		37	0.8	
4	"		42	1.3	
5	"		40	0.4	
6	"		35	0.7	
7	"		37	0.8	
8	"		29	0.5	
9	"		28	0.5	
10	"		28	0.4	
11	"		85	10.5	
12	"		69	5.2	
13	"		68	5.4	
14	"		42	1.4	
15	"		40	1.3	
16	"		35	1.2	
17	"		32	0.8	
18	"		24	0.4	
19	Bluegill		60	3.2	
20	"		35	0.7	
21	"		28	0.3	
22	"		43	0.2	
23	Mosquitofish		21	.	
24	"		37	.	
25	"		22	.	
26	"		25	.	
27	"		27	.	
28	"		30	.	
29	"		25	.	
30	"		26	.	
31	"		46	.	
32	"		35	.	
33	"		27	.	
34			10	.	
35	"		27	.	

FISHERIES

Station Number: P-01 CONTD
Identified By: RNB

Sheet 2 **of** 2
Date: 9 / 28 / 06

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	Mosquito fish		27	.	
2	"		24	.	
3	"		29	.	
4	"		28	.	
5	"		27	.	
6	"		32	.	
7	"		23	.	
8	"		24	.	
9	"		22	.	
10	"		27	.	
11	"		30	.	Gravid
12	"		26	.	
13	"		27	.	
14	"		28	.	
15	"		25	.	
16	"		23	.	
17	"		24	.	
18	American Eel		295	.	
19	"		150	.	
20	"		140	.	
21	"		180	.	
22				.	
23				.	
24				.	
25				.	
26				.	
27				.	
28				.	
29				.	
30				.	
31				.	
32				.	
33				.	
34				.	
35				.	

FISHERIES

Station Number: LC-01 CCNRP
Identified By: RMR

Sheet 1 **of** 1
Date: 9/28/06

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	white Crappie		250	not .	
2	large mouthbass		211	104 . 1	
3	"		302	265 . 4	
4				.	
5	bluegill		150	57 . 5	
6	"		124	31 . 5	
7	"		159	68 . 2	
8	"		80	12 . 8	
9	"		62	7 . 0	
10	"		51	5 . 5	
11	"		32	6 . 3	
12	"		31	0 . 2	
13	"		34	0 . 2	
14	"		27	0 . 3	
15	"		23	0 . 6	
16	"		30	0 . 4	
17	"		25	0 . 2	
18	"		32	0 . 4	
19	"		27	0 . 2	
20	"		30	0 . 4	
21	"		29	0 . 4	
22	"		25	0 . 2	
23	"	8	25	0 . 2	
24	"	18	33	0 . 3	
25	Am. Eel		270	.	
26				.	
27				.	
28				.	
29				.	
30				.	
31				.	
32				.	
33				.	
34				.	
35				.	

Flag

FISHERIES

Station Number: LC-02 QUAP
Identified By: RMB

Sheet 1 **of** 2
Date: 9/28/06

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	bluegill		124	30.3	
2			58	2.7	
3			37	1.2	
4			39	0.9	
5			36	0.8	
6			32	0.4	
7			30	0.5	
8			37	1.1	
9			35	0.6	
10			30	0.5	
11			27	0.4	
12			30	0.5	
13			30	0.4	
14			25	0.3	
15			29	0.4	
16			28	0.3	
17			28	0.4	
18			27	0.5	
19			29	0.5	
20		44	170	86.7	
21			124	27.8	
22	Mosquitofish	~~33~~	33	.	
23		~~16~~	16	.	
24		~~24~~	24	.	
25		~~37~~	37	.	
26		~~30~~	30	.	
27			21	.	
28			27	.	
29			20	.	
30			25	.	
31			25	.	
32			22	.	
33			22	.	
34			21	.	
35			23	.	

X COUNT

FISHERIES

Station Number: LC-02
Identified By:

Sheet 2 **of** 2
Date: 9/28/06

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	mosquito fish		15	.	
2			13	.	
3			20	.	
4			22	.	
5			12	.	
6				.	
7				.	
8				.	
9				.	
10				.	
11				.	
12				.	
13				.	
14				.	
15				.	
16				.	
17				.	
18				.	
19				.	
20				.	
21				.	
22				.	
23				.	
24				.	
25				.	
26				.	
27				.	
28				.	
29				.	
30				.	
31				.	
32				.	
33				.	
34				.	
35				.	

FISHERIES

Station Number: LC-03 CENTER
Identified By: RNR

Sheet 1 **of** 2
Date: 9/28/06

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	white crappie		214	106.8	
2	green sunfish		192	113.8	
3	bluegill		93	14.3	
4			60	4.0	
5			98	15.8	
6			108	20.5	
7			54	3.4	
8			107	19.1	
9			90	10.2	
10			63	3.6	
11			68	4.0	
12			70	4.7	
13			55	2.3	
14			68	4.7	
15			51	1.7	
16			35	0.6	
17			40	0.8	
18			38	0.6	
19			27	0.4	
20		plus count	28	0.4	
21			40	0.5	
22		37	48	1.2	
23	green sunfish		37	0.7	
24			49	1.6	
25			~~33~~		
26	Am eel		330		
27	unidentified		38		
28			37		
29			30		
30			27		
31			35		
32			33		
33			25		
34			30		
35			34		

FISHERIES

Station Number: LC-03
Identified By:

Sheet 2 **of** 2
Date: 9/28/06

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	mosquito fish		22	.	
2			27	.	
3			24	.	
4			41	.	
5			23	.	
6			18	.	
7			22	.	
8			20	.	
9				.	
10				.	
11				.	
12				.	
13				.	
14				.	
15				.	
16				.	
17				.	
18				.	
19				.	
20				.	
21				.	
22				.	
23				.	
24				.	
25				.	
26				.	
27				.	
28				.	
29				.	
30				.	
31				.	
32				.	
33				.	
34				.	
35				.	

FISHERIES

Station Number: CCNFP LD-01
Identified By: AMS

Sheet 1 **of** 1
Date: 9 / 29 / 06

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	Northern fish		37	.	
2			32	.	
3			34	.	
4			28	.	
5			31	.	
6			36	.	
7			30	.	
8			32	.	
9			33	.	
10			27	.	
11			34	.	
12			2[illegible]	.	
13			37	.	
14			34	.	
15			30	.	
16			38	.	
17			35	.	
18			36	.	
19			37	.	
20			29	.	
21				.	Plus [illegible]
22				.	
23				.	
24				.	
25				.	
26				.	
27				.	
28				.	
29				.	
30				.	
31				.	
32				.	
33				.	
34				.	
35				.	

FISHERIES

Station Number: LD-02
Identified By: AN

Sheet 1 **of** 1
Date: / /

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	[illegible]		[illegible]		
2	[illegible]		[illegible]		
3	[illegible]		[illegible]		
4	[illegible]		[illegible]		
5	[illegible]		[illegible]		
6	[illegible]		[illegible]		
7	[illegible]		[illegible]		
8	[illegible]		[illegible]		
9	[illegible]		[illegible]		
10	[illegible]		[illegible]		
11	[illegible]		[illegible]		
12	[illegible]		[illegible]		
13	[illegible]		[illegible]		
14	[illegible]		[illegible]		
15	[illegible]		23		
16	[illegible]		25		
17	[illegible]		[illegible]		
18	[illegible]		[illegible]		
19	[illegible]		[illegible]		
20	[illegible]		[illegible]		
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					

FISHERIES

Station Number: CCNPP LD-03
Identified By: AMS

Sheet 1 **of** 1
Date: 9/29/06

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	Morone sax.		23	.	
2			24	.	
3			21	.	
4			2[illegible]	.	
5			34	.	
6			30	.	
7			27	.	
8			27	.	
9			37	.	
10			31	.	
11			26	.	
12			31	.	
13			28	.	
14			19	.	
15			29	.	
16			25	.	
17			16	.	
18			25	.	
19			26	.	
20			29	.	
21				.	fluor [illegible]
22				.	
23				.	
24				.	
25				.	
26				.	
27				.	
28				.	
29				.	
30				.	
31				.	
32				.	
33				.	
34				.	
35				.	

FISHERIES

Station Number: _____ **Sheet** ____ **of** ____

Identified By: _____ **Date:** ___/___/___

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1				.	
2				.	
3				.	
4				.	
5				.	
6				.	
7				.	
8				.	
9				.	
10				.	
11				.	
12				.	
13				.	
14				.	
15				.	
16				.	
17				.	
18				.	
19				.	
20				.	
21				.	
22				.	
23				.	
24				.	
25				.	
26				.	
27				.	
28				.	
29				.	
30				.	
31				.	
32				.	
33				.	
34				.	
35				.	

APPENDIX A-2:

FALL 2006
FIELD NOTES

Calvert Cliffs 7/27/06

CB-01
1240

Dip net
2 Jars

WQ Taken

All Fish Preserved for Lab id Except eels with were measured & released

Sediment descrip
Mostly Sand
Some Silt & mud
Fine Silt Coating bottom

JCUS-01
1640 Fish collection & WQ Taken

Benthic Collections Started @ Lake Conoy

LC-01 dip net
3 Ponar grabs
Sediment: Fine Clay & Sand

Continued Benthic @ Lake Conoy 9/28/06

LC-02 dip net
3 Ponar grabs
Sediment: Fine Clay & Sand

9/28/06

		Temp	Cond	DO	pH	depth
LC-02	S	21.29	63	6.09	7.72	—
0815	M					
	B	21.34	62	5.88	7.44	1.0 ft

LC-03
dip net
3 ponar grabs
Sediment:

		temp	Cond	DO	pH	depth
	S	21.16	62	6.16	7.30	—
0835	M	21.20	63	5.68	7.06	1.5 ft
	B	21.20	62	5.06	6.77	2.25

Sediment:
Fine Clay & Sand

P-02 (Pond #2) Small Pond
dip net
1 ponar grab location
Shocking time 1003-1021
Sediment: Silt Detritus

Electrofish

Temp	Cond	DO	pH	
17.33	135	.99	6.39	5"

D-01 (Pond #1) Lower pond

Dipnet 1035

1 ponar grab location 1040

Electroshock time 1103 - 1133

Water quality @ 15'

Temp.	Cond.	DO	pH
18.42	109	3.21	6.7

Sediment: Silt Detritus

LC-01 1400

	Temp	Cond	DO	pH
Top	24.9	66	7.6	7.8
Bottom	25.3	65	6.7	7.5

Electroshock 1420 - 1436

LC-02

Electroshock 1442 - 1458

LC-03

Electroshock 1500 - 1519

LD-01

Electroshocking 0900 - 0918

Dipnet time 1110

1 Ponar grab location (3 grabs) 1110

Water quality 1124 ~3.0 ft

	Temp	Cond	DO	pH
Surface	20.0	1566	3.4	7.5
Mid	20.0	1581	3.1	7.6
Bottom	19.9	1563	2.2	7.5

Sediment - Mostly detritis, silt, clay

LD-02

Electroshocking time 0928 - 0946

Dipnet time 1050

1 Ponar grab location (3 grabs) - 1050

Water quality 1130 ~3.5 ft

	Temp	Cond	DO	pH
Surface	20.5	1592	3.4	7.7
Mid	20.2	1612	2.5	~~7.7~~ 7.6
Bottom	20.2	1608	2.6	7.6

Sediment - Mostly detritis

LD-03

Electroshocking time ~~0928-0946~~ 0958-1016

Dipnet Time 1030

1 Ponar grab location (3 grabs) 1030

Water quality 1137 ~4.0 ft

	Temp	Cond	DO	pH
Surface	20.7	1591	4.0	7.7
Mid	20.3	1581	2.5	7.7
Bottom	19.9	1576	2.2	7.7

Sediment - Mostly detritis, silt, clay

10/10/06 MES Before Tissue Collection

0930 begin Ponar Sampling

CCE-07

Ponar pulls

IIII+4

44

Rep. A 40g.

Rep. B 40g.

Rep. C 39g.

* one tick mark = 10

organisms (clams)

~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~

IIII +3

243

CCE-08

12:50 begin ponar sampling

Ponar pulls

IIII+6

46

organisms (clams)

~~IIII~~ ~~IIII~~ ~~IIII~~ II

170

Rep. A 40g.

Rep. B 10g.+

see next page

APPENDIX A-3:

FALL 2006
PHOTO LOG

Photographic Record

Calvert Cliffs Nuclear Power Plant
Calvert County, Maryland
September 26-29, 2006

JCDS-01 Looking Upstream Into Zone

Redfin Pickerel from JCDS-01

Golden Shiner from JCDS-01

GB-01 Upstream Portion of Zone

GB-01 Downstream Portion of Zone

JCUS-01 Looking Downstream

EA Engineering, Science, and Technology, Inc.

Photographic Record

Calvert Cliffs Nuclear Power Plant
Calvert County, Maryland
September 26-29, 2006

LC-01 Looking into Zone

LC-02 Looking into Zone

LC-03 Looking into Zone

P-02 Looking into Zone

P-01 Looking into Zone

Spider Adjacent to P-02

APPENDIX A-4:

SPRING 2007

DATA SHEETS

ATTACHMENT 5

MBSS SUMMER INDEX PERIOD DATA SHEET

Page 1 Of 1

Reviewed By: RH

2nd Reviewer:

	Watershed Code	Segment	Type	Year
SITE				

BASIN: PX (see back for codes) JCUS-01

CREW: RD, RH, AD

DATE: Year 07, Month 03, Day 14

TIME: 1200 (Military)

COMMENTS:

SAMPLEABILITY

s = Sampleable
1 = Dry Streambed
2 = Too Deep
3 = Marsh, no defined channel
4 = Excessive Riparian Vegetation
5 = Impoundment
6 = Tidally Influenced
7 = Permission Denied
8 = Unsafe (describe in comments)
9 = Beaver
10 = Other _____

S	Electrofishing
S	Habitat Assessment
S	Water Quality
S	Herpetofauna
NA	Mussels
NA	Aquatic Plants

AQUATIC PLANTS

(A, P, or E)

Submerged Aquatic Vegetation	A
Emergent Aquatic Vegetation	P
Floating Aquatic Vegetation	A

(Absent, Present, Extensive)

HERPETOFAUNA

Taxa Observed	Number retained or Photo
Frogs	

WATER QUALITY

Temp (C)

DO (ppm)

pH

Cond (umho/cm)

Turbidity (NTU)

* See field notebook

Meter Calibrations by: _____

MUSSELS

Taxa Observed	(N,O,R, or L)	Retained? (Y/N)
Unionids	N	
Corbicula	N	

None, Old Shell, Recent Shell, Live

ATTACHMENT 16

MBSS SUMMER HABITAT DATA SHEET

Page 1 Of 1

SITE (Watershed Code / Segment / Type / Year): ____

Reviewed By: RH

BASIN: P X (see back for codes) JCUS-01

2nd Reviewer: ____

DATE (Year / Month / Day): 07 03 14

CREW: RD, RH, AB

TIME: 1203 (Military)

BANK EROSION

	Left Bank	Right Bank
Extent (m)	0	5
Severity (1=min 2=mod 3=severe)	1	2
Eroded Area (m^2) x 10		

BAR FORMATION & SUBSTRATE

- [X] None
- [ ] Minor
- [ ] Moderate
- [ ] Extensive
- [ ] Cobble
- [ ] Gravel
- [X] Sand
- [X] Silt/Clay

EXOTIC PLANTS
Relative Abundance
(A, P, E)

- A Multiflora Rose
- A Mile-a-Minute
- A Japanese Honeysuckle
- A Phragmites
- A Thistle
- A Japanese Stilt Grass
- [ ] ____

- 25 No. of Instream Woody Debris
- 15 No. of Dewatered Woody Debris
- 2 No. of Instream Rootwads
- 1 No. of Dewatered Rootwads

HABITAT ASSESSMENT

* See RBP Sheet

1. Instream Habitat (0-20) ____
2. Epifaunal Substrate (0-20) ____
3. Velocity/Depth Diversity (0-20) ____
4. Pool/Glide/Eddy Quality (0-20) ____
   Extent (m) ____
5. Riffle/Run Quality (0-20) ____
   Extent (m) ____
6. Embeddedness (%) ____
7. Shading (%) ____

STREAM CHARACTER

- A Braided
- P Riffle
- E Run/Glide
- A Deep Pool(>= .5m)
- P Shallow Pool(< .5m)
- A Boulder >2m
- A Boulder <2m
- A Cobble
- A Bedrock
- A Gravel
- E Sand
- E Silt/Clay
- P Undercut Bank
- P Overhead Cover
- A Beaver Pond

A = Absent
P = Present
E = Extensive

FLOW

Lat Loc (m)	Depth (cm)	Velocity (m/s)
0 0 0 0	0 0 0	0 0 0

Maximum Depth (cm) ____

	Wetted Width (m)	Thalweg Depth (cm)	Thalweg Velocity (m/s)
0 m			
25 m			
50 m			
75 m			

Alternative Flow Measurements

Distance

Depth (cm) ____

Width (cm) ____

Time (sec) 1. ____ 2. ____ 3. ____

COMMENTS ____

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME John's Creek	LOCATION JCUS-01	
STATION #_____ RIVERMILE_____	STREAM CLASS	
LAT _____ LONG _____	RIVER BASIN Patuxent	
STORET #	AGENCY EA/CCMP	
INVESTIGATORS RD, RH, AB		
FORM COMPLETED BY RD	DATE 3/14/07 TIME 1150 AM PM	REASON FOR SURVEY Community Assessment

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 11	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE 13	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE 4	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 (4) 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 11	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 18	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE 19	20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE 13	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 9 (LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
SCORE 9 (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 10 (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE 10 (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0

Total Score _____

ATTACHMENT 11

MBSS FISH DATA SHEET

	Watershed Code	Segment	Type	Year
SITE				2007

Reviewed By: RH

2nd Reviewer:

DATE (Y Y M M D D): 07 03 14 JCUS-01

	(Y/N)
Fish Move. During Net Install.?	N
Bottom Visible in all Areas of Seg.?	Y
Same Water Clarity - 2nd Pass?	N
Volt.	
Waveform	
Len. of Seg. Actually Samp. (m)	75

Anodes/Unit	Unit	Unit	Unit	Unit	Unit
Time (sec) Begin 1st p.	1110	1131			
Begin 2nd p.	1150	1205			
End 2nd p.					

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total) Length (mm)	2nd Pass Catch (Total) Length	Unusual Anomalies (Y/N)	Comments
Fish Captured? (Y/N) Y					
Eastern mudminnow		71		N	
		66		N	
		60		N	
		67		N	
Least brook Lamprey		98	110	N	
		110	120	N	
		95	121	N	
		122	116	N	1-Vouchered for Id
		113	129	N	confirmation
		105			

Aggregate Fish Biomass (g)

Goldstein Branch

ATTACHMENT 5

MBSS SUMMER INDEX PERIOD DATA SHEET

Page 2 Of 2

Reviewed By: RMD

2nd Reviewer: RAC

	Watershed Code	Segment	Type	Year
SITE	RAX			2007

BASIN (see back for codes) GB-01

CREW: RAC, RMB

	Year	Month	Day
DATE			

TIME 1315 (Military)

COMMENTS:

SAMPLEABILITY

s = Sampleable
1 = Dry Streambed
2 = Too Deep
3 = Marsh, no defined channel
4 = Excessive Riparian Vegetation
5 = Impoundment
6 = Tidally Influenced
7 = Permission Denied
8 = Unsafe (describe in comments)
9 = Beaver
10 = Other _____

- [X] Electrofishing
- [X] Habitat Assessment
- [X] Water Quality
- [S] Herpetofauna
- [n/a] Mussels
- [n/a] Aquatic Plants

AQUATIC PLANTS

(A, P, or E)

Submerged Aquatic Vegetation: A

Emergent Aquatic Vegetation: A

Floating Aquatic Vegetation: A

(Absent, Present, Extensive)

HERPETOFAUNA

Taxa Observed	Number retained or Photo
Frogs	
Salamanders	

MUSSELS

Taxa Observed	(N,O,R, or L)	Retained? (Y/N)
Unionids	N	
Corbicula	N	

None, Old Shell, Recent Shell, Live

WATER QUALITY

Temp (C): 17.6

DO (ppm): 9.4

pH:

Cond (umho/cm): 459

Turbidity (NTU):

Meter Calibrations by: _____

Goldstein Branch

ATTACHMENT 16

MBSS SUMMER HABITAT DATA SHEET

SITE — Watershed Code: ____ Segment: ____ Type: ____ Year: ____

Reviewed By: RMB

BASIN: P X (see back for codes) GB-01

2nd Reviewer: RAC

DATE — Year: 07 Month: 04 Day: 24

CREW: RAC, RMB

TIME: 1325 (Military)

BANK EROSION

	Left Bank	Right Bank
Extent (m)	10	5
Severity (1=min 2=mod 3=severe)	1	1
Eroded Area (m^2) x 10		

BAR FORMATION & SUBSTRATE

- [X] None
- [ ] Minor
- [ ] Moderate
- [ ] Extensive
- [ ] Cobble
- [ ] Gravel
- [✓] Sand
- [✓] Silt/Clay

EXOTIC PLANTS
Relative Abundance (A, P, E)

- A Multiflora Rose
- A Mile-a-Minute
- A Japanese Honeysuckle
- A Phragmites
- A Thistle
- A Japanese Stilt Grass
- [ ]

- 15 No. of Instream Woody Debris
- 12 No. of Dewatered Woody Debris
- 3 No. of Instream Rootwads
- 3 No. of Dewatered Rootwads

HABITAT ASSESSMENT

*See RBP Sheet

1. Instream Habitat (0-20)
2. Epifaunal Substrate (0-20)
3. Velocity/Depth Diversity (0-20)
4. Pool/Glide/Eddy Quality (0-20)
   Extent (m)
5. Riffle/Run Quality (0-20)
   Extent (m)
6. Embeddedness (%)
7. Shading (%)

STREAM CHARACTER

- P Braided
- P Riffle
- E Run/Glide
- A Deep Pool(>= .5m)
- P Shallow Pool(< .5m)
- A Boulder >2m
- A Boulder <2m
- A Cobble
- A Bedrock
- A Gravel
- P Sand
- E Silt/Clay
- P Undercut Bank
- P Overhead Cover
- A Beaver Pond

A = Absent
P = Present
E = Extensive

FLOW

Lat Loc (m)	Depth (cm)	Velocity (m/s)
0 0 0 0	0 0 0	0 0 0

Maximum Depth (cm): N/A

	Wetted Width (m)	Thalweg Depth (cm)	Thalweg Velocity (m/s)
0 m			
25 m			
50 m			
75 m			

Alternative Flow Measurements

Distance

Depth (cm)

Width (cm)

Time (sec) 1. 2. 3.

COMMENTS

D ~~IIII~~ ~~IIII~~ II

W ~~IIII~~ ~~IIII~~ ~~IIII~~

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME Goldstein Branch	LOCATION CCNPP	
STATION # 01 RIVERMILE	STREAM CLASS	
LAT — LONG —	RIVER BASIN PX	
STORET # —	AGENCY N/A	
INVESTIGATORS RAC, RMB		
FORM COMPLETED BY RMB	DATE 4/24/07 TIME 1335 AM PM	REASON FOR SURVEY

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 10	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE 11	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE 5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 17	20 19 18 (17) 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE 17	20 19 18 (17) 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE 18	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 9 (LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
SCORE 9 (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 10 (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE 10 (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0

Total Score _____

ATTACHMENT 11

CB-01

MBSS FISH DATA SHEET

SITE Watershed Code: ____ Segment: ____ Type: ____ Year: ____

DATE Y Y: 0 7 M M: 0 4 D D: 2 4 Goldstein Branch

Reviewed By: RMB

2nd Reviewer: RAL

	(Y/N)
Fish Move. During Net Install.?	N
Bottom Visible in all Areas of Seg.?	Y
Same Water Clarity - 2nd Pass?	N
Volt. ____ Waveform ____	
Len. of Seg. Actually Samp. (m)	75

Anodes/Unit	Unit 1: 1	Unit 1: 2	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.	1345	1443			
Time (sec) Begin 2nd p.	1408	1459			
Time (sec) End 2nd p.					

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
Fish Captured? (Y/N) Y		Pass 1	Pass 2		
Creek Chub sucker		112	142		
		121			
		131			
Pumpkinseed		95			WT. 18.9
Tess. darter		66	36		
		45	42		
		69	54		
		51	42		
		68	39		
		41	38		
		79	40		
		41	49		
		52	39		
		31	36		
		41	41		
		60	54		
		61	51		
		49	46		
		57	42		
		40			
		51			
		40			

Aggregate Fish Biomass ____ (g)

ATTACHMENT 11

GB-01

MBSS FISH DATA SHEET

SITE Watershed Code | Segment | Type | Year

Goldstein Branch

Reviewed By: _____

2nd Reviewer: _____

DATE Y Y 0 7 | M M 0 4 | D D 2 4

	(Y/N)
Fish Move. During Net Install.?	
Bottom Visible in all Areas of Seg.?	
Same Water Clarity - 2nd Pass?	
Volt. ____ Waveform ____	
Len. of Seg. Actually Samp. (m)	

Anodes/Unit	Unit ___	Unit ___	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.					
Begin 2nd p.					
End 2nd p.					

Fish Captured? (Y/N)

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
		Pass 1	Pass 2		
Tess. darter		41			
		50			plus count 10
Blacknose dace		48	51		
		68	36		
		35	44		
		36	33		
		32	34		
		31	32		
		38	35		
		29	39		
		41	37		
		37	30		
		36	37		
		27	34		
			76		
Am Eel		136	143		
		265	183		
		291	187		
		135	110		
		130	158		
		145	190		
		258	163		
		246			
		127			

Aggregate Fish Biomass _____ _____ (g)

ATTACHMENT 11

GB-01

MBSS FISH DATA SHEET

SITE Watershed Code [ ] Segment [ ] Type [ ] Year [ ]

DATE Y Y M M D D

Reviewed By: _____

2nd Reviewer: _____

	(Y/N)
Fish Move. During Net Install.?	
Bottom Visible in all Areas of Seg.?	
Same Water Clarity - 2nd Pass?	
Volt. [ ] Waveform [ ]	
Len. of Seg. Actually Samp. (m)	

Anodes/Unit	Unit ___	Unit ___	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.					
Begin 2nd p.					
End 2nd p.					

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
Fish Captured? (Y/N)		Pass 1	Pass 2		
Am. Eel		125			
		126			
		133			
		241			
		142			
		181			
		162			
		133			
		161			
		163			
		115			
Least brook lamprey		121	115		
		160			
Mosquitofish		32			
Brown bullhead			110		

Aggregate Fish Biomass [ ] [ ] (g)

ATTACHMENT 5

JCDS-01 **MBSS SUMMER INDEX PERIOD DATA SHEET** Page 1 Of 1

Reviewed By: RH

2nd Reviewer:

	Watershed Code	Segment	Type	Year
SITE				

BASIN: PX (see back for codes)

CREW: RB RH AD

	Year	Month	Day
DATE	07	03	14

TIME: 1752 (Military)

COMMENTS:

SAMPLEABILITY

s = Sampleable
1 = Dry Streambed
2 = Too Deep
3 = Marsh, no defined channel
4 = Excessive Riparian Vegetation
5 = Impoundment
6 = Tidally Influenced
7 = Permission Denied
8 = Unsafe (describe in comments)
9 = Beaver
10 = Other _____

S	Electrofishing
S	Habitat Assessment
S	Water Quality
S	Herpetofauna
M	Mussels
S	Aquatic Plants

AQUATIC PLANTS

(A, P, or E)

Submerged Aquatic Vegetation	P
Emergent Aquatic Vegetation	A
Floating Aquatic Vegetation	A

(Absent, Present, Extensive)

HERPETOFAUNA

Taxa Observed	Number retained or Photo
Frogs	

WATER QUALITY

Temp (C)

DO (ppm) See Field book

pH

Cond (umho/cm)

Turbidity (NTU)

Meter Calibrations by: _____

MUSSELS

Taxa Observed	(N,O,R, or L)	Retained? (Y/N)
Unionids	A	
Corbicula	A	

None, Old Shell, Recent Shell, Live

ATTACHMENT 16

JCDS-01

MBSS SUMMER HABITAT DATA SHEET

Page 1 Of 1

SITE (Watershed Code / Segment / Type / Year):

Reviewed By: RH

2nd Reviewer:

BASIN: PX (see back for codes)

DATE (Year / Month / Day): 06 03 14

CREW: RD, RH, AB

TIME: 1710 (Military)

BANK EROSION

	Left Bank	Right Bank
Extent (m)	0	0
Severity (1=min 2=mod 3=severe)	1	1
Eroded Area (m^2) x 10		

BAR FORMATION & SUBSTRATE

- [X] None
- [ ] Minor
- [ ] Moderate
- [ ] Extensive
- [ ] Cobble
- [ ] Gravel
- [X] Sand
- [X] Silt/Clay

EXOTIC PLANTS
Relative Abundance
(A, P, E)

- A Multiflora Rose
- A Mile-a-Minute
- A Japanese Honeysuckle
- A Phragmites
- A Thistle
- A Japanese Stilt Grass
- [ ] _____

- 53 No. of Instream Woody Debris
- 30 No. of Dewatered Woody Debris
- 2 No. of Instream Rootwads
- 0 No. of Dewatered Rootwads

HABITAT ASSESSMENT

1. Instream Habitat (0-20) ..... See RDP sheet
2. Epifaunal Substrate (0-20) .....
3. Velocity/Depth Diversity (0-20) .....
4. Pool/Glide/Eddy Quality (0-20) .....
   Extent (m) .....
5. Riffle/Run Quality (0-20) .....
   Extent (m) .....
6. Embeddedness (%) .....
7. Shading (%) .....

STREAM CHARACTER

- A Braided
- P Riffle
- E Run/Glide
- P Deep Pool(>= .5m)
- A Shallow Pool(< .5m)
- A Boulder >2m
- A Boulder <2m
- A Cobble
- A Bedrock
- A Gravel
- P Sand
- E Silt/Clay
- P Undercut Bank
- A Overhead Cover
- A Beaver Pond

A = Absent
P = Present
E = Extensive

FLOW

Lat Loc (m)				Depth (cm)			Velocity (m/s)		
0	0	0	0	0	0	0	0	0	0

Maximum Depth (cm) ___

	Wetted Width (m)	Thalweg Depth (cm)	Thalweg Velocity (m/s)
0 m			
25 m			
50 m			
75 m			

Alternative Flow Measurements

Distance

Depth (cm)

Width (cm)

Time (sec) 1. 2. 3.

COMMENTS

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME John's Creek	LOCATION CCNPP	
STATION # JCDS-01 RIVERMILE _____	STREAM CLASS	
LAT _____ LONG _____	RIVER BASIN	
STORET #	AGENCY EA/ CCNPP	
INVESTIGATORS RB, RH, AB		
FORM COMPLETED BY RD	DATE 3/14/07 TIME 1515 AM PM	REASON FOR SURVEY Community Assessment

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 18	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE 14	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE 13	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 10	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 16	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE 19	20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE 15	20 19 18 17 16	(15) 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 9 (LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
SCORE 9 (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 10 (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE 10 (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0

Total Score _____

ATTACHMENT 11

MBSS FISH DATA SHEET

SITE Watershed Code: ____ Segment: ____ Type: ____ Year: 2007

Reviewed By: RH

DATE Y Y: 07 M M: 03 D D: 14 JCDS-01

2nd Reviewer: ____

	(Y/N)
Fish Move. During Net Install.?	N
Bottom Visible in all Areas of Seg.?	Y
Same Water Clarity - 2nd Pass?	N
Volt. ____ Waveform ____	
Len. of Seg. Actually Samp. (m)	75

Anodes/Unit	Unit ___	Unit ___	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.	1435	1510			
Begin 2nd p.	1610	1639			
End 2nd p.					

Fish Captured? (Y/N) Y

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total) Length	2nd Pass Catch (Total) Length	Unusual Anomalies (Y/N)	Comments
Creek Chubsucker		180	125	N	
		181	137		
		148			
		140			
		147			
		130			
		113			
		122			
		133			
		59			
		52			
		40			
Pumpkinseed		96	80		WT(1) 18g WT(2) 9g
		89	74		WT(1) 13g WT(2) 7g
			83		WT(2) 12g
			95		WT(2) 15g
			136		WT(2) 58g
Eastern mdminnow		90	73		
		82	64		
		80			
		80			
		77			

Aggregate Fish Biomass ____ (g)

ATTACHMENT 11

MBSS FISH DATA SHEET

SITE — Watershed Code: ____ Segment: ____ Type: ____ Year: ____

Reviewed By: _____

DATE — Y Y: 0 7 M M: 0 3 D D: 1 4 JCDS-01

2nd Reviewer: _____

	(Y/N)
Fish Move. During Net Install.?	
Bottom Visible in all Areas of Seg.?	
Same Water Clarity - 2nd Pass?	
Volt. ____ Waveform ____	
Len. of Seg. Actually Samp. (m)	

Anodes/Unit	Unit ___	Unit ___	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.					
Begin 2nd p.					
End 2nd p.					

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
Fish Captured? (Y/N)					
Tess darter			30	N	
Tess. darter		73			
		42			
		64			
		74			
		45			
Golden shiner		103			
Redfin pickerel		185	154		
Tess darter		43			
		41			
		39			
		38			
American eel		250			
		131			
		176			
		161			
		162			
		133			
		129			
		96			
		133			

Aggregate Fish Biomass ____ (g)

ATTACHMENT 11

MBSS FISH DATA SHEET

SITE — Watershed Code: ____ Segment: ____ Type: ____ Year: ____

Reviewed By: _____

DATE — Y Y: 0 7 M M: 0 3 D D: 1 4 JCDS-01

2nd Reviewer: _____

	(Y/N)
Fish Move. During Net Install.?	
Bottom Visible in all Areas of Seg.?	
Same Water Clarity - 2nd Pass?	
Volt. ____ Waveform ____	
Len. of Seg. Actually Samp. (m)	

Anodes/Unit	Unit ___	Unit ___	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.					
Begin 2nd p.					
End 2nd p.					

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
Fish Captured? (Y/N)		Length	Length		
Brown Bullhead			140	N	
Am. eel		98	120		
Am. eel		105	220		
		110	130		
		340	140		
		233	110		
		125	115		
		271	170		
		90	130		
		96	120		
		110			
		93			
		96			
		95			
		95			
		106			
		105			

Aggregate Fish Biomass ____ ____ (g)

ATTACHMENT 11

MBSS FISH DATA SHEET

SITE — Watershed Code: ____ Segment: ____ Type: ____ Year: ____

Reviewed By: _____

DATE — Y Y: 0 7 M M: 0 3 D D: 1 4 JCDS-01

2nd Reviewer: _____

	(Y/N)
Fish Move. During Net Install.?	N
Bottom Visible in all Areas of Seg.?	
Same Water Clarity - 2nd Pass?	
Volt. ____ Waveform ____	
Len. of Seg. Actually Samp. (m)	75

Anodes/Unit	Unit ___	Unit ___	Unit ___	Unit ___	Unit ___
Time (sec) Begin 1st p.					
Begin 2nd p.					
End 2nd p.					

Fish Captured? (Y/N) ☐

SPECIES (See Back for Name Spelling)	Number Retained? or Photo	1st Pass Catch (Total)	2nd Pass Catch (Total)	Unusual Anomalies (Y/N)	Comments
Pumpkin Seed			75	N	WT(2) 8g
			92		WT(2) 14g
			78		WT(2) 9g
			67		WT(2) 6g
			70		WT(2) 6g
			81		WT(2) 9g
Tess Darter			71		
			42		
			50		
			50		
			47		
Am Eel			220		
			271		
			150		
			150		
			120		
			134		
			260		
			140		
			190		
			170		
			260		

Aggregate Fish Biomass ____ (g)

FISHERIES

Station Number: P-01
Identified By: RH

Sheet 1 **of** 1
Date: 3/14/07

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	Green Sunfish		29	<1.0	
2			44	1.0	
3			37	1.0	
4			42	1.0	
5			39	<1.0	
6			37	<1.0	
7			27	<1.0	
8			51	2.0	
9			40	1.0	
10			38	<1.0	
11			48	2.0	
12			26	<1.0	
13			32	1.0	
14			46	2.0	
15			30	<1.0	
16				.	
17				.	
18	American eel		138	.	
19			158	.	
20			122	.	
21			150	.	
22			103	.	
23			132	.	
24			138	.	
25			194	.	
26			113	.	
27			200	.	
28			118	.	
29			125	.	
30		7- visual observation		.	7-additional eels
31				.	not captured
32				.	
33				.	
34				.	
35	Mosquitofish		26	.	

FISHERIES

Station Number: P-02
Identified By: RH

Sheet 1 **of** 1
Date: 3/14/07

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	Green Sunfish		42	1.0	
2			89	11.0	
3			93	15.0	
4			40	1.0	
5			41	1.0	
6			25	<1.0	
7			26	<1.0	
8			60	4.0	
9			51	2.0	
10			25	<1.0	
11			32	<1.0	
12			29	<1.0	
13			26	<1.0	
14			30	<1.0	
15			27	<1.0	
16			45	1.0	
17			40	1.0	
18			29	<1.0	
19			26	<1.0	
20				.	
21				.	
22				.	
23	American eel		260	.	
24			242	.	
25			172	.	
26			174	.	
27			131	.	
28			113	.	4- additional eels not captured
29	Mosquitofish		26	.	
30			31	.	
31			30	.	
32				.	
33				.	
34				.	
35				.	

FISHERIES

Station Number: LC-01
Identified By: RB

Sheet 1 **of** 1
Date: 3/15/07

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	Black Crappie		262	217.0	7 dorsal spines / Fork length
2				.	
3	Bluegill		16	<1.0	
4			19	<1.	
5			21	<1.0	
6			54	2.0	
7			54	2.0	
8			50	2.0	
9			39	<1.0	
10			27	<1.0	
11			27	<1.0	
12			30	<1.0	
13			105	23.0	
14			54	1.0	
15			40	1.0	
16			35	<1.0	
17			29	<1.0	
18			31	<1.0	
19			42	1.0	
20			30	<1.0	
21			25	<1.0	
22		13	30	<1.0	13 plus count
23				.	
24	Green Sunfish		150	66.0	
25				.	
26				.	
27	American eel		510	.	
28				.	
29				.	
30				.	
31				.	
32				.	
33				.	
34				.	
35				.	

