APPENDIX E:

SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT SUPPORTING DATA

APPENDIX E
WILDLIFE TOXICITY REFERENCE VALUES

The screening ecotoxicity values utilized in this risk assessment referred to herein as toxicity reference values (TRVs), represent conservative thresholds for ecological effects. US EPA guidance (US EPA, 1997) specifies that it is preferred that TRVs represent a no-observed-adverse-effect-level (NOAEL) for chronic exposure to site-related constituents. Should a NOAEL not be available (which is the case for many chemicals and potentially exposed organisms) US EPA guidance allows the use of the lowest exposure level shown to produce adverse effects (i.e., lowest-observable-adverse-effects-level; LOAEL) in the development of TRVs. The TRVs utilized in this risk assessment, consistent with US EPA guidance, are intended to be protective of adverse effects, which may impact populations (such effects may include those that impact development, reproduction or survivorship).

TRVs incorporated into the quantitative evaluation of potential ecological risks to wildlife at this facility, were either adopted directly from Oak Ridge National Laboratory's (ORNL) publication Toxicological Benchmarks for Wildlife: 1996 Revision (Sample et al., 1996) or independently developed by ENSR using the methodology of ORNL. The ORNL publication presents NOAEL-based and LOAEL-based TRVs for assessing the potential adverse effects of 85 chemicals on 9 mammalian wildlife species or 11 avian wildlife species. These benchmarks were developed to be protective of potential oral exposure to contaminated media. The NOAEL-based TRVs represent non-hazardous exposure levels for the wildlife species evaluated, while the LOAEL-based TRVs represent potential exposure levels at which adverse effects may become evident.

The 85 chemicals selected for evaluation by ORNL represent those most likely to be present at Department of Energy (DOE) waste sites. The nine mammalian wildlife species for which ORNL developed benchmarks include the following:

- short-tailed shrew;
- little brown bat;
- meadow vole;
- white footed mouse;
- cottontail rabbit;
- mink;
- red fox; and
- whitetail deer.

The eleven avian wildlife species for which benchmarks were developed include:

- American robin;
- rough-winged swallow;
- American woodcock;
- wild turkey;
- belted king fisher;
- great blue heron;
- barred owl;
- barn owl;
- coppers hawk;
- red-tailed hawk; and
- osprey.

The above 20 species of wildlife were selected for evaluation by ORNL because of their broad distribution, and because they represent a wide spectrum of body sizes and diets.

Toxicity data utilized by ORNL in developing ecotoxicity benchmarks came from a wide range of sources including, but not limited to, the following:

- The US EPA's Terrestrial Toxicity Data Base (TERRE-TOX; Meyers and Shiller, 1986);
- US Fish and Wildlife Service Reports;
- US EPA assessment and criteria documents;
- Public Health Service Toxicity Profiles; and
- many refereed journals (e.g., Environmental Toxicology and Chemistry, Archives of Environmental Contamination and Toxicology, Journal of Wildlife Management, etc.).

Selection of the individual TRVs for use in the quantitative evaluation of potential risks to wildlife at this facility, are discussed below and presented in Table 4-9. TRVs were selected for mammals (mink and muskrat) and birds (mallard and great blue heron) for all COPC associated with the Meadowlands estuary. When available, NOAELs were selected for evaluation potential impacts of COPC to mammals and birds. Body weight scaling factors were applied in accordance with methods outlined by the Oak Ridge National Laboratory (Sample et al., 1996).

Arsenic

Arsenic is a naturally occurring element. The most commonly occurring form of arsenic is a gray, brittle, metalloid (Irwin et al., 1997; ACGIH, 1996). Arsenic is typically found in the environment in combination with other elements such as oxygen, chloride and sulfur (Irwin et all, 1997; ATSDR, 1992). It is odorless and nearly tasteless. The primary use of arsenic (as arsenic trioxide) in industry is in products used for wood preservation (ATSDR, 1992). Arsenic is used in metallurgy as an alloying agent for heavy metals (ACGIH, 1996). Arsenic is also used in the production of agricultural chemicals such as insecticides, herbicides, algaecides, and growth stimulants for plants and animals (ATSDR, 1992). It is also used in the manufacturing of certain types of glass and in the electronics industry in the manufacture of integrated circuits, solar cells, and lasers (ATSDR, 1992; and ACGIH, 1996).

Laboratory animals exposed to arsenic through injection or gavage during embryogenesis have exhibited malformation, embryolethality and growth retardation. Mice exposed to arsenic trioxide via inhalation have displayed trends toward increasing numbers of skeletal malformations with increasing dose (California EPA, 1997).

The mammalian TRV for arsenic was developed using the methodology of Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with the mouse (Schroeder and Mitchner, 1971 as cited in Sample et al., 1996). Arsenite (As^{+3}) was fed to mice in their drinking water and incidentally in food over three generations in one dose (5 mg As/L in water + 0.06 mg As/kg in food). Effects on reproduction through litter size were evaluated. Mice exposed to arsenic displayed declining litter sizes with each successive generation. This dose was therefore considered the chronic LOAEL. The chronic NOAEL was estimated by multiplying the LOAEL by an uncertainty factor of 0.1. Assuming a body weight of 0.03 kg (EPA, 1988a as cited in Sample et al., 1996), a drinking water rate of 0.0075 L/day, and a food consumption rate of 0.0055 kg/day (calculated using

the allometric equation from EPA, 1988a as cited Sample et al., 1996), the final chronic NOAEL of 0.126 mg/kg/day was calculated.

The avian TRV for arsenic was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with mallard ducks (Heinz et al., 1989 as cited in Sample et al., 1996). Sodium arsenite (51.35% As^{+3}) was fed to adult mallards in their diet at four exposure levels (100, 250, 500, and 1000 ppm sodium arsenite) for 128 days, and mortality was observed. No mortality was observed in adult mallards consuming 100 ppm sodium arsenite in their diet. Mallards consuming 250, 500, and 1000 ppm sodium arsenite in their diet experienced 12%, 60%, and 92% mortality, respectively. Assuming a food consumption rate of 0.1 kg/day (Heinz et al., 1989 as cited in Sample et al., 1996), a body weight of 1 kg (Heinz et al., 1989 as cited in Sample et al., 1996), and 51.35% arsenic (as As^{+3}) in sodium arsenite, the final chronic NOAEL of 5.14 mg/kg/day was calculated.

Cadmium

Cadmium occurs naturally in the earth's crust and is commonly referred to as a heavy metal. Cadmium is a relatively rare, malleable, silver-white, odorless metal, which typically occurs in nature with other elements such as oxygen (cadmium oxide), chlorine (cadmium chloride), or sulfur (cadmium sulfate, cadmium sulfide) (ATSDR, 1997). The majority of cadmium in the United States is extracted as a by-product during the production of zinc, lead or copper (ATSDR, 1997 and California EPA, 1997). Cadmium compounds are found in many industrial processes and products, including: metal plating and battery production; pigments; stabilizing agents in polyvinyl chloride products; production of photocells and light emitting diodes; production of automobile radiators; and as a curing agent in tires (ATSDR, 1997).

Prolonged oral exposure of laboratory animals to cadmium has resulted in kidney damage and fragile bones that break easily. Oral exposure of experimental animals has resulted in testicular necrosis, ovarian damage, infertility, placental toxicity, embryotoxicity, fetotoxicity and teratogenicity. Evidence of developmental effects such as decreased weight gain and neurobehavioral deficits have been observed in animal studies (ATSDR, 1997 and Irwin et al., 1997).