FISHERIES

Station Number: LC-02
Identified By: RB

Sheet 1 **of** 1
Date: 3/15/07

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	Largemouth Bass		251	181.0	Blackspot + Anchorworm
2				.	
3	Bluegill		66	5.0	Fungus
4			29	<1.0	
5			33	<1.0	
6			39	<1.0	
7			29	<1.0	
8			29	<1.0	
9			30	<1.0	
10				.	
11				.	
12	Green Sunfish		48	2.0	
13				.	
14				.	
15				.	
16				.	
17				.	
18				.	
19				.	
20				.	
21				.	
22				.	
23				.	
24				.	
25				.	
26				.	
27				.	
28				.	
29				.	
30				.	
31				.	
32				.	
33				.	
34				.	
35				.	

FISHERIES

Station Number: LC-03
Identified By: RB

Sheet 1 **of** 2
Date: 3/15/07

	Organism Name	Plus Count				Total Length (mm)			Weight (g)					Comments
1	Largemouth bass					295			269			.	0	
2	↓					292			280			.	0	
3												.		
4												.		
5	Bluegill						80				8	.	0	
6							37			<	1	.	0	
7							38			<	1	.	0	
8							35			<	1	.	0	
9							32			<	1	.	0	
10							42				1	.	0	
11							58				2	.	0	
12							40				1	.	0	
13							27			<	1	.	0	
14							36			<	1	.	0	
15							38			<	1	.	0	
16							38			<	1	.	0	
17							35			<	1	.	0	
18							53				1	.	0	
19							42				1	.	0	
20							43				1	.	0	
21							32			<	1	.	0	
22							30			<	1	.	0	
23							43				1	.	0	
24							40				1	.	0	
25	↓		1	1								.		
26	Green Sunfish						129			38		.	0	
27							129			37		.	0	
28							131			36		.	0	
29							66				5	.	0	
30	↓						102			19		.	0	
31												.		
32												.		
33												.		
34												.		
35												.		

see back

FISHERIES

Station Number: _____
Identified By: _____

Sheet 2 **of** 2
Date: / /

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	Am Eel		300	.	
2	Am Eel		300	.	
3	Am Eel		320	.	
4				.	
5				.	
6				.	
7				.	
8				.	
9				.	
10				.	
11				.	
12				.	
13				.	
14				.	
15				.	
16				.	
17				.	
18				.	
19				.	
20				.	
21				.	
22				.	
23				.	
24				.	
25				.	
26				.	
27				.	
28				.	
29				.	
30				.	
31				.	
32				.	
33				.	
34				.	
35				.	

FISHERIES

Station Number: LD-01
Identified By: —

Sheet 1 **of** 1
Date: 3/15/07

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	* No Fish				
2	Collected				
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					

FISHERIES

Station Number: LD-02
Identified By: –

Sheet 1 **of** 1
Date: 3/15/07

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	* No Fish				
2	Collected				
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					

FISHERIES

Station Number: LD-03
Identified By: –

Sheet 1 **of** 1
Date: 3/15/07

	Organism Name	Plus Count	Total Length (mm)	Weight (g)	Comments
1	* No Fish				
2	collected				
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					

APPENDIX A-5:

SPRING 2007
FIELD NOTES

2

Location CCNPP (Spring) Date 3/12/07

Project / Client 1435102 Task 0001

R. Ballatine, R. Heun, A. Burce

Arrive @ CCNPP @ 1130

meet w/ mark Hunter from Unitar

go to Lake Davies to Collect water sampling

LD-01

1240 Collect Chem. water 13 bottles

		Surf.	mid	Bott.	3ft
In situ WQ	Temp. °C	10.98	11.03	10.97	
	Cond. ms/cm	1.209	1.208	1.206	
	DO mg/L	18.77	19.27	19.29	
	pH std.	8.26	8.31	8.31	
	Turb. NTU	3.17	3.0	3.2	

LD-02

1255 Collect Chem water 13 bottles

		Surf	mid	Bott	4ft
In situ WQ	Temp.	10.9	11.01	10.92	
	Cond	1.197	1.197	1.194	
	DO	18.63	18.82	18.78	
	pH	8.31	8.33	8.33	
	Turb.	3.3	3.1	3.2	

6

Location CCNPP (Spring) Date 3/12/07

Project / Client

LD-03

1315 Collect Chem. water 13 bottles

		Surf	mid	Bott 3ft
In situ WQ	Temp	10.62	10.60	10.20
	Cond	1.202	1.201	1.195
	DO	17.35	17.54	17.64
	pH	8.29	8.28	8.29
	Turb	2.8	3.0	3.3

LC-01 Collect chem. water 13 bottles

1440 Mid Depth 2 feet

Insitu WQ	Temp	14.24
	Cond	0.061
	DO	11.61
	pH	8.07
	Turb	2.4

LC-02 Collect chem. water 13 bottles Depth 2 feet

1505 Mid

Insitu WQ	Temp	11.77
	Cond.	0.056
	DO	12.76
	pH	8.12
	Turb	3.3

4

Location CCNPP Date 3/12/07

Project / Client

LC-03 1520 Chem H_2O Collection 13 Bottles 3.5ft

Insitu H_2O		Surface	Bottom
	Temp	12.35	10.34
	Cond	.057	.054
	DO	13.36	14.09
	pH	7.88	7.79
	Turb	3.0	3.9

P-02 1550 collection Mid 13 Bottles Chem water 1.5ft

Insitu H_2O		
	Temp	9.92
	Cond	.089
	DO	11.53
	pH	7.50
	Turb	10.3

3/13/07

Arrived at ~~Lake~~ CONOX @ 0745. Headed to Pond 1 + 2 to conduct H_2O sampling at Pond 1 and Benthic and ponar sampling at both locations

Ponar and Benthic Sampling conducted at P-02 0825 + NO Odor
Ponar 3 Reps
1 dip net Zone

Location CCNPP Date 3/13/07

Project / Client

P-01 0830 Chem water 13 Bottles

Insitu H_2O		Mid
	Temp	9.01
	Cond	.079
	DO	11.84
	pH	7.53
	Turb.	18.3

3Ft. depth

Ponar 3 Reps
1 dip net Zone
+ NO odor

Water collection at P-01 0835
Benthic and Ponar Sampling conducted at 0845

JCUS-01 surface 1ft 1008

Insitu H_2O		
	Temp	6.59
	Cond	.037
	DO	11.14
	pH	6.60
	Turb	4.1

Chem water 13 bottles

Dip net Benthos (2 Jars)
Leaf pack 45 2 Jars of Benthos
Undercut bank 3
Riffle 3 + NO odor
Snag 5
Veg. 3
Rootwad 1

Location CCNPP Date 3/13/07

Project / Client

GB-01 1300 1 ft

Mid

INSITU WQ

Temp	11.10	Chem water 16 bottles
Cond.	.460	
DO	13.44	
pH	7.32	
Turb	8.1	

Dipnet Benthos (20 Jab)

leaf pack	IIII	-4	1 - Jar benthos
undercut bank	IIII	-4	* no odor
Riffle	~~IIII~~	-5	
Snag	~~IIII~~	-5	
Veg		-0	
Rootwad	II	2	

JCDS-01 (dry) 1400

Collect Chem water 16 bottles

INSITU WQ

Temp.	12.97	
Cond.	0.297	* no odor
DO	12.06	
pH	7.50	
Turb	9.9	* no odor

Dipnet Benthos (20 Jab) 1 - Jar benthos

Leafpack	I	Snag	~~IIII~~ II
Undercut bank	IIII	Veg	~~IIII~~
Riffle	III	Rootwad	

Location CCNP Date 3/13/07

Project / Client

LC-01 1640

Collect Benthos 3 ponar Reps * no odor
1 Dipnet Shore Zone

LC-02 1715

Collect Benthos 3 ponar reps
1 Dip Net Shore Zone
* no odor

LC-03 1740

Collect Benthos 3 ponar reps
1 Dip Net Shore Zone
* no odor

→

Location CCNP Date 3/14/07

Project / Client

P-01 Arrive @ P-01 @ 0745

Electrofish Shore Zone (75m)

START 0821

END 0850 Total Shock Time = 29 min

See datasheet for catch

P-02

Electrofish entire Shore Zone

START 0924

END 0948 Total Shock Time = 24 min

See datasheet for catch

JCUS-01

Electrofish 75m zone

1st pass 1010 - 1131 = 21 min

2nd pass 1150 - 1205 = 15 min

36 min Total

JCDS-01

Electrofish 75m Zone

1st pass 1435 - 1510 = 35 min

1610 - 1639 = 29 min

Location CCNP Date 3/15/07

Project / Client

Arrive @ Lake Davis @ 0735

Conduct electrofishing + Benthos

Lake Davis Electrofishing + Benthos

LD-01

Electrofish

Time: 0835 - 0851 = 16 min

* No Fish

LD-02

Electrofish

Time: 0905 - 0922 = 17 min

* No Fish

LD-03

Electrofish

Time: 0930 - 0947 = 17 min

* No fish

LD-01 1000

Ponar 3 Reps * no odor

1015 Dip Net

Location CCNP Date 3/15/07

Project / Client

LD-02

Ponar 3 Reps 1040 *no odor
Dip Net 1050

LD-03

Ponar 3 Reps 1100 *No Odor
Dip Net 1115

Lake Conoy Electro Fishing

LC-01

Electrofish
Time: 1539 = 19 minutes
1558

LC-02

Electrofish 1607 = 18 minutes
Time: 1625

LC-03

Electrofish 1640 = 21 minutes
Time: 1701

Location CCNP Date 3/16/07

Project / Client

3/16/07 Heavy rain, collected wet-weather samples (H_2O) from John's Creek and Goldstein Branch @ 0803 + 0837 respectively.

Goldstein Branch still needs to be electro-fish. Unable to e-fish due to high flow, and turbidity

CCNP 4/24/07

Goldstein Branch

Conduct Fish Sampling @ GB-01
Rich Connelly
Rob Bollinger
That we were unable to conduct in March due to high/turbid water.

Conduct Spring Habitat & physical Characterization data sheet
In-situ WQ taken again & recorded on data sheet (Habitat)

APPENDIX B-1:

FALL 2006 ANALYTICAL DATA FOR STREAM AND POND SURVEYS

Microbac Laboratories, Inc.

Gascoyne Division

2101 Van Deman Street · Baltimore, MD 21224

Phone: 410-633-1800
Fax: 410-633-6553
www.microbac.com

CERTIFICATE OF ANALYSIS

EA Engineering
15 Loveton Circle

Sparks, MD 21152

Attn: Christine Papageorgis

Report No: 0609663
Date Received: 9/28/2006
Date Reported: 10/25/2006

Project: CCNPP

Lab ID: **0609663-001** **Collection Date:** 9/28/2006
Client Sample ID: P-01 grab **Matrix:** SURFACE WATER

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**30**	mg/L	1.0	9/29/2006 17:00	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**18**	mg/L	10	9/29/2006 12:38	LCR
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	10/2/2006 17:00	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	10/5/2006 13:20	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample filtered (0.45 micron) and preserved upon receipt at the laboratory.					
Dissolved Phosphorus	**0.011**	mg/L	0.010	10/3/2006 7:30	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.18**	mg/L	0.010	10/9/2006 11:15	LCR
TOTAL CARBON IN WATER SAMPLES (METHOD : EPA 415.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: TIC samples were analysed past the maximium recommended holding time.					
Total Carbon	**12**	mg/L	1.0	10/24/2006 13:57	RED
Total Inorganic Carbon	**5.4**	mg/L	0.50	10/24/2006 13:57	RED
Total Organic Carbon	**6.3**	mg/L	1.0	10/4/2006 13:50	RED
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**41**	mg/L	10	10/2/2006 8:30	VAS

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EA Engineering
15 Loveton Circle

Sparks, MD 21152

Attn: Christine Papageorgis

Report No: 0609663
Date Received: 9/28/2006
Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**3.1**	mg/L	1.0	10/2/2006 10:10	RED
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**56**	mg/L	5.0	9/29/2006 11:40	VAS

Lab ID: **0609663-002** **Collection Date:** 9/28/2006
Client Sample ID: P-02 grab **Matrix:** SURFACE WATER

ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**56**	mg/L	1.0	9/29/2006 17:00	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**14**	mg/L	10	9/29/2006 12:40	LCR
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	10/2/2006 17:00	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	10/5/2006 13:20	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample filtered (0.45 micron) and preserved upon receipt at the laboratory.					
Dissolved Phosphorus	**< 0.010**	mg/L	0.010	10/3/2006 7:30	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.095**	mg/L	0.010	10/9/2006 11:15	LCR

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Sparks, MD 21152

Attn: Christine Papageorgis

Report No: 0609663
Date Received: 9/28/2006
Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
TOTAL CARBON IN WATER SAMPLES (METHOD : EPA 415.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: TIC samples were analysed past the maximium recommended holding time.					
Total Carbon	**15**	mg/L	1.0	10/24/2006 13:57	RED
Total Inorganic Carbon	**8.5**	mg/L	1.0	10/24/2006 13:57	RED
Total Organic Carbon	**6.4**	mg/L	1.0	10/4/2006 13:50	RED
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**51**	mg/L	10	10/2/2006 8:30	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**1.4**	mg/L	1.0	10/2/2006 10:10	RED
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**11**	mg/L	2.5	9/29/2006 11:40	VAS

Final report reviewed by: Tessie A. Gamber

Tessie A. Gamber, QA Officer

All samples received in proper condition and results conform to ISO 17025 standards unless otherwise noted.

If we have not met or exceeded your expectations, please contact the Director or Trevor Boyce, President at tboyce@microbac.com or Robert Morgan, Chief Operation Officer, at rmorgan@microbac.com

Microbac Laboratories, Inc. Gascoyne Division- laboratory accreditations: MD 109, VA 00152, NJ MD637, PA 68-339, NY 11158, ISO 17025, NELAC, AIHA 100491. The data and information on this, and other accompanying documents, represents only the sample(s) analyzed and is not to be reproduced wholly or in part for advertising or other purposes without written approval from the laboratory. Organics Qualifiers: (U) analyzed for but not detected; (J) estimated value, below the reporting limit but above one-half the reporting limit; (B) detected in the associated method blank; (D) reanalyzed at a higher dilution factor. Inorganics Qualifiers: (U) analyzed for but not detected; (B) estimated value, below the reporting limit but above one-half the reporting limit. A copy of COC is attached.

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Gascoyne Division

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CERTIFICATE OF ANALYSIS

EA Engineering
15 Loveton Circle

Sparks, MD 21152

Attn: Christine Papageorgis

Report No: 0609598
Date Received: 9/26/2006
Date Reported: 10/25/2006

Project: CCNPP

Lab ID: 0609598-001 **Collection Date:** 9/26/2006
Client Sample ID: JCUS-01 grab **Matrix:** SURFACE WATER

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**3.5**	mg/L	1.0	9/27/2006 14:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**< 2.0**	mg/L	2.0	9/27/2006 15:00	LCR
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	10/2/2006 17:00	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	9/29/2006 17:20	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample filtered (0.45 micron) and preserved upon receipt at the laboratory.					
Dissolved Phosphorus	**0.021**	mg/L	0.010	10/3/2006 7:30	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.029**	mg/L	0.010	10/9/2006 11:15	LCR
TOTAL CARBON IN WATER SAMPLES (METHOD : EPA 415.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: TIC samples were analysed past the maximium recommended holding time.					
Total Carbon	**6.2**	mg/L	1.0	10/24/2006 13:57	RED
Total Inorganic Carbon	**0.66**	mg/L	0.50	10/24/2006 13:57	RED
Total Organic Carbon	**5.5**	mg/L	1.0	10/4/2006 13:50	RED
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**30**	mg/L	10	9/27/2006 14:20	VAS

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CERTIFICATE OF ANALYSIS

EA Engineering
15 Loveton Circle

Sparks, MD 21152

Attn: Christine Papageorgis

Report No: 0609598
Date Received: 9/26/2006
Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**2.0**	mg/L	1.0	10/2/2006 10:10	RED
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**4.0**	mg/L	2.5	9/27/2006 14:00	VAS

Lab ID: **0609598-002** **Collection Date:** 9/26/2006
Client Sample ID: JCDS-01 grab **Matrix:** SURFACE WATER

ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**76**	mg/L	1.0	9/27/2006 14:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**3.2**	mg/L	2.0	9/27/2006 15:09	LCR
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	10/2/2006 17:00	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	9/29/2006 17:20	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample filtered (0.45 micron) and preserved upon receipt at the laboratory.					
Dissolved Phosphorus	**0.018**	mg/L	0.010	10/3/2006 7:30	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.032**	mg/L	0.010	10/9/2006 11:15	LCR

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Sparks, MD 21152

Attn: Christine Papageorgis

Report No: 0609598
Date Received: 9/26/2006
Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
TOTAL CARBON IN WATER SAMPLES (METHOD : EPA 415.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: TIC samples were analysed past the maximium recommended holding time.					
Total Carbon	**19**	mg/L	1.0	10/24/2006 13:57	RED
Total Inorganic Carbon	**15**	mg/L	0.50	10/24/2006 13:57	RED
Total Organic Carbon	**4.0**	mg/L	1.0	10/4/2006 13:50	RED
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**280**	mg/L	10	9/27/2006 14:20	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**1.1**	mg/L	1.0	10/2/2006 10:10	RED
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**5.0**	mg/L	5.0	9/27/2006 14:00	VAS

Lab ID: **0609598-003** **Collection Date:** 9/26/2006
Client Sample ID: GB-01 grab **Matrix:** SURFACE WATER

ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**100**	mg/L	2.0	9/27/2006 14:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**5.9**	mg/L	2.0	9/27/2006 15:15	LCR
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	10/2/2006 17:00	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**0.12**	mg/L	0.050	9/29/2006 17:20	RED

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15 Loveton Circle

Sparks, MD 21152

Attn: Christine Papageorgis

Report No: 0609598
Date Received: 9/26/2006
Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample filtered (0.45 micron) and preserved upon receipt at the laboratory.					
Dissolved Phosphorus	**0.011**	mg/L	0.010	10/3/2006 7:30	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.079**	mg/L	0.010	10/9/2006 11:15	LCR
TOTAL CARBON IN WATER SAMPLES (METHOD : EPA 415.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: TIC samples were analysed past the maximium recommended holding time.					
Total Carbon	**26**	mg/L	5.0	10/24/2006 13:57	RED
Total Inorganic Carbon	**22**	mg/L	5.0	10/24/2006 13:57	RED
Total Organic Carbon	**3.9**	mg/L	1.0	10/4/2006 13:50	RED
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**440**	mg/L	10	9/27/2006 14:20	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**< 1.0**	mg/L	1.0	10/2/2006 10:10	RED
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**7.0**	mg/L	5.0	9/27/2006 14:00	VAS

Lab ID: **0609598-004** **Collection Date:** 9/26/2006
Client Sample ID: LC-01 grab **Matrix:** SURFACE WATER

ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**14**	mg/L	1.0	9/27/2006 14:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**6.3**	mg/L	3.0	9/27/2006 15:19	LCR

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Attn: Christine Papageorgis

Report No: 0609598
Date Received: 9/26/2006
Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	10/2/2006 17:00	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	9/29/2006 17:20	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample filtered (0.45 micron) and preserved upon receipt at the laboratory.					
Dissolved Phosphorus	**< 0.010**	mg/L	0.010	10/3/2006 7:30	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.17**	mg/L	0.010	10/9/2006 11:15	LCR
TOTAL CARBON IN WATER SAMPLES (METHOD : EPA 415.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: TIC samples were analysed past the maximium recommended holding time.					
Total Carbon	**7.0**	mg/L	1.0	10/24/2006 13:57	RED
Total Inorganic Carbon	**0.87**	mg/L	0.50	10/24/2006 13:57	RED
Total Organic Carbon	**6.1**	mg/L	1.0	10/4/2006 13:50	RED
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**35**	mg/L	10	9/27/2006 14:20	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**< 1.0**	mg/L	1.0	10/2/2006 10:10	RED
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**27**	mg/L	5.0	9/27/2006 14:00	VAS

Lab ID: **0609598-005** **Collection Date:** 9/26/2006
Client Sample ID: LC-02 grab **Matrix:** SURFACE WATER

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Attn: Christine Papageorgis

Report No: 0609598
Date Received: 9/26/2006
Date Reported: 10/25/2006

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Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**8.5**	mg/L	1.0	9/27/2006 14:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**6.9**	mg/L	2.0	9/27/2006 15:25	LCR
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	10/2/2006 17:00	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	9/29/2006 17:20	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample filtered (0.45 micron) and preserved upon receipt at the laboratory.					
Dissolved Phosphorus	**0.021**	mg/L	0.010	10/3/2006 7:30	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.038**	mg/L	0.010	10/9/2006 11:15	LCR
TOTAL CARBON IN WATER SAMPLES (METHOD : EPA 415.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: TIC samples were analysed past the maximium recommended holding time.					
Total Carbon	**6.5**	mg/L	1.0	10/24/2006 13:57	RED
Total Inorganic Carbon	**0.69**	mg/L	0.50	10/24/2006 13:57	RED
Total Organic Carbon	**5.8**	mg/L	1.0	10/4/2006 13:50	RED
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**67**	mg/L	10	9/27/2006 14:20	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**< 1.0**	mg/L	1.0	10/2/2006 10:10	RED

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Attn: Christine Papageorgis

Report No: 0609598
Date Received: 9/26/2006
Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**< 5.0**	mg/L	5.0	9/27/2006 14:00	VAS

Lab ID: **0609598-006** **Collection Date:** 9/26/2006
Client Sample ID: LC-02 Dup grab **Matrix:** SURFACE WATER

ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**4.5**	mg/L	1.0	9/27/2006 14:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**< 2.0**	mg/L	2.0	9/27/2006 15:31	LCR
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	10/2/2006 17:00	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	9/29/2006 17:20	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample filtered (0.45 micron) and preserved upon receipt at the laboratory.					
Dissolved Phosphorus	**< 0.010**	mg/L	0.010	10/3/2006 7:30	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.067**	mg/L	0.010	10/9/2006 11:15	LCR
TOTAL CARBON IN WATER SAMPLES (METHOD : EPA 415.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: TIC samples were analysed past the maximium recommended holding time.					
Total Carbon	**6.3**	mg/L	1.0	10/24/2006 13:57	RED
Total Inorganic Carbon	**0.72**	mg/L	0.50	10/24/2006 13:57	RED
Total Organic Carbon	**5.6**	mg/L	1.0	10/4/2006 13:50	RED

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Date Received: 9/26/2006
Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**20**	mg/L	10	9/27/2006 14:20	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**< 1.0**	mg/L	1.0	10/2/2006 10:10	RED
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**< 5.0**	mg/L	5.0	9/27/2006 14:00	VAS

Lab ID: **0609598-007** **Collection Date:** 9/26/2006
Client Sample ID: LC-03 grab **Matrix:** SURFACE WATER

ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**4.5**	mg/L	1.0	9/27/2006 14:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**4.5**	mg/L	3.0	9/27/2006 15:40	LCR
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	10/2/2006 17:00	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	9/29/2006 17:20	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample filtered (0.45 micron) and preserved upon receipt at the laboratory.					
Dissolved Phosphorus	**0.011**	mg/L	0.010	10/3/2006 7:30	LCR

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Attn: Christine Papageorgis

Report No: 0609598
Date Received: 9/26/2006
Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.035**	mg/L	0.010	10/9/2006 11:15	LCR
TOTAL CARBON IN WATER SAMPLES (METHOD : EPA 415.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: TIC samples were analysed past the maximium recommended holding time.					
Total Carbon	**6.4**	mg/L	1.0	10/24/2006 13:57	RED
Total Inorganic Carbon	**0.66**	mg/L	0.50	10/24/2006 13:57	RED
Total Organic Carbon	**5.7**	mg/L	1.0	10/4/2006 13:50	RED
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**48**	mg/L	10	9/27/2006 14:20	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**< 1.0**	mg/L	1.0	10/2/2006 10:10	RED
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**150**	mg/L	5.0	9/27/2006 14:00	VAS

Final report reviewed by: Tessie A. Gamber

Tessie A. Gamber, QA Officer

All samples received in proper condition and results conform to ISO 17025 standards unless otherwise noted.

If we have not met or exceeded your expectations, please contact the Director or Trevor Boyce, President at tboyce@microbac.com or Robert Morgan, Chief Operation Officer, at rmorgan@microbac.com

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Attn: Christine Papageorgis

Report No: 0609692
Date Received: 9/29/2006
Date Reported: 10/25/2006

Project: CCNPP

Lab ID: 0609692-001 **Collection Date:** 9/29/2006 9:00:00 AM
Client Sample ID: LD-01 **Matrix:** SURFACE WATER

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**330**	mg/L	4.0	9/29/2006 17:00	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**9.8**	mg/L	2.0	9/30/2006 14:50	RED
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	10/2/2006 17:00	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	10/5/2006 13:20	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample filtered (0.45 micron) and preserved upon receipt at the laboratory.					
Dissolved Phosphorus	**0.22**	mg/L	0.010	10/9/2006 11:15	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.36**	mg/L	0.010	10/9/2006 11:15	LCR
TOTAL CARBON IN WATER SAMPLES (METHOD : EPA 415.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: TIC samples were analysed past the maximium recommended holding time.					
Total Carbon	**69**	mg/L	5.0	10/24/2006 13:57	RED
Total Inorganic Carbon	**54**	mg/L	5.0	10/24/2006 13:57	RED
Total Organic Carbon	**15**	mg/L	5.0	10/4/2006 13:50	RED
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**980**	mg/L	10	10/2/2006 8:30	VAS

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CERTIFICATE OF ANALYSIS

EA Engineering
15 Loveton Circle

Sparks, MD 21152

Attn: Christine Papageorgis

Report No: 0609692
Date Received: 9/29/2006
Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**2.2**	mg/L	1.0	10/3/2006 17:00	RED
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**6.0**	mg/L	2.5	10/2/2006 7:45	VAS

Lab ID: **0609692-002** **Collection Date:** 9/29/2006 9:40:00 AM
Client Sample ID: LD-02 **Matrix:** SURFACE WATER

ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**280**	mg/L	4.0	9/29/2006 17:00	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**7.2**	mg/L	2.0	9/30/2006 15:00	RED
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	10/2/2006 17:00	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	10/5/2006 13:20	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample filtered (0.45 micron) and preserved upon receipt at the laboratory.					
Dissolved Phosphorus	**0.19**	mg/L	0.010	10/9/2006 11:15	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.31**	mg/L	0.010	10/9/2006 11:15	LCR

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Report No: 0609692
Date Received: 9/29/2006
Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
TOTAL CARBON IN WATER SAMPLES (METHOD : EPA 415.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: TIC samples were analysed past the maximium recommended holding time.					
Total Carbon	**72**	mg/L	5.0	10/24/2006 13:57	RED
Total Inorganic Carbon	**56**	mg/L	5.0	10/24/2006 13:57	RED
Total Organic Carbon	**16**	mg/L	5.0	10/4/2006 13:50	RED
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**950**	mg/L	10	10/2/2006 8:30	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**1.8**	mg/L	1.0	10/3/2006 17:00	RED
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**6.5**	mg/L	2.5	10/2/2006 7:45	VAS

Lab ID: **0609692-003** **Collection Date:** 9/29/2006 10:15:00 AM
Client Sample ID: LD-03 **Matrix:** SURFACE WATER

ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**270**	mg/L	4.0	9/29/2006 17:00	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**9.1**	mg/L	2.0	9/30/2006 15:15	RED
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	10/2/2006 17:00	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	10/5/2006 13:20	RED

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Sparks, MD 21152

Attn: Christine Papageorgis

Report No: 0609692
Date Received: 9/29/2006
Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample filtered (0.45 micron) and preserved upon receipt at the laboratory.					
Dissolved Phosphorus	**0.21**	mg/L	0.010	10/9/2006 11:15	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.29**	mg/L	0.010	10/9/2006 11:15	LCR
TOTAL CARBON IN WATER SAMPLES (METHOD : EPA 415.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: TIC samples were analysed past the maximium recommended holding time.					
Total Carbon	**74**	mg/L	5.0	10/24/2006 13:57	RED
Total Inorganic Carbon	**58**	mg/L	5.0	10/24/2006 13:57	RED
Total Organic Carbon	**16**	mg/L	5.0	10/4/2006 13:50	RED
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**980**	mg/L	10	10/2/2006 8:30	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**1.7**	mg/L	1.0	10/3/2006 17:00	RED
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**8.0**	mg/L	2.5	10/2/2006 7:45	VAS

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Attn: Christine Papageorgis

Report No: 0609692

Date Received: 9/29/2006

Date Reported: 10/25/2006

Project: CCNPP

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst

Final report reviewed by:

Tessie A. Gamber, QA Officer

All samples received in proper condition and results conform to ISO 17025 standards unless otherwise noted.

If we have not met or exceeded your expectations, please contact the Director or Trevor Boyce, President at tboyce@microbac.com or Robert Morgan, Chief Operation Officer, at rmorgan@microbac.com

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APPENDIX B-2:

SPRING 2007 ANALYTICAL DATA FOR STREAM AND POND SURVEYS

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CERTIFICATE OF ANALYSIS

EA Engineering
15 Loveton Circle

Sparks, MD 21152

Attn: Rob Ballantine

Report No: 0703350
Date Received: 3/13/2007
Date Reported: 3/30/2007

Project: 1435102.0001 / Calvert Cliffs

Lab ID: **0703350-001** **Collection Date:** 3/12/2007 12:40:00 PM
Client Sample ID: LD-01 grab **Matrix:** WASTEWATER

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**180**	mg/L	4.0	3/15/2007 9:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**4.1**	mg/L	3.0	3/14/2007 6:20	LCR
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (METHOD : EPA 325.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Chloride	**120**	mg/L	2.0	3/13/2007 13:45	LCR
COD (CHEMICAL OXYGEN DEMAND) (METHOD : EPA 410.4)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
COD	**37**	mg/L	10	3/23/2007 8:25	LCR
COLOR, TRUE (METHOD : EPA 110.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
True, Color	**25**	Color Units	5.0	3/13/2007 11:00	VAS
FECAL COLIFORM (METHOD : SM 18 9221 E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample received past maximum recommended holding time.					
Fecal Coliforms	**< 2.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR
FECAL STREPTOCOCCUS (METHOD : SM 18 9230 B)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Streptococcus	**< 2.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR
HARDNESS, TOTAL (CACO3) (METHOD : EPA 130.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Hardness	**580**	mg/L	5.0	3/19/2007 10:45	VAS
MERCURY, TOTAL (METHOD : EPA 245.1)					
Prep. Method: EPA 245.1	Prep. Date: 3/15/2007 12:28:00 PM			Prep Analyst EDP	

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Sparks, MD 21152

Attn: Rob Ballantine

Report No: 0703350
Date Received: 3/13/2007
Date Reported: 3/30/2007

Project: 1435102.0001 / Calvert Cliffs

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
Mercury	**< 0.00020**	mg/L	0.00020	3/16/2007 16:05	APS
METALS, TOTAL (METHOD : EPA 200.7)					
Prep. Method: EPA600/4-83-020	Prep. Date: 3/15/2007 1:55:16 PM			Prep Analyst EDP	
Calcium	**84**	mg/L	0.50	3/16/2007 13:24	APS
Magnesium	**62**	mg/L	0.10	3/16/2007 13:24	APS
Potassium	**17**	mg/L	0.10	3/16/2007 13:24	APS
Sodium	**170**	mg/L	10	3/18/2007 17:29	APS
ICP/MS METALS, TOTAL (METHOD : EPA 200.8)					
Prep. Method: EPA 600/4-83-020	Prep. Date: 3/20/2007 8:57:52 AM			Prep Analyst EDP	
note: Method blank contained 0.001 mg/L Arsenic.					
Arsenic	**0.0028**	mg/L	0.0020	3/30/2007 11:14	PRM
Barium	**0.015**	mg/L	0.0050	3/30/2007 11:14	PRM
Cadmium	**< 0.00050**	mg/L	0.00050	3/26/2007 18:23	PRM
Chromium	**< 0.0025**	mg/L	0.0025	3/26/2007 18:23	PRM
Lead	**< 0.0020**	mg/L	0.0020	3/26/2007 18:23	PRM
Selenium	**< 0.0050**	mg/L	0.0050	3/26/2007 18:23	PRM
Silver	**< 0.0010**	mg/L	0.0010	3/26/2007 18:23	PRM
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	3/28/2007 9:50	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	3/22/2007 14:50	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Dissolved Phosphorus	**0.043**	mg/L	0.010	3/28/2007 10:00	LCR
PHOSPHORUS (P), ORTHO (METHOD : SM 18 4500 PE)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Orthophosphate	**0.031**	mg/L	0.010	3/14/2007 8:10	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.070**	mg/L	0.010	3/21/2007 13:40	LCR

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EA Engineering
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Sparks, MD 21152

Attn: Rob Ballantine

Report No: 0703350
Date Received: 3/13/2007
Date Reported: 3/30/2007

Project: 1435102.0001 / Calvert Cliffs

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
SULFATE (SO4) (METHOD : EPA 375.4)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Sulfate	**360**	mg/L	25	3/13/2007 12:40	LCR
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**860**	mg/L	20	3/13/2007 11:50	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**< 1.0**	mg/L	1.0	3/27/2007 17:50	RED
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (METHOD : EPA 1664A)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Petroleum Hydrocarbons	**< 5.0**	mg/L	5.0	3/23/2007 8:30	BAB
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**< 5.0**	mg/L	5.0	3/13/2007 11:15	VAS

Lab ID: **0703350-002** **Collection Date:** 3/12/2007 12:55:00 PM
Client Sample ID: LD-02 grab **Matrix:** WASTEWATER

ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**190**	mg/L	2.0	3/15/2007 9:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**4.1**	mg/L	3.0	3/14/2007 6:20	LCR
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (METHOD : EPA 325.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Chloride	**120**	mg/L	2.0	3/13/2007 13:45	LCR

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Attn: Rob Ballantine

Report No: 0703350
Date Received: 3/13/2007
Date Reported: 3/30/2007

Project: 1435102.0001 / Calvert Cliffs

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
COD (CHEMICAL OXYGEN DEMAND) (METHOD : EPA 410.4)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
COD	**33**	mg/L	10	3/23/2007 8:25	LCR
COLOR, TRUE (METHOD : EPA 110.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
True, Color	**20**	Color Units	5.0	3/13/2007 11:00	VAS
FECAL COLIFORM (METHOD : SM 18 9221 E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Coliforms	**< 2.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR
FECAL STREPTOCOCCUS (METHOD : SM 18 9230 B)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Streptococcus	**2.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR
HARDNESS, TOTAL (CACO3) (METHOD : EPA 130.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Hardness	**620**	mg/L	5.0	3/19/2007 10:45	VAS
MERCURY, TOTAL (METHOD : EPA 245.1)					
Prep. Method: EPA 245.1	Prep. Date: 3/15/2007 12:28:00 PM			Prep Analyst EDP	
Mercury	**< 0.00020**	mg/L	0.00020	3/16/2007 16:07	APS
METALS, TOTAL (METHOD : EPA 200.7)					
Prep. Method: EPA600/4-83-020	Prep. Date: 3/15/2007 1:55:16 PM			Prep Analyst EDP	
Calcium	**84**	mg/L	0.50	3/16/2007 13:28	APS
Magnesium	**62**	mg/L	0.10	3/16/2007 13:28	APS
Potassium	**17**	mg/L	0.10	3/16/2007 13:28	APS
Sodium	**170**	mg/L	10	3/18/2007 17:33	APS
ICP/MS METALS, TOTAL (METHOD : EPA 200.8)					
Prep. Method: EPA 600/4-83-020	Prep. Date: 3/20/2007 8:57:52 AM			Prep Analyst EDP	
note: Method blank contained 0.001 mg/L Arsenic.					
Arsenic	**0.0024**	mg/L	0.0020	3/30/2007 11:31	PRM
Barium	**0.014**	mg/L	0.0050	3/30/2007 11:31	PRM
Cadmium	**< 0.00050**	mg/L	0.00050	3/26/2007 18:40	PRM
Chromium	**< 0.0025**	mg/L	0.0025	3/26/2007 18:40	PRM
Lead	**< 0.0020**	mg/L	0.0020	3/26/2007 18:40	PRM

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Attn: Rob Ballantine

Report No: 0703350
Date Received: 3/13/2007
Date Reported: 3/30/2007

Project: 1435102.0001 / Calvert Cliffs

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
Selenium	**< 0.0050**	mg/L	0.0050	3/26/2007 18:40	PRM
Silver	**< 0.0010**	mg/L	0.0010	3/26/2007 18:40	PRM
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	3/28/2007 9:50	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	3/22/2007 14:50	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Dissolved Phosphorus	**< 0.010**	mg/L	0.010	3/28/2007 10:00	LCR
PHOSPHORUS (P), ORTHO (METHOD : SM 18 4500 PE)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Orthophosphate	**0.040**	mg/L	0.010	3/14/2007 8:10	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.063**	mg/L	0.010	3/21/2007 13:40	LCR
SULFATE (SO4) (METHOD : EPA 375.4)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Sulfate	**520**	mg/L	25	3/13/2007 12:40	LCR
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**900**	mg/L	10	3/13/2007 11:50	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**< 1.0**	mg/L	1.0	3/27/2007 17:50	RED
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (METHOD : EPA 1664A)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Petroleum Hydrocarbons	**< 5.0**	mg/L	5.0	3/23/2007 8:30	BAB

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Sparks, MD 21152

Attn: Rob Ballantine

Report No: 0703350
Date Received: 3/13/2007
Date Reported: 3/30/2007

Project: 1435102.0001 / Calvert Cliffs

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**< 5.0**	mg/L	5.0	3/13/2007 11:15	VAS

Lab ID: **0703350-003** **Collection Date:** 3/12/2007 1:15:00 PM
Client Sample ID: LD-03 grab **Matrix:** WASTEWATER

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**190**	mg/L	2.0	3/15/2007 9:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**9.1**	mg/L	3.0	3/14/2007 6:20	LCR
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (METHOD : EPA 325.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Chloride	**120**	mg/L	2.0	3/13/2007 13:45	LCR
COD (CHEMICAL OXYGEN DEMAND) (METHOD : EPA 410.4)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
COD	**23**	mg/L	10	3/23/2007 8:25	LCR
COLOR, TRUE (METHOD : EPA 110.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
True, Color	**15**	Color Units	5.0	3/13/2007 11:00	VAS
FECAL COLIFORM (METHOD : SM 18 9221 E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Coliforms	**< 2.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR
FECAL STREPTOCOCCUS (METHOD : SM 18 9230 B)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Streptococcus	**< 2.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR

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EA Engineering
15 Loveton Circle