The mammalian TRV for cadmium was developed using the methodology of Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with the rat (Sutou et al, 1980 as cited in Sample et al., 1996). Cadmium was fed to adult rats using gavage for 6 weeks during gestation (a critical lifestage). Cadmium was administered in four dose levels (0, 0.1, 1.0, and 10.0 mg Cd/kg per day). No adverse developmental effects were noted in animals exposed to an average daily dose of 1 mg cadmium/kg body weight-day. In the 10 mg/kg/day dose, fetal implantations were reduced by 28%, fetal survivorship was reduced by 50% and fetal resorptions increased by 400%. The 10 mg/kg/day dose was considered the chronic LOAEL and the NOAEL of 1 mg/kg/day was considered to be the final chronic NOAEL.

The avian TRV for cadmium was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with mallard ducks (White and Finley, 1978 as cited in Sample et al., 1996). Cadmium chloride was fed to ducks in their diet at three levels (1.6, 15.2, and 210 ppm Cd) for 90 days during their reproductive phase. Ducks exposed to 1.6 and 15.2 ppm cadmium showed no significant negative effect relative to the control. Ducks exposed to 210 ppm cadmium produced significantly fewer eggs. Thus, a NOAEL of 15.2 ppm cadmium in diet was identified from this study. Based on a body weight of 1.153 kg (measured in the study) and a food consumption rate of 0.110 kg/day (measured in the study), the final chronic NOAEL of 1.45 mg/kg/day was calculated.

Chromium

Chromium is a naturally occurring element found in rocks, animals, plants, soil, and in volcanic dust and gases (ATSDR, 1992). Chromium is present in the environment in several different forms. The trivalent and hexavalent forms of chromium are believed to be the biologically active species, but their impacts are not identical, in part because chromium (VI) readily penetrates biological membranes while chromium (III) generally does not. Chromium (III) occurs naturally in the environment and is an essential nutrient in mammals. Chromium (III) is required in mammals to maintain efficient glucose, lipid and protein metabolism (ATSDR 1992, and Irwin et al., 1997). Chromium (VI) has been reported to cause adverse developmental effects in orally exposed laboratory animals, including decreased litter size, decreased fetal weight, and decreased fetal ossification (US EPA, 1998 and ATSDR, 1992). In male experimental animals, testicular pathology has been reported with oral injection exposure (US EPA, 1998).

Chromium III

The mammalian TRV for trivalent chromium was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with the rat (Ivankovic and Preussmann, 1975 as cited in Sample et al., 1996). Chromium III was fed to rats in their diet as Cr_2O_3 at three levels (1%, 2% and 5% Cr_2O_3). Reproductive effects were evaluated among rats fed 2% and 5% Cr_2O_3 for 90 days. Carcinogenicity and longevity were evaluated among rats fed Cr_2O_3 at all three exposure levels for two years. Since no significant differences were observed at any of the three exposure levels in either study, and both studies considered exposure over two years or a chronic lifestage, the maximum concentration of Cr_2O_3 administered (50,000 mg Cr_2O_3/kg food) was considered to be a chronic NOAEL. Assuming a food consumption rate of 28 g/day (calculated using allometric equation from EPA 1988a as cited in Sample et al., 1996), a body weight of 0.35 kg (EPA 1988a as cited in Sample et al., 1996), and 68.42 mg Cr per 100 mg Cr_2O_3, the final chronic NOAEL of 2737 mg/kg/day was calculated.

The avian TRV for chromium III was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with the black duck (Haseltine et al., unpubl. data as cited in Sample et al., 1996). Chromium III was fed to black ducks in their diet as $CrK(SO_4)_2$ for ten months at two concentration (10 and 50 ppm). No significant effects on reproduction were observed at the 10 ppm Cr level; duckling survival was reduced at the 50 ppm level. The chronic NOAEL was therefore considered to be 10 ppm. Since the study examined an endpoint appropriate to the critical lifestage during which exposure occurred (reproduction), the 10 ppm exposure level was identified as a chronic NOAEL. Assuming a food consumption rate of 125 g/day (extrapolated from the data of Heinz et al. 1989 as cited in Sample et al., 1996), and a mean body weight of 1.25 kg for male and female black ducks (Dunning 1984 as cited in Sample et al., 1996), the final chronic NOAEL of 1 mg/kg/day was calculated.

Copper

Copper is a ductile, malleable, reddish colored metal, which occurs naturally in rock, soil, water, sediment and air. The average concentration of copper in the earth's crust is about 50 ppm. Copper is used in electrical wiring, switches, plumbing, heating, roofing and building construction, chemical and pharmaceutical machinery, electroplated coatings, piping, insecticides, catalysts, and in anti-fouling paints (ATSDR, 1990 and Irwin et al., 1997).

Prolonged exposure of laboratory animals to copper via the oral route has been reported to result in a variety of potential systemic effects including: liver and kidney damage; blood effects (decreased hemoglobin); and increase blood pressure. Increased postnatal mortality has been observed in

animals exposed to copper at high levels in the diet (ATSDR, 1990). Human, plant and animal enzymes require minute amounts of copper; therefore, copper is an essential nutrient (Irwin et al., 1997). However, high concentrations of copper can be toxic to some species.

The mammalian TRV for copper was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with the mink (Aulerich, et al., 1982 as cited in Sample et al., 1996). Copper sulfate was fed to mink in their diet at four concentrations (25, 50, 100, and 200 ppm supplemental Cu (60.5 ppm Cu in base diet)) for 357 days during the reproductive phase. The percentage of kit mortality was greater than the control in mink exposed to 50, 100, and 200 ppm supplemental copper. In the group exposed to 25 ppm supplemental Cu (85.5 ppm total copper), mortality of mink kit was less than in the control. This exposure level was identified as the chronic NOAEL. Assuming a food consumption rate of 0.137 kg/day (Bleavins and Aulerich 1981 as cited in Sample et al., 1996), and a body weight of 1.0 kg (EPA 1993e as cited in Sample et al., 1996) the final chronic NOAEL of 11.71 mg/kg/day was calculated.

The avian TRV for copper was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with 1-day old chicks (Mehring et al., 1960 as cited in Sample et al., 1996). Copper oxide was fed to chicks in their diet for ten weeks at eleven concentrations (36.8, 52.0, 73.5, 104.0, 147.1, 208.0, 294.1, 403, 570, 749, and 1180 ppm total Cu). Chicks exposed to copper at concentrations up to 570 ppm exhibited no effects on growth or survivorship; chicks in the 749 ppm group experienced a 30% reduction in growth and 15% mortality. Since 570 ppm was the highest exposure level at which no adverse effects were observed, this was identified as a chronic NOAEL. Assuming a food consumption rate of 44 g/day (calculated using allometric equation from EPA 1988a as cited in Sample et al., 1996), and a mean body weight of 0.534 kg (EPA 1988a as cited in Sample et al., 1996), the final chronic NOAEL of 47 mg/kg/day was calculated.

Lead

Lead is a bluish-gray, noncombustible metal that occurs naturally in the earth's crust as the end-product of the radiometric decay of three naturally-occurring radioactive elements: uranium, thorium, and actinium. Lead is malleable, ductile, and resistant to chemical corrosion. Lead compounds are used in construction materials for tank linings, piping, equipment for handling corrosive gases and liquids used in petroleum refining. Lead is also found in a number of different products, including pigments for paints, ceramics, plastics, electronic devices, ammunition, solder, cable covering, and sheet lead. The amount of lead in these products has been reduced in recent years due to the potential for harmful effects in humans and animals. The primary use of lead today is in the manufacture of batteries (ATSDR, 1997; US EPA, 1998; and California EPA, 1997).

The mammalian TRV for lead was derived by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic study with the rat (Azar et al., 1973 as cited in Sample et al., 1996). Lead acetate was fed to rats in their diet at five concentrations. Reproductive effects were evaluated over three generations. Dietary lead exposures of 1000 and 2000 ppm resulted in reduced offspring weights and produced kidney damage in the young. No adverse effects were observed at the 10, 50 or 100 ppm exposure levels. The chronic NOAEL was therefore considered to be 100 ppm. Assuming a food consumption rate of 28 g/day (calculated using allometric equation from EPA 1998a as cited in Sample et al., 1996, and a body weight of 0.35 kg (EPA 1998a as cited in Sample et al., 1996, the final chronic NOAEL of 8 mg/kg/day was calculated.

The avian TRV for lead was derived by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic study of Japanese quail (Edens et al., 1976 as cited in Sample et al., 1996). Lead (acetate) was fed to quail in their diet at four concentrations (1, 10, 100, and 1000 ppm lead). The study monitored reproductive effects (as egg hatching success) for 12 weeks. No significant effects

were observed at the 1 and 10 ppm concentration, therefore a maximum dietary exposure (10 ppm metallic lead in diet) was identified as a chronic NOAEL. Based on a mean body weight of 0.15 kg (Vos et al., 1971 as cited in Sample et al., 1996), and assuming a food consumption rate of 0.0169 kg/day (calculated using the allometric equation of Nagy, 1987 as cited in Sample et al., 1996), the chronic NOAEL of 1.13 mg/kg/day was calculated.

Mercury

Mercury occurs naturally in the environment. Elemental mercury is an odorless, silver white, very heavy, mobile, liquid metal, which is slightly volatile at ordinary temperatures. Solid mercury is tin-white, ductile, and malleable. Liquid mercury is commonly found in thermometers, light switches, and dental amalgams. Experimental animals exposed to mercury have exhibited the following adverse effects: alterations in testicular tissue; increased resorption rates; and developmental abnormalities (ATSDR, 1997; and California EPA, 1997).

Methylmercury

The mammalian TRV for methylmercury used in this SERA was presented in the Mercury Study Report to Congress (U.S. EPA, 1997) and was based on a sub-chronic toxicity study with the mink (Wobeser, 1976). Mink were fed mercury-contaminated fish for 145 days, and developmental effects were monitored. As no effects were observed in any group, the subchronic NOAEL was the highest dose (0.33 mg/kg or 0.055 mg/kg-day). A subchronic to chronic uncertainty factor of 3 was applied to the NOAEL, and a final chronic NOAEL of 0.018 mg/kg-day was selected as the methylmercury TRV for mink.

The avian TRV for mercury was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with mallard ducks (Heinz, 1979 as cited in Sample et al., 1996). Methyl mercury dicyandiamide was fed to ducks in their diet at one concentration (0.5 ppm mercury) for three generations. Reproductive effects were evaluated. The ducks fed a diet containing 0.5 ppm methyl mercury dicyandiamide produced fewer eggs and ducklings than the control ducks. This exposure level was identified as the chronic LOAEL. The chronic NOAEL was estimated by multiplying the chronic LOAEL by a uncertainty factor of 0.1. Based on a food consumption rate of 0.128 kg/day (measured in the study), and an average body weight of 1 kg (Heinz et al. 1989 as cited in Sample et al., 1996, the final chronic NOAEL of 0.0064 mg/kg-day was calculated.

Zinc

Elemental zinc is a bluish-white, lustrous metal, which becomes covered with a white coating of basic carbonate on exposure to moist air, but is stable in dry air. Zinc is the 25th most abundant element and is widely distributed in nature, making up between 0.0005% and 0.02% of the Earth's crust. Zinc is found in air, soil, and water, and is present in all foods. Zinc is used most commonly as a protective coating for other metals and in alloys such as bronze and brass. Zinc is emitted to the atmosphere during mining and refining, manufacturing processes, and combustion of zinc-containing materials (California EPA 1997 and Irwin et al., 1997).

Zinc in low to moderate amounts is of very low toxicity, and in low concentrations is an essential element in plant and animal life. However, animals exposed to excess levels of zinc for long periods have exhibited evidence of copper deficiencies, affects on iron metabolism, and liver, kidney and pancreas damage (ATSDR, 1988 and Irwin et al. 1997).

The mammalian TRV for zinc was derived by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with the rat (Schlicker and Cox, 1968). During days 1-16 of

gestations (a critical lifestage) Zinc oxide was fed to rats in their diet at two concentrations (2000 and 4000 ppm Zn), and reproductive effects were monitored. Rats exposed to 4000 ppm Zn displayed increased rates of fetal resorption and reduced fetal growth rates. No effects on reproduction were observed in rats exposed to 2000 ppm zinc oxide in the diet. Therefore, exposure to 2000 ppm Zn in the diet was considered a chronic NOAEL. Assuming food consumption rate of 28 g food/day (calculated using the allometric equation from EPA 1998a as cited in Sample et al., 1996), and a body weight of 0.35 kg, the final chronic NOAEL for zinc was calculated to be 160 mg/kg/day.

The avian TRV for zinc was developed using the methodology of Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with the chick (Scott, et al., 1976 as cited in Eisler, 1983). Zinc was fed to chicks in their diet at one concentration (2000 mg zinc/kg diet). After 30 days, a slight reduction in growth was observed in chicks consuming 2000 mg zinc/kg diet. This exposure level was therefore considered a chronic LOAEL. An uncertainty safety factor of 10 was applied to extrapolate from a LOAEL to a NOAEL of 200 mg/kg. Assuming a food consumption rate of 0.01 kg/day (calculated using the allometric equation of Nagy 1987) and a 0.07 kg body weight (Scott et al., 1976), a final chronic NOAEL of 29.5 mg/kg/day was calculated for zinc.

4,4'-DDT/4,4'-DDD/4,4'-DDE

DDT (1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane) was a widely used insecticide for the control of mosquito-borne malaria and insects on agricultural crops. DDE (1,1-dichloro-2,2-bis(p-chlorophenyl)ethylene) and DDD (1,1-dichloro-2,2-bis(p-chlorophenyl)ethane) are contaminants, as well as degradation and metabolic products, of DDT. DDD was also used as a pesticide; one form of DDD (o,p'-DDD) has been used medically to treat cancer of the adrenal gland. Use of DDT on crops has generally been replaced by less persistent insecticides. DDT was used extensively during World War II amongst both military and civilian populations to control insect typhus and malaria vectors, and was then widely used as an insecticide after 1945. DDT was banned for use in Sweden in 1970 and in the United States in 1972. However, DDT is still used in several other areas of the world (EXTOXNET, 1998 and ATSDR, 1994).

Animal studies have shown some evidence for effects on the liver, immune system, and central nervous system from chronic oral exposure to DDT. Reproductive toxicity studies indicate that DDT impaired reproduction and/or development in mice, rats, rabbits, dogs and avian species (IARC, 1991). Specific effects on development have included increased post-implantation loss, reduced fetal weight, increased postnatal mortality, reduced postnatal weight gain, and neurobehavioral effects. Additionally, avian species exhibit eggshell thinning and embryo deaths. Laboratory studies of ring doves and Bengalese finches exposed to DDT revealed the potential for occurrence of other subtle effects on reproduction, including impacts on courtship behavior, delays in pairing and egg laying, and decreases in egg weight (EXTOXNET, 1998 and ATSDR, 1994).