Sparks, MD 21152

Attn: Rob Ballantine

Report No: 0703350
Date Received: 3/13/2007
Date Reported: 3/30/2007

Project: 1435102.0001 / Calvert Cliffs

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
HARDNESS, TOTAL (CACO3) (METHOD : EPA 130.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Hardness	**640**	mg/L	5.0	3/19/2007 10:45	VAS
MERCURY, TOTAL (METHOD : EPA 245.1)					
Prep. Method: EPA 245.1	Prep. Date: 3/15/2007 12:28:00 PM			Prep Analyst EDP	
Mercury	**< 0.00020**	mg/L	0.00020	3/16/2007 16:09	APS
METALS, TOTAL (METHOD : EPA 200.7)					
Prep. Method: EPA600/4-83-020	Prep. Date: 3/15/2007 1:55:16 PM			Prep Analyst EDP	
Calcium	**85**	mg/L	0.50	3/16/2007 13:32	APS
Magnesium	**62**	mg/L	0.10	3/16/2007 13:32	APS
Potassium	**17**	mg/L	0.10	3/16/2007 13:32	APS
Sodium	**170**	mg/L	1.0	3/18/2007 17:37	APS
ICP/MS METALS, TOTAL (METHOD : EPA 200.8)					
Prep. Method: EPA 600/4-83-020	Prep. Date: 3/20/2007 8:57:52 AM			Prep Analyst EDP	
note: Method blank contained 0.001 mg/L Arsenic.					
Arsenic	**0.0027**	mg/L	0.0020	3/30/2007 11:35	PRM
Barium	**0.015**	mg/L	0.0050	3/30/2007 11:35	PRM
Cadmium	**< 0.00050**	mg/L	0.00050	3/26/2007 18:44	PRM
Chromium	**< 0.0025**	mg/L	0.0025	3/26/2007 18:44	PRM
Lead	**< 0.0020**	mg/L	0.0020	3/26/2007 18:44	PRM
Selenium	**< 0.0050**	mg/L	0.0050	3/26/2007 18:44	PRM
Silver	**< 0.0010**	mg/L	0.0010	3/26/2007 18:44	PRM
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	3/28/2007 9:50	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	3/22/2007 14:50	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Dissolved Phosphorus	**< 0.010**	mg/L	0.010	3/28/2007 10:00	LCR

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Project: 1435102.0001 / Calvert Cliffs

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
PHOSPHORUS (P), ORTHO (METHOD : SM 18 4500 PE)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Orthophosphate	**0.077**	mg/L	0.010	3/14/2007 8:10	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Total Phosphorus	**0.014**	mg/L	0.010	3/21/2007 13:40	LCR
SULFATE (SO4) (METHOD : EPA 375.4)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Sulfate	**520**	mg/L	25	3/13/2007 12:40	LCR
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Total Dissolved Solids	**980**	mg/L	10	3/13/2007 11:50	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**< 1.0**	mg/L	1.0	3/27/2007 17:50	RED
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (METHOD : EPA 1664A)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Petroleum Hydrocarbons	**< 5.0**	mg/L	5.0	3/23/2007 8:30	BAB
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Total Suspended Solids	**< 5.0**	mg/L	5.0	3/13/2007 11:15	VAS

Lab ID: **0703350-004** **Collection Date:** 3/12/2007 2:40:00 PM
Client Sample ID: LC-01 grab **Matrix:** WASTEWATER

ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Alkalinity	**6.5**	mg/L	1.0	3/15/2007 9:10	VAS

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Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**< 3.0**	mg/L	3.0	3/14/2007 6:20	LCR
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (METHOD : EPA 325.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Chloride	**7.5**	mg/L	1.0	3/13/2007 13:45	LCR
COD (CHEMICAL OXYGEN DEMAND) (METHOD : EPA 410.4)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
COD	**< 10**	mg/L	10	3/23/2007 8:25	LCR
COLOR, TRUE (METHOD : EPA 110.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
True, Color	**10**	Color Units	5.0	3/13/2007 11:00	VAS
FECAL COLIFORM (METHOD : SM 18 9221 E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Coliforms	**< 2.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR
FECAL STREPTOCOCCUS (METHOD : SM 18 9230 B)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Streptococcus	**< 2.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR
HARDNESS, TOTAL (CACO3) (METHOD : EPA 130.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Hardness	**180**	mg/L	5.0	3/19/2007 10:45	VAS
MERCURY, TOTAL (METHOD : EPA 245.1)					
Prep. Method: EPA 245.1	Prep. Date: 3/15/2007 12:28:00 PM			Prep Analyst EDP	
Mercury	**< 0.00020**	mg/L	0.00020	3/16/2007 16:12	APS
METALS, TOTAL (METHOD : EPA 200.7)					
Prep. Method: EPA600/4-83-020	Prep. Date: 3/15/2007 1:55:16 PM			Prep Analyst EDP	
Calcium	**1.9**	mg/L	0.50	3/16/2007 13:43	APS
Magnesium	**2.6**	mg/L	0.10	3/16/2007 13:43	APS
Potassium	**1.0**	mg/L	0.10	3/16/2007 13:43	APS

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Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
Sodium	**5.3**	mg/L	1.0	3/16/2007 13:43	APS
ICP/MS METALS, TOTAL (METHOD : EPA 200.8)					
Prep. Method: EPA 600/4-83-020	Prep. Date: 3/20/2007 8:57:52 AM			Prep Analyst EDP	
Arsenic	**< 0.0020**	mg/L	0.0020	3/30/2007 11:39	PRM
Barium	**0.016**	mg/L	0.0050	3/30/2007 11:39	PRM
Cadmium	**< 0.00050**	mg/L	0.00050	3/26/2007 18:48	PRM
Chromium	**< 0.0025**	mg/L	0.0025	3/26/2007 18:48	PRM
Lead	**< 0.0020**	mg/L	0.0020	3/26/2007 18:48	PRM
Selenium	**< 0.0050**	mg/L	0.0050	3/26/2007 18:48	PRM
Silver	**< 0.0010**	mg/L	0.0010	3/26/2007 18:48	PRM
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	3/28/2007 9:50	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	3/22/2007 14:50	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Dissolved Phosphorus	**< 0.010**	mg/L	0.010	3/28/2007 10:00	LCR
PHOSPHORUS (P), ORTHO (METHOD : SM 18 4500 PE)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Orthophosphate	**0.010**	mg/L	0.010	3/14/2007 8:10	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.024**	mg/L	0.010	3/21/2007 13:40	LCR
SULFATE (SO4) (METHOD : EPA 375.4)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Sulfate	**13**	mg/L	1.0	3/13/2007 12:40	LCR
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**47**	mg/L	10	3/13/2007 11:50	VAS

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Project: 1435102.0001 / Calvert Cliffs

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**< 1.0**	mg/L	1.0	3/17/2007 15:20	RED
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (METHOD : EPA 1664A)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Petroleum Hydrocarbons	**< 5.0**	mg/L	5.0	3/23/2007 8:30	BAB
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Total Suspended Solids	**< 5.0**	mg/L	5.0	3/13/2007 11:15	VAS

Lab ID: **0703350-005** **Collection Date:** 3/12/2007 3:05:00 PM
Client Sample ID: LC-02 grab **Matrix:** WASTEWATER

ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Alkalinity	**12**	mg/L	1.0	3/15/2007 9:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
BOD	**< 3.0**	mg/L	3.0	3/14/2007 6:20	LCR
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (METHOD : EPA 325.3)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Chloride	**7.0**	mg/L	1.0	3/13/2007 13:45	LCR
COD (CHEMICAL OXYGEN DEMAND) (METHOD : EPA 410.4)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
COD	**23**	mg/L	10	3/23/2007 8:25	LCR
COLOR, TRUE (METHOD : EPA 110.2)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
True, Color	**15**	Color Units	5.0	3/13/2007 11:00	VAS

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Date Received: 3/13/2007
Date Reported: 3/30/2007

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Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
FECAL COLIFORM (METHOD : SM 18 9221 E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Coliforms	**< 2.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR
FECAL STREPTOCOCCUS (METHOD : SM 18 9230 B)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Streptococcus	**< 2.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR
HARDNESS, TOTAL (CACO3) (METHOD : EPA 130.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Hardness	**130**	mg/L	5.0	3/19/2007 10:45	VAS
MERCURY, TOTAL (METHOD : EPA 245.1)					
Prep. Method: EPA 245.1	Prep. Date: 3/15/2007 12:28:00 PM			Prep Analyst EDP	
Mercury	**< 0.00020**	mg/L	0.00020	3/16/2007 16:14	APS
METALS, TOTAL (METHOD : EPA 200.7)					
Prep. Method: EPA600/4-83-020	Prep. Date: 3/15/2007 1:55:16 PM			Prep Analyst EDP	
Calcium	**1.8**	mg/L	0.50	3/16/2007 13:47	APS
Magnesium	**2.5**	mg/L	0.10	3/16/2007 13:47	APS
Potassium	**1.0**	mg/L	0.10	3/16/2007 13:47	APS
Sodium	**5.3**	mg/L	1.0	3/16/2007 13:47	APS
ICP/MS METALS, TOTAL (METHOD : EPA 200.8)					
Prep. Method: EPA 600/4-83-020	Prep. Date: 3/20/2007 8:57:52 AM			Prep Analyst EDP	
Arsenic	**< 0.0020**	mg/L	0.0020	3/30/2007 11:44	PRM
Barium	**0.016**	mg/L	0.0050	3/30/2007 11:44	PRM
Cadmium	**< 0.00050**	mg/L	0.00050	3/26/2007 18:53	PRM
Chromium	**< 0.0025**	mg/L	0.0025	3/26/2007 18:53	PRM
Lead	**< 0.0020**	mg/L	0.0020	3/26/2007 18:53	PRM
Selenium	**< 0.0050**	mg/L	0.0050	3/26/2007 18:53	PRM
Silver	**< 0.0010**	mg/L	0.0010	3/26/2007 18:53	PRM
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	3/28/2007 9:50	RED

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Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	3/22/2007 14:50	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Dissolved Phosphorus	**< 0.010**	mg/L	0.010	3/28/2007 10:00	LCR
PHOSPHORUS (P), ORTHO (METHOD : SM 18 4500 PE)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Orthophosphate	**0.010**	mg/L	0.010	3/14/2007 8:10	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.054**	mg/L	0.010	3/21/2007 13:40	LCR
SULFATE (SO4) (METHOD : EPA 375.4)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Sulfate	**15**	mg/L	1.0	3/13/2007 12:40	LCR
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**61**	mg/L	10	3/13/2007 11:50	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**< 1.0**	mg/L	1.0	3/27/2007 17:50	RED
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (METHOD : EPA 1664A)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Petroleum Hydrocarbons	**< 5.0**	mg/L	5.0	3/23/2007 8:30	BAB
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**< 5.0**	mg/L	5.0	3/13/2007 11:15	VAS

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Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
Lab ID: 0703350-006			**Collection Date:**	3/12/2007 3:20:00 PM	
Client Sample ID: LC-03 grab			**Matrix:**	WASTEWATER	
ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Alkalinity	**9.5**	mg/L	1.0	3/15/2007 9:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
BOD	**< 3.0**	mg/L	3.0	3/14/2007 6:20	LCR
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (METHOD : EPA 325.3)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Chloride	**7.5**	mg/L	1.0	3/13/2007 13:45	LCR
COD (CHEMICAL OXYGEN DEMAND) (METHOD : EPA 410.4)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
COD	**25**	mg/L	10	3/23/2007 8:25	LCR
COLOR, TRUE (METHOD : EPA 110.2)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
True, Color	**25**	Color Units	5.0	3/13/2007 11:00	VAS
FECAL COLIFORM (METHOD : SM 18 9221 E)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Coliforms	**< 2.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR
FECAL STREPTOCOCCUS (METHOD : SM 18 9230 B)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Streptococcus	**< 2.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR
HARDNESS, TOTAL (CACO3) (METHOD : EPA 130.2)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Hardness	**160**	mg/L	5.0	3/19/2007 10:45	VAS
MERCURY, TOTAL (METHOD : EPA 245.1)					
Prep. Method: EPA 245.1		Prep. Date: 3/15/2007 12:28:00 PM		Prep Analyst EDP	
Mercury	**< 0.00020**	mg/L	0.00020	3/16/2007 16:16	APS

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Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
METALS, TOTAL (METHOD : EPA 200.7)					
Prep. Method: EPA600/4-83-020	Prep. Date: 3/15/2007 1:55:16 PM			Prep Analyst EDP	
Calcium	**1.8**	mg/L	0.50	3/16/2007 13:51	APS
Magnesium	**2.5**	mg/L	0.10	3/16/2007 13:51	APS
Potassium	**0.99**	mg/L	0.10	3/16/2007 13:51	APS
Sodium	**5.4**	mg/L	1.0	3/16/2007 13:51	APS
ICP/MS METALS, TOTAL (METHOD : EPA 200.8)					
Prep. Method: EPA 600/4-83-020	Prep. Date: 3/20/2007 8:57:52 AM			Prep Analyst EDP	
Arsenic	**< 0.0020**	mg/L	0.0020	3/30/2007 12:05	PRM
Barium	**0.016**	mg/L	0.0050	3/30/2007 12:05	PRM
Cadmium	**< 0.00050**	mg/L	0.00050	3/26/2007 19:14	PRM
Chromium	**< 0.0025**	mg/L	0.0025	3/26/2007 19:14	PRM
Lead	**< 0.0020**	mg/L	0.0020	3/26/2007 19:14	PRM
Selenium	**< 0.0050**	mg/L	0.0050	3/26/2007 19:14	PRM
Silver	**< 0.0010**	mg/L	0.0010	3/26/2007 19:14	PRM
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	3/28/2007 9:50	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	3/22/2007 14:50	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Dissolved Phosphorus	**0.023**	mg/L	0.010	3/28/2007 10:00	LCR
PHOSPHORUS (P), ORTHO (METHOD : SM 18 4500 PE)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Orthophosphate	**0.030**	mg/L	0.010	3/14/2007 8:10	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.086**	mg/L	0.010	3/21/2007 13:40	LCR

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Gascoyne Division

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CERTIFICATE OF ANALYSIS

EA Engineering
15 Loveton Circle

Sparks, MD 21152

Attn: Rob Ballantine

Report No: 0703350
Date Received: 3/13/2007
Date Reported: 3/30/2007

Project: 1435102.0001 / Calvert Cliffs

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
SULFATE (SO4) (METHOD : EPA 375.4)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Sulfate	**14**	mg/L	1.0	3/13/2007 12:40	LCR
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**46**	mg/L	10	3/13/2007 11:50	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**< 1.0**	mg/L	1.0	3/27/2007 17:50	RED
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (METHOD : EPA 1664A)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Petroleum Hydrocarbons	**< 5.0**	mg/L	5.0	3/23/2007 8:30	BAB
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Suspended Solids	**< 5.0**	mg/L	5.0	3/13/2007 11:15	VAS

Lab ID: **0703350-007** **Collection Date:** 3/12/2007 3:50:00 PM
Client Sample ID: P-02 grab **Matrix:** WASTEWATER

ALKALINITY (AS CACO3) (METHOD : EPA 310.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Alkalinity	**24**	mg/L	1.0	3/15/2007 9:10	VAS
BOD (BIOCHEMICAL OXYGEN DEMAND) (METHOD : EPA 405.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
BOD	**< 3.0**	mg/L	3.0	3/14/2007 6:20	LCR
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (METHOD : EPA 325.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Chloride	**7.0**	mg/L	1.0	3/13/2007 13:45	LCR

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EA Engineering
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Sparks, MD 21152

Attn: Rob Ballantine

Report No: 0703350
Date Received: 3/13/2007
Date Reported: 3/30/2007

Project: 1435102.0001 / Calvert Cliffs

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
COD (CHEMICAL OXYGEN DEMAND) (METHOD : EPA 410.4)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
COD	**28**	mg/L	10	3/23/2007 8:25	LCR
COLOR, TRUE (METHOD : EPA 110.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
True, Color	**25**	Color Units	5.0	3/13/2007 11:00	VAS
FECAL COLIFORM (METHOD : SM 18 9221 E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Coliforms	**80**	MPN/100ml	2.0	3/13/2007 15:00	LJR
FECAL STREPTOCOCCUS (METHOD : SM 18 9230 B)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
note: Sample analyzed past recommended holding time.					
Fecal Streptococcus	**6.0**	MPN/100ml	2.0	3/13/2007 15:00	LJR
HARDNESS, TOTAL (CACO3) (METHOD : EPA 130.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Hardness	**190**	mg/L	5.0	3/19/2007 10:45	VAS
MERCURY, TOTAL (METHOD : EPA 245.1)					
Prep. Method: EPA 245.1	Prep. Date: 3/15/2007 12:28:00 PM			Prep Analyst EDP	
Mercury	**< 0.00020**	mg/L	0.00020	3/16/2007 16:18	APS
METALS, TOTAL (METHOD : EPA 200.7)					
Prep. Method: EPA600/4-83-020	Prep. Date: 3/15/2007 1:55:16 PM			Prep Analyst EDP	
Calcium	**11**	mg/L	0.50	3/16/2007 13:55	APS
Magnesium	**2.7**	mg/L	0.10	3/16/2007 13:55	APS
Potassium	**0.87**	mg/L	0.10	3/16/2007 13:55	APS
Sodium	**5.3**	mg/L	1.0	3/16/2007 13:55	APS
ICP/MS METALS, TOTAL (METHOD : EPA 200.8)					
Prep. Method: EPA 600/4-83-020	Prep. Date: 3/20/2007 8:57:52 AM			Prep Analyst EDP	
Arsenic	**< 0.0020**	mg/L	0.0020	3/30/2007 12:09	PRM
Barium	**0.0088**	mg/L	0.0050	3/30/2007 12:09	PRM
Cadmium	**< 0.00050**	mg/L	0.00050	3/26/2007 19:18	PRM
Chromium	**< 0.0025**	mg/L	0.0025	3/26/2007 19:18	PRM
Lead	**< 0.0020**	mg/L	0.0020	3/26/2007 19:18	PRM

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CERTIFICATE OF ANALYSIS

EA Engineering
15 Loveton Circle

Sparks, MD 21152

Attn: Rob Ballantine

Report No: 0703350
Date Received: 3/13/2007
Date Reported: 3/30/2007

Project: 1435102.0001 / Calvert Cliffs

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
Selenium	**< 0.0050**	mg/L	0.0050	3/26/2007 19:18	PRM
Silver	**< 0.0010**	mg/L	0.0010	3/26/2007 19:18	PRM
AMMONIA (N) (METHOD : EPA 350.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Ammonia (N)	**< 1.0**	mg/L	1.0	3/28/2007 9:50	RED
NITRATE PLUS NITRITE (N) (METHOD : EPA 353.2)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen, Nitrate-Nitrite	**< 0.050**	mg/L	0.050	3/22/2007 14:50	RED
PHOSPHORUS (P), DISSOLVED (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Dissolved Phosphorus	**0.013**	mg/L	0.010	3/28/2007 10:00	LCR
PHOSPHORUS (P), ORTHO (METHOD : SM 18 4500 PE)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Orthophosphate	**0.015**	mg/L	0.010	3/14/2007 8:10	LCR
PHOSPHORUS (P), TOTAL (METHOD : SM 18 4500 P B+E)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Phosphorus	**0.037**	mg/L	0.010	3/21/2007 13:40	LCR
SULFATE (SO4) (METHOD : EPA 375.4)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Sulfate	**14**	mg/L	1.0	3/13/2007 12:40	LCR
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (METHOD : EPA 160.1)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Total Dissolved Solids	**63**	mg/L	10	3/13/2007 11:50	VAS
NITROGEN, TOTAL KJELDAHL (N) (METHOD : EPA 351.3)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Nitrogen , Kjeldahl (N)	**< 1.0**	mg/L	1.0	3/27/2007 17:50	RED
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (METHOD : EPA 1664A)					
Prep. Method: NA	Prep. Date: NA			Prep Analyst NA	
Petroleum Hydrocarbons	**< 5.0**	mg/L	5.0	3/23/2007 8:30	BAB

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CERTIFICATE OF ANALYSIS

EA Engineering
15 Loveton Circle

Sparks, MD 21152

Attn: Rob Ballantine

Report No: 0703350

Date Received: 3/13/2007

Date Reported: 3/30/2007

Project: 1435102.0001 / Calvert Cliffs

Test	Result	Units	Reporting Limit	Date/Time of Analysis	Analyst
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (METHOD : EPA 160.2)					
Prep. Method: NA		Prep. Date: NA		Prep Analyst NA	
Total Suspended Solids	**11**	mg/L	5.0	3/13/2007 11:15	VAS

Final report reviewed by:

Michael D. Arbaugh, Sr./Division Manager

All samples received in proper condition and results conform to ISO 17025 standards unless otherwise noted.

If we have not met or exceeded your expectations, please contact the Director or Trevor Boyce, President at tboyce@microbac.com or Robert Morgan, Chief Operation Officer, at rmorgan@microbac.com

Microbac Laboratories, Inc. Gascoyne Division- laboratory accreditations: MD 109, VA 00152, NJ MD637, PA 68-339, NY 11158, ISO 17025, NELAC, AIHA 100491. The data and information on this, and other accompanying documents, represents only the sample(s) analyzed and is not to be reproduced wholly or in part for advertising or other purposes without written approval from the laboratory. Organics Qualifiers: (U) analyzed for but not detected; (J) estimated value, below the reporting limit but above one-half the reporting limit; (B) detected in the associated method blank; (D) reanalyzed at a higher dilution factor. Inorganics Qualifiers: (U) analyzed for but not detected; (B) estimated value, below the reporting limit but above one-half the reporting limit. A copy of COC is attached.

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CERTIFICATE OF ANALYSIS

March 27, 2007

LAB#: 0703427

CLIENT: Microbac Labs, Baltimore
2101 Van Deman St.
Baltimore MD, 21224
Tina Marie L. Smith

PROJECT: 0703350
PROJECT NO.:
SAMPLED BY:
RECEIVED: 03/16/07

PARAMETER	PREP DATE/TIME	ANALYSIS DATE/TIME	METHOD	ANALYST
TC	3/25/07 16:00	3/26/07 11:21	SW846/9060	TG
TOC	3/25/07 16:00	3/26/07 11:01	SM18/5310 B	TG

LAB #	0703427-01	0703427-02	0703427-03	0703427-04		
SAMPLE ID	LD-01 Grab	LD-02 Grab	LD-03 Grab	LC-01 Grab		
DATE/TIME	03/12/07	03/12/07	03/12/07	03/12/07	Quant	
MATRIX	Water	Water	Water	Water	Limit:	Units
Wet Chemistry (Water)						
Total Carbon	**8.3**	**8.4**	**6.6**	**5.0**	0.5	mg/L
TOC	**8.8**	**9.7**	**9.8**	**2.4**	0.5	mg/L

For **Audrey Brubeck**
Technical Manager

3015 DUMBARTON ROAD • RICHMOND, VA 23228
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elab: www.fandr.com/e-lab/

CERTIFICATIONS:
VIRGINIA DRINKING WATER - 00150
NORTH CAROLINA DENR - 432
SOUTH CAROLINA DHEC- 93010001 & 93010
MARYLAND DRINKING WATER - 279

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LAB #	0703427-05	0703427-06	0703427-07	-		
SAMPLE ID	LC-02 Grab	LC-03 Grab	PC-02 Grab	-		
DATE/TIME	03/12/07	03/12/07	03/12/07	-	Quant	
MATRIX	Water	Water	Water	-	Limit:	Units
Wet Chemistry (Water)						
Total Carbon	**4.1**	**2.8**	**3.8**	-	0.5	mg/L
TOC	**4.2**	**5.6**	**3.3**	-	0.5	mg/L

Notes and Definitions

mg/L = milligrams per Liter
µg/L = micrograms per Liter
BQL = Below the Quantitation Limit
mg/kg = milligrams per kilogram
ppm = parts per million
CFU/mL = Colony forming units per milliliter
su = standard units
NTU = Nephelometric Turbidity Units
MPN/100 mL = Most Probable Number per 100 milliliters

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Nancy Burnett, Lab Director
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CERTIFICATE OF ANALYSIS

MICROBAC LABORATORIES, INC.
Michael D. Arbaugh Sr.
2101 VAN DEMAN STREET
BALTIMORE,MD 21224

Date Reported	3/26/2007
Date Received	3/14/2007
Sample ID	0703-00951
Invoice No.	24691
Cust #	9017
Cust P.O. #	

Subject **CCMPP SAMPLES FOR CHLA 0703350 3/14/07**

Sampled By: CLIENT Date 3/12/2007 Time

Test	Result	Date	Time	Tech	Method
001 Sample Collected: 3/12/2007 12:40:00PM					
LD-01 GRAB WASTEWATER					
Chlorophyll-A	4.8 mg/M3	3/15/2007	11:00	DMD	SM 10200H
002 Sample Collected: 3/12/2007 12:55:00PM					
LD-02 GRAB WASTEWATER					
Chlorophyll-A	1.4 mg/M3	3/15/2007	11:00	DMD	SM 10200H
003 Sample Collected: 3/12/2007 1:15:00PM					
LD-03 GRAB WASTEWATER					
Chlorophyll-A	5.4 mg/M3	3/15/2007	11:00	DMD	SM 10200H
004 Sample Collected: 3/12/2007 2:40:00PM					
LC-01 GRAB WASTEWATER					
Chlorophyll-A	2.3 mg/M3	3/15/2007	11:00	DMD	SM 10200H
005 Sample Collected: 3/12/2007 3:05:00PM					
LC-02 GRAB WASTEWATER					
Chlorophyll-A	0.89 mg/M3	3/15/2007	11:00	DMD	SM 10200H

Current State Certification IDs:
MA: M-MA003

MEMBER ACIL

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Nancy Burnett, Lab Director
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BALTIMORE,MD 21224

Date Reported	3/26/2007
Date Received	3/14/2007
Sample ID	0703-00951
Invoice No.	24691
Cust #	9017
Cust P.O. #	

Subject CCMPP SAMPLES FOR CHLA 0703350 3/14/07

Sampled By: CLIENT Date 3/12/2007 Time

Test	Result	Date	Time	Tech	Method
006 Sample Collected: 3/12/2007 3:20:00PM					
LC-03 GRAB WASTEWATER					
Chlorophyll-A	0.91 mg/M3	3/15/2007	11:00	DMD	SM 10200H
007 Sample Collected: 3/12/2007 3:50:00PM					
P-02 GRAB WASTEWATER					
Chlorophyll-A	0.89 mg/M3	3/15/2007	11:00	DMD	SM 10200H

This report has been reviewed and is electronically signed by:

Nancy Burnett
Laboratory Director

Current State Certification IDs:
MA: M-MA003

MEMBER ACIL

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Baltimore Division

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CERTIFICATE OF ANALYSIS

EA Engineering
15 Loveton Circle
Sparks, MD 21152
Attn: Rob Ballantine

Report No. 0703390

This report of analysis contains test results for samples received at Microbac Laboratories, Inc., Gascoyne Division on 3/14/2007 .

This Data Package contains the following:

- This Cover Page
- Sample Summary
- Test Results
- Terms and Conditions [Attachment]
- Chain of Custody [Attachment]
- SubContractor Report [Attachment]

This Report of Analysis Contains 18 Pages plus Attachment(s)

Final report reviewed by: Michael D. Arbaugh, Sr./Division Manager

4/10/2007
Report issue date

All samples received in proper condition and results conform to ISO 17025 standards unless otherwise noted.

If we have not met or exceeded your expectations, please contact the Director or Trevor Boyce, President at tboyce@microbac.com or Robert Morgan, Chief Operation Officer, at rmorgan@microbac.com

Microbac Laboratories, Inc. Gascoyne Division- laboratory accreditations: MD 109, VA 00152, NJ MD637, PA 68-339, NY 11158, ISO 17025, NELAC, AIHA 100491. The data and information on this, and other accompanying documents, represents only the sample(s) analyzed and is not to be reproduced wholly or in part for advertising or other purposes without written approval from the laboratory. Organics Qualifiers: (U) analyzed for but not detected; (J) estimated value, below the reporting limit but above one-half the reporting limit; (B) detected in the associated method blank; (D) reanalyzed at a higher dilution factor. Inorganics Qualifiers: (U) analyzed for but not detected; (B) estimated value, below the reporting limit but above one-half the reporting limit. A copy of COC is attached.

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Baltimore Division

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Sample Summary

Project: 1435102.0001 / Calvert Cliffs

Report No: 0703390

Date Received 3/14/2007

Client Sample ID	Lab Sample ID	Matrix	Collection Date	Collection Time
P-01 grab	0703390-001A	Wastewater	3/13/2007	8:35
JCUS-01 grab	0703390-002H	Wastewater	3/13/2007	10:08
GB-01 (Dry) grab	0703390-003H	Wastewater	3/13/2007	13:00
JCDS-01 (Dry) grab	0703390-004H	Wastewater	3/13/2007	14:00

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: P-01 grab
Lab ID: 0703390-001
Collection Date: 3/13/2007 8:35

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
ALKALINITY (AS CACO3) (EPA 310.1)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Alkalinity	**25**	1.0	mg/L	3/15/2007 9:10
BOD (BIOCHEMICAL OXYGEN DEMAND) (EPA 405.1)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
BOD	**< 3.0**	3.0	mg/L	3/14/2007 6:20
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (EPA 325.3)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Chloride	**7.0**	1.0	mg/L	3/26/2007 8:10
COD (CHEMICAL OXYGEN DEMAND) (EPA 410.4)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
COD	**28**	10	mg/L	3/23/2007 8:25
COLOR, TRUE (SM (20) 2120 B)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
True, Color	**30**	5.0	Color Units	3/14/2007 13:30
FECAL COLIFORM (SM 18 9221 E)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
note: Sample received past maximum recommended holding time.				
Fecal Coliforms	**< 2.0**	2.0	MPN/100ml	3/14/2007 10:30
FECAL STREPTOCOCCUS (SM 18 9230 B)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
note: Sample received past maximum recommended holding time.				
Fecal Streptococcus	**33**	2.0	MPN/100ml	3/14/2007 10:30

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: P-01 grab
Lab ID: 0703390-001
Collection Date: 3/13/2007 8:35

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
HARDNESS, TOTAL (CACO3) (SM (20) 2340 C)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Hardness	**180**	5.0	mg/L	3/19/2007 10:45
MERCURY, TOTAL (EPA 245.1)				Analyst: APS
Prep. Method: EPA 245.1	Prep. Date:	3/15/2007 12:28:00 PM	Prep Analyst	EDP
Mercury	**< 0.00020**	0.00020	mg/L	3/16/2007 16:23
METALS, TOTAL (EPA 200.7)				Analyst: APS
Prep. Method: EPA600/4-83-020	Prep. Date:	3/20/2007 7:51:46 AM	Prep Analyst	EDP
Calcium	**8.7**	0.50	mg/L	3/22/2007 12:40
Magnesium	**2.7**	0.10	mg/L	3/22/2007 12:40
Potassium	**0.78**	0.10	mg/L	3/22/2007 12:40
Sodium	**5.2**	1.0	mg/L	3/22/2007 12:40
ICP/MS METALS, TOTAL (EPA 200.8)				Analyst: PRM
Prep. Method: EPA 600/4-83-020	Prep. Date:	3/20/2007 8:57:52 AM	Prep Analyst	EDP
Arsenic	**< 0.0020**	0.0020	mg/L	3/30/2007 12:13
Barium	**0.012**	0.0050	mg/L	3/30/2007 12:13
Cadmium	**< 0.00050**	0.00050	mg/L	3/26/2007 19:22
Chromium	**< 0.0025**	0.0025	mg/L	3/26/2007 19:22
Lead	**< 0.0020**	0.0020	mg/L	3/26/2007 19:22
Selenium	**< 0.0050**	0.0050	mg/L	3/26/2007 19:22
Silver	**< 0.0010**	0.0010	mg/L	3/26/2007 19:22
AMMONIA (N) (EPA 350.2)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Ammonia (N)	**< 1.0**	1.0	mg/L	3/28/2007 9:50

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: P-01 grab
Lab ID: 0703390-001
Collection Date: 3/13/2007 8:35

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
NITRATE PLUS NITRITE (N) (EPA 353.2)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Nitrogen, Nitrate-Nitrite	**0.062**	0.050	mg/L	3/22/2007 14:50
PHOSPHORUS (P), DISSOLVED (SM 18 4500 P B+E)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Dissolved Phosphorus	**< 0.010**	0.010	mg/L	3/28/2007 10:00
PHOSPHORUS (P), ORTHO (SM 18 4500 PE)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Orthophosphate	**< 0.010**	0.010	mg/L	3/14/2007 12:15
PHOSPHORUS (P), TOTAL (SM 18 4500 P B+E)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Phosphorus	**0.073**	0.010	mg/L	3/21/2007 13:40
SULFATE (SO4) (EPA 375.4)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Sulfate	**13**	1.0	mg/L	3/27/2007 9:13
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (SM (20) 2540 C)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Dissolved Solids	**32**	10	mg/L	3/18/2007 20:20
NITROGEN, TOTAL KJELDAHL (N) (EPA 351.3)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Nitrogen , Kjeldahl (N)	**< 1.0**	1.0	mg/L	3/27/2007 17:50

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Test Results

Client:	EA Engineering	**Client Sample ID:**	P-01 grab
Report No:	0703390		
Project:	1435102.0001 / Calvert Cliffs	**Lab ID:**	0703390-001
Matrix:	WASTEWATER	**Collection Date:**	3/13/2007 8:35

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (EPA 1664A)				Analyst: BAB
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Petroleum Hydrocarbons	**< 5.0**	5.0	mg/L	3/23/2007 8:30
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (SM (20) 2540 D)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Suspended Solids	**5.5**	5.0	mg/L	3/15/2007 8:30

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: JCUS-01 grab
Lab ID: 0703390-002
Collection Date: 3/13/2007 10:08

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
ALKALINITY (AS CACO3) (EPA 310.1)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Alkalinity	**8.5**	1.0	mg/L	3/15/2007 9:10
BOD (BIOCHEMICAL OXYGEN DEMAND) (EPA 405.1)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
BOD	**< 3.0**	3.0	mg/L	3/14/2007 6:20
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (EPA 325.3)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Chloride	**6.5**	1.0	mg/L	3/26/2007 8:10
COD (CHEMICAL OXYGEN DEMAND) (EPA 410.4)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
COD	**< 10**	10	mg/L	3/23/2007 8:25
COLOR, TRUE (SM (20) 2120 B)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
True, Color	**20**	5.0	Color Units	3/14/2007 13:30
FECAL COLIFORM (SM 18 9221 E)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
note: Sample received past maximum recommended holding time.				
Fecal Coliforms	**< 2.0**	2.0	MPN/100ml	3/14/2007 10:30
FECAL STREPTOCOCCUS (SM 18 9230 B)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
note: Sample received past maximum recommended holding time.				
Fecal Streptococcus	**< 2.0**	2.0	MPN/100ml	3/14/2007 10:30

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: JCUS-01 grab
Lab ID: 0703390-002
Collection Date: 3/13/2007 10:08

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
HARDNESS, TOTAL (CACO3) (SM (20) 2340 C)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Hardness	**160**	5.0	mg/L	3/19/2007 10:45
MERCURY, TOTAL (EPA 245.1)				Analyst: APS
Prep. Method: EPA 245.1	Prep. Date:	3/15/2007 12:28:00 PM	Prep Analyst	EDP
Mercury	**< 0.00020**	0.00020	mg/L	3/16/2007 16:29
METALS, TOTAL (EPA 200.7)				Analyst: APS
Prep. Method: EPA600/4-83-020	Prep. Date:	3/20/2007 7:51:46 AM	Prep Analyst	EDP
Calcium	**0.98**	0.50	mg/L	3/22/2007 12:44
Magnesium	**1.5**	0.10	mg/L	3/22/2007 12:44
Potassium	**0.83**	0.10	mg/L	3/22/2007 12:44
Sodium	**4.1**	1.0	mg/L	3/22/2007 12:44
ICP/MS METALS, TOTAL (EPA 200.8)				Analyst: PRM
Prep. Method: EPA 600/4-83-020	Prep. Date:	3/20/2007 8:57:52 AM	Prep Analyst	EDP
Arsenic	**< 0.0020**	0.0020	mg/L	3/30/2007 12:18
Barium	**0.023**	0.0050	mg/L	3/30/2007 12:18
Cadmium	**< 0.00050**	0.00050	mg/L	3/26/2007 19:27
Chromium	**< 0.0025**	0.0025	mg/L	3/26/2007 19:27
Lead	**< 0.0020**	0.0020	mg/L	3/26/2007 19:27
Selenium	**< 0.0050**	0.0050	mg/L	3/26/2007 19:27
Silver	**< 0.0010**	0.0010	mg/L	3/26/2007 19:27
AMMONIA (N) (EPA 350.2)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Ammonia (N)	**< 1.0**	1.0	mg/L	3/28/2007 9:50

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: JCUS-01 grab
Lab ID: 0703390-002
Collection Date: 3/13/2007 10:08

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
NITRATE PLUS NITRITE (N) (EPA 353.2)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Nitrogen, Nitrate-Nitrite	**0.053**	0.050	mg/L	3/22/2007 14:50
PHOSPHORUS (P), DISSOLVED (SM 18 4500 P B+E)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Dissolved Phosphorus	**< 0.010**	0.010	mg/L	3/28/2007 10:00
PHOSPHORUS (P), ORTHO (SM 18 4500 PE)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Orthophosphate	**< 0.010**	0.010	mg/L	3/14/2007 12:15
PHOSPHORUS (P), TOTAL (SM 18 4500 P B+E)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Phosphorus	**0.044**	0.010	mg/L	3/21/2007 13:40
SULFATE (SO4) (EPA 375.4)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Sulfate	**11**	1.0	mg/L	3/27/2007 9:13
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (SM (20) 2540 C)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Dissolved Solids	**49**	10	mg/L	3/18/2007 20:20
NITROGEN, TOTAL KJELDAHL (N) (EPA 351.3)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Nitrogen , Kjeldahl (N)	**< 1.0**	1.0	mg/L	3/27/2007 17:50

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Test Results

Client:	EA Engineering	**Client Sample ID:**	JCUS-01 grab
Report No:	0703390		
Project:	1435102.0001 / Calvert Cliffs	**Lab ID:**	0703390-002
Matrix:	WASTEWATER	**Collection Date:**	3/13/2007 10:08

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (EPA 1664A)				Analyst: BAB
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Petroleum Hydrocarbons	**< 5.0**	5.0	mg/L	3/23/2007 8:30
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (SM (20) 2540 D)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Suspended Solids	**< 5.0**	5.0	mg/L	3/15/2007 8:30