4,4'-DDT

The mammalian TRV for 4,4'-DDT was derived by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with the rat (Fitzhugh, 1948 as cited in Sample et al., 1996). DDT was fed to rats in their diet at four concentrations (10, 50, 100, and 600 ppm) for two years. Reproductive effects were monitored. Rats exposed to 50 ppm DDT in the diet exhibited a reduction in the number of offspring produced. No adverse effects were observed in rats exposed to 10 ppm DDT in the diet. Therefore, the chronic NOAEL was identified as 10 ppm DDT in the diet. Assuming a food consumption rate of 0.028 kg/day (calculated using the allometric equation from EPA 1998a) and a body weight of 0.35 kg (EPA 1998a), the final chronic NOAEL of 0.8 mg/kg-day was calculated for mammalian exposures to 4,4'-DDT.

The avian TRV for 4,4'-DDT was from a chronic toxicity study with the black duck (Longcore and Stendell, 1977) using the methodology developed by Oak Ridge National Laboratory (Sample et al., 1996). 4,4'-DDT was fed to black ducks over a period of 2 years. Eggshell thickness was reduced in ducks fed an average daily dose of 4,4'-DDT equivalent to 0.14 mg/kg-day. This average daily dose was considered a chronic LOAEL. An uncertainty factor of 10 was applied to extrapolate from a chronic LOAEL to a chronic NOAEL. The final chronic NOAEL used as the avian TRV for 4,4'-DDT is 0.014 mg/kg-day.

4,4'-DDE

No reliable data concerning potential adverse effects of 4,4'-DDE on mammalian receptors was found for this study. Therefore, the mammalian TRV for 4,4'-DDT (0.8 mg/kg-day based on a study with the rat) was used as a surrogate value.

No reliable data concerning potential adverse effects of 4,4'-DDE on avian receptors was found for this study. Therefore, the avian TRV for 4,4'-DDT (0.014 mg/kg-day based on a study with the black duck) was used as a surrogate value.

Alpha-Chlordane

Chlordane, an organochlorine compound, is a viscous, amber colored liquid with a penetrating or aromatic odor. Chlordane was formerly used as an insecticide. The United States Environmental Protection Agency canceled all commercial use of chlordane in the United States. Chlordane is very persistent in the environment and is known to remain in some soils for over 20 years. Experimental animals exposed to chlordane have exhibited a variety of adverse effects, including: damage to the liver and central nervous system; body weight loss; and a reduction in fertility (ATSDR, 1994; California EPA, 1997; and EXTOXNET, 1998).

Based on structural similarity the TRVs for Chlordane developed by Oak Ridge National Laboratory were selected to represent alpha-chlordane in this ecological risk assessment.

The mammalian TRV for alpha-chlordane was derived by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with the mouse (Keplinger, et al., 1968 as cited in Sample et al., 1996). Chlordane was administered to mice in their diet at three concentrations (25, 50, and 100 ppm), and reproductive effects were monitored over 6 generations. Decreased viability and reduced number of offspring were observed in the groups of mice exposed to 50 and 100 ppm chlordane in the diet. No effects were observed in the group receiving 25 ppm chlordane in the diet. This dietary exposure level was identified as the chronic NOAEL. Assuming food consumption rate of 0.0055 kg/day (calculated using allometric equation from EPA 1988a as cited in Sample et al., 1996), and a body weight of 0.03 kg (EPA 1988a as cited in Sample et al., 1996), the final chronic NOAEL of 4.6 mg/kg-day was calculated.

The avian TRV for alpha-chlordane was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with the red-winged blackbird (Stickel et al., 1983 as cited in Sample et al., 1996). Chlordane was administered to blackbirds at three dietary concentrations (10, 50, and 100 ppm). Mortality was recorded after 84 days. Birds consuming 50 and 100 ppm chlordane experienced 26% and 25% mortality, respectively. No effects were observed in the group consuming 25 ppm chlordane. This dietary exposure level was identified as the chronic NOAEL. Assuming a food consumption rate of 0.0137 kg/day (calculated using the allometric equation from Nagy 1987 as cited in Sample et al., 1996) and a body weight of 0.064 kg (measured in the study), the final chronic NOAEL of 2.14 mg/kg-day was calculated.

Total PAH

PAHs are organic compounds, which consist of only carbon and hydrogen with a fused ring structure containing at least two benzene (six-sided) rings. Generally, PAHs exist as colorless, white, or pale yellow-green solids. PAHs are produced by the incomplete combustion of fossil fuels and vegetable matter, resulting in the presence of PAHs in motor vehicle exhaust, smoke from residential wood combustion, and fly ash from coal-fired electric generating plants. PAHs can be formed from any naturally-occurring combustion, such as forest fires and active volcanoes (California EPA, 1997 and Irwin et al., 1997).

Laboratory animals exposed to PAHs have exhibited a variety of adverse effects including: alterations in the enzymes of the gastrointestinal tract; increased liver weights; blood effects; and adverse impacts to the immune system. Animals exposed to benzo(a)pyrene have also exhibited adverse reproductive effects, including reduced incidence of pregnancy, decreased fertility, and developmental effects such as reduced viability of litters, reduced mean pup weight, and decreased fertility in offspring (California EPA, 1997 and Irwin et al. 1997).

The mammalian TRV for total PAH was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a sub-chronic toxicity study with the mouse (Mackenzie and Angevine, 1981 as cited in Sample et al., 1996). Benzo(a)pyrene was fed to mice in their diet at two dose levels for ten days. The study monitored reproductive effects. The 160 mg/kg/day doses significantly reduced pregnancy rates and percentage of viable litters. Pup weights were significantly reduced at all three dose levels. Total sterility was observed in 97% of offspring in the 40 and 160 mg/kg/day groups and sterility was impaired among offspring in the 10 mg/kg/day group. The chronic NOAEL was estimated by multiplying the chronic LOAEL (10 mg/kg/day) by an uncertainty factor of 0.1 yielding a final NOAEL of 1 mg/kg/day.

The avian TRV for total PAH is based on a subchronic toxicity study with mallards (Patton and Deter, 1980 as cited in Eisler, 1987). A mixture of naphthalenes, naphthenes and phenanthrene was fed to mallards in their diet at one dose level for seven months. No adverse effects were observed on either survival or reproduction at the given dose (4000 mg/kg). Given a food consumption rate of 0.1 kg/day and an uncertainty factor of 0.1 for subchronic extrapolation, the final chronic NOAEL of 40 mg/kg/day was calculated.

Polychlorinated Biphenyls

There are 209 possible polychlorinated biphenyl (PCBs) isomers. PCBs vary in appearance from mobile, oily liquids to white, crystalline solids to hard, non-crystalline resins. Since 1974, all uses of PCBs in the United States have been confined to closed systems such as electrical capacitors, electrical transformers, vacuum pumps, and gas-transmission turbines. PCBs are no longer produced in the United States except for limited research and development applications. Consumer products that may contain PCBs include old fluorescent lighting fixtures, electrical devices or appliances which incorporate PCB capacitors made before PCB use was stopped (ATSDR, 1995 and California EPA, 1997).

In animal studies, exposure to PCBs has been reported to cause possible liver, kidney, and central nervous system effects. Animals exposed to PCBs have also exhibited learning deficits, impaired immune function, cellular alterations of the thyroid, and reproductive effects such as decreased fertility, decreased conception, and disruption of the ovarian cycle (ATSDR, 1995 and California EPA, 1997).