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: GB-01 (Dry) grab
Lab ID: 0703390-003
Collection Date: 3/13/2007 13:00

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
ALKALINITY (AS CACO3) (EPA 310.1)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Alkalinity	**62**	1.0	mg/L	3/15/2007 9:10
BOD (BIOCHEMICAL OXYGEN DEMAND) (EPA 405.1)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
BOD	**< 3.0**	3.0	mg/L	3/14/2007 6:20
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (EPA 325.3)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Chloride	**50**	1.0	mg/L	3/26/2007 8:10
COD (CHEMICAL OXYGEN DEMAND) (EPA 410.4)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
COD	**< 10**	10	mg/L	3/23/2007 8:25
COLOR, TRUE (SM (20) 2120 B)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
True, Color	**15**	5.0	Color Units	3/14/2007 13:30
FECAL COLIFORM (SM 18 9221 E)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
note: Sample received past maximum recommended holding time.				
Fecal Coliforms	**8.0**	2.0	MPN/100ml	3/14/2007 10:30
FECAL STREPTOCOCCUS (SM 18 9230 B)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
note: Sample received past maximum recommended holding time.				
Fecal Streptococcus	**4.0**	2.0	MPN/100ml	3/14/2007 10:30

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: GB-01 (Dry) grab
Lab ID: 0703390-003
Collection Date: 3/13/2007 13:00

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
HARDNESS, TOTAL (CACO3) (SM (20) 2340 C)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Hardness	**310**	5.0	mg/L	3/19/2007 10:45
MERCURY, TOTAL (EPA 245.1)				Analyst: APS
Prep. Method: EPA 245.1	Prep. Date: 3/15/2007 12:28:00 PM		Prep Analyst	EDP
Mercury	**< 0.00020**	0.00020	mg/L	3/16/2007 16:31
METALS, TOTAL (EPA 200.7)				Analyst: APS
Prep. Method: EPA600/4-83-020	Prep. Date: 3/20/2007 7:51:46 AM		Prep Analyst	EDP
Calcium	**52**	0.50	mg/L	3/22/2007 12:47
Magnesium	**16**	0.10	mg/L	3/22/2007 12:47
Potassium	**2.8**	0.10	mg/L	3/22/2007 12:47
Sodium	**31**	1.0	mg/L	3/22/2007 12:47
ICP/MS METALS, TOTAL (EPA 200.8)				Analyst: PRM
Prep. Method: EPA 600/4-83-020	Prep. Date: 3/20/2007 8:57:52 AM		Prep Analyst	EDP
Arsenic	**< 0.0020**	0.0020	mg/L	3/30/2007 12:22
Barium	**0.030**	0.0050	mg/L	3/30/2007 12:22
Cadmium	**< 0.00050**	0.00050	mg/L	3/26/2007 19:31
Chromium	**< 0.0025**	0.0025	mg/L	3/26/2007 19:31
Lead	**< 0.0020**	0.0020	mg/L	3/26/2007 19:31
Selenium	**< 0.0050**	0.0050	mg/L	3/26/2007 19:31
Silver	**< 0.0010**	0.0010	mg/L	3/26/2007 19:31
AMMONIA (N) (EPA 350.2)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Ammonia (N)	**< 1.0**	1.0	mg/L	3/28/2007 9:50

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: GB-01 (Dry) grab
Lab ID: 0703390-003
Collection Date: 3/13/2007 13:00

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
NITRATE PLUS NITRITE (N) (EPA 353.2)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Nitrogen, Nitrate-Nitrite	**0.33**	0.050	mg/L	3/22/2007 14:50
PHOSPHORUS (P), DISSOLVED (SM 18 4500 P B+E)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Dissolved Phosphorus	**< 0.010**	0.010	mg/L	3/28/2007 10:00
PHOSPHORUS (P), ORTHO (SM 18 4500 PE)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Orthophosphate	**< 0.010**	0.010	mg/L	3/14/2007 12:15
PHOSPHORUS (P), TOTAL (SM 18 4500 P B+E)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Phosphorus	**0.077**	0.010	mg/L	3/21/2007 13:40
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS/PNAS) (EPA 625)				Analyst: MST
Prep. Method: EPA 625 BNA	Prep. Date: 3/16/2007 8:00:16 AM		Prep Analyst	SBT
Naphthalene	**< 10**	10	ug/L	3/16/2007 16:02
Acenaphthylene	**< 10**	10	ug/L	3/16/2007 16:02
Acenaphthene	**< 10**	10	ug/L	3/16/2007 16:02
Fluorene	**< 10**	10	ug/L	3/16/2007 16:02
Phenanthrene	**< 10**	10	ug/L	3/16/2007 16:02
Anthracene	**< 10**	10	ug/L	3/16/2007 16:02
Fluoranthene	**< 10**	10	ug/L	3/16/2007 16:02
Pyrene	**< 10**	10	ug/L	3/16/2007 16:02
Benz(a)anthracene	**< 10**	10	ug/L	3/16/2007 16:02
Chrysene	**< 10**	10	ug/L	3/16/2007 16:02
Benzo(b)fluoranthene	**< 10**	10	ug/L	3/16/2007 16:02

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: GB-01 (Dry) grab
Lab ID: 0703390-003
Collection Date: 3/13/2007 13:00

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
Benzo(k)fluoranthene	< 10	10	ug/L	3/16/2007 16:02
Benzo(a)pyrene	< 10	10	ug/L	3/16/2007 16:02
Indeno(1,2,3-cd)pyrene	< 10	10	ug/L	3/16/2007 16:02
Dibenz(a,h)anthracene	< 10	10	ug/L	3/16/2007 16:02
Benzo(g,h,i)perylene	< 10	10	ug/L	3/16/2007 16:02
SULFATE (SO4) (EPA 375.4)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Sulfate	130	5.0	mg/L	3/27/2007 9:13
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (SM (20) 2540 C)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Dissolved Solids	320	10	mg/L	3/18/2007 20:20
NITROGEN, TOTAL KJELDAHL (N) (EPA 351.3)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Nitrogen , Kjeldahl (N)	< 1.0	1.0	mg/L	3/27/2007 17:50
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (EPA 1664A)				Analyst: BAB
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Petroleum Hydrocarbons	< 5.0	5.0	mg/L	3/23/2007 8:30
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (SM (20) 2540 D)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Suspended Solids	< 5.0	5.0	mg/L	3/15/2007 8:30

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: JCDS-01 (Dry) grab
Lab ID: 0703390-004
Collection Date: 3/13/2007 14:00

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
ALKALINITY (AS CACO3) (EPA 310.1)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Alkalinity	**43**	1.0	mg/L	3/15/2007 9:10
BOD (BIOCHEMICAL OXYGEN DEMAND) (EPA 405.1)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
BOD	**< 3.0**	3.0	mg/L	3/14/2007 6:20
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (EPA 325.3)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Chloride	**46**	1.0	mg/L	3/26/2007 8:10
COD (CHEMICAL OXYGEN DEMAND) (EPA 410.4)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
COD	**21**	10	mg/L	3/23/2007 9:00
COLOR, TRUE (SM (20) 2120 B)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
True, Color	**25**	5.0	Color Units	3/14/2007 13:30
FECAL COLIFORM (SM 18 9221 E)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
note: Sample received past maximum recommended holding time.				
Fecal Coliforms	**< 2.0**	2.0	MPN/100ml	3/14/2007 10:30
FECAL STREPTOCOCCUS (SM 18 9230 B)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
note: Sample received past maximum recommended holding time.				
Fecal Streptococcus	**12**	2.0	MPN/100ml	3/14/2007 10:30

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: JCDS-01 (Dry) grab
Lab ID: 0703390-004
Collection Date: 3/13/2007 14:00

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
HARDNESS, TOTAL (CACO3) (SM (20) 2340 C)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Hardness	**250**	5.0	mg/L	3/19/2007 10:45
MERCURY, TOTAL (EPA 245.1)				Analyst: APS
Prep. Method: EPA 245.1	Prep. Date:	3/15/2007 12:28:00 PM	Prep Analyst	EDP
Mercury	**< 0.00020**	0.00020	mg/L	3/16/2007 16:34
METALS, TOTAL (EPA 200.7)				Analyst: APS
Prep. Method: EPA600/4-83-020	Prep. Date:	3/20/2007 7:51:46 AM	Prep Analyst	EDP
Calcium	**22**	0.50	mg/L	3/22/2007 12:51
Magnesium	**7.1**	0.10	mg/L	3/22/2007 12:51
Potassium	**1.8**	0.10	mg/L	3/22/2007 12:51
Sodium	**30**	1.0	mg/L	3/22/2007 12:51
ICP/MS METALS, TOTAL (EPA 200.8)				Analyst: PRM
Prep. Method: EPA 600/4-83-020	Prep. Date:	3/20/2007 8:57:52 AM	Prep Analyst	EDP
Arsenic	**< 0.0020**	0.0020	mg/L	3/30/2007 12:26
Barium	**0.027**	0.0050	mg/L	3/30/2007 12:26
Cadmium	**< 0.00050**	0.00050	mg/L	3/26/2007 19:35
Chromium	**< 0.0025**	0.0025	mg/L	3/26/2007 19:35
Lead	**< 0.0020**	0.0020	mg/L	3/26/2007 19:35
Selenium	**< 0.0050**	0.0050	mg/L	3/26/2007 19:35
Silver	**< 0.0010**	0.0010	mg/L	3/26/2007 19:35
AMMONIA (N) (EPA 350.2)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Ammonia (N)	**< 1.0**	1.0	mg/L	3/28/2007 9:50

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: JCDS-01 (Dry) grab
Lab ID: 0703390-004
Collection Date: 3/13/2007 14:00

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
NITRATE PLUS NITRITE (N) (EPA 353.2)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Nitrogen, Nitrate-Nitrite	**0.15**	0.050	mg/L	3/22/2007 14:50
PHOSPHORUS (P), DISSOLVED (SM 18 4500 P B+E)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Dissolved Phosphorus	**< 0.010**	0.010	mg/L	3/28/2007 10:00
PHOSPHORUS (P), ORTHO (SM 18 4500 PE)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Orthophosphate	**< 0.010**	0.010	mg/L	3/14/2007 12:15
PHOSPHORUS (P), TOTAL (SM 18 4500 P B+E)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Phosphorus	**0.034**	0.010	mg/L	3/21/2007 13:40
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS/PNAS) (EPA 625)				Analyst: MST
Prep. Method: EPA 625 BNA	Prep. Date: 3/16/2007 8:00:16 AM		Prep Analyst	SBT
Naphthalene	**< 10**	10	ug/L	3/16/2007 18:05
Acenaphthylene	**< 10**	10	ug/L	3/16/2007 18:05
Acenaphthene	**< 10**	10	ug/L	3/16/2007 18:05
Fluorene	**< 10**	10	ug/L	3/16/2007 18:05
Phenanthrene	**< 10**	10	ug/L	3/16/2007 18:05
Anthracene	**< 10**	10	ug/L	3/16/2007 18:05
Fluoranthene	**< 10**	10	ug/L	3/16/2007 18:05
Pyrene	**< 10**	10	ug/L	3/16/2007 18:05
Benz(a)anthracene	**< 10**	10	ug/L	3/16/2007 18:05
Chrysene	**< 10**	10	ug/L	3/16/2007 18:05
Benzo(b)fluoranthene	**< 10**	10	ug/L	3/16/2007 18:05

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Test Results

Client: EA Engineering
Report No: 0703390
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: JCDS-01 (Dry) grab
Lab ID: 0703390-004
Collection Date: 3/13/2007 14:00

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
Benzo(k)fluoranthene	**< 10**	10	ug/L	3/16/2007 18:05
Benzo(a)pyrene	**< 10**	10	ug/L	3/16/2007 18:05
Indeno(1,2,3-cd)pyrene	**< 10**	10	ug/L	3/16/2007 18:05
Dibenz(a,h)anthracene	**< 10**	10	ug/L	3/16/2007 18:05
Benzo(g,h,i)perylene	**< 10**	10	ug/L	3/16/2007 18:05
SULFATE (SO4) (EPA 375.4)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Sulfate	**45**	2.0	mg/L	3/27/2007 9:13
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (SM (20) 2540 C)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Dissolved Solids	**180**	10	mg/L	3/18/2007 20:20
NITROGEN, TOTAL KJELDAHL (N) (EPA 351.3)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Nitrogen , Kjeldahl (N)	**< 1.0**	1.0	mg/L	3/27/2007 17:50
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (EPA 1664A)				Analyst: BAB
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Petroleum Hydrocarbons	**< 5.0**	5.0	mg/L	3/23/2007 8:30
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (SM (20) 2540 D)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Suspended Solids	**< 5.0**	5.0	mg/L	3/15/2007 8:30

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CERTIFICATE OF ANALYSIS

EA Engineering
15 Loveton Circle
Sparks, MD 21152
Attn: Rob Ballantine

Report No. 0703534

This report of analysis contains test results for samples received at Microbac Laboratories, Inc., Gascoyne Division on 3/16/2007 .

This Data Package contains the following:

- This Cover Page
- Sample Summary
- Test Results
- Terms and Conditions [Attachment]
- Chain of Custody [Attachment]
- SubContractor Report [Attachment]

This Report of Analysis Contains 10 Pages plus Attachment(s)

Final report reviewed by: Michael D. Arbaugh, Sr./Division Manager

4/10/2007
Report issue date

All samples received in proper condition and results conform to ISO 17025 standards unless otherwise noted.

If we have not met or exceeded your expectations, please contact the Director or Trevor Boyce, President at tboyce@microbac.com or Robert Morgan, Chief Operation Officer, at rmorgan@microbac.com

Microbac Laboratories, Inc. Gascoyne Division- laboratory accreditations: MD 109, VA 00152, NJ MD637, PA 68-339, NY 11158, ISO 17025, NELAC, AIHA 100491. The data and information on this, and other accompanying documents, represents only the sample(s) analyzed and is not to be reproduced wholly or in part for advertising or other purposes without written approval from the laboratory. Organics Qualifiers: (U) analyzed for but not detected; (J) estimated value, below the reporting limit but above one-half the reporting limit; (B) detected in the associated method blank; (D) reanalyzed at a higher dilution factor. Inorganics Qualifiers: (U) analyzed for but not detected; (B) estimated value, below the reporting limit but above one-half the reporting limit. A copy of COC is attached.

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Sample Summary

Project: 1435102.0001 / Calvert Cliffs

Report No: 0703534

Date Received 3/16/2007

Client Sample ID	Lab Sample ID	Matrix	Collection Date	Collection Time
JCDS-01 (WET) grab	0703534-001H	Wastewater	3/16/2007	8:03
GB-01 (WET) grab	0703534-002A	Wastewater	3/16/2007	8:37

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Test Results

Client: EA Engineering
Report No: 0703534
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: JCDS-01 (WET) grab
Lab ID: 0703534-001
Collection Date: 3/16/2007 8:03

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
ALKALINITY (AS CACO3) (EPA 310.1)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Alkalinity	**33**	1.0	mg/L	3/20/2007 11:35
BOD (BIOCHEMICAL OXYGEN DEMAND) (EPA 405.1)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
BOD	**5.6**	3.0	mg/L	3/16/2007 13:30
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (EPA 325.3)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Chloride	**46**	1.0	mg/L	3/26/2007 8:10
COD (CHEMICAL OXYGEN DEMAND) (EPA 410.4)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
COD	**32**	10	mg/L	3/30/2007 12:00
COLOR, TRUE (SM (20) 2120 B)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
True, Color	**30**	5.0	Color Units	3/16/2007 13:00
FECAL COLIFORM (SM 18 9221 E)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Fecal Coliforms	**1,600**	2.0	MPN/100ml	3/16/2007 13:25
FECAL STREPTOCOCCUS (SM 18 9230 B)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Fecal Streptococcus	**90**	2.0	MPN/100ml	3/16/2007 13:25

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Test Results

Client: EA Engineering
Report No: 0703534
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: JCDS-01 (WET) grab
Lab ID: 0703534-001
Collection Date: 3/16/2007 8:03

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
HARDNESS, TOTAL (CACO3) (SM (20) 2340 C)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Hardness	**190**	5.0	mg/L	3/19/2007 10:45
MERCURY, TOTAL (EPA 245.1)				Analyst: APS
Prep. Method: EPA 245.1	Prep. Date:	3/21/2007 1:20:00 PM	Prep Analyst	EDP
Mercury	**< 0.00020**	0.00020	mg/L	3/22/2007 16:40
METALS, TOTAL (EPA 200.7)				Analyst: APS
Prep. Method: EPA600/4-83-020	Prep. Date:	3/20/2007 3:19:48 PM	Prep Analyst	EDP
Calcium	**14**	0.50	mg/L	3/22/2007 15:59
Magnesium	**4.7**	0.10	mg/L	3/22/2007 15:59
Potassium	**1.9**	0.10	mg/L	3/22/2007 15:59
Sodium	**30**	1.0	mg/L	3/22/2007 15:59
ICP/MS METALS, TOTAL (EPA 200.8)				Analyst: PRM
Prep. Method: EPA 600/4-83-020	Prep. Date:	3/22/2007 1:49:52 PM	Prep Analyst	EDP
Arsenic	**< 0.0020**	0.0020	mg/L	3/27/2007 19:35
Barium	**0.066**	0.0050	mg/L	3/27/2007 19:35
Cadmium	**< 0.00050**	0.00050	mg/L	3/27/2007 19:35
Chromium	**< 0.0025**	0.0025	mg/L	3/27/2007 19:35
Lead	**< 0.0020**	0.0020	mg/L	3/27/2007 19:35
Selenium	**< 0.0050**	0.0050	mg/L	3/27/2007 19:35
Silver	**< 0.0010**	0.0010	mg/L	3/27/2007 19:35
AMMONIA (N) (EPA 350.2)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Ammonia (N)	**< 1.0**	1.0	mg/L	3/28/2007 9:50

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Test Results

Client: EA Engineering
Report No: 0703534
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: JCDS-01 (WET) grab
Lab ID: 0703534-001
Collection Date: 3/16/2007 8:03

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
NITRATE PLUS NITRITE (N) (EPA 353.2)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Nitrogen, Nitrate-Nitrite	**0.21**	0.050	mg/L	4/4/2007 17:15
PHOSPHORUS (P), DISSOLVED (SM 18 4500 P B+E)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Dissolved Phosphorus	**0.013**	0.010	mg/L	3/28/2007 10:00
PHOSPHORUS (P), ORTHO (SM 18 4500 PE)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Orthophosphate	**0.067**	0.010	mg/L	3/16/2007 12:10
PHOSPHORUS (P), TOTAL (SM 18 4500 P B+E)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Phosphorus	**0.19**	0.010	mg/L	4/2/2007 13:20
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS/PNAS) (EPA 625)				Analyst: MST
Prep. Method: EPA 625 BNA	Prep. Date: 3/19/2007 2:00:06 PM		Prep Analyst	SBT
Naphthalene	**< 10**	10	ug/L	3/26/2007 11:58
Acenaphthylene	**< 10**	10	ug/L	3/26/2007 11:58
Acenaphthene	**< 10**	10	ug/L	3/26/2007 11:58
Fluorene	**< 10**	10	ug/L	3/26/2007 11:58
Phenanthrene	**< 10**	10	ug/L	3/26/2007 11:58
Anthracene	**< 10**	10	ug/L	3/26/2007 11:58
Fluoranthene	**< 10**	10	ug/L	3/26/2007 11:58
Pyrene	**< 10**	10	ug/L	3/26/2007 11:58
Benz(a)anthracene	**< 10**	10	ug/L	3/26/2007 11:58
Chrysene	**< 10**	10	ug/L	3/26/2007 11:58
Benzo(b)fluoranthene	**< 10**	10	ug/L	3/26/2007 11:58

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Test Results

Client: EA Engineering
Report No: 0703534
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: JCDS-01 (WET) grab
Lab ID: 0703534-001
Collection Date: 3/16/2007 8:03

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
Benzo(k)fluoranthene	< 10	10	ug/L	3/26/2007 11:58
Benzo(a)pyrene	< 10	10	ug/L	3/26/2007 11:58
Indeno(1,2,3-cd)pyrene	< 10	10	ug/L	3/26/2007 11:58
Dibenz(a,h)anthracene	< 10	10	ug/L	3/26/2007 11:58
Benzo(g,h,i)perylene	< 10	10	ug/L	3/26/2007 11:58
SULFATE (SO4) (EPA 375.4)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Sulfate	30	1.0	mg/L	3/27/2007 9:13
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (SM (20) 2540 C)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Dissolved Solids	120	10	mg/L	3/18/2007 20:20
NITROGEN, TOTAL KJELDAHL (N) (EPA 351.3)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Nitrogen , Kjeldahl (N)	< 1.0	1.0	mg/L	3/30/2007 11:50
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (EPA 1664A)				Analyst: BAB
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Petroleum Hydrocarbons	< 5.0	5.0	mg/L	3/23/2007 8:30
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (SM (20) 2540 D)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Suspended Solids	20	2.5	mg/L	3/19/2007 7:45

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Test Results

Client: EA Engineering
Report No: 0703534
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: GB-01 (WET) grab
Lab ID: 0703534-002
Collection Date: 3/16/2007 8:37

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
ALKALINITY (AS CACO3) (EPA 310.1)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Alkalinity	**42**	1.0	mg/L	3/20/2007 11:35
BOD (BIOCHEMICAL OXYGEN DEMAND) (EPA 405.1)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
BOD	**7.3**	5.0	mg/L	3/16/2007 13:34
CHLORIDE (TITRIMETRIC, MERCURIC NITRATE) (EPA 325.3)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Chloride	**29**	1.0	mg/L	3/26/2007 8:10
COD (CHEMICAL OXYGEN DEMAND) (EPA 410.4)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
COD	**35**	10	mg/L	3/30/2007 12:00
COLOR, TRUE (SM (20) 2120 B)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
True, Color	**35**	5.0	Color Units	3/16/2007 13:00
FECAL COLIFORM (SM 18 9221 E)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Fecal Coliforms	**500**	2.0	MPN/100ml	3/16/2007 13:25
FECAL STREPTOCOCCUS (SM 18 9230 B)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Fecal Streptococcus	**140**	2.0	MPN/100ml	3/16/2007 13:25

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Test Results

Client: EA Engineering
Report No: 0703534
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: GB-01 (WET) grab
Lab ID: 0703534-002
Collection Date: 3/16/2007 8:37

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
HARDNESS, TOTAL (CACO3) (SM (20) 2340 C)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Hardness	**220**	5.0	mg/L	3/19/2007 10:45
MERCURY, TOTAL (EPA 245.1)				Analyst: APS
Prep. Method: EPA 245.1	Prep. Date:	3/21/2007 1:20:00 PM	Prep Analyst	EDP
Mercury	**< 0.00020**	0.00020	mg/L	3/22/2007 16:42
METALS, TOTAL (EPA 200.7)				Analyst: APS
Prep. Method: EPA600/4-83-020	Prep. Date:	3/20/2007 3:19:48 PM	Prep Analyst	EDP
Calcium	**33**	0.50	mg/L	3/22/2007 16:03
Magnesium	**10**	0.10	mg/L	3/22/2007 16:03
Potassium	**2.5**	0.10	mg/L	3/22/2007 16:03
Sodium	**20**	1.0	mg/L	3/22/2007 16:03
ICP/MS METALS, TOTAL (EPA 200.8)				Analyst: PRM
Prep. Method: EPA 600/4-83-020	Prep. Date:	3/22/2007 1:49:52 PM	Prep Analyst	EDP
Arsenic	**< 0.0020**	0.0020	mg/L	3/27/2007 19:39
Barium	**0.040**	0.0050	mg/L	3/27/2007 19:39
Cadmium	**< 0.00050**	0.00050	mg/L	3/27/2007 19:39
Chromium	**0.0027**	0.0025	mg/L	3/27/2007 19:39
Lead	**0.0030**	0.0020	mg/L	3/27/2007 19:39
Selenium	**< 0.0050**	0.0050	mg/L	3/27/2007 19:39
Silver	**< 0.0010**	0.0010	mg/L	3/27/2007 19:39
AMMONIA (N) (EPA 350.2)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Ammonia (N)	**< 1.0**	1.0	mg/L	3/28/2007 9:50

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Test Results

Client: EA Engineering
Report No: 0703534
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: GB-01 (WET) grab
Lab ID: 0703534-002
Collection Date: 3/16/2007 8:37

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
NITRATE PLUS NITRITE (N) (EPA 353.2)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Nitrogen, Nitrate-Nitrite	**0.26**	0.050	mg/L	4/4/2007 17:15
PHOSPHORUS (P), DISSOLVED (SM 18 4500 P B+E)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Dissolved Phosphorus	**0.020**	0.010	mg/L	3/28/2007 10:00
PHOSPHORUS (P), ORTHO (SM 18 4500 PE)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Orthophosphate	**0.024**	0.010	mg/L	3/16/2007 12:10
PHOSPHORUS (P), TOTAL (SM 18 4500 P B+E)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Phosphorus	**0.21**	0.010	mg/L	4/2/2007 13:20
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS/PNAS) (EPA 625)				Analyst: MST
Prep. Method: EPA 625 BNA	Prep. Date: 3/19/2007 2:00:06 PM		Prep Analyst	SBT
Naphthalene	**< 10**	10	ug/L	3/26/2007 12:39
Acenaphthylene	**< 10**	10	ug/L	3/26/2007 12:39
Acenaphthene	**< 10**	10	ug/L	3/26/2007 12:39
Fluorene	**< 10**	10	ug/L	3/26/2007 12:39
Phenanthrene	**< 10**	10	ug/L	3/26/2007 12:39
Anthracene	**< 10**	10	ug/L	3/26/2007 12:39
Fluoranthene	**< 10**	10	ug/L	3/26/2007 12:39
Pyrene	**< 10**	10	ug/L	3/26/2007 12:39
Benz(a)anthracene	**< 10**	10	ug/L	3/26/2007 12:39
Chrysene	**< 10**	10	ug/L	3/26/2007 12:39
Benzo(b)fluoranthene	**< 10**	10	ug/L	3/26/2007 12:39

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Baltimore Division

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Test Results

Client: EA Engineering
Report No: 0703534
Project: 1435102.0001 / Calvert Cliffs
Matrix: WASTEWATER

Client Sample ID: GB-01 (WET) grab
Lab ID: 0703534-002
Collection Date: 3/16/2007 8:37

Analyses	Test Results	Reporting Limit	Units	Date/Time Analyzed
Benzo(k)fluoranthene	< 10	10	ug/L	3/26/2007 12:39
Benzo(a)pyrene	< 10	10	ug/L	3/26/2007 12:39
Indeno(1,2,3-cd)pyrene	< 10	10	ug/L	3/26/2007 12:39
Dibenz(a,h)anthracene	< 10	10	ug/L	3/26/2007 12:39
Benzo(g,h,i)perylene	< 10	10	ug/L	3/26/2007 12:39
SULFATE (SO4) (EPA 375.4)				Analyst: LCR
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Sulfate	73	5.0	mg/L	3/27/2007 9:13
TOTAL DISSOLVED SOLIDS (FILTERABLE SOLIDS @ 180°C) (SM (20) 2540 C)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Dissolved Solids	180	10	mg/L	3/18/2007 20:20
NITROGEN, TOTAL KJELDAHL (N) (EPA 351.3)				Analyst: RED
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Nitrogen , Kjeldahl (N)	< 1.0	1.0	mg/L	3/30/2007 11:50
TOTAL PETROLEUM HYDROCARBONS (TPH SGTHEM) (EPA 1664A)				Analyst: BAB
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Petroleum Hydrocarbons	< 5.0	5.0	mg/L	3/23/2007 8:30
TOTAL SUSPENDED SOLIDS (NON-FILTERABLE SOLIDS) (SM (20) 2540 D)				Analyst: VAS
Prep. Method: NA	Prep. Date: NA		Prep Analyst	NA
Total Suspended Solids	120	5.0	mg/L	3/19/2007 7:45

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Marlborough, MA 01752
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Nancy Burnett, Lab Director
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CERTIFICATE OF ANALYSIS

MICROBAC LABORATORIES, INC.
Michael D. Arbaugh Sr.
2101 VAN DEMAN STREET
BALTIMORE,MD 21224

Date Reported	3/26/2007
Date Received	3/20/2007
Sample ID	0703-01023
Invoice No.	24693
Cust #	9017
Cust P.O. #	

Subject WATER SAMPLES FOR CHLA 0703534 3/20/07

Sampled By: CLIENT Date 3/16/2007 Time

Test	Result	Date	Time	Tech	Method
001 Sample Collected: 3/16/2007 8:03:00AM					
JCDS-01 (WET) GRAB WASTEWATER 0703534-001J					
Chlorophyll-A	2.4 mg/M3	3/22/2007	16:00	DMD	SM 10200H
002 Sample Collected: 3/16/2007 8:03:00AM					
GB-01 (WET) GRAB WASTEWATER 0703534-002J					
Chlorophyll-A	6.5 mg/M3	3/22/2007	16:00	DMD	SM 10200H

This report has been reviewed and is electronically signed by:

Nancy Burnett
Laboratory Director

Current State Certification IDs:
MA: M-MA003

MEMBER ACIL

The data and information on this, and other accompanying documents, represent only the sample(s) analyzed and is rendered upon condition that it is not to be reporduced wholly or in part for advertising or other purposes without approval from the laboratory.
USDA-EPA-NIOSH Testing Food Sanitation Consulting Chemical and Microbiological Analyses and Research

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CERTIFICATE OF ANALYSIS

April 03, 2007

LAB#: 0703496

CLIENT: Microbac Labs, Baltimore
2101 Van Deman St.
Baltimore MD, 21224
Tina Marie L. Smith

PROJECT: 0703534
PROJECT NO.:
SAMPLED BY:
RECEIVED: 03/20/07

PARAMETER	PREP DATE/TIME	ANALYSIS DATE/TIME	METHOD	ANALYST
TC	4/1/07 9:00	4/2/07 15:00	SM18/5310 B	TG
TOC	3/25/07 16:00	3/26/07 11:01	SM18/5310 B	TG

LAB #	0703496-01	0703496-02	-	-		
SAMPLE ID	JCDS-01	GB-01	-	-		
DATE/TIME	03/16/07	03/16/07	-	-	Quant	
MATRIX	Water	Water	-	-	Limit:	Units
Wet Chemistry (Water)						
Total Carbon, Soluble	**12.6**	**15.1**	-	-	0.5	mg/L
TOC	**5.8**	**6.8**	-	-	0.5	mg/L

Notes and Definitions

mg/L = milligrams per Liter
µg/L = micrograms per Liter
BQL = Below the Quantitation Limit
mg/kg = milligrams per kilogram
ppm = parts per million
CFU/mL = Colony forming units per milliliter
su = standard units
NTU = Nephelometric Turbidity Units
MPN/100 mL = Most Probable Number per 100 milliliters

Audrey M Brubeck

Audrey Brubeck
Technical Manager

3015 DUMBARTON ROAD • RICHMOND, VA 23228
TELEPHONE (804) 264-2701 • FAX (804) 264-1202 • www.microbac.com
elab: www.fandr.com/e-lab/

CERTIFICATIONS:
VIRGINIA DRINKING WATER - 00150
NORTH CAROLINA DENR - 432
SOUTH CAROLINA DHEC- 93010001 & 93010
MARYLAND DRINKING WATER - 279

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CERTIFICATE OF ANALYSIS

MICROBAC LABORATORIES, INC.
Michael D. Arbaugh Sr.
2101 VAN DEMAN STREET
BALTIMORE,MD 21224

Date Reported	3/26/2007
Date Received	3/16/2007
Sample ID	0703-01005
Invoice No.	24692
Cust #	9017
Cust P.O. #	

Subject 0703390 FOR CHLA 3/16/07

Sampled By: CLIENT Date 3/13/2007 Time

Test	Result	Date	Time	Tech	Method

This report has been reviewed and is electronically signed by:

Nancy Burnett
Laboratory Director

Current State Certification IDs:
MA: M-MA003

MEMBER ACIL

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USDA-EPA-NIOSH Testing Food Sanitation Consulting Chemical and Microbiological Analyses and Research

APPENDIX C-1:

MACROBENTHOS RESULTS PREPARED BY COVE CORPORATION

Cove Corporation

10200 BREEDEN ROAD, LUSBY, MARYLAND 20657
TELEPHONE: (410) 326-4577
FAX No. (410) 326-4767

October 12, 2006

Richard A. Connelly
EA Engineering, Science, & Technology
15 Loveton Circle
Sparks, MD 21152

Re: September 2006 Calvert Cliffs macrobenthic samples

Dear Rich,

Enclosed are the September 2006 Calvert Cliffs macrobenthic data (electronic as well as had copies). A list of diskette files can be found in Table 1 on the following page. A quality control report of sample sorting and identification is presented on pages 3 and 4. Please note that all macrobenthic data are reported on a per sample basis (i.e., individuals/0.05m^2).

If you have any questions or comments, please call or write to me.

Sincerely,

C. Timothy Morris
Laboratory Manager
tmorris@chesapeake.net

Table 1. List of Diskette files.

File Name	Description of File	Format
Calvert Cliffs 906 Species List	List of macrobenthic invertebrates with NODC codes	Excel
Calvert Cliffs 906 Data	Species/abundance data for all samples	Excel
Calvert Cliffs 906 Tables	Species/abundance tables for all samples	Word
Calvert Cliffs 906 Sorting Batch List	Sorter's batch list and selection of QC sample	Word
Calvert Cliffs 906 Taxonomy Batch List	Taxonomist's batch list and selection of QC sample	Word
Calvert Cliffs 906 QC Report	Cover letter and QC report	Word

Quality Control Report
Part 1. Sorting Performance

Denise H. Crivella and Barbara A. Weems sorted the September 2006 Calvert Cliffs macrobenthic samples (n=9). Ms. Crivella and Ms. Weems sorted 4 and 5 samples, respectively. The nine samples constituted one batch of samples (see enclosed "Sorting Batch Listing Sheet"). One sample from the batch was randomly selected to evaluate sorting performance. All macrobenthic invertebrates found in the QC inspection were recorded as errors. This sample passed the sorting QC inspection (see Tables 2 and 3). A 95% acceptance or rejection level was used.

Table 2. Summary of Sorting QC Inspection.

Total number of samples sorted	9
Total number of QC samples	1
Percentage of samples inspected	11.1%
Total number of QC failures	0
Total number of samples that were re-sorted	0
Sorting QC error	3.3%

Table 3. Detailed Results of Sorting QC Inspection.

Sorter	Batch	Sample	QC Inspector & Inspection Date	No. of Errors	Total No.	% Error
DHC	1	3-A	Barbara Weems 09OCT06	0	60	0

Part 2. Taxonomy Performance

C. Timothy Morris identified the September 2006 Calvert Cliffs macrobenthic samples (n=9). These nine samples constituted one batch of samples (see enclosed "Taxonomy Batch Listing Sheet"). One sample from the batch was randomly selected to evaluate taxonomy performance. After the taxonomy QC inspection was completed, a comparison was made between the original and QC data sheets. All identification and enumeration differences were recorded as errors. This sample passed the taxonomy QC inspection (see Tables 2 and 3). A 95% acceptance or rejection level was used.

Table 2. Summary of Taxonomy QC Inspection.

Total number of samples identified	9
Total number of QC samples	1
Percentage of samples inspected	11.1%
Total number of QC failures	0
Total number of samples that were re-identified	0
Taxonomy QC error	3.3%

Table 3. Detailed Results of Taxonomy QC Inspection.

Tax.	Batch	Sample	QC Inspector & Inspection Date	No. of Errors	Total No.	% Error
CTM	1	3-A	Nancy Mountford 11OCT06	2	60	3.3

Calvert Cliffs Macrofaunal Data		
Collected September 29, 2006		
Comprehensive List of Taxa		
No.	**Taxon**	**NODC Code**
1	Stylochus ellipticus	3906030101
2	Micrura leidyi	4303020505
3	Eteone heteropoda	5001130207
4	Neanthes succinea	5001240410
5	Glycinde solitaria	5001280104
6	Leitoscoloplos robustus	5001400104
7	Polydora cornuta	5001430411
8	Paraprionospio pinnata	5001431701
9	Streblospio benedicti	5001431801
10	Heteromastus filiformis	5001600201
11	Tubificoides spp.	5009020200
12	Nassarius vibex	5105080102
13	Sayella chesapeakea	5108010901
14	Acteocina canaliculata	5110040103
15	Haminoea solitaria	5110120102
16	Doridella obscura	5131070201
17	Mulinia lateralis	5515250301
18	Macoma balthica	5515310116
19	Macoma mitchelli	5515310119
20	Gemma gemma	5515471301
21	Mya arenaria	5517010201
22	Balanus improvisus	6134020114
23	Hargeria rapax	6157020102
24	Paracereis caudata	6162020202
25	Edotea triloba	6162020703
26	Apocorophium lacustre	6169150202
27	Melita nitida	6169211006
28	Ameroculodes spp. complex	6169371800

Calvert Cliffs Macrofaunal Data			
Collected September 29, 2006			
Station	Replicate	NODC Code	Count
1	1	5001130207	2
1	2	5001130207	1
1	1	5001240410	22
1	2	5001240410	21
1	3	5001240410	1
1	1	5001280104	2
1	3	5001280104	2
1	1	5001430411	3
1	2	5001430411	2
1	1	5001431801	5
1	2	5001431801	5
1	3	5001431801	9
1	1	5001600201	5
1	2	5001600201	1
1	3	5001600201	2
1	3	5108010901	1
1	1	5515250301	1
1	2	5515250301	1
1	1	5515310119	1
1	3	5515310119	2
1	1	5515471301	33
1	2	5515471301	31
1	3	5515471301	23
1	1	6134020114	3
1	2	6134020114	1
1	1	6161020202	4
1	2	6161020202	6
1	3	6161020202	4
1	1	6162020703	3
1	2	6162020703	2
1	2	6169150205	3
1	3	6169211006	1
1	1	6157020102	1
1	2	6157020102	1
1	2	5131070201	2
2	2	5001130207	1
2	2	5001240410	3
2	3	5001240410	2
2	1	5001280104	4
2	2	5001280104	8
2	3	5001280104	5
2	2	5001431701	2
2	1	5001431801	1
2	2	5001431801	9
2	3	5001431801	6
2	1	5001600201	1
2	2	5001600201	6
2	3	5001600201	4
2	1	5110040103	1
2	3	5110040103	2
2	1	5515250301	1
2	2	5515250301	3
2	3	5515250301	4
2	1	5515310119	1

2	2	5515310119	4
2	3	5515310119	5
2	1	5515471301	26
2	2	5515471301	32
2	3	5515471301	25
2	2	5517010201	1
2	1	3906030101	3
2	1	4303020505	1
2	2	4303020505	7
2	3	4303020505	6
2	1	6162020703	1
2	2	6162020703	1
2	3	6162020703	1
2	1	6169150205	1
2	3	6169371800	5
3	1	5001240410	4
3	2	5001240410	7
3	3	5001240410	1
3	1	5001280104	1
3	1	5001400104	1
3	1	5001431801	16
3	2	5001431801	14
3	3	5001431801	17
3	1	5001600201	12
3	2	5001600201	1
3	3	5001600201	9
3	1	5009020200	5
3	2	5009020200	1
3	3	5009020200	3
3	2	5110120102	1
3	1	5515250301	6
3	2	5515250301	1
3	3	5515250301	3
3	1	5515310116	1
3	2	5515310119	1
3	1	5515471301	6
3	2	5515471301	2
3	3	5515471301	5
3	1	5517010201	1
3	1	4303020505	3
3	2	4303020505	4
3	3	4303020505	5
3	1	6162020703	2
3	3	6162020703	1
3	1	6169371800	2
3	3	5105080102	1

STUDY SITE = Calvert Cliffs
STATION = 1
COLLECTION DATE = September 29, 2006
SIEVE SIZE = 0.5mm
COLLECTION GEAR = Ponar (0.05m^2)

TAXA	REP A	REP B	REP C	MEAN
ANNELIDA				
Neanthes succinea	22	21	1	14.7
Streblospio benedicti	5	5	9	6.3
Heteromastus filiformis	5	1	2	2.7
Polydora cornuta	3	2	0	1.7
Glycinde solitaria	2	0	2	1.3
Eteone heteropoda	2	1	0	1.0
GASTROPODA				
Doridella obscura	0	2	0	0.7
Sayella chesapeakea	0	0	1	0.3
BIVALVIA				
Gemma gemma	33	31	23	29.0
Macoma mitchelli	1	0	2	1.0
Mulinia lateralis	1	1	0	0.7
CRUSTACEA				
Paracereis caudata	4	6	4	4.7
Edotea triloba	3	2	0	1.7
Balanus improvisus	3	1	0	1.3
Apocorophium lacustre	0	3	0	1.0
Hargeria rapax	1	1	0	0.7
Melita nitida	0	0	1	0.3
TOTAL NUMBER OF TAXA	13	13	9	
TOTAL NUMBER OF INDIVIDUALS	85	77	45	
SHANNON-WEINER DIVERSITY	1.882	1.790	1.549	
SIMPSON'S DOMINANCE INDEX	0.232	0.251	0.317	
SPECIES RICHNESS	2.70	2.76	2.10	
EVENNESS	0.73	0.70	0.70	

TOTAL STATION STATISTICS

TOTAL NUMBER OF TAXA	17
MEAN NUMBER OF INDIVIDUALS	69.0
SHANNON-WEINER DIVERSITY	1.923
SIMPSON'S DOMINANCE INDEX	0.239
SPECIES RICHNESS	3.00
EVENNESS	0.68

STUDY SITE = Calvert Cliffs
STATION = 2
COLLECTION DATE = September 29, 2006
SIEVE SIZE = 0.5mm
COLLECTION GEAR = Ponar (0.05m^2)

TAXA	REP A	REP B	REP C	MEAN
PLATYHELMINTHES				
Stylochus ellipticus	3	0	0	1.0
NEMERTINEA				
Micrura leidyi	1	7	6	4.7
ANNELIDA				
Glycinde solitaria	4	8	5	5.7
Streblospio benedicti	1	9	6	5.3
Heteromastus filiformis	1	6	4	3.7
Neanthes succinea	0	3	2	1.7
Paraprionospio pinnata	0	2	0	0.7
Eteone heteropoda	0	1	0	0.3
GASTROPODA				
Acteocina canaliculata	1	0	2	1.0
BIVALVIA				
Gemma gemma	26	32	25	27.7
Macoma mitchelli	1	4	5	3.3
Mulinia lateralis	1	3	4	2.7
Mya arenaria	0	1	0	0.3
CRUSTACEA				
Ameroculodes spp. complex	0	0	5	1.7
Edotea triloba	1	1	1	1.0
Apocorophium lacustre	1	0	0	0.3
TOTAL NUMBER OF TAXA	11	12	11	
TOTAL NUMBER OF INDIVIDUALS	41	77	65	
SHANNON-WEINER DIVERSITY	1.432	1.938	2.021	
SIMPSON'S DOMINANCE INDEX	0.422	0.218	0.192	
SPECIES RICHNESS	2.69	2.53	2.40	
EVENNESS	0.60	0.78	0.84	

TOTAL STATION STATISTICS

TOTAL NUMBER OF TAXA	16
MEAN NUMBER OF INDIVIDUALS	61.0
SHANNON-WEINER DIVERSITY	1.987
SIMPSON'S DOMINANCE INDEX	0.239
SPECIES RICHNESS	2.88
EVENNESS	0.72

STUDY SITE = Calvert Cliffs
STATION = 3
COLLECTION DATE = September 29, 2006
SIEVE SIZE = 0.5mm
COLLECTION GEAR = Ponar ($0.05m^2$)

TAXA	REP A	REP B	REP C	MEAN
NEMERTINEA				
Micrura leidyi	3	4	5	4.0
ANNELIDA				
Streblospio benedicti	16	14	17	15.7
Heteromastus filiformis	12	1	9	7.3
Neanthes succinea	4	7	1	4.0
Tubificoides spp.	5	1	3	3.0
Leitoscoloplos robustus	1	0	0	0.3
Glycinde solitaria	1	0	0	0.3
GASTROPODA				
Nassarius vibex	0	0	1	0.3
Haminoea solitaria	0	1	0	0.3
BIVALVIA				
Gemma gemma	6	2	5	4.3
Mulinia lateralis	6	1	3	3.3
Mya arenaria	1	0	0	0.3
Macoma mitchelli	0	1	0	0.3
Macoma balthica	1	0	0	0.3
CRUSTACEA				
Edotea triloba	2	0	1	1.0
Ameroculodes spp. complex	2	0	0	0.7
TOTAL NUMBER OF TAXA	13	9	9	
TOTAL NUMBER OF INDIVIDUALS	60	32	45	
SHANNON-WEINER DIVERSITY	2.172	1.669	1.793	
SIMPSON'S DOMINANCE INDEX	0.148	0.264	0.218	
SPECIES RICHNESS	2.93	2.31	2.10	
EVENNESS	0.85	0.76	0.82	

TOTAL STATION STATISTICS

TOTAL NUMBER OF TAXA	16
MEAN NUMBER OF INDIVIDUALS	45.7
SHANNON-WEINER DIVERSITY	2.077
SIMPSON'S DOMINANCE INDEX	0.179
SPECIES RICHNESS	3.05
EVENNESS	0.75

SAMPLE BATCH LISTING SHEET - Sorting

Client: EAEST	**Study Site:** Calvert Cliffs
Sorters: Denise Crivella & Barbara Weems	**Survey Dates:** September 29, 2006

I. BATCHES OF SAMPLES

Batch No. 1	Batch No. 2	Batch No. 3	Batch No. 4
1. 1-A 46,587			
2. 1-B 46,588			
3. 1-C 46,589			
4. 2-A 46,590			
5. 2-B 46,591			
6. 2-C 46,592			
7. 3-A 46,593			
8. 3-B 46,594			
9. 3-C 46,595			

II. QC EVALUATION

QC Results	Batch No. 1	Batch No. 2	Batch No. 3	Batch No. 4
QC Sample	3-A			
Serial No.	46,593			
QC Date	10/9/06			
QC Inspector	Barbara Weems			
Percent Error	0%			

III. COMMENTS CONCERNING SAMPLE PROCESSING

(initialize & date all entries -- continue on back if necessary)

Necessary Remedial Action: ***None***
Comments: ***None***

SAMPLE BATCH LISTING SHEET - Taxonomy

Client: EAEST	**Study Site:** Calvert Cliffs
Taxonomist: Tim Morris (Cove Corporation)	**Survey Dates:** September 29, 2006

I. BATCHES OF SAMPLES

Batch No. 1	Batch No. 2	Batch No. 3	Batch No. 4
1. 1-A 46,587			
2. 1-B 46,588			
3. 1-C 46,589			
4. 2-A 46,590			
5. 2-B 46,591			
6. 2-C 46,592			
7. 3-A 46,593			
8. 3-B 46,594			
9. 3-C 46,595			

II. QC EVALUATION

QC Results	Batch No. 1	Batch No. 2	Batch No. 3	Batch No. 4
QC Sample	3-A			
Serial No.	46,593			
QC Date	10/11/06			
QC Inspector	Nancy Mountford			
Percent Error	3.3%			

III. COMMENTS CONCERNING SAMPLE PROCESSING

(initialize & date all entries -- continue on back if necessary)

Necessary Remedial Action: ***None***
Comments: ***None***

APPENDIX C-2:

ANALYTICAL DATA FOR BAY SEDIMENTS

SEVERN TRENT STL

STL Pittsburgh
301 Alpha Drive
Pittsburgh, PA 15238

Tel: 412 963 7058 Fax: 412 963 2468
www.stl-inc.com

ANALYTICAL REPORT

PROJECT NO. EA CALVET CLIFF

EA Calvert Cliffs Benthic Stud

Lot #: C6I300144

Christine Papageorgis

EA Engineering, Science and Te

SEVERN TRENT LABORATORIES, INC.

Carrie L. Gamber
Project Manager

October 31, 2006

SEVERN TRENT STL

ACCREDITED IN ACCORDANCE WITH nelac

NELAC REPORTING:

The format and content of the attached report meets NELAC standards and guidelines except as noted in the narrative. The table below presents a summary of the certifications held by STL Pittsburgh. Our primary accreditation authority for the Non-potable water and Solid & Hazardous waste programs is Pennsylvania DEP. A more detailed parameter list is available upon request. Please ask your project manager for this information when required.

Certifying State Program	Certificate	Program Types	STL Pittsburgh
NFESC	NA	NAVY	X
USACE	NA	Corps of Engineers	X
US Dept of Agriculture	(#S-46425)	Foreign Soil Import Permit	X
Arkansas	(#03-022-1)	WW HW	X X
California – nelac	04224CA	WW HW	X X
Connecticut	(#PH-0688)	WW HW	X X
Florida – nelac	(#E87660)	WW HW	X X
Illinois – nelac	(#200005)	WW HW	X X
Kansas – nelac	(#E-10350)	WW HW	X X
Louisiana – nelac	(#93200)	WW HW	X X
New Hampshire – nelac	(#203002)	WW --	X --
New Jersey – nelac	(PA-005)	WW HW	X X
New York – nelac	(#11182)	WW HW	X X
North Carolina	(#434)	WW HW	X X
Ohio Vap	(#CL0063)	WW HW	X X
Pennsylvania - nelac	(#02-00416)	WW HW	X X
South Carolina	(#89014001)	WW HW	X X
Utah – nelac	(STLP)	WW HW	X X
West Virginia	(#142)	WW HW	X X
Wisconsin	998027800	WW HW	X X

The codes utilized for program types are described below:

HW Hazardous Waste certification
WW Non-potable Water and/or Wastewater certification
X Laboratory has some form of certification under the specific program. Many states certify laboratories for specific parameters or tests within a category. The information in the table indicates the lab is certified in a general category of testing. Please contact the laboratory if parameter specific certification information is required.

Updated: 04/27/06

CASE NARRATIVE

EA Engineering

STL Lot #: C6I300144

Sample Receiving:
STL Pittsburgh received samples on September 30, 2006. The cooler was received within the proper temperature range.

Note: The initial weight extracted for the soil samples for the GC/MS semivolatiles, pesticides, and metals analyses were adjusted to account for the percent moisture of each sample.

If project specific QC was not required for samples contained in this report, when batch QC was completed on these samples, anomalous results will be discussed below.

GC/MS Volatiles:
The method blank for batch 6277528 had methylene chloride detected below the reporting limit but above the MDL. The result was flagged with a "J" qualifier. Any sample associated with this blank that had methylene chloride detected had the result flagged with a "B" qualifier.

All non-CCC compounds that have >15% RSD were evaluated to see if a better curve could be drawn using a quadratic curve. All compounds <30% RSD will use and average response factor curve if no visible improvement is accomplished using a quadratic curve. The curve plot is provided for any compound that required a "best-fit" evaluation.

The following compounds had the %D > 25% in the calibration verification standard CC31004N; but were within the expected performance range for these compounds: arolein 30.1%, arylonitrile 36.1%, bomomethane 28.5% and cloroethane 28.8%.

GC/MS Semivolatiles:
The samples were analyzed at a dilution due to matrix.

All non-CCC compounds that have >15% RSD were evaluated to see if a better curve could be drawn using a quadratic curve. All compounds <30% RSD will use an average response factor curve if no visible improvement is accomplished using a quadratic curve. A quadratic curve will be used for a compound where it is determined to be the "best-fit" evaluation.

Pesticides:
The matrix spike was double spiked with surrogate and spike solution. All theoretical were adjusted accordingly. The relative percent difference between the matrix spike and the matrix spike duplicate was calculated using the results and not the recoveries; thus the RPD's are flagged as being out.

CASE NARRATIVE

EA Engineering

STL Lot #: C6I300144

Pesticides (cont):
All compounds <20% RSD will use an average response factor curve if no visible improvement is accomplished using a curve. A curve will be used for a compound where it is determined to be the "best-fit" evaluation.

PCB Congeners:
All compounds <20% RSD will use an average response factor curve if no visible improvement is accomplished using a curve. A curve will be used for a compound where it is determined to be the "best-fit" evaluation.

Several continuing calibration standards had compounds with a %D that did not meet the 15% D criteria. The samples associated with these continuing calibration standards did not have these compounds detected above the reporting limits. All data was reported.

Metals:
The method blanks had analytes detected at concentrations between the MDL and the reporting limit. The results were flagged with a "B" qualifier.

General Chemistry:
STL North Canton, Ohio performed the TKN and the phosphorus analyses. All data is included in the package.

Sample CCNPP-1-SED and CCNPP-3-SED were analyzed at a dilution for phosphorus.

The method blanks had analytes detected at concentrations between the MDL and the reporting limit. The results were flagged with a "B" qualifier. Any sample associated with a method blank that had the same analyte detected had the result flagged with a "J" qualifier.

For the matrix spike and matrix spike duplicate, phosphorus recoveries were not calculated due to the concentration of analyte in the sample being >4 times the concentration of spike added.

STL Burlington, VT performed the specific gravity and the Lloyd Kahn TOC analyses. Their data is included in the package.

METHODS SUMMARY

C6I300144

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A	SW846 7471A
Nitrogen, Ammonia	MCAWW 350.1	distillation,m
Organochlorine Pesticides	SW846 8081A	SW846 3541
PCB Congeners by SW-846 8082	SW846 8082 Cong	SW846 3541 SOXH
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3541
Total Kjeldahl Nitrogen	MCAWW 351.3	MCAWW 351.3
Total Phosphorus	MCAWW 365.1	MCAWW 365.1
Total Residue as Percent Solids	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3050B
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

C6I300144

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
JFFF5	001	CCNPP-1-SED	09/29/06	09:30
JFFGF	002	CCNPP-2-SED	09/29/06	11:00
JFFG5	003	CCNPP-3-SED	09/29/06	12:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

C61300144

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: EA ENGINEERING	Project Manager: CHRISTINE PAPAGEORGIS	Date: 9/29/06	Chain of Custody Number: 315734
Address: 15 LOVETON CIRCLE	Telephone Number (Area Code)/Fax Number: 410-329-5130	Lab Number	Page 1 of 1
City: SPARKS; State: MD; Zip Code: 21152	Site Contact	Lab Contact	
Project Name and Location (State): CALVERT CLIFFS, MARYLAND	Carrier/Waybill Number: 8527 2052 6622		
Contract/Purchase Order/Quote No.			

Analysis (Attach list if more space is needed)

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		% SOLIDS 160.3 MOD	AMM. NITROGEN 350.1	TKN 351.2	TOT. PHOS. 365.1	METALS 6010B/7471A	PEST. (PPL) - 8081A	PCB CONG. (TM) - 8082	VOL. (FLL) - 8260B	SEMI VOL. incl. PAH (GPC)	GRAIN SIZE incl. HYDRO. D422 ASTM	TOC - Lloyd Kahn	Specific Gravity	Special Instructions/ Conditions of Receipt
CCNPP-1-SED	9/29/06	0930			X			X							X	X	X	X	X	X	X	X	X	X	X	X	SEMIVOL = 8270C
CCNPP-2-SED	↓	1100			X			X							↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
CCNPP-3-SED	↓	1200			X			X							↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☒ 21 Days ☐ Other _____

QC Requirements (Specify)

1. Relinquished By: Todd Ward	Date: 9/29/06	Time: 1645	1. Received By	Date	Time
2. Relinquished By	Date	Time	2. Received By: Patrick R Dawat	Date: 9/30/06	Time: 0950
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Cooler Receipt Form
STL Pittsburgh

Client: E.A. Engineering Project: _____ Quote: 72428

Cooler Rec'd & Opened for Temp. Check on: 9/30/06

Coolers Opened and Unpacked on: 9/30/06 By: PRF (Signature)

STL Pittsburgh Lot Number: C6I300144

		Yes	No
1.	Were custody seals on the outside of the cooler?	/	
	If YES, how many and where? Quantity 1 Location front		
	Were signatures and date correct?	/	
2.	Were custody papers included inside the cooler?	/	
3.	Were custody papers properly filled out (ink, signed, match labels)?	/	
4.	Did you sign the custody papers in the appropriate place?	/	
5.	Was shippers packing slip attached to this form?	/	
6.	Were packing materials used?	/	
	If YES, what type? Bubble Wrap		
7.	Were the samples chilled? (Record temperatures on reverse side.)	/	
8.	Were the samples appropriately preserved?	N/A	
9.	Were all bottles sealed in separate plastic bags?		/
10.	Did all bottles arrive in good condition (unbroken)?	/	
11.	Were all bottle labels complete (sample ID, preservatives, etc.)?	/	
12.	Did all bottle labels and/or tags agree with custody papers?	/	
13.	Were correct bottles used for tests indicated?	/	
14.	Were all VOA vials checked for the presence of air bubbles?	N/A	
15.	Was a sufficient amount of sample sent in each bottle?	/	

16. Samples received by: (FEDEX) UPS CLIENT DROP-OFF OTHER DHL

Explain any discrepancies: _____

Level 2 Review _____

Was contacted on _____ by _____ to resolve discrepancies.

Cooler Receipt Form

STL Pittsburgh

P: Preserved

UP: Unpreserved

Sample ID	TMET PH<2	DMET PH<2	HG PH<2	NUT(1) PH<2	CN PH ≥12	OG TPHC PH<2	PHEN PH<2	SULF PH ≥12	TOC PH<2	TOX PH<2	VOA P/UP	hrdnss PH<2	Cl_2 RES		

(1) "NUT" could include sample bottles for ammonia, chemical oxygen demand, nitrate/nitrite, TKN, or total phosphorus

Comments: _____

Cooler Number	Temperature*	Thermometer
1	4.3°	6

*Acceptable Temperature Range: 4°C ± 2°C

Sample	Lot Number**

**Please use an asterisk if bottle lot number was covered by the label

C61300144

FedEx Express US Airbill — FedEx Tracking Number 8527 2052 6622

Recipient's Copy

RECIPIENT: PEEL HERE

1 From This portion can be removed for Recipient's records.

Date 9/29/06 — FedEx Tracking Number 852720526622

Sender's Name TODD WARD — Phone 410 771-4950

Company E A ENGINEERING SCIENCE & TECH

Address 15 LOVETON CIR — Dept./Floor/Suite/Room

City SPARKS GLENCOE — State MD — ZIP 21152-9205

2 Your Internal Billing Reference M35102.0002

3 To

Recipient's Name SAMPLE MANAGEMENT — Phone 412 963-7058

Company STL - PITTSBURGH

Recipient's Address 301 ALPHA DRIVE — Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City PITTSBURGH — State PA — ZIP 15238

8527 2052 6622

L

0310996156

4a Express Package Service — *Packages up to 150 lbs.* * To most locations

- [X] FedEx Priority Overnight — Next business morning*
- [ ] FedEx Standard Overnight — Next business afternoon*
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations*
- [ ] FedEx 2Day — Second business day*
- [ ] FedEx Express Saver — Third business day*

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — *Packages over 150 lbs.* ** To most locations

- [ ] FedEx 1Day Freight* — Next business day**
- [ ] FedEx 2Day Freight — Second business day**
- [ ] FedEx 3Day Freight — Third business day**

* Call for Confirmation:

5 Packaging — * Declared value limit $500

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- [ ] FedEx Box
- [ ] FedEx Tube
- [X] Other

6 Special Handling — Include FedEx address in Section 3.

- [X] **SATURDAY Delivery** — Available ONLY for FedEx Priority Overnight, FedEx 2Day, FedEx 1Day Freight, and FedEx 2Day Freight to select ZIP codes
- [ ] **HOLD Weekday** at FedEx Location — Not available for FedEx First Overnight
- [ ] **HOLD Saturday** at FedEx Location — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- [X] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including Dry Ice) cannot be shipped in FedEx packaging.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check
- [ ] Obtain Recip. Acct. No.

Total Packages	Total Weight	Total Charges
1		Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the *FedEx Service Guide* for details.

8 Sign to Authorize Delivery Without a Signature

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

Questions? Visit our Web site at fedex.com or call 1.800.GoFedEx 1.800.463.3339.

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DATA SUMMARY PACKAGE

GC/MS VOLATILES SUMMARY

EA Engineering, Science and Technology

Client Sample ID: CCNPP-1-SED

GC/MS Volatiles

Lot-Sample #...:	C6I300144-001	**Work Order #...:**	JFFF51AC	**Matrix.....:**	SOLID
Date Sampled...:	09/29/06	**Date Received..:**	09/30/06	**MS Run #.....:**	6277324
Prep Date.....:	10/04/06	**Analysis Date..:**	10/04/06		
Prep Batch #...:	6277528	**Analysis Time..:**	19:01		
Dilution Factor:	1	**Initial Wgt/Vol:**	5 g	**Final Wgt/Vol..:**	5 mL
% Moisture.....:	28	**Analyst ID.....:**	034635	**Instrument ID..:**	HP3
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acrolein	ND	140	ug/kg	130
Acrylonitrile	ND	140	ug/kg	37
Benzene	ND	7.0	ug/kg	0.76
Bromodichloromethane	ND	7.0	ug/kg	0.35
Bromoform	ND	7.0	ug/kg	0.85
Bromomethane	ND	7.0	ug/kg	1.3
Carbon tetrachloride	ND	7.0	ug/kg	0.35
Chlorobenzene	ND	7.0	ug/kg	1.2
Chloroethane	ND	7.0	ug/kg	1.3
2-Chloroethyl vinyl ether	ND	14	ug/kg	13
Chloroform	ND	7.0	ug/kg	0.35
Chloromethane	ND	7.0	ug/kg	0.40
Dibromochloromethane	ND	7.0	ug/kg	0.36
1,1-Dichloroethane	ND	7.0	ug/kg	0.40
1,2-Dichloroethane	ND	7.0	ug/kg	0.42
1,1-Dichloroethene	ND	7.0	ug/kg	0.82
trans-1,2-Dichloroethene	ND	7.0	ug/kg	0.91
1,2-Dichloropropane	ND	7.0	ug/kg	0.88
cis-1,3-Dichloropropene	ND	7.0	ug/kg	0.40
trans-1,3-Dichloropropene	ND	7.0	ug/kg	0.39
Ethylbenzene	ND	7.0	ug/kg	1.3
Methylene chloride	**4.5 J,B**	**7.0**	**ug/kg**	**1.9**
1,1,2,2-Tetrachloroethane	ND	7.0	ug/kg	0.63
Tetrachloroethene	ND	7.0	ug/kg	1.1
Toluene	ND	7.0	ug/kg	0.83
1,1,1-Trichloroethane	ND	7.0	ug/kg	0.38
1,1,2-Trichloroethane	ND	7.0	ug/kg	0.95
Trichloroethene	ND	7.0	ug/kg	1.2
Vinyl chloride	ND	7.0	ug/kg	0.92

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	83	(52 - 124)
Toluene-d8	102	(72 - 127)
4-Bromofluorobenzene	90	(63 - 120)
Dibromofluoromethane	84	(68 - 121)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

EA Engineering, Science and Technology

Client Sample ID: CCNPP-2-SED

GC/MS Volatiles

Lot-Sample #...:	C6I300144-002	**Work Order #...:**	JFFGF1AC	**Matrix.....:**	SOLID
Date Sampled...:	09/29/06	**Date Received..:**	09/30/06	**MS Run #.....:**	6277324
Prep Date.....:	10/04/06	**Analysis Date..:**	10/04/06		
Prep Batch #...:	6277528	**Analysis Time..:**	19:24		
Dilution Factor:	1	**Initial Wgt/Vol:**	5 g	**Final Wgt/Vol..:**	5 mL
% Moisture.....:	33	**Analyst ID.....:**	034635	**Instrument ID..:**	HP3
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acrolein	ND	150	ug/kg	140
Acrylonitrile	ND	150	ug/kg	40
Benzene	ND	7.4	ug/kg	0.81
Bromodichloromethane	ND	7.4	ug/kg	0.37
Bromoform	ND	7.4	ug/kg	0.91
Bromomethane	ND	7.4	ug/kg	1.4
Carbon tetrachloride	ND	7.4	ug/kg	0.37
Chlorobenzene	ND	7.4	ug/kg	1.3
Chloroethane	ND	7.4	ug/kg	1.4
2-Chloroethyl vinyl ether	ND	15	ug/kg	14
Chloroform	ND	7.4	ug/kg	0.37
Chloromethane	ND	7.4	ug/kg	0.43
Dibromochloromethane	ND	7.4	ug/kg	0.39
1,1-Dichloroethane	ND	7.4	ug/kg	0.43
1,2-Dichloroethane	ND	7.4	ug/kg	0.45
1,1-Dichloroethene	ND	7.4	ug/kg	0.88
trans-1,2-Dichloroethene	ND	7.4	ug/kg	0.97
1,2-Dichloropropane	ND	7.4	ug/kg	0.93
cis-1,3-Dichloropropene	ND	7.4	ug/kg	0.43
trans-1,3-Dichloropropene	ND	7.4	ug/kg	0.41
Ethylbenzene	ND	7.4	ug/kg	1.4
Methylene chloride	**5.0 J,B**	**7.4**	**ug/kg**	**2.0**
1,1,2,2-Tetrachloroethane	ND	7.4	ug/kg	0.67
Tetrachloroethene	ND	7.4	ug/kg	1.1
Toluene	ND	7.4	ug/kg	0.88
1,1,1-Trichloroethane	ND	7.4	ug/kg	0.40
1,1,2-Trichloroethane	ND	7.4	ug/kg	1.0
Trichloroethene	ND	7.4	ug/kg	1.3
Vinyl chloride	ND	7.4	ug/kg	0.98

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	87	(52 - 124)
Toluene-d8	101	(72 - 127)
4-Bromofluorobenzene	91	(63 - 120)
Dibromofluoromethane	85	(68 - 121)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

EA Engineering, Science and Technology

Client Sample ID: CCNPP-3-SED

GC/MS Volatiles

Lot-Sample #...:	C6I300144-003	**Work Order #...:**	JFFG51AC	**Matrix.....:**	SOLID
Date Sampled...:	09/29/06	**Date Received..:**	09/30/06	**MS Run #.....:**	6277324
Prep Date.....:	10/04/06	**Analysis Date..:**	10/04/06		
Prep Batch #...:	6277528	**Analysis Time..:**	19:48		
Dilution Factor:	1	**Initial Wgt/Vol:**	5 g	**Final Wgt/Vol..:**	5 mL
% Moisture.....:	27	**Analyst ID.....:**	034635	**Instrument ID..:**	HP3
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acrolein	ND	140	ug/kg	130
Acrylonitrile	ND	140	ug/kg	36
Benzene	ND	6.8	ug/kg	0.75
Bromodichloromethane	ND	6.8	ug/kg	0.34
Bromoform	ND	6.8	ug/kg	0.83
Bromomethane	ND	6.8	ug/kg	1.3
Carbon tetrachloride	ND	6.8	ug/kg	0.34
Chlorobenzene	ND	6.8	ug/kg	1.2
Chloroethane	ND	6.8	ug/kg	1.3
2-Chloroethyl vinyl ether	ND	14	ug/kg	12
Chloroform	ND	6.8	ug/kg	0.34
Chloromethane	ND	6.8	ug/kg	0.39
Dibromochloromethane	ND	6.8	ug/kg	0.36
1,1-Dichloroethane	ND	6.8	ug/kg	0.39
1,2-Dichloroethane	ND	6.8	ug/kg	0.41
1,1-Dichloroethene	ND	6.8	ug/kg	0.80
trans-1,2-Dichloroethene	ND	6.8	ug/kg	0.89
1,2-Dichloropropane	ND	6.8	ug/kg	0.85
cis-1,3-Dichloropropene	ND	6.8	ug/kg	0.39
trans-1,3-Dichloropropene	ND	6.8	ug/kg	0.38
Ethylbenzene	ND	6.8	ug/kg	1.3
Methylene chloride	**4.5 J,B**	**6.8**	**ug/kg**	**1.8**
1,1,2,2-Tetrachloroethane	ND	6.8	ug/kg	0.61
Tetrachloroethene	ND	6.8	ug/kg	1.0
Toluene	ND	6.8	ug/kg	0.81
1,1,1-Trichloroethane	ND	6.8	ug/kg	0.37
1,1,2-Trichloroethane	ND	6.8	ug/kg	0.92
Trichloroethene	ND	6.8	ug/kg	1.2
Vinyl chloride	ND	6.8	ug/kg	0.90

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	82	(52 - 124)
Toluene-d8	103	(72 - 127)
4-Bromofluorobenzene	90	(63 - 120)
Dibromofluoromethane	84	(68 - 121)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

SW846 8260B SURROGATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: EA Engineering, Science and Technology

Lab Code: STLPIT SDG No:

Lot #: C6I300144

Extraction: XXA15QK01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	TOT OUT
01	CCNPP-1-SED	83	102	90	84	00
02	CCNPP-2-SED	87	101	91	85	00
03	CCNPP-3-SED	82	103	90	84	00
04	METHOD BLK. JFN551AA	88	97	90	82	00
05	LCS JFN551AC	93	98	92	94	00
06	CCNPP-2-SED D	97	97	93	95	00
07	CCNPP-2-SED S	98	93	90	94	00

SURROGATES		QC LIMITS
SRG01	= 1,2-Dichloroethane-d4	(52-124)
SRG02	= Toluene-d8	(72-127)
SRG03	= 4-Bromofluorobenzene	(63-120)
SRG04	= Dibromofluoromethane	(68-121)

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

SW846 8260B CHECK SAMPLE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: EA Engineering, Science and Technology

Lab Code: STLPIT SDG No:

Lot #: C6J040000 WO #: JFN551AC
BATCH: 6277528

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
1,1-Dichloroethene	50.0	46.7	93	59- 129	
Trichloroethene	50.0	48.6	97	76- 119	
Benzene	50.0	51.4	103	77- 120	
Toluene	50.0	51.5	103	78- 124	
Chlorobenzene	50.0	51.5	103	79- 120	

NOTES(S):

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS:

FORM III

SW846 8260B MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc.

Client: EA Engineering, Science and Technology

Lab Code: STLPIT

SDG No:

Matrix Spike ID: CCNPP-2-SED

Level:(low/med) LOW

Lot #: C6I300144

WO #: JFFGF1AW
BATCH: 6277528

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
1,1-Dichloroethene	74.3	ND	67.9	91	46- 143	
Trichloroethene	74.3	ND	70.3	95	46- 141	
Benzene	74.3	ND	75.1	101	49- 141	
Toluene	74.3	ND	73.2	99	32- 161	
Chlorobenzene	74.3	ND	74.0	100	47- 146	

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 5 outside limits

COMMENTS:

FORM III

SW846 8260B MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: EA Engineering, Science and Technology

Lab Code: STLPIT SDG No:

Matrix Spike ID: CCNPP-2-SED Level:(low/med) LOW

Lot #: C6I300144 WO #: JFFGF1AX
BATCH: 6277528

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
1,1-Dichloroethene	74.3	71.8	97	5.6	36	46- 143	
Trichloroethene	74.3	74.5	100	5.7	35	46- 141	
Benzene	74.3	79.5	107	5.7	38	49- 141	
Toluene	74.3	77.4	104	5.6	54	32- 161	
Chlorobenzene	74.3	78.0	105	5.2	32	47- 146	

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 5 outside limits

COMMENTS:

FORM III

SW846 8260B METHOD BLANK SUMMARY

BLANK WORKORDER NO.

JFN551AA

Lab Name: Severn Trent Laboratories, Inc.

Lab Code: STLPIT

SDG Number:

Lab File ID: 31004N03.