Aroclor-1248

The mammalian TRV, utilized in this ecological risk assessment, for Aroclor-1248 was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with mink exposed to Aroclor-1254 (Aulerich and Ringer, 1977 as cited in Sample et al., 1996). Although ORNL has a TRV for Aroclor-1248 (based on a study with the Rhesus monkey), the study was not used as the TRV in the ecological risk assessment. The Aroclor-1248 study produced a LOAEL, and a NOAEL had to be extrapolated from the data, producing additional uncertainty in the TRV. The mink study with Aroclor-1254 produced a chronic NOAEL, eliminating this element of uncertainty. Aroclor-1254 was fed to mink in their diet at three concentrations (1, 5, and 15 ppm). Reproductive effects were observed over a period of 4.5 months. Mink exposed to 5 and 15 ppm Aroclor-1254 in their diet experienced a reduction in the number of offspring born alive. No effects were observed in the group exposed to 1 ppm Aroclor-1254 in the diet. This dose was considered the chronic NOAEL. Assuming a food consumption rate of 0.137 kg/day (EPA 1993e as cited in Sample et al., 1996) and a body weight of 1 kg (Bleavins and Aulerich 1981 as cited in Sample et al., 1996), the final chronic NOAEL of 0.14 mg/kg-day was calculated.

The avian TRV for Aroclor-1248, utilized in this ecological risk assessment, was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study of screech owl exposure to Aroclor-1242 (McLane and Hughes, 1980 as cited in Sample et al., 1996). Aroclor-1242 was fed to screech owls in their diet at a concentration of 3 ppm over 2 generations. Reproductive effects were monitored. Fertility and hatch success were not significantly reduced in the group receiving Aroclor-1242. This dietary exposure level was considered the chronic NOAEL. Assuming a food consumption rate of 0.025 kg/day (estimated from data of Pattee et al. 1988 as cited in Sample et al., 1996) and a body weight of 0.181 kg (Dunning 1984 as cited in Sample et al., 1996), the final chronic NOAEL of 0.41 mg/kg-day was calculated.

Aroclor-1254

The mammalian TRV for Aroclor-1254 was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with the mink (Aulerich and Ringer, 1977 as cited in Sample et al., 1996). Aroclor-1254 was fed to mink in their diet at three concentrations (1, 5, and 15 ppm). Reproductive effects were observed over a period of 4.5 months. Mink fed 5 and 15 ppm Aroclor-1254 experienced a reduced number of offspring born alive. No effects were observed in the group exposed to 1 ppm Aroclor-1254 in the diet. This dose was identified as the chronic NOAEL. Assuming a food consumption rate of 0.137 kg/day (Bleavins and Aulerich 1981 as cited in Sample et al., 1996) and a body weight of 1 kg (EPA 1993e as cited in Sample et al., 1996), the final chronic NOAEL of 0.14 mg/kg-day was calculated.

The avian TRV for Aroclor-1254 was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with screech owl exposure to Aroclor-1242 (McLane and Hughes, 1980 as cited in Sample et al., 1996). Although ORNL has an avian TRV for Aroclor-1254 (based on a study with the ring-necked pheasant), the study was not used as the TRV in this ecological risk assessment. The Aroclor-1254 study produced a LOAEL, and a NOAEL had to be extrapolated from the data, producing additional uncertainty in the TRV. The screech owl study with Aroclor-1242 produced a chronic NOAEL, therefore eliminating this element of uncertainty. Aroclor-1242 was administered to screech owls in their diet at a concentration of 3 ppm over 2 generations. Reproductive effects were monitored. Fertility and hatch success were not significantly reduced in the group consuming Aroclor-1242 in the diet. Therefore, this dose was considered the chronic NOAEL. Assuming a food consumption rate of 0.025 kg/day (estimated from data of Pattee et al. 1988 as cited in Sample et al., 1996) and a body weight of 0.181 kg (Dunning 1984 as cited in Sample et al., 1996), the final chronic NOAEL of 0.41 mg/kg-day was calculated.

Aroclor-1260

The mammalian TRV, utilized in this ecological risk assessment, for Aroclor-1260 was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study with mink exposure to Aroclor-1254 (Aulerich and Ringer, 1977 as cited in Sample et al., 1996). Aroclor-1254 was fed to mink in their diet at three concentrations (1, 5, and 15 ppm). Reproductive effects were observed over a period of 4.5 months. Mink exposed to 5 and 15 ppm Aroclor-1254 in their diet experienced a reduction in the number of offspring born alive. No effects were observed in the group exposed to 1 ppm Aroclor-1254 in the diet. This dose was considered the chronic NOAEL. Assuming a food consumption rate of 0.137 kg/day (Bleavins and Aulerich 1981 as cited in Sample et al., 1996) and a body weight of 1 kg (EPA 1993e as cited in Sample et al., 1996), the final chronic NOAEL of 0.14 mg/kg-day was calculated.

The avian TRV, utilized in this ecological risk assessment, for Aroclor-1260 was developed by Oak Ridge National Laboratory (Sample et al., 1996) based on a chronic toxicity study of screech owl exposure to Aroclor-1242 (McLane and Hughes, 1980 as cited in Sample et al., 1996). Aroclor-1242 was administered over 2 generations to screech owls at a concentration of 3 ppm in the diet. Reproductive effects were monitored. Fertility and hatch success were not significantly reduced in the group consuming Aroclor-1242 in the diet. This dose was considered the chronic NOAEL. Assuming a food consumption rate of 0.025 kg/day (estimated from data of Pattee et al. 1988 as cited in Sample et al., 1996) and a body weight of 0.181 kg (Dunning 1984 as cited in Sample et al., 1996), the final chronic NOAEL of 0.41 mg/kg-day was calculated.

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Table E1a. 2003 and Historic Sediment Data Used in Ecological Risk Assessment

	Client ID:	Year Sampled	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Zinc	Chlordane (alpha(cis)-)	4,4'-DDE	TOTAL PAHS	TOTAL PCBs
Riverbend	RM-SD-01	2003	16.10	2.89	202.20	143.42	189.57	4.44	320.64	30.5	6.7	7654.6	280.0
Riverbend	RM-SD-02	2003	15.50	3.51	237.92	150.50	175.36	3.85	362.24	38.0	1.5	3537.9	156.5
Secaucus High School	SHSM-SD-01	2003	14.10	2.34	226.00	122.00	168.00	0.74	251.00	32.0	1.25	2996.2	181.5
	SHSM-SD-02	2003	14.10	3.74	221.00	179.00	168.00	3.62	396.00	43.0	5.4	2731.9	219.5
	SHSM-SD-03	2003	16.50	4.15	280.00	140.00	183.00	3.08	383.00	37.5	12.9	3302.2	215.8
Sawmill Creek	SAW-SD-01	2003	19.30	2.87	156.11	120.55	149.36	1.14	269.24	29.5	14.2	6363.0	477.7
	SAW-SD-02	2003	9.80	1.94	119.60	71.75	71.60	1.02	189.80	18.5	8.4	1276.5	165.0
Kearny	KM-SP-01	2003	22.50	2.44	19.08	60.65	147.15	0.52	187.00	399.0	71.1	8161.8	982.0
	KM-SP-02	2003	18.30	2.23	49.03	148.86	557.38	0.44	232.24	75.0	3	1475.2	45.0
	KM-SP-03	2003	26.45	3.39	40.95	120.81	330.55	0.32	354.21	117.5	183	5643.1	70.5
Oritani	OM-SP-01	2003	33.20	7.80	509.53	184.66	207.02	6.16	686.83	21.0	15.2	4166.8	1845.0
	OM-SP-02	2003	25.60	6.73	237.77	155.81	355.98	2.35	674.30	75.0	11.6	3533.9	386.0
Mill Creek	0308-1 SED-001	1997	0.05	0.05	434.40	179.10	194.40	13.40	530.40		0.0		1.6
	0308-2 SED-002	1997	0.05	8.80	327.80	323.70	414.90	10.40	744.80		1.1		586.4
	0308-3 SED-003	1997	0.05	0.05	433.90	148.70	213.90	0.85	556.50		0.0		45.4
	0308-4 SED-004	1997	0.05	0.05	159.80	80.40	41.20	0.02	217.60		0.0		53.4
	0308-5 SED-005	1997	0.05	0.05	248.00	102.80	110.50	0.02	300.00		0.0		1.6
	0308-6 SED-007	1997	0.05	0.10	456.50	230.10	288.00	2.17	505.40		0.9		116.4
	0308-7 SED-007	1997	0.05	0.05	273.90	126.40	152.50	10.56	277.20		0.3		71.4
	0308-8 SED-009	1997	0.05	0.05	58.10	30.60	27.40	0.65	126.50		0.0		513.4
	0308-9 SED-010	1997	0.05	0.05	35.20	16.50	8.70	0.63	73.80		0.0		1.6
	0312-1 SED-008	1997	0.05	0.05	27.70	12.80	311.70	0.07	36.20		0.9		76.4
	0312-2 SED-011	1997	0.05	3.00	215.00	109.90	181.20	8.92	245.10		1.1		64.4
Oritani	SS-2_0-6	2000	27.00	1.10	202.00	96.60	289.00	2.90	275.00				
	SS-1_0-6	2000	28.00	0.09	140.00	123.00	141.00	2.90	121.00				
	SS-11_0-6	2000	20.10	2.70	313.00	157.00	174.00	8.90	354.00				
	SS-10_0-6	2000	19.30	2.40	261.00	122.00	141.00	6.20	313.00				
	SS-18_0-6	2000	10.40	0.35	48.90	37.50	45.10	4.00	114.00				
	SS-14_0-6	2000	18.40	0.96	165.00	187.00	134.00	3.70	183.00				
	SS-6_0-6	2000	24.90	1.30	67.30	73.20	65.60	1.50	338.00				
	SS-17_0-6	2000	17.30	0.30	132.00	57.90	64.60	3.00	173.00				
	SS-8_0-6	2000	12.10	0.55	73.30	46.70	67.90	0.97	115.00				
	SS-13_0-6	2000	7.50	0.05	19.10	30.70	148.00	0.19	46.70				
	SS-16_0-6	2000	39.30	0.10	154.00	100.00	100.00	4.90	341.00				
	SS-15_0-6	2000	18.90	0.89	129.00	95.10	78.50	3.50	232.00				
8-day Marsh	N1-1	unknown	10.60	887.00	356.00	259.50	1090.00	31.90	55.75				
	N1-1	unknown	9.30	946.00	227.00	219.50	1062.00	30.10	55.00				
	N1-1	unknown	9.55	579.00	278.00	206.00	1101.00	27.50	35.10				
	N1-1	unknown	4.70	239.00	109.00	125.00	541.00	23.90	19.00				
	N1-1	unknown	1.25	45.50	30.50	37.00	157.00	15.15	2.55				
	N1-1	unknown	0.70	25.00	20.00	24.00	98.00	5.85	0.30				
	N1-1	unknown	0.85	29.50	49.50	32.50	143.00	6.55	0.15				
	N1-1	unknown	0.40	19.00	17.50	23.00	82.00	6.85	0.05				
	N1-1	unknown	0.65	23.50	20.50	25.00	98.50	6.35	0.70				
	N1-1	unknown	0.45	17.50	17.00	22.50	85.00	5.90	0.04				
	M-1	unknown	34.80	2.90	23.00	82.00	91.50	26.00	328.00				
	M-1	unknown	29.90	1.30	22.00	49.00	87.00	2.95	190.00				

Table E1a. 2003 and Historic Sediment Data Used in Ecological Risk Assessment

	Client ID:	Year Sampled	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Zinc	Chlordane (alpha(cis)-)	4,4'-DDE	TOTAL PAHS	TOTAL PCBs
	M-1	unknown	25.70	0.35	36.00	44.50	98.00	2.44	125.50				
	M-1	unknown	20.70	0.30	35.50	43.50	86.50	2.23	135.00				
	M-1	unknown	18.60	0.20	25.00	27.50	36.00	0.50	114.50				
	M-1	unknown	6.10	0.20	22.00	17.00	20.00	0.21	79.00				
	M-1	unknown	8.20	0.30	21.50	19.00	27.50	0.11	78.50				
	M-1	unknown	14.20	0.35	21.00	22.50	34.50	0.18	77.00				
	M-1	unknown	22.50	0.40	23.00	26.20	38.30	0.27	84.50				
	M-1	unknown	10.50	0.15	22.50	20.00	25.20	0.12	75.50				
	M-2	unknown	26.70	9.95	629.00	219.00	315.00	47.80	1045.00				
	M-2	unknown	39.00	6.20	484.00	171.00	266.00	35.85	831.00				
	M-2	unknown	62.10	9.90	592.00	228.00	315.00	43.05	1228.00				
	M-2	unknown	53.40	13.10	772.00	278.00	390.00	63.75	1360.00				
	M-2	unknown	78.00	61.70	1158.00	582.00	833.00	125.30	4868.00				
	M-2	unknown	110.20	42.10	1283.00	662.00	1062.00	126.00	4972.00				
	M-2	unknown	103.10	42.85	1334.00	595.00	806.00	121.30	4810.00				
	M-2	unknown	45.90	10.05	1201.00	302.00	317.00	76.20	1544.00				
	M-2	unknown	92.70	33.65	3010.00	860.00	920.00	123.00	6429.00				
	S-1	unknown	27.00	8.20	435.00	247.50	259.00	41.80	878.00				
	S-1	unknown	39.95	9.10	426.50	241.50	258.50	39.10	881.50				
	S-1	unknown	75.60	5.45	341.00	217.00	466.00	31.80	640.00				
	S-1	unknown	64.35	2.55	134.50	170.50	285.50	10.40	381.00				
	S-1	unknown	46.45	0.50	45.50	71.50	334.00	1.40	181.50				
	S-1	unknown	22.90	0.10	23.50	17.50	257.50	0.10	80.00				
	S-1	unknown	8.50	0.10	21.00	18.00	295.00	0.10	83.50				
	S-1	unknown	9.95	0.05	19.50	17.50	283.50	0.10	86.50				
	S-1	unknown	7.45	0.05	20.00	16.50	271.00	0.15	80.00				
	S-1	unknown	9.85	0.10	22.00	18.00	273.00	ND	83.50				
	S-2	unknown	21.95	11.75	729.00	309.00	259.00	42.95	1260.00				
	S-2	unknown	48.35	15.95	1933.00	462.00	425.00	102.40	2013.00				
	S-2	unknown	65.60	7.90	2020.00	346.00	394.00	118.00	1216.00				
	S-2	unknown	52.50	3.65	1409.00	323.00	380.00	98.70	697.00				
	S-2	unknown	46.10	5.40	986.00	220.00	186.00	59.35	717.00				
	S-2	unknown	76.90	4.10	682.00	332.00	393.00	33.70	733.00				
	S-2	unknown	42.60	4.75	692.00	396.00	323.00	39.85	875.00				
	S-2	unknown	65.30	13.05	433.00	238.00	181.00	22.85	986.00				
	S-2	unknown	185.50	19.45	529.00	384.00	218.00	39.90	1817.00				
	S-2	unknown	81.20	26.60	220.00	251.00	63.50	10.20	2007.00				
Riverbend	D-1	2001	8.30	0.70	120.00	68.00	86.00	1.60	140.00				
	D-2	2001	9.10	0.70	160.00	95.00	120.00	2.30	200.00				
	D-3	2001	4.15	1.25	21.00	10.50	10.50	0.30	21.00				
	D-4	2001	7.00	0.90	74.00	28.00	200.00	1.00	89.00				
	D-5	2001	13.00	0.70	160.00	79.00	130.00	1.20	180.00				
	D-6	2001	3.55	1.05	9.00	9.00	9.00	0.26	18.00				
	D-7	2001	4.35	1.30	67.00	23.00	11.00	4.00	52.00				
	D-8	2001	11.00	0.80	210.00	120.00	150.00	4.00	260.00				
	D-9	2001	28.00	2.15	38.00	18.00	18.00	0.50	200.00				
	D-9 FD	2001	57.00	3.00	370.00	220.00	240.00	0.31	390.00				