Lot Number: C6I300144

Date Analyzed: 10/04/06

Time Analyzed: 18:23

Matrix: SOLID

Date Extracted:10/04/06

GC Column: RTX-624 ID: .18

Extraction Method: 5030B/8260B

Instrument ID: HP3

Level:(low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, LCSD, MS , MSD:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCNPP-1-SED	JFFF51AC	31004N04.	10/04/06	19:01
02	CCNPP-2-SED	JFFGF1AC	31004N05.	10/04/06	19:24
03	CCNPP-2-SED	JFFGF1AW S	31004N07.	10/04/06	20:18
04	CCNPP-2-SED	JFFGF1AX D	31004N08.	10/04/06	20:42
05	CCNPP-3-SED	JFFG51AC	31004N06.	10/04/06	19:48
06	CHECK SAMPLE	JFN551AC C	31004N09.	10/04/06	21:06
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

COMMENTS:

FORM IV

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: C6I300144
MB Lot-Sample #: C6J040000-528

Work Order #...: JFN551AA

Matrix.....: SOLID

Analysis Date..: 10/04/06
Dilution Factor: 1

Prep Date.....: 10/04/06
Prep Batch #...: 6277528
Initial Wgt/Vol: 5 g
Analyst ID.....: 034635

Analysis Time..: 18:23
Final Wgt/Vol..: 5 mL
Instrument ID..: HP3

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acrolein	ND	100	ug/kg	SW846 8260B
Acrylonitrile	ND	100	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
Bromoform	ND	5.0	ug/kg	SW846 8260B
Bromomethane	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Chloroethane	ND	5.0	ug/kg	SW846 8260B
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
Chloromethane	ND	5.0	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Ethylbenzene	ND	5.0	ug/kg	SW846 8260B
Methylene chloride	**2.5 J**	**5.0**	**ug/kg**	**SW846 8260B**
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
Toluene	ND	5.0	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
Vinyl chloride	ND	5.0	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	88	(52 - 124)
Toluene-d8	97	(72 - 127)
4-Bromofluorobenzene	90	(63 - 120)
Dibromofluoromethane	82	(68 - 121)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: STL PITTSBURGH Contract:

Lab Code: STLPGH Case No.: SAS No.: SDG No.: C6I300144

Lab File ID (Standard): CC31004N Date Analyzed: 10/04/06

Instrument ID: HP3 Time Analyzed: 1653

GC Column: DB 624 ID: 0.18 (mm) Heated Purge: (Y/N) Y

		IS1(CBZ) AREA #	RT #	IS2(DCB) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	125272	10.82	203917	13.15	562942	7.75
	UPPER LIMIT	250544	11.02	407834	13.35	1125884	7.95
	LOWER LIMIT	62636	10.62	101959	12.95	281471	7.55
	EPA SAMPLE NO.						
01	INTRA-LAB BL	210083	10.82	316630	13.14	1046686	7.75
02	CCNPP-1-SED	189836	10.82	264923	13.15	945483	7.76
03	CCNPP-2-SED	180822	10.82	267407	13.15	907583	7.76
04	CCNPP-3-SED	185490	10.82	264742	13.15	943815	7.75
05	CCNPP-2-SED	162982	10.82	238516	13.15	685528	7.75
06	CCNPP-2-SED	153805	10.82	226271	13.15	659061	7.75
07	INTRA-LAB CH	170855	10.82	248851	13.15	745665	7.75
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (CBZ) = Chlorobenzene-d5
IS2 (DCB) = 1,4-Dichlorobenzene-d4
IS3 = Fluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.20 minutes of internal standard RT
RT LOWER LIMIT = - 0.20 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

page 1 of 1

FORM VIII VOA OLM03.0

GC/MS SEMIVOLATILE SUMMARY

EA Engineering, Science and Technology

Client Sample ID: CCNPP-1-SED

GC/MS Semivolatiles

Lot-Sample #...:	C6I300144-001	**Work Order #...:**	JFFF51AD	**Matrix.....:**	SOLID
Date Sampled...:	09/29/06	**Date Received..:**	09/30/06	**MS Run #.....:**	6282042
Prep Date.....:	10/09/06	**Analysis Date..:**	10/13/06		
Prep Batch #...:	6282074	**Analysis Time..:**	17:04		
Dilution Factor:	1.39	**Initial Wgt/Vol:**	21.5 g	**Final Wgt/Vol..:**	0.5 mL
% Moisture.....:	28	**Analyst ID.....:**	007062	**Instrument ID..:**	732
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	640	ug/kg	14
Acenaphthylene	ND	640	ug/kg	14
Anthracene	ND	640	ug/kg	15
Benzidine	ND	640	ug/kg	210
Benzo(a)anthracene	ND	640	ug/kg	14
Benzo(a)pyrene	ND	640	ug/kg	11
Benzo(b)fluoranthene	ND	640	ug/kg	13
Benzo(ghi)perylene	ND	640	ug/kg	12
Benzo(k)fluoranthene	ND	640	ug/kg	13
bis(2-Chloroethoxy) methane	ND	640	ug/kg	15
bis(2-Chloroethyl)-ether	ND	640	ug/kg	13
bis(2-Ethylhexyl) phthalate	ND	640	ug/kg	40
4-Bromophenyl phenyl ether	ND	640	ug/kg	32
Butyl benzyl phthalate	ND	640	ug/kg	14
4-Chloro-3-methylphenol	ND	640	ug/kg	14
2-Chloronaphthalene	ND	640	ug/kg	14
2-Chlorophenol	ND	640	ug/kg	10
4-Chlorophenyl phenyl ether	ND	640	ug/kg	13
Chrysene	ND	640	ug/kg	13
Dibenzo(a,h)anthracene	ND	640	ug/kg	11
1,2-Dichlorobenzene	ND	640	ug/kg	13
1,3-Dichlorobenzene	ND	640	ug/kg	11
1,4-Dichlorobenzene	ND	640	ug/kg	13
3,3'-Dichlorobenzidine	ND	3100	ug/kg	16
2,4-Dichlorophenol	ND	640	ug/kg	12
Diethyl phthalate	ND	640	ug/kg	13
2,4-Dimethylphenol	ND	640	ug/kg	10
Dimethyl phthalate	ND	640	ug/kg	14
Di-n-butyl phthalate	ND	640	ug/kg	79
2,4-Dinitrophenol	ND	3100	ug/kg	1600
2,4-Dinitrotoluene	ND	640	ug/kg	6.8
2,6-Dinitrotoluene	ND	640	ug/kg	9.2

(Continued on next page)

EA Engineering, Science and Technology

Client Sample ID: CCNPP-1-SED

GC/MS Semivolatiles

Lot-Sample #...: C6I300144-001 **Work Order #...:** JFFF51AD **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Di-n-octyl phthalate	ND	640	ug/kg	15
1,2-Diphenylhydrazine	ND	640	ug/kg	15
Fluoranthene	ND	640	ug/kg	14
Fluorene	ND	640	ug/kg	15
Hexachlorocyclopenta-diene	ND	3100	ug/kg	52
Hexachlorobenzene	ND	640	ug/kg	13
Hexachlorobutadiene	ND	640	ug/kg	13
Hexachloroethane	ND	640	ug/kg	12
Indeno(1,2,3-cd)pyrene	ND	640	ug/kg	13
Isophorone	ND	640	ug/kg	12
2-Methyl-4,6-dinitro-phenol	ND	3100	ug/kg	1600
Naphthalene	ND	640	ug/kg	15
Nitrobenzene	ND	640	ug/kg	21
2-Nitrophenol	ND	640	ug/kg	12
4-Nitrophenol	ND	3100	ug/kg	8.7
N-Nitrosodimethylamine	ND	640	ug/kg	160
N-Nitrosodi-n-propyl-amine	ND	640	ug/kg	13
N-Nitrosodiphenylamine	ND	640	ug/kg	130
2,2'-oxybis(1-Chloropropane)	ND	640	ug/kg	9.4
Pentachlorophenol	ND	3100	ug/kg	890
Phenanthrene	ND	640	ug/kg	15
Phenol	ND	640	ug/kg	13
Pyrene	ND	640	ug/kg	16
1,2,4-Trichloro-benzene	ND	640	ug/kg	13
2,4,6-Trichloro-phenol	ND	640	ug/kg	11

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol~	62	(21 - 144)
2-Fluorobiphenyl	68	(26 - 128)
2-Fluorophenol	70	(34 - 115)
Nitrobenzene-d5	64	(30 - 118)
Phenol-d5	65	(35 - 117)
Terphenyl-d14	76	(40 - 115)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

EA Engineering, Science and Technology

Client Sample ID: CCNPP-2-SED

GC/MS Semivolatiles

Lot-Sample #...:	C6I300144-002	**Work Order #...:**	JFFGF1AD	**Matrix.....:**	SOLID
Date Sampled...:	09/29/06	**Date Received..:**	09/30/06	**MS Run #.....:**	6282042
Prep Date.....:	10/09/06	**Analysis Date..:**	10/13/06		
Prep Batch #...:	6282074	**Analysis Time..:**	18:30		
Dilution Factor:	1.3	**Initial Wgt/Vol:**	23.1 g	**Final Wgt/Vol..:**	0.5 mL
% Moisture.....:	33	**Analyst ID.....:**	007062	**Instrument ID..:**	732
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	640	ug/kg	14
Acenaphthylene	ND	640	ug/kg	13
Anthracene	ND	640	ug/kg	15
Benzidine	ND	640	ug/kg	210
Benzo(a)anthracene	ND	640	ug/kg	14
Benzo(a)pyrene	ND	640	ug/kg	11
Benzo(b)fluoranthene	ND	640	ug/kg	13
Benzo(ghi)perylene	ND	640	ug/kg	12
Benzo(k)fluoranthene	ND	640	ug/kg	13
bis(2-Chloroethoxy) methane	ND	640	ug/kg	14
bis(2-Chloroethyl)-ether	ND	640	ug/kg	13
bis(2-Ethylhexyl) phthalate	ND	640	ug/kg	40
4-Bromophenyl phenyl ether	ND	640	ug/kg	32
Butyl benzyl phthalate	ND	640	ug/kg	14
4-Chloro-3-methylphenol	ND	640	ug/kg	14
2-Chloronaphthalene	ND	640	ug/kg	14
2-Chlorophenol	ND	640	ug/kg	10
4-Chlorophenyl phenyl ether	ND	640	ug/kg	13
Chrysene	ND	640	ug/kg	13
Dibenzo(a,h)anthracene	ND	640	ug/kg	11
1,2-Dichlorobenzene	ND	640	ug/kg	13
1,3-Dichlorobenzene	ND	640	ug/kg	11
1,4-Dichlorobenzene	ND	640	ug/kg	13
3,3'-Dichlorobenzidine	ND	3100	ug/kg	16
2,4-Dichlorophenol	ND	640	ug/kg	12
Diethyl phthalate	ND	640	ug/kg	13
2,4-Dimethylphenol	ND	640	ug/kg	10
Dimethyl phthalate	ND	640	ug/kg	13
Di-n-butyl phthalate	ND	640	ug/kg	79
2,4-Dinitrophenol	ND	3100	ug/kg	1600
2,4-Dinitrotoluene	ND	640	ug/kg	6.7
2,6-Dinitrotoluene	ND	640	ug/kg	9.2

(Continued on next page)

EA Engineering, Science and Technology

Client Sample ID: CCNPP-2-SED

GC/MS Semivolatiles

Lot-Sample #...: C6I300144-002 **Work Order #...:** JFFGF1AD **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Di-n-octyl phthalate	ND	640	ug/kg	15
1,2-Diphenylhydrazine	ND	640	ug/kg	15
Fluoranthene	ND	640	ug/kg	14
Fluorene	ND	640	ug/kg	15
Hexachlorocyclopenta-diene	ND	3100	ug/kg	52
Hexachlorobenzene	ND	640	ug/kg	13
Hexachlorobutadiene	ND	640	ug/kg	13
Hexachloroethane	ND	640	ug/kg	12
Indeno(1,2,3-cd)pyrene	ND	640	ug/kg	13
Isophorone	ND	640	ug/kg	12
2-Methyl-4,6-dinitro-phenol	ND	3100	ug/kg	1600
Naphthalene	ND	640	ug/kg	15
Nitrobenzene	ND	640	ug/kg	21
2-Nitrophenol	ND	640	ug/kg	12
4-Nitrophenol	ND	3100	ug/kg	8.6
N-Nitrosodimethylamine	ND	640	ug/kg	160
N-Nitrosodi-n-propyl-amine	ND	640	ug/kg	13
N-Nitrosodiphenylamine	ND	640	ug/kg	130
2,2'-oxybis(1-Chloropropane)	ND	640	ug/kg	9.3
Pentachlorophenol	ND	3100	ug/kg	880
Phenanthrene	ND	640	ug/kg	15
Phenol	ND	640	ug/kg	13
Pyrene	ND	640	ug/kg	16
1,2,4-Trichloro-benzene	ND	640	ug/kg	13
2,4,6-Trichloro-phenol	ND	640	ug/kg	11

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol~	69	(21 - 144)
2-Fluorobiphenyl	67	(26 - 128)
2-Fluorophenol	71	(34 - 115)
Nitrobenzene-d5	63	(30 - 118)
Phenol-d5	71	(35 - 117)
Terphenyl-d14	85	(40 - 115)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

EA Engineering, Science and Technology

Client Sample ID: CCNPP-3-SED

GC/MS Semivolatiles

Lot-Sample #...:	C6I300144-003	**Work Order #...:**	JFFG51AD	**Matrix.....:**	SOLID
Date Sampled...:	09/29/06	**Date Received..:**	09/30/06	**MS Run #.....:**	6282042
Prep Date.....:	10/09/06	**Analysis Date..:**	10/13/06		
Prep Batch #...:	6282074	**Analysis Time..:**	18:59		
Dilution Factor:	1.39	**Initial Wgt/Vol:**	21.5 g	**Final Wgt/Vol..:**	0.5 mL
% Moisture.....:	27	**Analyst ID.....:**	007062	**Instrument ID..:**	732
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	630	ug/kg	14
Acenaphthylene	ND	630	ug/kg	13
Anthracene	ND	630	ug/kg	14
Benzidine	ND	630	ug/kg	200
Benzo(a)anthracene	ND	630	ug/kg	14
Benzo(a)pyrene	ND	630	ug/kg	11
Benzo(b)fluoranthene	ND	630	ug/kg	13
Benzo(ghi)perylene	ND	630	ug/kg	12
Benzo(k)fluoranthene	ND	630	ug/kg	12
bis(2-Chloroethoxy) methane	ND	630	ug/kg	14
bis(2-Chloroethyl)-ether	ND	630	ug/kg	12
bis(2-Ethylhexyl) phthalate	ND	630	ug/kg	39
4-Bromophenyl phenyl ether	ND	630	ug/kg	32
Butyl benzyl phthalate	ND	630	ug/kg	14
4-Chloro-3-methylphenol	ND	630	ug/kg	14
2-Chloronaphthalene	ND	630	ug/kg	13
2-Chlorophenol	ND	630	ug/kg	10
4-Chlorophenyl phenyl ether	ND	630	ug/kg	13
Chrysene	ND	630	ug/kg	12
Dibenzo(a,h)anthracene	ND	630	ug/kg	10
1,2-Dichlorobenzene	ND	630	ug/kg	13
1,3-Dichlorobenzene	ND	630	ug/kg	11
1,4-Dichlorobenzene	ND	630	ug/kg	13
3,3'-Dichlorobenzidine	ND	3000	ug/kg	16
2,4-Dichlorophenol	ND	630	ug/kg	12
Diethyl phthalate	ND	630	ug/kg	13
2,4-Dimethylphenol	ND	630	ug/kg	10
Dimethyl phthalate	ND	630	ug/kg	13
Di-n-butyl phthalate	ND	630	ug/kg	77
2,4-Dinitrophenol	ND	3000	ug/kg	1600
2,4-Dinitrotoluene	ND	630	ug/kg	6.6
2,6-Dinitrotoluene	ND	630	ug/kg	9.0

(Continued on next page)

EA Engineering, Science and Technology

Client Sample ID: CCNPP-3-SED

GC/MS Semivolatiles

Lot-Sample #...: C6I300144-003 **Work Order #...:** JFFG51AD **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Di-n-octyl phthalate	ND	630	ug/kg	15
1,2-Diphenylhydrazine	ND	630	ug/kg	15
Fluoranthene	ND	630	ug/kg	13
Fluorene	ND	630	ug/kg	15
Hexachlorocyclopenta-diene	ND	3000	ug/kg	51
Hexachlorobenzene	ND	630	ug/kg	13
Hexachlorobutadiene	ND	630	ug/kg	12
Hexachloroethane	ND	630	ug/kg	12
Indeno(1,2,3-cd)pyrene	ND	630	ug/kg	13
Isophorone	ND	630	ug/kg	12
2-Methyl-4,6-dinitro-phenol	ND	3000	ug/kg	1600
Naphthalene	ND	630	ug/kg	15
Nitrobenzene	ND	630	ug/kg	20
2-Nitrophenol	ND	630	ug/kg	11
4-Nitrophenol	ND	3000	ug/kg	8.5
N-Nitrosodimethylamine	ND	630	ug/kg	160
N-Nitrosodi-n-propyl-amine	ND	630	ug/kg	13
N-Nitrosodiphenylamine	ND	630	ug/kg	130
2,2'-oxybis(1-Chloropropane)	ND	630	ug/kg	9.1
Pentachlorophenol	ND	3000	ug/kg	870
Phenanthrene	ND	630	ug/kg	15
Phenol	ND	630	ug/kg	13
Pyrene	ND	630	ug/kg	15
1,2,4-Trichloro-benzene	ND	630	ug/kg	13
2,4,6-Trichloro-phenol	ND	630	ug/kg	11

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol~	44	(21 - 144)
2-Fluorobiphenyl	48	(26 - 128)
2-Fluorophenol	50	(34 - 115)
Nitrobenzene-d5	45	(30 - 118)
Phenol-d5	49	(35 - 117)
Terphenyl-d14	62	(40 - 115)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

SW846 8270C SURROGATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: EA Engineering, Science and Technology

Lab Code: STLPIT SDG No:

Lot #: C6I300144

Extraction: XXA4FQL01

	CLIENT ID.	SRG01	SRG02	SRG03	SRG04	SRG05	SRG06	TOT OUT
01	CCNPP-1-SED	62	68	70	64	65	76	00
02	CCNPP-2-SED	69	67	71	63	71	85	00
03	CCNPP-3-SED	44	48	50	45	49	62	00
04	METHOD BLK. JF1GA1AA	71	61	63	59	65	71	00
05	LCS JF1GA1AC	91	80	78	75	81	82	00
06	CCNPP-1-SED D	76	69	70	63	70	85	00
07	CCNPP-1-SED S	79	73	70	64	70	81	00

SURROGATES		QC LIMITS
SRG01	= 2,4,6-Tribromophenol	(21-144)
SRG02	= 2-Fluorobiphenyl	(26-128)
SRG03	= 2-Fluorophenol	(34-115)
SRG04	= Nitrobenzene-d5	(30-118)
SRG05	= Phenol-d5	(35-117)
SRG06	= Terphenyl-d14	(40-115)

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

SW846 8270C CHECK SAMPLE RECOVERY

Lab Name: Severn Trent Laboratories, Inc.

Client: EA Engineering, Science and Technology

Lab Code: STLPIT

SDG No:

Lot #: C6J090000

WO #: JF1GA1AC
BATCH: 6282074

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
1,2,4-Trichlorobenzene	1080	820	76	37- 111	
1,4-Dichlorobenzene	1080	788	73	36- 107	
2,4-Dinitrotoluene	1080	901	83	35- 117	
2-Chlorophenol	1080	824	76	38- 109	
4-Chloro-3-methylphenol	1080	847	78	39- 111	
4-Nitrophenol	1080	888	82	30- 125	
Acenaphthene	1080	858	79	38- 112	
N-Nitrosodi-n-propylamine	1080	801	74	36- 114	
Pentachlorophenol	1080	808	75	21- 127	
Phenol	1080	829	77	36- 110	
Pyrene	1080	869	80	43- 118	
Butyl benzyl phthalate	1080	882	81	47- 115	
4-Bromophenyl phenyl ethe	1080	881	81	46- 120	
4-Methylphenol	2160	1670	77	41- 117	
Hexachloroethane	1080	776	72	40- 106	
Naphthalene	1080	814	75	44- 109	

NOTES(S):

* Values outside of QC limits

Spike Recovery: 0 out of 16 outside limits

COMMENTS:

FORM III

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc.

Client: EA Engineering, Science and Technology

Lab Code: STLPIT

SDG No:

Matrix Spike ID: CCNPP-1-SED

Level: (low/med) LOW

Lot #: C6I300144

WO #: JFFF51A0
BATCH: 6282074

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
Hexachloroethane	1630	ND	1010	62	13 - 111	
Naphthalene	1630	ND	1080	66	10 - 140	
1,2,4-Trichlorobenzene	1630	ND	1080	67	21 - 118	
1,4-Dichlorobenzene	1630	ND	1010	62	20 - 105	
2,4-Dinitrotoluene	1630	ND	1090	67	15 - 132	
2-Chlorophenol	1630	ND	1150	71	16 - 120	
4-Chloro-3-methylphenol	1630	ND	1050	64	16 - 128	
4-Nitrophenol	1630	ND	918	56	10 - 154	
Acenaphthene	1630	ND	1140	70	15 - 130	
N-Nitrosodi-n-propylamine	1630	ND	1120	69	30 - 118	
Pentachlorophenol	1630	ND	505	31	10 - 136	
Phenol	1630	ND	1100	68	19 - 119	
Pyrene	1630	ND	1410	87	10 - 168	
Butyl benzyl phthalate	1630	ND	1320	81	27 - 130	
4-Bromophenyl phenyl ethe	1630	ND	1300	80	27 - 136	
4-Methylphenol	3250	ND	2240	69	17 - 131	

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 16 outside limits

COMMENTS:

FORM III

SW846 8270C MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc.

Client: EA Engineering, Science and Technology

Lab Code: STLPIT

SDG No:

Matrix Spike ID: CCNPP-1-SED

Level:(low/med) LOW

Lot #: C6I300144

WO #: JFFF51A1
BATCH: 6282074

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
1,2,4-Trichlorobenzene	1630	1040	64	4.1	49	21- 118	
1,4-Dichlorobenzene	1630	1010	62	0.21	62	20- 105	
2,4-Dinitrotoluene	1630	1080	66	1.4	49	15- 132	
2-Chlorophenol	1630	1130	70	1.8	54	16- 120	
4-Chloro-3-methylphenol	1630	1080	67	3.2	52	16- 128	
4-Nitrophenol	1630	922	57	0.53	88	10- 154	
Acenaphthene	1630	1130	69	0.95	50	15- 130	
N-Nitrosodi-n-propylamine	1630	1120	69	0.15	51	30- 118	
Pentachlorophenol	1630	603	37	17	123	10- 136	
Phenol	1630	1090	67	1.2	50	19- 119	
Pyrene	1630	1450	89	2.9	69	10- 168	
Butyl benzyl phthalate	1630	1370	84	4.0	48	27- 130	
4-Bromophenyl phenyl ethe	1630	1310	81	1.2	48	27- 136	
4-Methylphenol	3250	2250	69	0.38	50	17- 131	
Hexachloroethane	1630	1000	62	0.74	63	13- 111	
Naphthalene	1630	1040	64	3.1	56	10- 140	

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 16 outside limits
Spike Recovery: 0 out of 16 outside limits

COMMENTS:

FORM III

SW846 8270C METHOD BLANK SUMMARY

BLANK WORKORDER NO.

JF1GA1AA

Lab Name: Severn Trent Laboratories, Inc.

Lab Code: STLPIT

SDG Number:

Lab File ID: D1013011.

Lot Number: C6I300144

Date Analyzed: 10/13/06

Time Analyzed: 16:06

Matrix: SOLID

Date Extracted:10/09/06

GC Column: ID: .00

Extraction Method: 3541

Instrument ID: 732

Level:(low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, LCSD, MS , MSD:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCNPP-1-SED	JFFF51AD	D1013013.	10/13/06	17:04
02	CCNPP-1-SED	JFFF51A0 S	D1013014.	10/13/06	17:33
03	CCNPP-1-SED	JFFF51A1 D	D1013015.	10/13/06	18:01
04	CCNPP-2-SED	JFFGF1AD	D1013016.	10/13/06	18:30
05	CCNPP-3-SED	JFFG51AD	D1013017.	10/13/06	18:59
06	CHECK SAMPLE	JF1GA1AC C	D1013012.	10/13/06	16:35
07					
08					
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25					
26					
27					
28					
29					
30					

COMMENTS:

FORM IV

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: C6I300144
MB Lot-Sample #: C6J090000-074

Work Order #...: JF1GA1AA

Matrix.....: SOLID

Analysis Date..: 10/13/06
Dilution Factor: 0.65

Prep Date.....: 10/09/06
Prep Batch #...: 6282074
Initial Wgt/Vol: 23.1 g
Analyst ID.....: 007062

Analysis Time..: 16:06
Final Wgt/Vol..: 0.5 mL
Instrument ID..: 732

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	210	ug/kg	SW846 8270C
Acenaphthylene	ND	210	ug/kg	SW846 8270C
Anthracene	ND	210	ug/kg	SW846 8270C
Benzidine	ND	210	ug/kg	SW846 8270C
Benzo(a)anthracene	ND	210	ug/kg	SW846 8270C
Benzo(a)pyrene	ND	210	ug/kg	SW846 8270C
Benzo(b)fluoranthene	ND	210	ug/kg	SW846 8270C
Benzo(ghi)perylene	ND	210	ug/kg	SW846 8270C
Benzo(k)fluoranthene	ND	210	ug/kg	SW846 8270C
bis(2-Chloroethoxy) methane	ND	210	ug/kg	SW846 8270C
bis(2-Chloroethyl)-ether	ND	210	ug/kg	SW846 8270C
bis(2-Ethylhexyl) phthalate	ND	210	ug/kg	SW846 8270C
4-Bromophenyl phenyl ether	ND	210	ug/kg	SW846 8270C
Butyl benzyl phthalate	ND	210	ug/kg	SW846 8270C
4-Chloro-3-methylphenol	ND	210	ug/kg	SW846 8270C
2-Chloronaphthalene	ND	210	ug/kg	SW846 8270C
2-Chlorophenol	ND	210	ug/kg	SW846 8270C
4-Chlorophenyl phenyl ether	ND	210	ug/kg	SW846 8270C
Chrysene	ND	210	ug/kg	SW846 8270C
Dibenzo(a,h)anthracene	ND	210	ug/kg	SW846 8270C
1,2-Dichlorobenzene	ND	210	ug/kg	SW846 8270C
1,3-Dichlorobenzene	ND	210	ug/kg	SW846 8270C
1,4-Dichlorobenzene	ND	210	ug/kg	SW846 8270C
3,3'-Dichlorobenzidine	ND	1000	ug/kg	SW846 8270C
2,4-Dichlorophenol	ND	210	ug/kg	SW846 8270C
Diethyl phthalate	ND	210	ug/kg	SW846 8270C
2,4-Dimethylphenol	ND	210	ug/kg	SW846 8270C
Dimethyl phthalate	ND	210	ug/kg	SW846 8270C
Di-n-butyl phthalate	ND	210	ug/kg	SW846 8270C
2,4-Dinitrophenol	ND	1000	ug/kg	SW846 8270C
2,4-Dinitrotoluene	ND	210	ug/kg	SW846 8270C
2,6-Dinitrotoluene	ND	210	ug/kg	SW846 8270C
Di-n-octyl phthalate	ND	210	ug/kg	SW846 8270C
1,2-Diphenylhydrazine	ND	210	ug/kg	SW846 8270C
Fluoranthene	ND	210	ug/kg	SW846 8270C

(Continued on next page)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: C6I300144 **Work Order #...:** JF1GA1AA **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Fluorene	ND	210	ug/kg	SW846 8270C
Hexachlorocyclopenta-diene	ND	1000	ug/kg	SW846 8270C
Hexachlorobenzene	ND	210	ug/kg	SW846 8270C
Hexachlorobutadiene	ND	210	ug/kg	SW846 8270C
Hexachloroethane	ND	210	ug/kg	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	210	ug/kg	SW846 8270C
Isophorone	ND	210	ug/kg	SW846 8270C
2-Methyl-4,6-dinitro-phenol	ND	1000	ug/kg	SW846 8270C
Naphthalene	ND	210	ug/kg	SW846 8270C
Nitrobenzene	ND	210	ug/kg	SW846 8270C
2-Nitrophenol	ND	210	ug/kg	SW846 8270C
4-Nitrophenol	ND	1000	ug/kg	SW846 8270C
N-Nitrosodimethylamine	ND	210	ug/kg	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	210	ug/kg	SW846 8270C
N-Nitrosodiphenylamine	ND	210	ug/kg	SW846 8270C
2,2'-oxybis(1-Chloropropa	ND	210	ug/kg	SW846 8270C
Pentachlorophenol	ND	1000	ug/kg	SW846 8270C
Phenanthrene	ND	210	ug/kg	SW846 8270C
Phenol	ND	210	ug/kg	SW846 8270C
Pyrene	ND	210	ug/kg	SW846 8270C
1,2,4-Trichloro-benzene	ND	210	ug/kg	SW846 8270C
2,4,6-Trichloro-phenol	ND	210	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	71	(21 - 144)
2-Fluorobiphenyl	61	(26 - 128)
2-Fluorophenol	63	(34 - 115)
Nitrobenzene-d5	59	(30 - 118)
Phenol-d5	65	(35 - 117)
Terphenyl-d14	71	(40 - 115)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: C6I300144

Lab File ID (Standard): D10130C1 Date Analyzed: 10/13/06

Instrument ID: 732 Time Analyzed: 1049

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	61029	4.77	206195	6.00	136536	7.77
	UPPER LIMIT	122058	5.27	412390	6.50	273072	8.27
	LOWER LIMIT	30515	4.27	103098	5.50	68268	7.27
	CLIENT SAMPLE NO.						
01	INTRA-LAB BL	85441	4.76	281627	5.99	182614	7.76
02	INTRA-LAB CH	71213	4.77	236550	6.00	149028	7.77
03	CCNPP-1-SED	88894	4.77	293293	6.00	175501	7.77
MS 04	CCNPP-1-SED	98304	4.77	335830	6.00	195109	7.77
MSD 05	CCNPP-1-SED	103714	4.77	366508	6.00	222415	7.77
06	CCNPP-2-SED	101591	4.77	346245	6.00	221205	7.77
07	CCNPP-3-SED	105622	4.77	360152	5.99	227397	7.76
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

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FORM VIII SV

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: STL PITTSBURGH Contract:

Lab Code: Case No.: SAS No.: SDG No.: C6I300144

Lab File ID (Standard): D10130C1 Date Analyzed: 10/13/06

Instrument ID: 732 Time Analyzed: 1049

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	246536	10.01	320338	16.27	308602	19.91
	UPPER LIMIT	493072	10.51	640676	16.77	617204	20.41
	LOWER LIMIT	123268	9.51	160169	15.77	154301	19.41
	CLIENT SAMPLE NO.						
01	INTRA-LAB BL	319768	10.01	384486	16.25	446717	19.90
02	INTRA-LAB CH	261451	10.01	346795	16.27	357657	19.90
03	CCNPP-1-SED	269328	10.01	266039	16.25	302202	19.90
MS 04	CCNPP-1-SED	285751	10.01	265217	16.25	279278	19.90
MSD 05	CCNPP-1-SED	325021	10.01	283991	16.25	280288	19.90
06	CCNPP-2-SED	341364	10.01	288093	16.25	297731	19.90
07	CCNPP-3-SED	347238	10.01	287210	16.25	290276	19.90
08							
09							
10							
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14							
15							
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18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

page 1 of 1

FORM VIII SV

PESTICIDES SUMMARY

EA Engineering, Science and Technology

Client Sample ID: CCNPP-1-SED

GC Semivolatiles

Lot-Sample #...:	C6I300144-001	**Work Order #...:**	JFFF51AF	**Matrix.....:**	SOLID
Date Sampled...:	09/29/06	**Date Received..:**	09/30/06	**MS Run #.....:**	6282051
Prep Date.....:	10/09/06	**Analysis Date..:**	10/11/06		
Prep Batch #...:	6282077	**Analysis Time..:**	05:04		
Dilution Factor:	0.7	**Initial Wgt/Vol:**	17.2 g	**Final Wgt/Vol..:**	4 mL
% Moisture.....:	28	**Analyst ID.....:**	402331	**Instrument ID..:**	G/H
		Method.....:	SW846 8081A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
alpha-BHC	**0.15 J,PG**	**1.7**	**ug/kg**	**0.14**
beta-BHC	ND	1.7	ug/kg	0.22
delta-BHC	ND	1.7	ug/kg	0.18
gamma-BHC (Lindane)	ND	1.7	ug/kg	0.14
Heptachlor	**0.29 J,PG**	**1.7**	**ug/kg**	**0.16**
Aldrin	ND	1.7	ug/kg	0.21
Heptachlor epoxide	ND	1.7	ug/kg	0.20
Endosulfan I	ND	1.7	ug/kg	0.16
Dieldrin	ND	1.7	ug/kg	0.16
4,4'-DDE	ND	1.7	ug/kg	0.20
Endrin	ND	1.7	ug/kg	0.16
Endrin ketone	ND	1.7	ug/kg	0.21
Endrin aldehyde	ND	1.7	ug/kg	0.35
Endosulfan II	ND	1.7	ug/kg	0.25
4,4'-DDD	ND	1.7	ug/kg	0.16
Endosulfan sulfate	ND	1.7	ug/kg	0.22
4,4'-DDT	ND	1.7	ug/kg	0.18
Methoxychlor	ND	3.2	ug/kg	0.36
alpha-Chlordane	ND	1.7	ug/kg	0.21
gamma-Chlordane	ND	1.7	ug/kg	0.21
Toxaphene	ND	66	ug/kg	2.2

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	46	(31 - 131)
Decachlorobiphenyl	94	(18 - 145)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

PG The percent difference between the original and confirmation analyses is greater than 40%.

EA Engineering, Science and Technology

Client Sample ID: CCNPP-2-SED

GC Semivolatiles

Lot-Sample #...:	C6I300144-002	**Work Order #...:**	JFFGF1AF	**Matrix.....:**	SOLID
Date Sampled...:	09/29/06	**Date Received..:**	09/30/06	**MS Run #.....:**	6282051
Prep Date.....:	10/09/06	**Analysis Date..:**	10/11/06		
Prep Batch #...:	6282077	**Analysis Time..:**	06:31		
Dilution Factor:	0.65	**Initial Wgt/Vol:**	18.5 g	**Final Wgt/Vol..:**	4 mL
% Moisture.....:	33	**Analyst ID.....:**	402331	**Instrument ID..:**	G/H
		Method.....:	SW846 8081A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
alpha-BHC	**0.17 J,PG**	**1.6**	**ug/kg**	**0.14**
beta-BHC	ND	1.6	ug/kg	0.21
delta-BHC	ND	1.6	ug/kg	0.18
gamma-BHC (Lindane)	ND	1.6	ug/kg	0.14
Heptachlor	**0.52 J**	**1.6**	**ug/kg**	**0.16**
Aldrin	ND	1.6	ug/kg	0.20
Heptachlor epoxide	ND	1.6	ug/kg	0.20
Endosulfan I	ND	1.6	ug/kg	0.16
Dieldrin	ND	1.6	ug/kg	0.16
4,4'-DDE	ND	1.6	ug/kg	0.20
Endrin	ND	1.6	ug/kg	0.16
Endrin ketone	ND	1.6	ug/kg	0.21
Endrin aldehyde	**0.41 J,PG**	**1.6**	**ug/kg**	**0.35**
Endosulfan II	ND	1.6	ug/kg	0.25
4,4'-DDD	ND	1.6	ug/kg	0.16
Endosulfan sulfate	ND	1.6	ug/kg	0.22
4,4'-DDT	ND	1.6	ug/kg	0.18
Methoxychlor	ND	3.2	ug/kg	0.35
alpha-Chlordane	ND	1.6	ug/kg	0.21
gamma-Chlordane	ND	1.6	ug/kg	0.20
Toxaphene	ND	65	ug/kg	2.2

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	49	(31 - 131)
Decachlorobiphenyl	92	(18 - 145)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

PG The percent difference between the original and confirmation analyses is greater than 40%.

EA Engineering, Science and Technology

Client Sample ID: CCNPP-3-SED

GC Semivolatiles

Lot-Sample #...:	C6I300144-003	**Work Order #...:**	JFFG51AF	**Matrix.....:**	SOLID
Date Sampled...:	09/29/06	**Date Received..:**	09/30/06	**MS Run #.....:**	6282051
Prep Date.....:	10/09/06	**Analysis Date..:**	10/11/06		
Prep Batch #...:	6282077	**Analysis Time..:**	07:00		
Dilution Factor:	0.7	**Initial Wgt/Vol:**	17.2 g	**Final Wgt/Vol..:**	4 mL
% Moisture.....:	27	**Analyst ID.....:**	402331	**Instrument ID..:**	G/H
		Method.....:	SW846 8081A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
alpha-BHC	**0.17 J,PG**	**1.6**	**ug/kg**	**0.14**
beta-BHC	ND	1.6	ug/kg	0.21
delta-BHC	ND	1.6	ug/kg	0.17
gamma-BHC (Lindane)	ND	1.6	ug/kg	0.13
Heptachlor	**0.63 J**	**1.6**	**ug/kg**	**0.15**
Aldrin	ND	1.6	ug/kg	0.20
Heptachlor epoxide	ND	1.6	ug/kg	0.19
Endosulfan I	ND	1.6	ug/kg	0.16
Dieldrin	ND	1.6	ug/kg	0.15
4,4'-DDE	ND	1.6	ug/kg	0.20
Endrin	ND	1.6	ug/kg	0.16
Endrin ketone	ND	1.6	ug/kg	0.21
Endrin aldehyde	ND	1.6	ug/kg	0.34
Endosulfan II	ND	1.6	ug/kg	0.25
4,4'-DDD	ND	1.6	ug/kg	0.16
Endosulfan sulfate	ND	1.6	ug/kg	0.22
4,4'-DDT	**0.18 J,PG**	**1.6**	**ug/kg**	**0.17**
Methoxychlor	ND	3.1	ug/kg	0.35
alpha-Chlordane	ND	1.6	ug/kg	0.21
gamma-Chlordane	ND	1.6	ug/kg	0.20
Toxaphene	ND	64	ug/kg	2.2

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	67	(31 - 131)
Decachlorobiphenyl	100	(18 - 145)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

PG The percent difference between the original and confirmation analyses is greater than 40%.

SW846 8081A SURROGATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: EA Engineering, Science and Technology

Lab Code: STLPIT SDG No:

Lot #: C6I300144

Extraction: XXA4FQJ01

	CLIENT ID.	SRG01	SRG02	TOT OUT
01	CCNPP-1-SED	46	94	00
02	CCNPP-2-SED	49	92	00
03	CCNPP-3-SED	67	100	00
04	METHOD BLK. JF1GG1AA	99	104	00
05	LCS JF1GG1AC	104	108	00
06	CCNPP-1-SED D	46	90	00
07	CCNPP-1-SED S	53	80	00

SURROGATES		QC LIMITS
SRG01	= Tetrachloro-m-xylene	(31-131)
SRG02	= Decachlorobiphenyl	(18-145)

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

SW846 8081A CHECK SAMPLE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: EA Engineering, Science and Technology

Lab Code: STLPIT SDG No:

Lot #: C6J090000 WO #: JF1GG1AC
BATCH: 6282077

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
gamma-BHC (Lindane)	5.40	5.61	104	66- 124	
Heptachlor	5.40	6.24	115	73- 128	
Aldrin	5.40	5.24	97	75- 123	
Dieldrin	5.40	5.77	107	76- 123	
Endrin	5.40	5.84	108	77- 127	
4,4'-DDT	5.40	5.69	105	61- 126	

NOTES(S):

* Values outside of QC limits

Spike Recovery: 0 out of 6 outside limits

COMMENTS:

FORM III

SW846 8081A MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: EA Engineering, Science and Technology

Lab Code: STLPIT SDG No:

Matrix Spike ID: CCNPP-1-SED Level:(low/med) LOW

Lot #: C6I300144 WO #: JFFF51A2
BATCH: 6282077

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
gamma-BHC (Lindane)	16.3	ND	12.8	79	11- 129	
Heptachlor	16.3	0.29	14.9	90	43- 133	
Aldrin	16.3	ND	13.4	83	40- 135	
Dieldrin	16.3	ND	13.8	85	34- 138	
Endrin	16.3	ND	13.5	83	37- 141	
4,4'-DDT	16.3	ND	14.4	89	10- 155	

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 6 outside limits

COMMENTS:

FORM III

SW846 8081A MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: EA Engineering, Science and Technology

Lab Code: STLPIT SDG No:

Matrix Spike ID: CCNPP-1-SED Level:(low/med) LOW

Lot #: C6I300144 WO #: JFFF51A3
BATCH: 6282077

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD	#	QC LIMITS RPD	QC LIMITS REC	QUAL
gamma-BHC (Lindane)	8.13	6.64	82	63		75	11- 129	
Heptachlor	8.13	8.41	100	56	*	36	43- 133	p
Aldrin	8.13	7.46	92	57	*	37	40- 135	p
Dieldrin	8.13	8.10	100	52	*	39	34- 138	p
Endrin	8.13	7.26	89	60	*	43	37- 141	p
4,4'-DDT	8.13	7.90	97	58		71	10- 155	

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

p Relative percent difference (RPD) is outside stated control limits.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 4 out of 6 outside limits
Spike Recovery: 0 out of 6 outside limits

COMMENTS:

FORM III

BLANK WORKORDER NO.

JF1GG1AA

SW846 8081A METHOD BLANK SUMMARY

Lab Name: Severn Trent Laboratories, Inc.