Table E1a. 2003 and Historic Sediment Data Used in Ecological Risk Assessment

	Client ID:	Year Sampled	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Zinc	Chlordane (alpha(cis)-)	4,4'-DDE	TOTAL PAHS	TOTAL PCBs
	D-10	2001	84.00	0.95	69.00	100.00	90.00	0.47	280.00				
	M-1	2001	18.00	0.90	470.00	170.00	290.00	4.60	360.00				
	M-2	2001	9.60	0.90	190.00	100.00	150.00	2.70	140.00				
	M-2 FD	2001	12.00	0.75	200.00	120.00	160.00	2.70	210.00				
	M-3	2001	14.00	0.75	190.00	130.00	160.00	0.95	270.00				
	M-4	2001	12.00	0.70	160.00	110.00	140.00	1.70	180.00				
	M-5	2001	14.00	0.65	190.00	120.00	160.00	1.60	210.00				
Secaucus High School	S - 1	2000	50.00	1.30	1400.00	210.00	270.00	27.00	350.00				
	S - 2	2000	12.00	0.60	160.00	97.00	130.00	4.50	240.00				
	S - 3	2000	17.00	1.20	280.00	120.00	170.00	5.70	360.00				
	FD S- 3	2000	13.00	0.41	190.00	110.00	130.00	4.40	250.00				
	S - 4	2000	16.00	1.50	370.00	110.00	210.00	5.70	310.00				
	S - 5	2000	29.00	4.20	930.00	210.00	230.00	23.00	440.00				
	S - 6	2000	13.00	0.80	340.00	140.00	280.00	4.70	380.00				
	S - 7	2000	14.00	1.80	340.00	160.00	210.00	7.30	410.00				
	S - 8	2000	16.00	1.40	190.00	120.00	210.00	3.50	390.00				
Kearny	W2	1999	8.74	ND	35.00	31.80	72.20	0.23	127.00				
	W4	1999	34.70	ND	20.50	32.20	107.00	0.23	244.00				
	W5	1999	37.80	ND	110.00	134.00	380.00	0.99	492.00				
	W6	1999	26.40	ND	166.00	43.00	584.00	2.15	333.00				
	W7	1999	31.70	12.50	294.00	596.00	1260.00	7.07	1600.00				
	W8	1999	42.50	28.20	674.00	456.00	859.00	152.00	3.66				
	W9	1999	28.30	15.00	5950.00	478.00	1070.00	20.50	2090.00				
	W10	1999	43.10	5.03	70.90	130.00	339.00	0.57	560.00				
	W11	1999	14.80	ND	ND	ND	ND	ND	39.00				
	W12	1999	32.10	ND	57.40	120.00	418.00	134.00	244.00				
	W13	1999	34.40	ND	66.70	66.40	251.00	0.39	163.00				
	W14	1999	53.20	ND	59.60	109.00	365.00	0.40	410.00				
	W15	1999	48.20	3.30	44.60	86.90	295.00	0.96	433.00				
	W16	1999	50.20	ND	13.00	10.60	61.20	0.36	244.00				
	W17	1999	22.20	ND	61.50	71.80	224.00	0.58	208.00				
	W18	1999	106.00	4.22	210.00	577.00	2030.00	1.84	1300.00				
	W19	1999	21.00	ND	26.20	33.80	125.00	0.43	146.00				
	W20	1999	40.20	ND	50.40	42.70	154.00	0.42	181.00				
	W22	1999	17.60	ND	15.10	23.00	80.40	0.21	115.00				
Harrier Meadows	970814EC1	1997	2.52	0.50	14.30	60.40	87.30	0.31	94.00				
	970814EC2	1997	1.09	0.50	9.59	22.80	31.60	0.50	28.50				
	970814EC3	1997	2.10	0.95	18.40	28.70	61.00	0.50	64.30				
	970814ED4	1997	1.83	0.50	10.40	23.60	40.50	0.50	31.10				
	970814ED5	1997	1.16	0.50	10.50	13.40	0.50	0.50	28.00				
Skeetkill Marsh	970310EC1B	1997	29.80	1.27	216.00	134.00	233.00	0.50	778.00	2.1	3.6		112.6
	970310EC2B	1997	16.20	2.65	1320.00	363.00	542.00	0.50	1010.00	45.7	50.5		2208.0
	970310EC3B	1997	17.00	1.22	77.00	83.90	91.00	0.50	357.00	1.4	2.5		35.3
	970310EC4B	1997	3.57	0.50	17.60	17.00	0.50	0.50	62.40	0.2	0.1		7.9
	970310EC5B	1997	10.10	0.50	73.60	40.40	59.40	0.50	63.80	5.0	4.8		168.3
Statistics	Count		139	126	138	138	138	137	139	17	28	12	28

Table E1a. 2003 and Historic Sediment Data Used in Ecological Risk Assessment

	Client ID:	Year Sampled	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Zinc	Chlordane (alpha(cis)-)	4,4'-DDE	TOTAL PAHS	TOTAL PCBs
	Minimum		0.05	0.05	9.00	9.00	0.50	0.02	0.04	0.21	0.00	1276.50	1.62
	Average		25.77	26.68	334.97	146.60	260.24	16.15	522.05	57.12	14.29	4236.93	324.61
	25th Percentile		8.92	0.50	35.28	34.60	87.98	0.50	91.50	18.50	0.24	2930.13	51.44
	50th Percentile		17.30	1.35	159.90	110.00	174.68	2.90	244.00	32.00	1.98	3535.90	136.47
	75th Percentile		34.55	6.60	340.00	186.41	295.00	10.40	466.00	45.70	9.20	5823.08	306.50
	100th Percentile		185.50	946.00	5950.00	860.00	2030.00	152.00	6429.00	399.00	183.00	8161.80	2208.00

1 - Sediment percentile values calculated from qualified sediment data for current study (Table E1b) and historic studies (See Appendix F; Langan EES, 1999; Louis Berger, 2001; TAMS, 2001a; TAMS, 2001b; ECI, 1997a; ECI, 1997b; HMDC, 1997; Weis, J. and P. Weis, undated).