Lab Code: STLPIT

SDG Number:

Lab File ID: G106206.d

Lot Number: C6I300144

Matrix: SOLID

Extraction Method: 3541

Date Extracted: 10/09/06

Date Analyzed(1): 10/11/06

Date Analyzed(2): N/A

Time Analyzed(1): 07:29

Time Analyzed(2): N/A

Instrument ID(1): G/H

Instrument ID(2): N/A

GC Column(1): DB608/1701 ID: 053 GC Column(2): N/A ID: N/A

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	CLIENT ID.	SAMPLE WORK ORDER #	DATE ANALYZED(1)	DATE ANALYZED(2)
01	CCNPP-1-SED	JFFF51AF	10/11/06	N/A
02	CCNPP-1-SED	JFFF51A2 S	10/11/06	N/A
03	CCNPP-1-SED	JFFF51A3 D	10/11/06	N/A
04	CCNPP-2-SED	JFFGF1AF	10/11/06	N/A
05	CCNPP-3-SED	JFFG51AF	10/11/06	N/A
06	CHECK SAMPLE	JF1GG1AC C	10/11/06	N/A
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

COMMENTS:

FORM IV

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: C6I300144
MB Lot-Sample #: C6J090000-077

Work Order #...: JF1GG1AA

Matrix.....: SOLID

Analysis Date..: 10/11/06
Dilution Factor: 1

Prep Date.....: 10/09/06
Prep Batch #...: 6282077
Initial Wgt/Vol: 18.5 g
Analyst ID.....: 402331

Analysis Time..: 07:29
Final Wgt/Vol..: 0.5 mL
Instrument ID..: G/H

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
alpha-BHC	ND	1.7	ug/kg	SW846 8081A
beta-BHC	ND	1.7	ug/kg	SW846 8081A
delta-BHC	ND	1.7	ug/kg	SW846 8081A
gamma-BHC (Lindane)	ND	1.7	ug/kg	SW846 8081A
Heptachlor	ND	1.7	ug/kg	SW846 8081A
Aldrin	ND	1.7	ug/kg	SW846 8081A
Heptachlor epoxide	ND	1.7	ug/kg	SW846 8081A
Endosulfan I	ND	1.7	ug/kg	SW846 8081A
Dieldrin	ND	1.7	ug/kg	SW846 8081A
4,4'-DDE	ND	1.7	ug/kg	SW846 8081A
Endrin	ND	1.7	ug/kg	SW846 8081A
Endrin ketone	ND	1.7	ug/kg	SW846 8081A
Endrin aldehyde	ND	1.7	ug/kg	SW846 8081A
Endosulfan II	ND	1.7	ug/kg	SW846 8081A
4,4'-DDD	ND	1.7	ug/kg	SW846 8081A
Endosulfan sulfate	ND	1.7	ug/kg	SW846 8081A
4,4'-DDT	ND	1.7	ug/kg	SW846 8081A
Methoxychlor	ND	3.3	ug/kg	SW846 8081A
alpha-Chlordane	ND	1.7	ug/kg	SW846 8081A
gamma-Chlordane	ND	1.7	ug/kg	SW846 8081A
Toxaphene	ND	67	ug/kg	SW846 8081A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	99	(31 - 131)
Decachlorobiphenyl	104	(18 - 145)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

CONGENER SUMMARY

EA Engineering, Science and Technology

Client Sample ID: CCNPP-1-SED

GC Semivolatiles

Lot-Sample #...:	C6I300144-001	**Work Order #...:**	JFFF51AE	**Matrix.....:**	SOLID
Date Sampled...:	09/29/06	**Date Received..:**	09/30/06	**MS Run #.....:**	6277255
Prep Date.....:	10/04/06	**Analysis Date..:**	10/18/06		
Prep Batch #...:	6277416	**Analysis Time..:**	14:46		
Dilution Factor:	1	**Initial Wgt/Vol:**	12 g	**Final Wgt/Vol..:**	4 mL
% Moisture.....:	28	**Analyst ID.....:**	402331	**Instrument ID..:**	W/X
		Method.....:	SW846 8082 Congen		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
PCB 8 (BZ)	ND	0.24	ug/kg	0.049
PCB 18 (BZ)	**0.18 J,PG**	**0.24**	**ug/kg**	**0.032**
PCB 28 (BZ)	ND	0.24	ug/kg	0.052
PCB 44 (BZ)	ND	0.24	ug/kg	0.048
PCB 49 (BZ)	ND	0.24	ug/kg	0.049
PCB 52 (BZ)	ND	0.24	ug/kg	0.046
PCB 66 (BZ)	ND	0.24	ug/kg	0.038
PCB 77 (BZ)	ND	0.24	ug/kg	0.051
PCB 87 (BZ)	ND	0.24	ug/kg	0.044
PCB 90 (BZ)	ND	0.24	ug/kg	0.036
PCB 101 (BZ)	ND	0.24	ug/kg	0.047
PCB 105 (BZ)	ND	0.24	ug/kg	0.049
PCB 118 (BZ)	ND	0.24	ug/kg	0.048
PCB 126 (BZ)	ND	0.24	ug/kg	0.061
PCB 128 (BZ)	ND	0.24	ug/kg	0.048
PCB 138 (BZ)	ND	0.24	ug/kg	0.050
PCB 153 (BZ)	ND	0.24	ug/kg	0.049
PCB 156 (BZ)	ND	0.24	ug/kg	0.047
PCB 169 (BZ)	ND	0.24	ug/kg	0.046
PCB 170 (BZ)	ND	0.24	ug/kg	0.048
PCB 180 (BZ)	ND	0.24	ug/kg	0.048
PCB 183 (BZ)	ND	0.24	ug/kg	0.047
PCB 184 (BZ)	ND	0.24	ug/kg	0.040
PCB 187 (BZ)	ND	0.24	ug/kg	0.049
PCB 195 (BZ)	ND	0.24	ug/kg	0.047
PCB 206 (BZ)	ND	0.24	ug/kg	0.047
PCB 209 (BZ)	ND	0.24	ug/kg	0.050

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	93	(35 - 150)
PCB 205 (BZ)	69	(30 - 130)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

PG The percent difference between the original and confirmation analyses is greater than 40%.

EA Engineering, Science and Technology

Client Sample ID: CCNPP-2-SED

GC Semivolatiles

Lot-Sample #...:	C6I300144-002	**Work Order #...:**	JFFGF1AE	**Matrix.....:**	SOLID
Date Sampled...:	09/29/06	**Date Received..:**	09/30/06	**MS Run #.....:**	6277255
Prep Date.....:	10/04/06	**Analysis Date..:**	10/18/06		
Prep Batch #...:	6277416	**Analysis Time..:**	16:03		
Dilution Factor:	1	**Initial Wgt/Vol:**	12 g	**Final Wgt/Vol..:**	4 mL
% Moisture.....:	33	**Analyst ID.....:**	402331	**Instrument ID..:**	W/X
		Method.....:	SW846 8082 Congen		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
PCB 8 (BZ)	ND	0.25	ug/kg	0.052
PCB 18 (BZ)	**0.20 J,PG**	**0.25**	**ug/kg**	**0.034**
PCB 28 (BZ)	ND	0.25	ug/kg	0.056
PCB 44 (BZ)	ND	0.25	ug/kg	0.051
PCB 49 (BZ)	ND	0.25	ug/kg	0.052
PCB 52 (BZ)	ND	0.25	ug/kg	0.049
PCB 66 (BZ)	ND	0.25	ug/kg	0.041
PCB 77 (BZ)	ND	0.25	ug/kg	0.054
PCB 87 (BZ)	ND	0.25	ug/kg	0.046
PCB 90 (BZ)	ND	0.25	ug/kg	0.038
PCB 101 (BZ)	ND	0.25	ug/kg	0.050
PCB 105 (BZ)	ND	0.25	ug/kg	0.052
PCB 118 (BZ)	ND	0.25	ug/kg	0.051
PCB 126 (BZ)	ND	0.25	ug/kg	0.065
PCB 128 (BZ)	ND	0.25	ug/kg	0.051
PCB 138 (BZ)	ND	0.25	ug/kg	0.053
PCB 153 (BZ)	ND	0.25	ug/kg	0.052
PCB 156 (BZ)	ND	0.25	ug/kg	0.050
PCB 169 (BZ)	ND	0.25	ug/kg	0.049
PCB 170 (BZ)	ND	0.25	ug/kg	0.051
PCB 180 (BZ)	ND	0.25	ug/kg	0.051
PCB 183 (BZ)	ND	0.25	ug/kg	0.050
PCB 184 (BZ)	ND	0.25	ug/kg	0.043
PCB 187 (BZ)	ND	0.25	ug/kg	0.053
PCB 195 (BZ)	ND	0.25	ug/kg	0.050
PCB 206 (BZ)	ND	0.25	ug/kg	0.050
PCB 209 (BZ)	ND	0.25	ug/kg	0.053

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	91	(35 - 150)
PCB 205 (BZ)	59	(30 - 130)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

PG The percent difference between the original and confirmation analyses is greater than 40%.

EA Engineering, Science and Technology

Client Sample ID: CCNPP-3-SED

GC Semivolatiles

Lot-Sample #...:	C6I300144-003	**Work Order #...:**	JFFG51AE	**Matrix.....:**	SOLID
Date Sampled...:	09/29/06	**Date Received..:**	09/30/06	**MS Run #.....:**	6277255
Prep Date.....:	10/04/06	**Analysis Date..:**	10/18/06		
Prep Batch #...:	6277416	**Analysis Time..:**	16:28		
Dilution Factor:	1	**Initial Wgt/Vol:**	12 g	**Final Wgt/Vol..:**	4 mL
% Moisture.....:	27	**Analyst ID.....:**	402331	**Instrument ID..:**	W/X
		Method.....:	SW846 8082 Congen		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
PCB 8 (BZ)	ND	0.23	ug/kg	0.047
PCB 18 (BZ)	**0.27**	**0.23**	**ug/kg**	**0.031**
PCB 28 (BZ)	ND	0.23	ug/kg	0.051
PCB 44 (BZ)	ND	0.23	ug/kg	0.047
PCB 49 (BZ)	ND	0.23	ug/kg	0.048
PCB 52 (BZ)	ND	0.23	ug/kg	0.045
PCB 66 (BZ)	ND	0.23	ug/kg	0.037
PCB 77 (BZ)	ND	0.23	ug/kg	0.050
PCB 87 (BZ)	ND	0.23	ug/kg	0.043
PCB 90 (BZ)	ND	0.23	ug/kg	0.035
PCB 101 (BZ)	**0.058 J,PG**	**0.23**	**ug/kg**	**0.046**
PCB 105 (BZ)	ND	0.23	ug/kg	0.048
PCB 118 (BZ)	ND	0.23	ug/kg	0.047
PCB 126 (BZ)	ND	0.23	ug/kg	0.060
PCB 128 (BZ)	ND	0.23	ug/kg	0.047
PCB 138 (BZ)	ND	0.23	ug/kg	0.049
PCB 153 (BZ)	ND	0.23	ug/kg	0.047
PCB 156 (BZ)	ND	0.23	ug/kg	0.046
PCB 169 (BZ)	ND	0.23	ug/kg	0.045
PCB 170 (BZ)	ND	0.23	ug/kg	0.047
PCB 180 (BZ)	ND	0.23	ug/kg	0.047
PCB 183 (BZ)	ND	0.23	ug/kg	0.045
PCB 184 (BZ)	ND	0.23	ug/kg	0.039
PCB 187 (BZ)	ND	0.23	ug/kg	0.048
PCB 195 (BZ)	ND	0.23	ug/kg	0.046
PCB 206 (BZ)	ND	0.23	ug/kg	0.046
PCB 209 (BZ)	ND	0.23	ug/kg	0.049

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	87	(35 - 150)
PCB 205 (BZ)	61	(30 - 130)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

PG The percent difference between the original and confirmation analyses is greater than 40%.

SW846 8082 Congeners SURROGATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: EA Engineering, Science and Technology

Lab Code: STLPIT SDG No:

Lot #: C6I300144

Extraction: XXA4FGQ01

	CLIENT ID.	SRG01	SRG02	TOT OUT
01	CCNPP-1-SED	93	69	00
02	CCNPP-2-SED	91	59	00
03	CCNPP-3-SED	87	61	00
04	METHOD BLK. JFNDH1AA	114	66	00
05	LCS JFNDH1AC	121	71	00
06	CCNPP-1-SED D	93	61	00
07	CCNPP-1-SED S	94	64	00

SURROGATES		QC LIMITS
SRG01	= Tetrachloro-m-xylene	(35-150)
SRG02	= PCB 205 (BZ)	(30-130)

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

SW846 8082 Congeners CHECK SAMPLE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: EA Engineering, Science and Technology

Lab Code: STLPIT SDG No:

Lot #: C6J040000 WO #: JFNDH1AC
BATCH: 6277416

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
PCB 8 (BZ)	3.33	3.97	119	50- 140	
PCB 18 (BZ)	3.33	4.06	122	50- 140	
PCB 28 (BZ)	3.33	3.47	104	50- 140	
PCB 44 (BZ)	3.33	3.77	113	50- 140	
PCB 49 (BZ)	3.33	3.63	109	50- 140	
PCB 52 (BZ)	3.33	3.53	106	50- 140	
PCB 66 (BZ)	3.33	4.00	120	50- 140	
PCB 77 (BZ)	3.33	3.85	116	50- 140	
PCB 87 (BZ)	3.33	3.91	117	50- 140	
PCB 101 (BZ)	3.33	3.52	106	50- 140	
PCB 105 (BZ)	3.33	3.70	111	50- 140	
PCB 118 (BZ)	3.33	2.50	75	50- 140	
PCB 126 (BZ)	3.33	3.48	104	50- 140	
PCB 128 (BZ)	3.33	3.66	110	50- 140	
PCB 138 (BZ)	3.33	4.02	121	50- 140	
PCB 153 (BZ)	3.33	3.46	104	50- 140	
PCB 156 (BZ)	3.33	3.82	115	50- 140	
PCB 169 (BZ)	3.33	3.68	110	50- 140	
PCB 170 (BZ)	3.33	3.73	112	50- 140	
PCB 180 (BZ)	3.33	3.79	114	50- 140	
PCB 183 (BZ)	3.33	3.52	106	50- 140	
PCB 184 (BZ)	3.33	3.54	106	50- 140	
PCB 187 (BZ)	3.33	3.68	111	50- 140	
PCB 195 (BZ)	3.33	3.89	117	50- 140	
PCB 206 (BZ)	3.33	3.29	99	50- 140	
PCB 209 (BZ)	3.33	3.10	93	50- 140	

NOTES(S):

* Values outside of QC limits

Spike Recovery: 0 out of 26 outside limits

COMMENTS:

FORM III

SW846 8082 Congeners MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: EA Engineering, Science and Technology

Lab Code: STLPIT SDG No:

Matrix Spike ID: CCNPP-1-SED Level:(low/med) LOW

Lot #: C6I300144 WO #: JFFF51AW
BATCH: 6277416

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
PCB 8 (BZ)	4.66	ND	4.43	95	45- 150	
PCB 18 (BZ)	4.66	0.18	4.54	94	45- 150	
PCB 28 (BZ)	4.66	ND	4.63	99	45- 150	
PCB 44 (BZ)	4.66	ND	4.35	93	45- 150	
PCB 49 (BZ)	4.66	ND	4.04	87	45- 150	
PCB 52 (BZ)	4.66	ND	3.98	85	45- 150	
PCB 66 (BZ)	4.66	ND	4.41	95	45- 150	
PCB 77 (BZ)	4.66	ND	4.54	97	45- 150	
PCB 87 (BZ)	4.66	ND	4.51	97	45- 150	
PCB 101 (BZ)	4.66	ND	4.17	89	45- 150	
PCB 105 (BZ)	4.66	ND	4.51	97	45- 150	
PCB 118 (BZ)	4.66	ND	2.87	62	45- 150	
PCB 126 (BZ)	4.66	ND	4.23	91	45- 150	
PCB 128 (BZ)	4.66	ND	4.42	95	45- 150	
PCB 138 (BZ)	4.66	ND	5.48	118	45- 150	
PCB 153 (BZ)	4.66	ND	4.45	95	45- 150	
PCB 156 (BZ)	4.66	ND	4.61	99	45- 150	
PCB 169 (BZ)	4.66	ND	4.60	99	45- 150	
PCB 170 (BZ)	4.66	ND	4.60	99	45- 150	
PCB 180 (BZ)	4.66	ND	4.61	99	45- 150	
PCB 183 (BZ)	4.66	ND	4.35	93	45- 150	
PCB 184 (BZ)	4.66	ND	4.29	92	45- 150	
PCB 187 (BZ)	4.66	ND	4.50	97	45- 150	
PCB 195 (BZ)	4.66	ND	4.66	100	45- 150	
PCB 206 (BZ)	4.66	ND	4.12	88	45- 150	
PCB 209 (BZ)	4.66	ND	4.01	86	45- 150	

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 26 outside limits

COMMENTS:

FORM III

SW846 8082 Congeners MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc.

Client: EA Engineering, Science and Technology

Lab Code: STLPIT

SDG No:

Matrix Spike ID: CCNPP-1-SED

Level:(low/med) LOW

Lot #: C6I300144

WO #: JFFF51AX
BATCH: 6277416

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
PCB 8 (BZ)	4.66	4.63	99	4.4	50	45- 150	
PCB 18 (BZ)	4.66	4.70	97	3.3	50	45- 150	
PCB 28 (BZ)	4.66	4.77	102	3.0	50	45- 150	
PCB 44 (BZ)	4.66	4.41	95	1.3	50	45- 150	
PCB 49 (BZ)	4.66	4.46	96	9.7	50	45- 150	
PCB 52 (BZ)	4.66	4.14	89	4.0	50	45- 150	
PCB 66 (BZ)	4.66	4.82	104	9.0	50	45- 150	
PCB 77 (BZ)	4.66	4.59	99	1.1	50	45- 150	
PCB 87 (BZ)	4.66	4.57	98	1.4	50	45- 150	
PCB 101 (BZ)	4.66	4.39	94	5.1	50	45- 150	
PCB 105 (BZ)	4.66	4.78	103	5.7	50	45- 150	
PCB 118 (BZ)	4.66	3.34	72	15	50	45- 150	
PCB 126 (BZ)	4.66	4.42	95	4.5	50	45- 150	
PCB 128 (BZ)	4.66	4.73	102	6.8	50	45- 150	
PCB 138 (BZ)	4.66	5.04	108	8.2	50	45- 150	
PCB 153 (BZ)	4.66	4.59	99	3.2	50	45- 150	
PCB 156 (BZ)	4.66	4.64	100	0.69	50	45- 150	
PCB 169 (BZ)	4.66	4.82	103	4.7	50	45- 150	
PCB 170 (BZ)	4.66	4.81	103	4.3	50	45- 150	
PCB 180 (BZ)	4.66	4.69	101	1.7	50	45- 150	
PCB 183 (BZ)	4.66	4.55	98	4.5	50	45- 150	
PCB 184 (BZ)	4.66	4.47	96	4.2	50	45- 150	
PCB 187 (BZ)	4.66	4.57	98	1.7	50	45- 150	
PCB 195 (BZ)	4.66	4.66	100	0.080	50	45- 150	
PCB 206 (BZ)	4.66	4.46	96	8.0	50	45- 150	
PCB 209 (BZ)	4.66	4.15	89	3.3	50	45- 150	

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 26 outside limits
Spike Recovery: 0 out of 26 outside limits

COMMENTS:

FORM III

SW846 8082 Congeners METHOD BLANK SUMMARY

BLANK WORKORDER NO.

JFNDH1AA

Lab Name: Severn Trent Laboratories, Inc.

Lab Code: STLPIT

SDG Number:

Lab File ID: X1060237.

Lot Number: C6I300144

Matrix: SOLID

Extraction Method:

Date Extracted: 10/04/06

Date Analyzed(1): 10/19/06

Date Analyzed(2): N/A

Time Analyzed(1): 18:04

Time Analyzed(2): N/A

Instrument ID(1): W/X

Instrument ID(2): N/A

GC Column(1): DB608/1701 ID: 053 GC Column(2): N/A ID: N/A

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	CLIENT ID.	SAMPLE WORK ORDER #	DATE ANALYZED(1)	DATE ANALYZED(2)
01	CCNPP-1-SED	JFFF51AE	10/18/06	N/A
02	CCNPP-1-SED	JFFF51AW S	10/18/06	N/A
03	CCNPP-1-SED	JFFF51AX D	10/18/06	N/A
04	CCNPP-2-SED	JFFGF1AE	10/18/06	N/A
05	CCNPP-3-SED	JFFG51AE	10/18/06	N/A
06	CHECK SAMPLE	JFNDH1AC C	10/19/06	N/A
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

COMMENTS:

FORM IV

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: C6I300144
MB Lot-Sample #: C6J040000-416
Work Order #...: JFNDH1AA
Matrix.....: SOLID

Prep Date.....: 10/04/06
Analysis Date..: 10/19/06
Prep Batch #...: 6277416
Analysis Time..: 18:04
Dilution Factor: 1
Initial Wgt/Vol: 12 g
Final Wgt/Vol..: 4 mL
Analyst ID.....: 402331
Instrument ID..: W/X

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
PCB 8 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 18 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 28 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 44 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 49 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 52 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 66 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 77 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 87 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 90 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 101 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 105 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 118 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 126 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 128 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 138 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 153 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 156 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 169 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 170 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 180 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 183 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 184 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 187 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 195 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 206 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen
PCB 209 (BZ)	ND	0.17	ug/kg	SW846 8082 Congen

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	114	(35 - 150)
PCB 205 (BZ)	66	(30 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METALS SUMMARY

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: JFFF5 **Client ID:** CCNPP-1-SED

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/13/2006 **Prep Batch:** 6286090

Weight: 1.43 **Volume:** 100 **Percent Moisture:** 28.445

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	0.32	0.98	1.2		1	ICPST	10/22/2006	14:19
Cadmium	226.50	0.068	0.49	0.17	B	1	ICPST	10/22/2006	14:19
Chromium	267.72	0.091	0.49	3.7		1	ICPST	10/22/2006	14:19
Copper	324.75	0.11	2.4	1.2	B	1	ICPST	10/22/2006	14:19
Lead	220.35	0.16	0.29	1.1		1	ICPST	10/22/2006	14:19
Zinc	206.2	0.16	2.0	7.5		1	ICPST	10/22/2006	14:19

Comments: Lot #: C6I300144 Sample #: 1

5.04.5

U Result is less than the MDL
B Result is between MDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: JFFG5 **Client ID:** CCNPP-3-SED

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/13/2006 **Prep Batch:** 6286090

Weight: 1.43 **Volume:** 100 **Percent Moisture:** 26.612

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	0.31	0.95	0.95	B	1	ICPST	10/22/2006	14:24
Cadmium	226.50	0.066	0.48	0.18	B	1	ICPST	10/22/2006	14:24
Chromium	267.72	0.089	0.48	3.4		1	ICPST	10/22/2006	14:24
Copper	324.75	0.11	2.4	1.3	B	1	ICPST	10/22/2006	14:24
Lead	220.35	0.15	0.29	1.2		1	ICPST	10/22/2006	14:24
Zinc	206.2	0.16	1.9	9.3		1	ICPST	10/22/2006	14:24

Comments: Lot #: C6I300144 Sample #: 3

5.04.5

U Result is less than the MDL
B Result is between MDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: JFFGF **Client ID:** CCNPP-2-SED

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/13/2006 **Prep Batch:** 6286090

Weight: 1.54 **Volume:** 100 **Percent Moisture:** 32.702

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	0.32	0.96	1.1		1	ICPST	10/22/2006	14:30
Cadmium	226.50	0.067	0.48	0.20	B	1	ICPST	10/22/2006	14:30
Chromium	267.72	0.090	0.48	4.3		1	ICPST	10/22/2006	14:30
Copper	324.75	0.11	2.4	1.2	B	1	ICPST	10/22/2006	14:30
Lead	220.35	0.15	0.29	1.4		1	ICPST	10/22/2006	14:30
Zinc	206.2	0.16	1.9	9.4		1	ICPST	10/22/2006	14:30

Comments: Lot #: C6I300144 Sample #: 2

5.04.5

U Result is less than the MDL
B Result is between MDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: JFFF5 **Client ID:** CCNPP-1-SED

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/25/2006 **Prep Batch:** 6298040

Weight: .86 **Volume:** 100 **Percent Moisture:** 28.445

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.0078	0.033	0.0078	U	1	CVAA	10/25/2006	9:21

Comments: Lot #: C6I300144 Sample #: 1

5.04.5

U Result is less than the MDL
B Result is between MDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: JFFG5 **Client ID:** CCNPP-3-SED

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/25/2006 **Prep Batch:** 6298040

Weight: .86 **Volume:** 100 **Percent Moisture:** 26.612

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.0076	0.032	0.0076	U	1	CVAA	10/25/2006	9:24

Comments: Lot #: C6I300144 Sample #: 3

5.04.5

U Result is less than the MDL
B Result is between MDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: JFFGF **Client ID:** CCNPP-2-SED

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/25/2006 **Prep Batch:** 6298040

Weight: .92 **Volume:** 100 **Percent Moisture:** 32.702

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.0078	0.032	0.0078	U	1	CVAA	10/25/2006	9:23

Comments: Lot #: C6I300144 Sample #: 2

5.04.5

U Result is less than the MDL
B Result is between MDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: N61022C.ARC

Standard Source: _____ **Standard ID:** _____

			ICB1 10/22/2006 12:56 PM									
Element	**WL/ Mass**	**Report Limit**	**Found**	**Q**	**Found**	**Q**	**Found**	**Q**	**Found**	**Q**	**Found**	**Q**
Arsenic	189.042	10	3.3	U								
Cadmium	226.502	5	0.7	U								
Chromium	267.716	5	0.9	U								
Copper	324.753	25	1.2	U								
Lead	220.353	3	1.6	U								
Zinc	206.2	20	1.7	U								

5.04.5

U Result is less than the MDL
B Result is between MDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: G61025A.PRN

Standard Source: _____ **Standard ID:** _____

			ICB1 10/25/2006 8:42 AM									
Element	**WL/ Mass**	**Report Limit**	**Found**	**Q**	**Found**	**Q**	**Found**	**Q**	**Found**	**Q**	**Found**	**Q**
Mercury	253.7	0.2	0.0	U								

5.04.5

U Result is less than the MDL
B Result is between MDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Continuing Calibration Blank Result

Instrument: ICPST **Units:** ug/L

Chart Number: N61022C.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB1 10/22/2006 2:02 PM Found	Q	CCB2 10/22/2006 3:09 PM Found	Q	Found	Q	Found	Q	Found	Q
Arsenic	189.042	10	3.3	U	3.3	U						
Cadmium	226.502	5	0.7	U	0.7	U						
Chromium	267.716	5	0.9	U	0.9	U						
Copper	324.753	25	1.2	U	1.2	U						
Lead	220.353	3	1.6	U	1.6	U						
Zinc	206.2	20	**2.2**	**B**	**2.0**	**B**						

5.04.5

U Result is less than the MDL
B Result is between MDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Continuing Calibration Blank Result

Instrument: CVAA **Units:** ug/L

Chart Number: G61025A.PRN

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB1 10/25/2006 8:47 AM Found	Q	CCB2 10/25/2006 9:08 AM Found	Q	CCB3 10/25/2006 9:27 AM Found	Q	Found	Q	Found	Q
Mercury	253.7	0.2	**-0.1**	**B**	0.0	U	0.0	U				

5.04.5

U Result is less than the MDL
B Result is between MDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: JGCXFB

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/13/2006 **Prep Batch:** 6286090

Weight: 1.54 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.042	0.21	0.65	0.21	U	1	ICPST	10/22/2006	14:08
Cadmium	226.502	0.045	0.32	0.045	U	1	ICPST	10/22/2006	14:08
Chromium	267.716	0.060	0.32	0.060	U	1	ICPST	10/22/2006	14:08
Copper	**324.753**	**0.075**	**1.6**	**0.80**	**B**	**1**	**ICPST**	**10/22/2006**	**14:08**
Lead	220.353	0.10	0.19	0.10	U	1	ICPST	10/22/2006	14:08
Zinc	**206.2**	**0.11**	**1.3**	**0.42**	**B**	**1**	**ICPST**	**10/22/2006**	**14:08**

Comments: Lot #: C6I300144

5.04.5

U Result is less than the MDL

B Result is between MDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: JG6KVB

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/25/2006 **Prep Batch:** 6298040

Weight: .92 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.0052	0.022	0.0052	U	1	CVAA	10/25/2006	9:18

Comments: Lot #: C6I300144

5.04.5

U Result is less than the MDL

B Result is between MDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Laboratory Control Sample Results

Lab Sample ID: JGCXFC

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/13/2006 **Prep Batch:** 6286090

Weight: 1.54 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	Spike Level	Conc	Percent Recovery	Q	Range	DF	Instr	Anal Date	Anal Time
Arsenic	189.042	130	133	102.3		80-120	1	ICPST	10/22/2006	14:13
Cadmium	226.502	3.2	3.3	101.9		80-120	1	ICPST	10/22/2006	14:13
Chromium	267.716	13.0	13.2	101.7		80-120	1	ICPST	10/22/2006	14:13
Copper	324.753	16.2	17.0	104.7		80-120	1	ICPST	10/22/2006	14:13
Lead	220.353	32.5	32.8	100.9		80-120	1	ICPST	10/22/2006	14:13
Zinc	206.2	32.5	33.1	102.0		80-120	1	ICPST	10/22/2006	14:13

Comments: Lot #: C6I300144

5.04.5

U Result is less than the MDL

B Result is between MDL and RL

Form 7 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Laboratory Control Sample Results

Lab Sample ID: JG6KVC

Matrix: Soil **Units:** mg/kg **Prep Date:** 10/25/2006 **Prep Batch:** 6298040

Weight: .92 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	Spike Level	Conc	Percent Recovery	Q	Range	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.27	0.28	101.6		80-120	1	CVAA	0/25/2006	9:19

Comments: Lot #: C6I300144

5.04.5

U Result is less than the MDL

B Result is between MDL and RL

Form 7 Equivalent

GENERAL CHEMISTRY SUMMARY

EA Calvert Cliffs Benthic Stud

Ammonia Nitrogen

Lab Name:	STL PITTSBURGH	**Method:**	MCAWW 350.1
Client Name:	EA Engineering, Science and Technology	**Lot Number:**	C6I300144
Matrix:	SOLID		

distillation,midi

Client Sample ID	Sample Number	Workorder	Result	Units	Reporting Limit	Dilution Factor	Prep Date - Analysis Date/Time	QC Batch
CCNPP-1-SED	C6I300144 001	JFFF51AP	6.1 B J	mg/kg	7.0	1	10/16/2006 - 10/18/2006 00:00	6289270
CCNPP-2-SED	C6I300144 002	JFFGF1AP	6.8 B J	mg/kg	7.4	1	10/16/2006 - 10/18/2006 00:00	6289270
CCNPP-3-SED	C6I300144 003	JFFG51AP	4.9 B J	mg/kg	6.8	1	10/16/2006 - 10/18/2006 00:00	6289270

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

EA Calvert Cliffs Benthic Stud

Total Kjeldahl Nitrogen

Lab Name: STL NORTH CANTON
Client Name: EA Engineering, Science and Technology
Matrix: SOLID

Method: MCAWW 351.3
Lot Number: C6I300144

Digestion and distillation procedure

Client Sample ID	Sample Number	Workorder	Result	Units	Reporting Limit	Dilution Factor	Prep Date - Analysis Date/Time	QC Batch
CCNPP-1-SED	C6I300144 001	JFFF51AQ	186 B	mg/kg	210	1	10/23/2006 - 10/24/2006 00:00	6296274
CCNPP-2-SED	C6I300144 002	JFFGF1AQ	316	mg/kg	223	1	10/23/2006 - 10/24/2006 00:00	6296274
CCNPP-3-SED	C6I300144 003	JFFG51AQ	ND	mg/kg	204	1	10/23/2006 - 10/24/2006 00:00	6296274

EA Calvert Cliffs Benthic Stud

Percent Solids

Lab Name:	STL PITTSBURGH	**Method:**	MCAWW 160.3 MOD
Client Name:	EA Engineering, Science and Technology	**Lot Number:**	C6I300144
Matrix:	SOLID		

Total Residue as Percent Solids

Client Sample ID	Sample Number	Workorder	Result	Units	Reporting Limit	Dilution Factor	Prep Date - Analysis Date/Time	QC Batch
CCNPP-1-SED	C6I300144 001	JFFF51AA	71.6	%	1.0	1	10/2/2006 - 10/3/2006 10:31	6275199
CCNPP-2-SED	C6I300144 002	JFFGF1AA	67.3	%	1.0	1	10/2/2006 - 10/3/2006 10:31	6275199
CCNPP-3-SED	C6I300144 003	JFFG51AA	73.4	%	1.0	1	10/2/2006 - 10/3/2006 10:31	6275199

EA Calvert Cliffs Benthic Stud

Total Phosphorus

Lab Name:	STL NORTH CANTON	**Method:**	MCAWW 365.1
Client Name:	EA Engineering, Science and Technology	**Lot Number:**	C6I300144
Matrix:	SOLID		

Total Phosphorus

Client Sample ID	Sample Number	Workorder	Result	Units	Reporting Limit	Dilution Factor	Prep Date - Analysis Date/Time	QC Batch
CCNPP-1-SED	C6I300144 001	JFFF51AR	1080 J	mg/kg	140	10	10/24/2006 - 10/24/2006 00:00	6297417
CCNPP-2-SED	C6I300144 002	JFFGF1AR	1110 J	mg/kg	14.9	1	10/24/2006 - 10/24/2006 00:00	6297417
CCNPP-3-SED	C6I300144 003	JFFG51AR	615 J	mg/kg	68.1	5	10/24/2006 - 10/24/2006 00:00	6297417

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

EA Calvert Cliffs Benthic Stud

Ammonia Nitrogen

Lab Name:	STL PITTSBURGH	**Method:**	MCAWW 350.1
Client Name:	EA Engineering, Science and Technology	**Report ID:**	C6I300144
Matrix:	SOLID	**Date/Time Received:**	9/30/2006 9:50:00AM

Client Sample ID	Sample Number	Workorder	Result	Units	Reporting Limit	Prep/ Analysis Date	QC Batch	RPD / Limit (%)
BLK - C6J160000270B	270 MB	JGJQF1AA	4.3 B	mg/kg	5.0	10/16/2006 - 10/18/2006	6289270	

B Estimated result. Result is less than RL

EA Calvert Cliffs Benthic Stud

Total Kjeldahl Nitrogen

Lab Name:	STL NORTH CANTON	**Method:**	MCAWW 351.3
Client Name:	EA Engineering, Science and Technology	**Report ID:**	C6I300144
Matrix:	SOLID	**Date/Time Received:**	9/30/2006 9:50:00AM

Client Sample ID	Sample Number	Workorder	Result	Units	Reporting Limit	Prep/ Analysis Date	QC Batch	RPD / Limit (%)
BLK - A6J230000274B	274 MB	JG3CM1AA	ND	mg/kg	150	10/23/2006 - 10/24/2006	6296274	

EA Calvert Cliffs Benthic Stud

Percent Solids

Lab Name:	STL PITTSBURGH	**Method:**	MCAWW 160.3 MOD
Client Name:	EA Engineering, Science and Technology	**Report ID:**	C6I300144
Matrix:	SOLID	**Date/Time Received:**	9/30/2006 9:50:00AM

Client Sample ID	Sample Number	Workorder	Result	Units	Reporting Limit	Prep/ Analysis Date	QC Batch	RPD / Limit (%)
INTRA-LAB QC	001 DUP	JFFQP1AJ	59.9	%	1.0	10/2/2006 - 10/3/2006	6275199	0.16 / 20

EA Calvert Cliffs Benthic Stud

Total Phosphorus

Lab Name:	STL NORTH CANTON	**Method:**	MCAWW 365.1
Client Name:	EA Engineering, Science and Technology	**Report ID:**	C6I300144
Matrix:	SOLID	**Date/Time Received:**	9/30/2006 9:50:00AM

Client Sample ID	Sample Number	Workorder	Result	Units	Reporting Limit	Prep/ Analysis Date	QC Batch	RPD / Limit (%)
BLK - A6J240000417B	417 MB	JG5LG1AA	4.9 B	mg/kg	10.0	10/24/2006 - 10/24/2006	6297417	

B Estimated result. Result is less than RL.

EA Calvert Cliffs Benthic Stud

Ammonia Nitrogen

Lab Name:	STL PITTSBURGH	**Method:**	MCAWW 350.1
Client Name:	EA Engineering, Science and Technology	**Lot Number:**	C6J160000
Matrix:	SOLID	**Date/Time Received:**	9/30/2006 9:50:00AM

Client Sample ID	QC Sample Type	Workorder	Recovery (%)	Control Limits (%)	Prep/ Analysis Date	QC Batch	RPD / Limit (%)
CHECK SAMPLE	LCS	JGJQF1AC	101	90 - 110	10/16/2006 - 10/18/2006	6289270	
LAB MS/MSD	MS	JFFQ41AN	143 N	90 - 110	10/16/2006 - 10/18/2006	6289270	0.11 / 20
LAB MS/MSD	MSD	JFFQ41AP	142 N	90 - 110	10/16/2006 - 10/18/2006	6289270	0.11 / 20

N Spiked analyte recovery is outside stated control limits.

EA Calvert Cliffs Benthic Stud

Total Kjeldahl Nitrogen

Lab Name:	STL NORTH CANTON	**Method:**	MCAWW 351.3
Client Name:	EA Engineering, Science and Technology	**Lot Number:**	C6I300144
Matrix:	SOLID	**Date/Time Received:**	9/30/2006 9:50:00AM

Client Sample ID	QC Sample Type	Workorder	Recovery (%)	Control Limits (%)	Prep/ Analysis Date	QC Batch	RPD / Limit (%)
CCNPP-1-SED	MS	JFFF51A4	96	50 - 120	10/23/2006 - 10/24/2006	6296274	31 / 50
CCNPP-1-SED	MSD	JFFF51A5	66	50 - 120	10/23/2006 - 10/24/2006	6296274	31 / 50
CHECK SAMPLE	LCS	JG3CM1AC	80	70 - 133	10/23/2006 - 10/24/2006	6296274	

EA Calvert Cliffs Benthic Stud

Total Phosphorus

Lab Name:	STL NORTH CANTON	**Method:**	MCAWW 365.1
Client Name:	EA Engineering, Science and Technology	**Lot Number:**	A6J240000
Matrix:	SOLID	**Date/Time Received:**	9/30/2006 9:50:00AM

Client Sample ID	QC Sample Type	Workorder	Recovery (%)	Control Limits (%)	Prep/ Analysis Date	QC Batch	RPD / Limit (%)
CHECK SAMPLE	LCS	JG5LG1AC	87	75 - 125	10/24/2006 - 10/24/2006	6297417	
CCNPP-1-SED	MS	JFFF51A6	NC M	75 - 125	10/24/2006 - 10/24/2006	6297417	
CCNPP-1-SED	MSD	JFFF51A7	NC M	75 - 125	10/24/2006 - 10/24/2006	6297417	

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

NC The recovery and/or RPD were not calculated.

STL Burlington
Colchester, Vermont

Sample Data Summary Package

SDG: 6I300144

SEVERN TRENT STL

STL Burlington
208 South Park Drive, Suite 1
Colchester, VT 05446

Tel: 802 655 1203 Fax: 802 655 1248
www.stl-inc.com

October 30, 2006

Ms. Carrie Gamber
Severn Trent Laboratories
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238

Re: Laboratory Project No. 26006
Case: CALVERT; SDG: 6I300144

Dear Ms. Gamber:

Enclosed are the analytical results for the samples that were received by STL Burlington on October 3rd, 2006. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 10/03/06 ETR No: 116700		
685806	CCNPP-1-SED	09/29/06	SOLID
685807	CCNPP-2-SED	09/29/06	SOLID
685808	CCNPP-3-SED	09/29/06	SOLID

Documentation of the condition of the samples at the time of their receipt and any exception to the laboratory's Sample Acceptance Policy is documented in the Sample Handling section of this submittal.

The samples were analyzed for particle size by ASTM D422 and specific gravity by ASTM D854. There were no exceptions to the method quality control criteria during the analyses of these samples.

Additionally, the samples were analyzed for total organic carbon by method Lloyd Kahn. Due to the calibration range of the Total Organic Carbon (TOC) analysis and the constraints associated with the establishment of a low concentration calibration point, there is imprecision in the quantitation of results at or near the reporting limit when using a linear regression with all of the calibration points. Therefore, the laboratory used a direct proportion between zero and the relative response of the low calibration standard in deriving results when the response for any one of the determinations for a particular sample was less than that of the low calibration standard.

The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 655-1203.

Sincerely,

Kristine A. Dusablon
Project Manager

Enclosure

STL Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: Greater than 40% difference for detected concentrations between two GC columns. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P ICP-AES
MS ICP-MS
CV Cold Vapor AA
AS Semi-Automated Spectrophotometric

FQA009:04.24.06:3
STL Burlington

C6I300144

INTER-COMPANY LOG

COMMENTS:

Project Manager: Carrie L. Gamber
Project: EA CALVET CLIFF EA Calvert Cliffs Benthic S
Report Type: C1 CLP - CD only
Client: 126501 - EA Engineering, Science and Technology

Date Received: 2006-09-30
Analytical Due Date: 2006-10-26
Report Due Date: 2006-10-27

WORK LOCATION: ***H2*** ***STL Burlington***

SMP#: 1 CLIENT ID: CCNPP-1-SED DATE SAMPLED: 20060929 MATRIX: A SOLID
SAMPLE COMMENTS:

METHOD: Z0 NONE NONE SOLID, GrainSize(sieve&hydro) Burlington
EXTRACTION: 88 NO SAMPLE PREPARATION PERFORMED / QC TYPE: 01 STANDARD TEST SET
WORKORDER JFFF51AT
METAL: XX

METHOD: Z0 NONE NONE SOLID, Specific Gravity, Burlington
EXTRACTION: 88 NO SAMPLE PREPARATION PERFORMED / QC TYPE: 01 STANDARD TEST SET
WORKORDER JFFF51AV
METAL: XX

METHOD: Z0 NONE NONE SOLID, TOC Loyd Kahn Burlington
EXTRACTION: 88 NO SAMPLE PREPARATION PERFORMED / QC TYPE: 01 STANDARD TEST SET
WORKORDER JFFF51AU
METAL: XX

SMP#: 2 CLIENT ID: CCNPP-2-SED DATE SAMPLED: 20060929 MATRIX: A SOLID
SAMPLE COMMENTS:

METHOD: Z0 NONE NONE SOLID, GrainSize(sieve&hydro) Burlington
EXTRACTION: 88 NO SAMPLE PREPARATION PERFORMED / QC TYPE: 01 STANDARD TEST SET
WORKORDER JFFGF1AT
METAL: XX

METHOD: Z0 NONE NONE SOLID, Specific Gravity, Burlington
EXTRACTION: 88 NO SAMPLE PREPARATION PERFORMED / QC TYPE: 01 STANDARD TEST SET
WORKORDER JFFGF1AV
METAL: XX

METHOD: Z0 NONE NONE SOLID, TOC Loyd Kahn Burlington
EXTRACTION: 88 NO SAMPLE PREPARATION PERFORMED / QC TYPE: 01 STANDARD TEST SET
WORKORDER JFFGF1AU
METAL: XX

SMP#: 3 CLIENT ID: CCNPP-3-SED DATE SAMPLED: 20060929 MATRIX: A SOLID
SAMPLE COMMENTS:

METHOD: Z0 NONE NONE SOLID, GrainSize(sieve&hydro) Burlington
EXTRACTION: 88 NO SAMPLE PREPARATION PERFORMED / QC TYPE: 01 STANDARD TEST SET
WORKORDER JFFG51AT
METAL: XX

METHOD: Z0 NONE NONE SOLID, Specific Gravity, Burlington
EXTRACTION: 88 NO SAMPLE PREPARATION PERFORMED / QC TYPE: 01 STANDARD TEST SET
WORKORDER JFFG51AV
METAL: XX

METHOD: Z0 NONE NONE SOLID, TOC Loyd Kahn Burlington
EXTRACTION: 88 NO SAMPLE PREPARATION PERFORMED / QC TYPE: 01 STANDARD TEST SET
WORKORDER JFFG51AU
METAL: XX

C6I300144

INTER-COMPANY LOG

COMMENTS:

Project Manager:	Carrie L. Gamber		Date Received:	2006-09-30
Project:	EA CALVET CLIFF	EA Calvert Cliffs Benthic S	Analytical Due Date:	2006-10-26
Report Type:	C1 CLP - CD only		Report Due Date:	2006-10-27
Client:	126501 - EA Engineering, Science and Technology			

The sample(s) listed on this form are being sent to your location for the specified analysis. If you have any questions, please contact the Project Manager listed above. PLEASE RETURN THE ORIGINAL SIGNED FORM WITH THE REPORT AT THE COMPLETION OF ANALYSIS.

Thank You

STL- Pittsburgh
Sample Receiving

RELINQUISHED BY: Patrick R Faust DATE: 9/30/06 1700

RECEIVED FOR LAB BY: [illegible] DATE: 10-3-06

SEVERN TRENT STL

Sample Data Summary Package - Wet Chemistry

WET CHEMISTRY

Sample Report Summary

Client Sample No.
CCNPP-1-SED

Lab Name: STL BURLINGTON
Contract: C6I300144
SDG No.: 6I300144

Lab Code: STLVT
Case No.: CALVERT
Lab Sample ID: 685806

Matrix: SOLID
Client: STLPAP
Date Received: 10/03/06

% Solids: 67.7

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
IN623	Solids, Percent	10/11/06	N/A	%	1.0		67.7	
IN547	TOC by Lloyd Kahn	10/06/06	BLKLK100606A	mg/Kg	1	739	23600	

Printed on: 10/19/06 03:39 PM

WET CHEMISTRY

Sample Report Summary

Client Sample No.
CCNPP-2-SED

Lab Name: STL BURLINGTON
Contract: C6I300144
SDG No.: 6I300144

Lab Code: STLVT
Case No.: CALVERT
Lab Sample ID: 685807

Matrix: SOLID
Client: STLPAP
Date Received: 10/03/06

% Solids: 62.0

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
IN623	Solids, Percent	10/11/06	N/A	%	1.0		62.0	
IN847	TOC by Lloyd Kahn	10/06/06	BLKLK100606A	mg/Kg	1	806	30700	

Printed on: 10/19/06 03:39 PM

WET CHEMISTRY

Sample Report Summary

Client Sample No.

CCNPP-3-SED

Lab Name: STL BURLINGTON

Contract: C6I300144

SDG No.: 6I300144

Lab Code: STLVT

Case No.: CALVERT

Lab Sample ID: 685808

Matrix: SOLID

Client: STLPAP

Date Received: 10/03/06

% Solids: 70.3

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
IN623	Solids, Percent	10/11/06	N/A	%	1.0		70.3	
IN847	TOC by Lloyd Kahn	10/06/06	BLKLK100606A	mg/Kg	1	711	24100	

Printed on: 10/19/06 03:39 PM

WET CHEMISTRY

Method Blank Report Summary

Lab Name: STL BURLINGTON | Contract: C6I300144 | SDG No.: 6I300144

Lab Code: STLVT | Case No.: CALVERT

Matrix: SOIL | Client: STLPAP

% Solids:

Lab Sample ID	Method	Parameter	Conc.	Units	Qual.	DF	RL	Analytical Run Date	Analytical Batch
BLKLK100606A	IN847	TOC by Lloyd Kahn	500	mg/Kg	U	1	500	10/06/06	BLKLK100606A

Printed on: 10/19/06 03:39 PM

WET CHEMISTRY

Laboratory Control Sample Report Summary

Lab Name: STL BURLINGTON

Contract: C6I300144

SDG No.: 6I300144

Lab Code: STLVT

Case No.: CALVERT

Matrix: SOIL

Client: STLPAP

% Solids:

Lab Sample ID	Method	Parameter	Analytical Run Date	Analytical Batch	Units	LCS Conc.	True Value	% Rec.	Control Limit
LCSLK100606A	IN847	TOC by Lloyd Kahn	10/06/06	BLKLK100606A	mg/Kg	7660	8400	91	75-125

Printed on: 10/19/06 03:39 PM

SEVERN TRENT STL

Sample Data Summary Package - Geotechnical

GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.

CCNPP-1-SED

Lab Name: STL BURLINGTON | Contract: C6I300144 | SDG No.: 6I300144

Lab Code: STLVT | Case No.: CALVERT | Lab Sample ID: 685806

Matrix: SOLID | Client: STLPAP | Date Received: 10/03/06

% Solids: 67.7

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D854	Specific Gravity	10/25/06			1		2.681	

Printed on: 10/30/06 10:20 AM

GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.
CCNPP-2-SED

Lab Name: STL BURLINGTON
Contract: C6I300144
SDG No.: 6I300144

Lab Code: STLVT
Case No.: CALVERT
Lab Sample ID: 685807

Matrix: SOLID
Client: STLPAP
Date Received: 10/03/06

% Solids: 62.0

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D854	Specific Gravity	10/25/06			1		2.667	

Printed on: 10/30/06 10:20 AM

GEOTECHNICAL / GENERAL CHEMISTRY

Sample Report Summary

Client Sample No.
CCNPP-3-SED

Lab Name: STL BURLINGTON
Contract: C6I300144
SDG No.: 6I300144

Lab Code: STLVT
Case No.: CALVERT
Lab Sample ID: 685808

Matrix: SOLID
Client: STLPAP
Date Received: 10/03/06

% Solids: 70.3

Method	Parameter	Analytical Run Date	Analytical Batch	Units	DF	RL	Conc.	Qual.
D854	Specific Gravity	10/25/06			1		2.679	

Printed on: 10/30/06 10:20 AM

ASTM Method D854: Standard Test Method for Specific Gravity of Soils
Calculations

Client Code:	STLPAP	**Start Date:**	10/25/2006
ETR:	116700	**Start Time:**	1420
SDG:	6I300144	**End Date:**	10/27/2006
		Analyst:	MAP

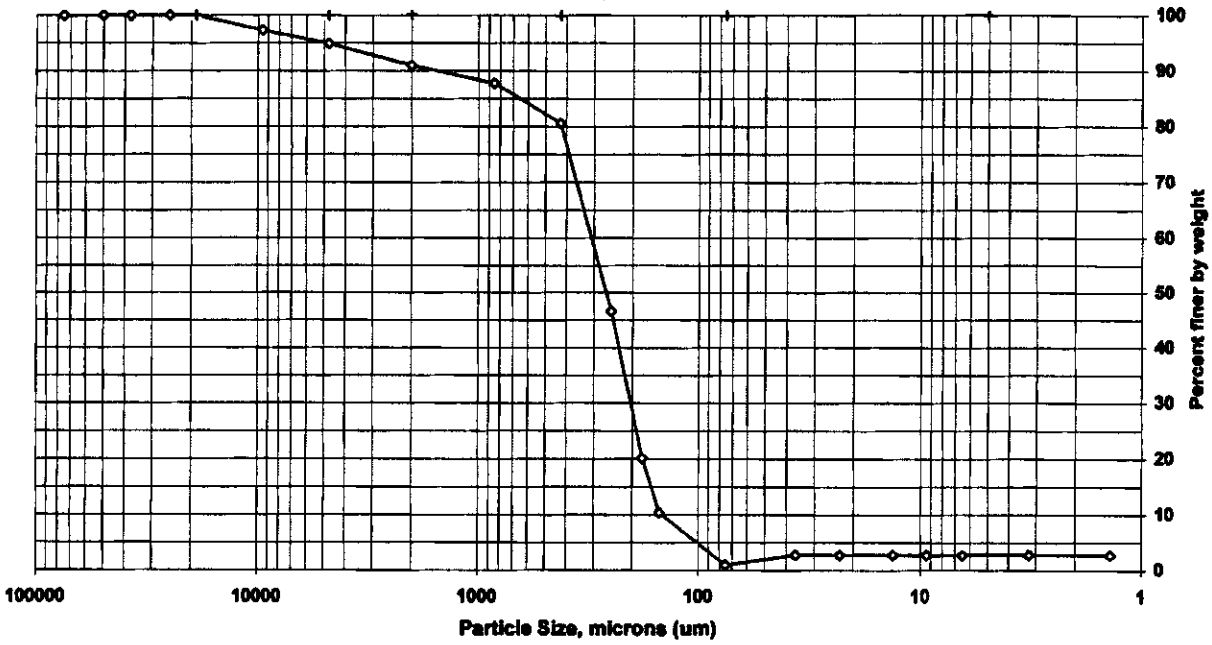
Laboratory Number	Flask Number	Weight Of				Temp. of Flask + H_2O + Sample (°C)	Calibrated Pycnometer Mass (g)	Calibrated Pycnometer Volume (mL)	Oven Dried Sample Mass (g)	Pycnometer + H_2O @ Sample Temp. (g)	Specific Gravity at Sample Temp.	Specific Gravity at 20°C
		Flask (g)	Flask + H_2O + Sample (g)	Pan (g)	Pan + Dry Soil (g)							
685806	1	102.57	395.79	164.66	234.78	22.5	102.57	249.82	70.12	351.805	2.683	2.681
685807	17	105.42	392.48	167.64	228.04	22.5	105.42	249.88	60.40	354.715	2.668	2.667
685808	20	101.67	397.60	170.32	244.72	22.4	101.67	249.87	74.40	350.960	2.680	2.679

(1 - 108) 104 C6I300144

Particle Size of Soils by ASTM D422

Client Code:	STLPAP	SDG:	6I300144	Date Received:	10/3/2006
Sample ID:	CCNPP-1-SED	ETR(s):	116700	Start Date:	10/5/2006
Lab ID:	685806			End Date:	10/27/2006

Percent Solids:	74.4%	Non-soil material:	shells
Specific Gravity:	2.681	Shape (> #10):	rounded
Maximum Particle Size:	19 mm	Hardness (> #10):	brittle



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	97.3	2.7
#4	4750	94.9	2.4
#10	2000	91.0	3.9
#20	850	87.8	3.2
#40	425	80.6	7.2
#60	250	46.6	34.0
#80	180	20.1	26.6
#100	150	10.4	9.7
#200	75	1.0	9.4
Hydrometer	36.3	2.7	-1.8
I	22.9	2.7	0.0
I	13.2	2.7	0.0
I	9.4	2.7	0.0
I	6.5	2.7	0.0
I	3.2	2.7	0.0
V	1.4	2.7	0.0

Soil Classification	Percent of Total Sample
Gravel	5.1
Sand	93.9
Coarse Sand	3.9
Medium Sand	10.4
Fine Sand	79.7
Silt	-1.8
Clay	2.7

Preparation Method: D2217
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

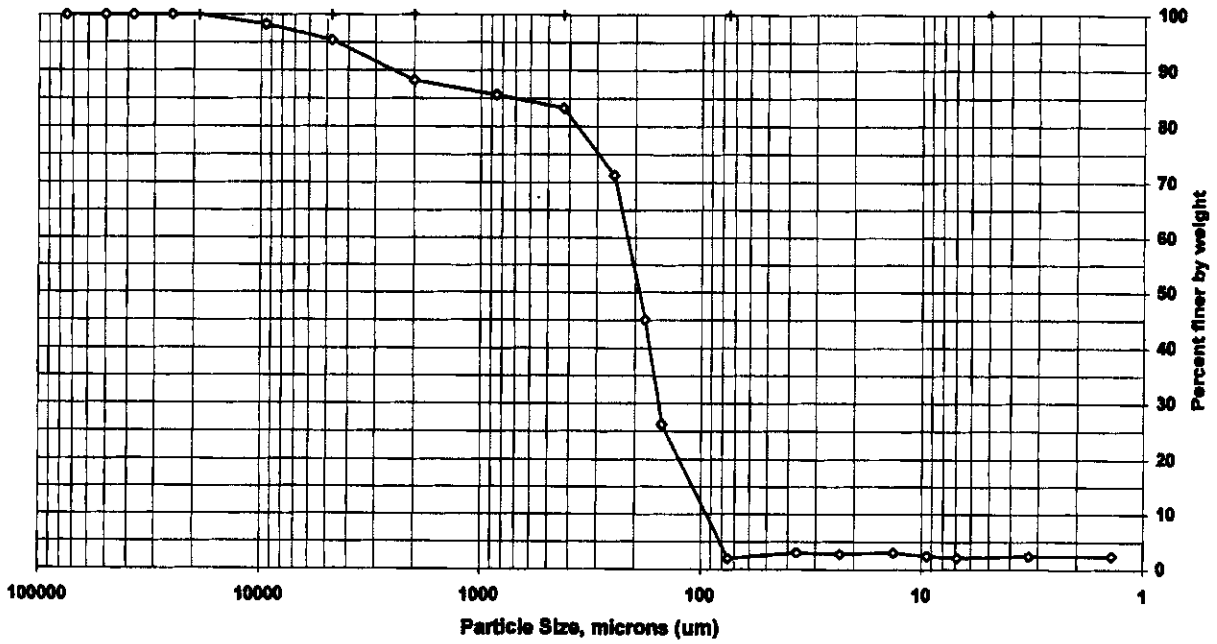
FSL024:07.29.05:0
STL Burlington

6I300144PS 10/30/2006

Particle Size of Soils by ASTM D422

Client Code:	STLPAP	**SDG:**	6I300144	**Date Received:**	10/3/2006
Sample ID:	CCNPP-2-SED	**ETR(s):**	116700	**Start Date:**	10/5/2006
Lab ID:	685807			**End Date:**	10/27/2006

Percent Solids:	73.6%	**Non-soil material:**	shells
Specific Gravity:	2.667	**Shape (> #10):**	rounded
Maximum Particle Size:	19 mm	**Hardness (> #10):**	brittle



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	98.3	1.7
#4	4750	95.4	2.8
#10	2000	88.2	7.2
#20	850	85.7	2.5
#40	425	83.3	2.4
#60	250	71.2	12.1
#80	180	45.0	26.2
#100	150	26.3	18.8
#200	75	1.9	24.3
Hydrometer	36.4	3.0	-1.1
I	23.2	2.7	0.3
I	13.3	3.0	-0.3
I	9.4	2.4	0.6
I	6.9	2.1	0.3
I	3.3	2.4	-0.3
V	1.4	2.4	0.0

Soil Classification	Percent of Total Sample
Gravel	4.6
Sand	93.5
Coarse Sand	7.2
Medium Sand	4.9
Fine Sand	81.4
Silt	-0.2
Clay	2.1

Preparation Method: D2217
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

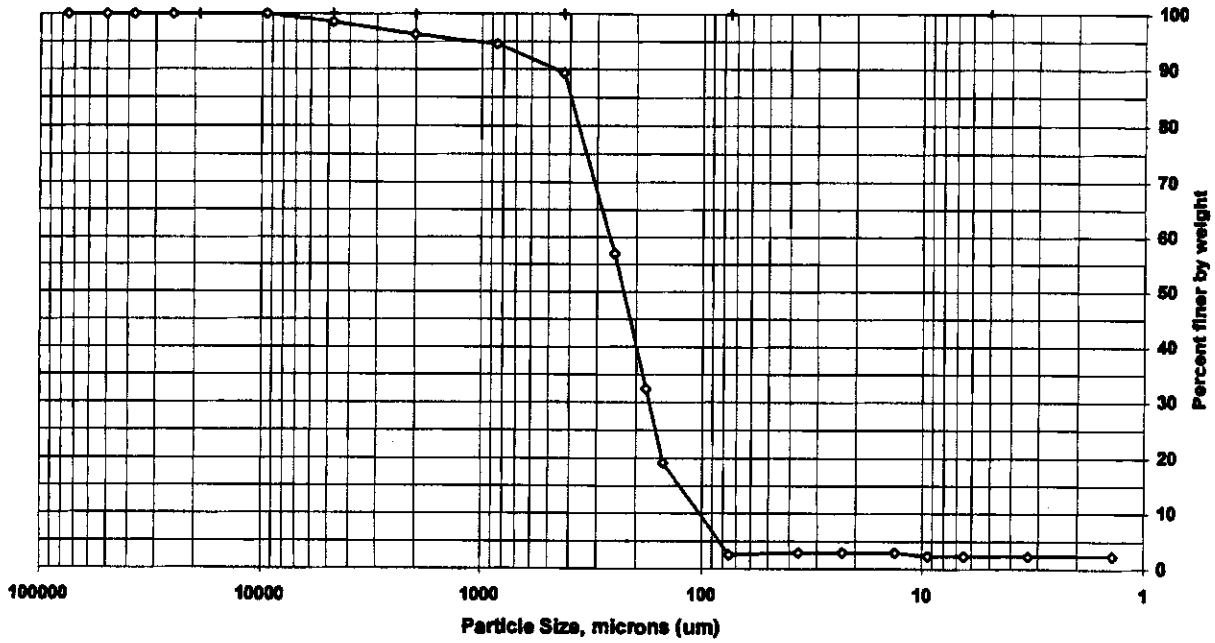
FSL024:07.29.05:0
STL Burlington

6I300144PS 10/30/2006

Particle Size of Soils by ASTM D422

Client Code:	STLPAP	SDG:	6I300144	Date Received:	10/3/2006
Sample ID:	CCNPP-3-SED	ETR(s):	116700	Start Date:	10/5/2006
Lab ID:	685808			End Date:	10/27/2006

Percent Solids:	74.8%	Non-soil material:	shells
Specific Gravity:	2.679	Shape (> #10):	rounded
Maximum Particle Size:	9.5 mm	Hardness (> #10):	brittle



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.5	1.5
#10	2000	96.3	2.2
#20	850	94.5	1.8
#40	425	89.4	5.2
#60	250	56.9	32.4
#80	180	32.4	24.6
#100	150	19.1	13.2
#200	75	2.5	16.6
Hydrometer	36.3	2.9	-0.4
I	22.9	2.9	0.0
I	13.2	2.9	0.0
I	9.4	2.3	0.6
I	6.5	2.3	0.0
I	3.3	2.3	0.0
V	1.4	2.3	0.0

Soil Classification	Percent of Total Sample
Gravel	1.5
Sand	96.0
Coarse Sand	2.2
Medium Sand	7.0
Fine Sand	86.8
Silt	0.2
Clay	2.3

Preparation Method: D2217
Dispersion Device: Mechanical mixer with a metal paddle.
Dispersion Period: 1 minute

FSL024:07.29.05:0
STL Burlington

6I300144PS 10/30/2006

Particle Size Analysis of Soils
By ASTM D422
Hydrometer Data

Set Number	Client Code:	STLPAP	Date Received:	3-Oct-06
6I300144	SDG:	6I300144	Start Date:	5-Oct-06
	ETR(s):	116700	End Date:	27-Oct-06

Date and Analyst

Percent Solids	Weighed	Mixed	Hydrometer	Large sieves	Small sieves
MAP 10/24/06	MAP 10/24/06	SMD 10/25/06	MAP 10/25/06	SMD 10/25/06	RRL 10/26/06
SMD 10/25/06			SMD 10/26/06	RRL 10/26/06	MAP 10/27/06

Test number	1	2	3	4	5	6	7	8	9	10	11	12
Lab number									685806	685807	685808	
Time, min. (2)	2	2	2	2	2	2	2	2	2	2	2	2
Reading									1.0045	1.0045	1.0045	
Temperature, C									22.0	22.0	22.0	
Time, min. (5)	5	5	5	5	5	5	5	5	5	5	5	5
Reading									1.0045	1.0045	1.0045	
Temperature, C									22.0	21.5	22.0	
Time, min. (15)	15	15	15	15	15	15	15	15	15	15	15	15
Reading									1.0045	1.0045	1.0045	
Temperature, C									22.0	22.0	22.0	
Time, min. (30)	30	30	29	29	31	31	31	32	30	30	30	31
Reading									1.0045	1.0040	1.0040	
Temperature, C									22.0	22.0	22.0	
Time, min. (60)	59	58	58	63	60	59	59	60	63	57	63	57
Reading									1.0045	1.0040	1.0040	
Temperature, C									22.0	21.5	22.0	
Time, min. (250)	256	256	250	250	240	234	265	259	253	247	241	235
Reading									1.0045	1.0040	1.0040	
Temperature, C									22.0	22.0	22.0	
Time, min. (1440)	1440	1440	1434	1434	1424	1418	1412	1406	1400	1394	1388	1382
Reading									1.0045	1.0040	1.0040	
Temperature, C									22.0	22.0	22.0	

Hydrometer used: 313119 **Model #:** ASTM 151H **Manufacturer:** ELE **Hydrometer start time:** 14:58

Calibrations:

L temp, C	L read	H Temp, C	H read
17.0	1.0045	23.0	1.0015

Cal. Date: 9/29/05 **Hydrometer data entered:** RRL 10/26/06

FSL024:07.29.05:0
STL Burlington

6I300144PS 10/30/2006

(1 - 108)

108

C6i300144

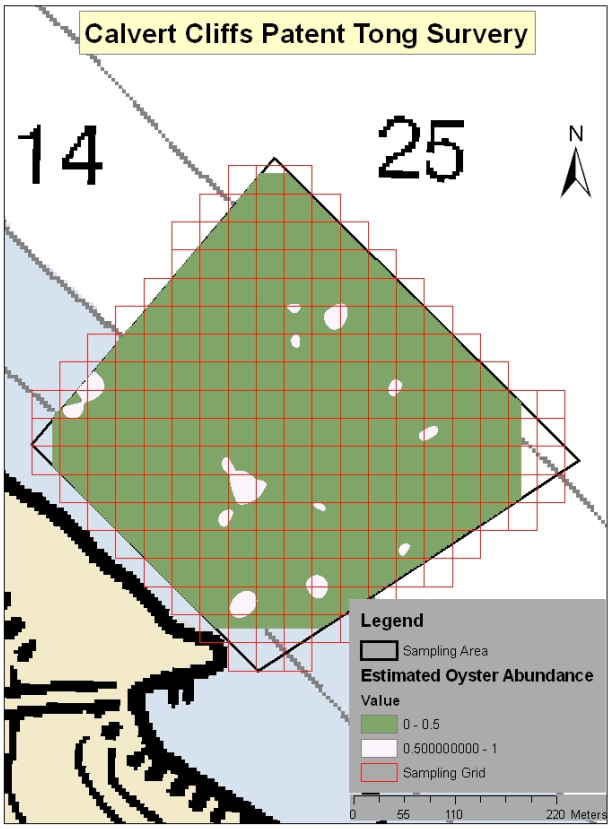
APPENDIX C-3:

CALVERT CLIFFS PATENT TONG SURVEY OYSTER REPORT

CALVERT CLIFFS PATENT TONG SURVEY REPORT
Flag Pond Oyster Bar

Submitted by:

Kennedy T. Paynter
November 7, 2006



On November 1, 2006 we conducted a patent tong survey of an area off shore of the Calvert Cliffs nuclear power plant. The R/V*Callinectes*, a 36' research vessel owned and operated by K.T. Paynter, and a waterman's boat, rigged with patent tongs, met at the survey site identified by EA Engineering and Constellation Generation Group.

Methods

Using geographic information systems (GIS) software, a survey grid was superimposed over the survey area (see Fig 1). The grid was made up of 100 ft. by 100 ft squares. The patent tong boat traveled along the grid lines making grabs at approximately 100' intervals. Surveys of this type are thought to be the most accurate for stock assessment (see Mann, et al., 2004)

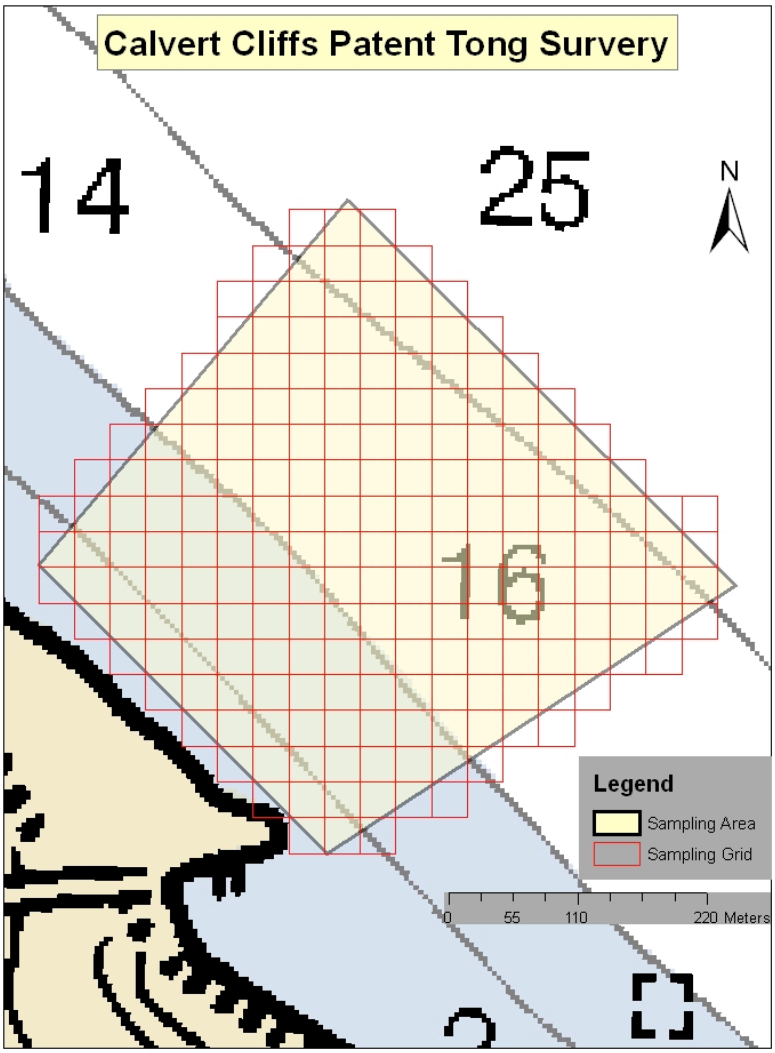


Fig. 1 Survey area and survey grid

Two grabs were taken at every other point. A total of 160 locations were sampled by 240 grabs (see Fig. 2). The size of the patent tongs is 1.372m^2. Oysters and boxes (dead oysters) were enumerated after each grab. The shell height of each oyster was determined to the nearest mm. The oysters and boxes were then returned to the water.

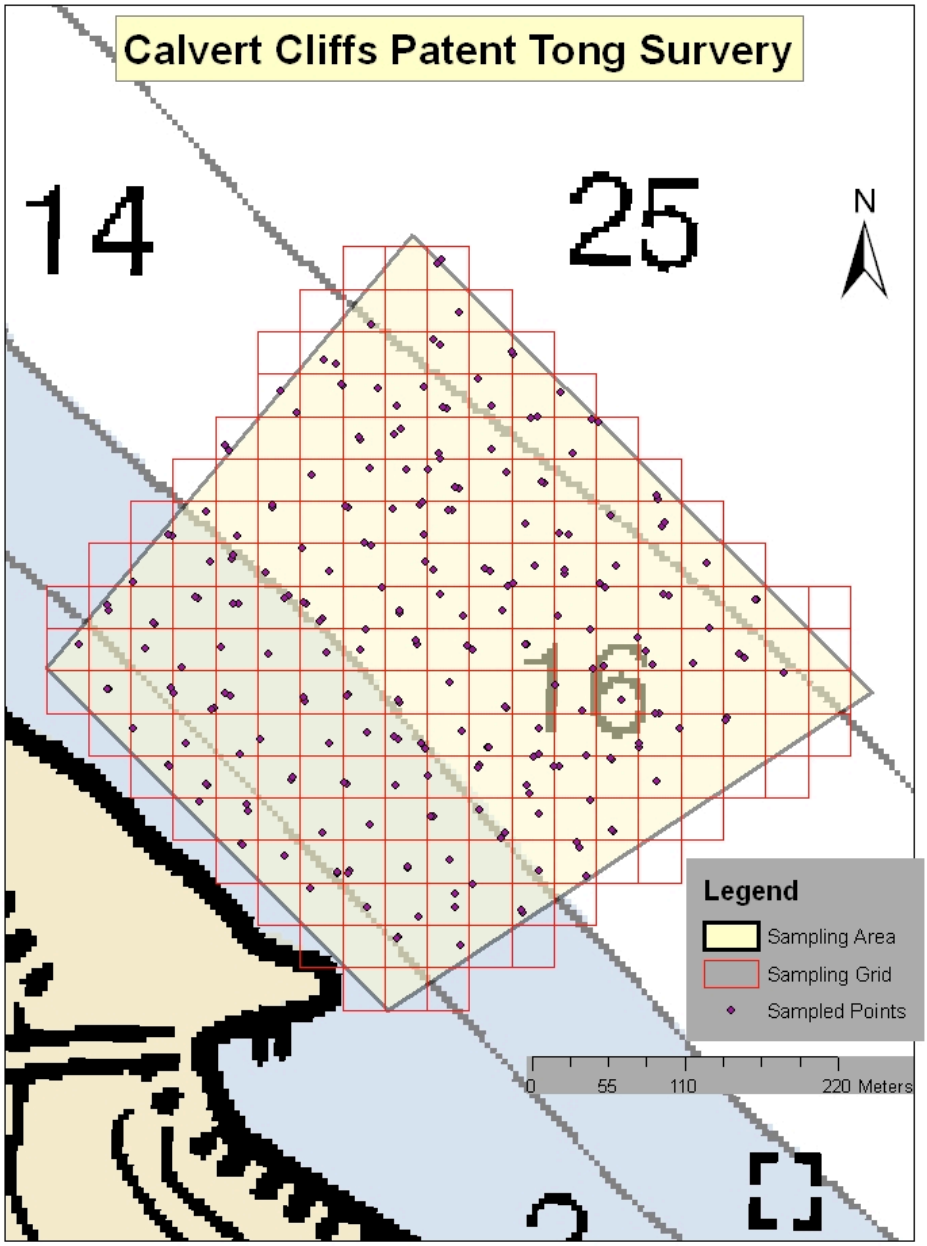


Fig. 2 Survey area grid and sampled points.

A large number of crab pots in the survey area hindered our ability to sample every 100 feet. After the collection, the number of oysters/m^2 for each grab was calculated and entered into the ArcGIS software program running an inverse distance weighted spatial analysis.

Results

The software generated a map of the oyster bed within the survey area (Fig 3). This map reflects the density of oysters within the survey area. Oyster density was very low.

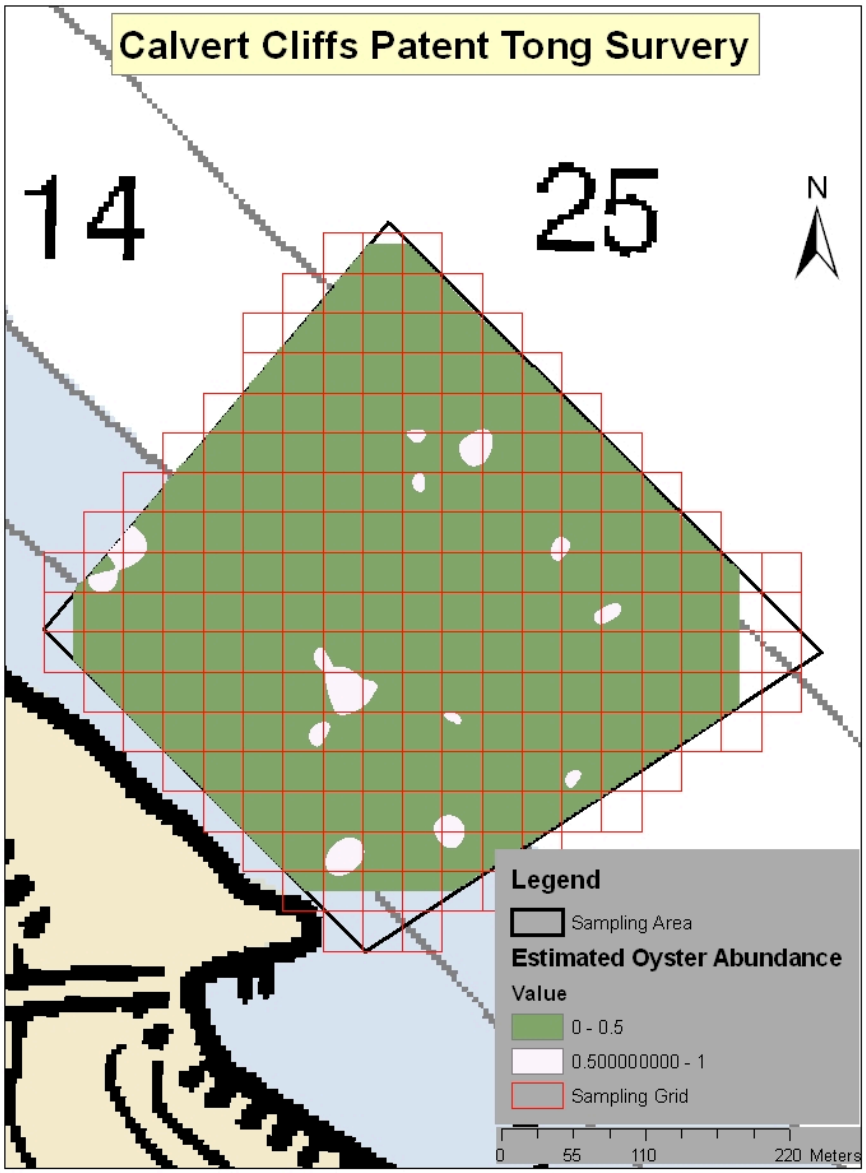


Fig. 3 Survey area, grid and GIS density plot. Values are expressed as oysters/m^2.

Note that the range of oyster density is between 0 and 1 oyster per square meter (m^2). Most oysters collected were large, older individuals, although two spat (young oysters) were found. Mean size was 88 mm.

Based on GIS analysis of the oysters recovered from the survey, the site has an estimated population of 2,387 oysters, approximately 9.6 bushels. The total area covered by the survey was approximately 160,000 m^2 or 40 acres. Mean oyster density of therefore, 0.015 oysters/m^2.

SITE	AREA (m^2)	ACRES	DENSITY	BUSHELS
FLAG POND	160,000	39	2387	9.6

Conclusions

The oyster population within the survey area on Flag Pond oyster bar is very small. Moreover, the mean density of oysters on the bar (0.015) suggests that the bar is economically and ecologically non-functional.

Oyster restoration efforts seek to establish oyster populations of at least 100 oysters/m^2. These are considered densities that will create important benthic habitat, filter large amounts of Bay water, and create copious larvae to support on ongoing population. Furthermore, the population at Flag Pond is too low to support a harvest. It would cost watermen more in fuel to reach the site and return than they could catch.

Literature Cited

Mann, R., M. Southworth, J.M. Harding, and J. Wesson. 2004. A comparison of dredge and patent tongs for estimation of oyster populations. J. Shellfish Res. 23: 387-390.