Client ID:	RM-SD-01/RIVERBEND MARSH		RM-SD-02/RIVERBEND MARSH		SHSM-SD-01/SECAUCUS H.S. MARSH		SHSM-SD-02/SECAUCUS MARSH		SHSM-SD-03/SECAUCUS MARSH		SAW-SD-01/SAWMILL MARSH		SAW-SD-02/SAWMILL MARSH		KM-SP-01/KEARNY MARSH		KM-SP-02/KEARNY MARSH		03/KEARNY MARSH DUPLICATE		OM-SP-01/ORITANI MARSH		OM-SP-02/ORITANI MARSH	
Sample Depth:	-		-		-		-				-		-		-		-				-		-	
Lab ID:	N48367-1		N48367-2		N48367-4		N48367-3		N48466-3		N48466-1		N48466-2		N48587-3		N48586-1		N48587-4 & 5		N48587-1		N48587-2	
Date Sampled:	9/15/03		9/15/03		9/15/03		9/15/03		9/16/03		9/16/03		9/16/03		9/17/03		37881		9/17/03		9/17/03		9/17/03	
Matrix:	Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment	
	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q	Concentration		Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q
GC/MS Semi-volatiles (ppb) (SW846 8270C BY SIM)																								
Hexachlorobenzene	6	U	7.5	U	6.5	U	6	U	7.5	U	6	U	3.65	U	16.5	U	15	U	23.25	U	4.2	U	15	U
Mirex	6	U	7.5	U	6.5	U	6	U	7.5	U	6	U	3.65	U	16.5	U	15	U	23.25	U	4.2	U	15	U
Acenaphthene	59.8		15	U	12.5	U	12	U	166		35.5		7.5	U	80.3		30	U	46.25	U	39.6		30	U
Acenaphthylene	220		81.5		56.9		56		68		171		26.4		33.5	U	30	U	73.05		107		30	U
Anthracene	228		118		64.8		64.8		74.1		242		32.2		148		30	U	118.5		113		65.9	
Benzo(a)anthracene	612		306		225		203		223		614		93.2		539		91.6		444		301		247	
Benzo(a)pyrene	971		390		326		299		326		795		138		762		149		588		430		338	
Benzo(b)fluoranthene	804		370		349		308		326		746		133		976		176		707.5		460		444	
Benzo(g,h,i)perylene	507		224		228		202		236		354		92.8		580		102		309		225		223	
Benzo(k)fluoranthene	502		261		208		210		246		470		110		501		88.1		383.5		294		200	
Chrysene	631		330		273		248		264		610		99.6		717		121		487		343		307	
Dibenzo(a,h)anthracene	179		58.3		57.7		65.7		74.5		194		22.5		132		30	U	66.3		66.3		30	U
Fluoranthene	948		523		437		402		452		850		197		1300		184		883.5		658		566	
Fluorene	41		15	U	12.5	U	12	U	51.1		30.7		7.5	U	110		30	U	69.5		29.4		30	U
Indeno(1,2,3-cd)pyrene	525		212		207		180		207		356		83.9		533		99.5		327		238		209	
2-Methylnaphthalene	24.2		15	U	12.5	U	12	U	14.5	U	11.5	U	7.5	U	33.5	U	30	U	46.25	U	40.3		30	U
Naphthalene	55.6		36.1		26.8		32.4		46.5		43.8		16.5		33.5	U	30	U	46.25	U	68.2		30	U
Phenanthrene	310		168		145		128		171		180		55.4		520		134		369		126		286	
Pyrene	947		415		367		309		371		761		161		1230		180		769		637		468	
TOTAL PAHS	**7654.6**		**3537.9**		**2996.2**		**2731.9**		**3302.2**		**6363**		**1276.5**		**8161.8**		**1475.2**		**5643.1**		**4166.8**		**3533.9**	
GC Semi-volatiles (ppb) (SW846 8081A)																								
Aldrin	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
alpha-BHC	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
beta-BHC	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
delta-BHC	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
gamma-BHC (Lindane)*	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
Chlordane (alpha(cis)-)	30.5	U	38	U	32	U	43	U	37.5	U	29.5	U	18.5	U	399		75	U	117.5	U	21	U	75	U
Dieldrin	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
4,4'-DDD	3.4		1.5	U	1.25	U	1.7	U	9.4		6.7		3.3		182		3	U	864.5		0.85	U	3	U
4,4'-DDE	6.7		1.5	U	1.25	U	5.4		12.9		14.2		8.4		71.1		3	U	183		15.2		11.6	
4,4'-DDT	1.2	U	4.2		1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	39.35		0.85	U	3	U
Endrin	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
Endosulfan sulfate	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
Endrin aldehyde	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
Endosulfan-I	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
Endosulfan-II	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
Heptachlor	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
Heptachlor epoxide	1.2	U	1.5	U	1.25	U	1.7	U	1.5	U	1.2	U	0.75	U	3.3	U	3	U	4.65	U	0.85	U	3	U
Methoxychlor	3.05	U	3.8	U	3.2	U	4.3	U	3.75	U	2.95	U	1.85	U	32.4		7.5	U	11.75	U	2.1	U	7.5	U
Toxaphene	15	U	19	U	16	U	21.5	U	19	U	14.5	U	9.5	U	41.5	U	38	U	57.5	U	10.5	U	37.5	U
Aroclor 1016*	6	U	7.5	U	6.5	U	6.5	U	7.5	U	6	U	3.75	U	17	U	15	U	23.5	U	4.25	U	15	U
Aroclor 1221	6	U	7.5	U	6.5	U	6.5	U	7.5	U	6	U	3.75	U	17	U	15	U	23.5	U	4.25	U	15	U
Aroclor 1232	6	U	7.5	U	6.5	U	6.5	U	7.5	U	6	U	3.75	U	17	U	15	U	23.5	U	4.25	U	15	U
Aroclor 1242	126		7.5	U	6.5	U	6.5	U	7.5	U	6	U	3.75	U	17	U	15	U	23.5	U	4.25	U	15	U
Aroclor 1248*	6	U	73.4		95.5		112		160		400		124		376		15	U	23.5	U	1110		160	
Aroclor 1254*	149		75.6		79.5		101		7.5	U	6	U	3.75	U	342		15	U	23.5	U	735		226	
Aroclor 1260*	6	U	7.5	U	6.5	U	6.5	U	48.3		77.7		41		264		15	U	23.5	U	4.25	U	15	U
TOTAL PCBs	**280**		**156.5**		**181.5**		**219.5**		**215.8**		**477.7**		**165**		**982**		**45**		**70.5**		**1845**		**386**	
Metals Analysis (ppm)																								
Arsenic	16.1		15.5		14.1		14.1		16.5		19.3		9.8		22.5		18.3		26.5		33.2		26.6	
Cadmium	2.9		3.5		2.3		3.7		4.2		2.9		1.9		2.4		2.2		3.4		7.8		6.7	
Chromium	202.2		237.9		226.0		221.0		280.0		156.1		119.6		19.1		49.0		41.0		509.5		237.8	
Copper	143.4		150.5		122.0		179.0		140.0		120.5		71.7		60.6		148.9		120.8		184.7		155.8	
Iron	33.7		52.0		34.0		44.8		37.4		40.6		32.9		8.7		14.2		17.2		46.0		17.8	
Lead	189.6		175.4		168.0		168.0		183.0		149.4		71.6		147.1		557.4		330.5		207.0		356.0	
Nickel	51.2		53.2		49.8		55.9		66.8		45.8		37.4		23.5		57.0		51.0		83.8		92.4	
Zinc	320.6		362.2		251.0		396.0		383.0		269.2		189.8		187.0		232.2		354.2		686.8		674.3	
Mercury	4.4		3.9		0.7		3.6		3.1		1.1		1.0		0.5		0.4		0.3		6.2		2.4	

1/2 detection limit presented for non-detects

U - not detected

- - not detected in any wetland, no summary statistics calculated

Client ID: / Sample Depth: / Lab ID: / Date Sampled: / Matrix:	Summary Statistics Across All Wetlands						
				Percentiles			
	Minimum	Average	Maximum	25	50	75	100
GC/MS Semi-volatiles (ppb) (SW846 8270C BY SIM)							
Hexachlorobenzene	--	--	--	--	--	--	--
Mirex	--	--	--	--	--	--	--
Acenaphthene	30.6	43.8	166	14.375	30.3	49.6375	166
Acenaphthylene	26.4	79.4	220	32.625	62.45	87.875	220
Anthracene	32.2	108.3	242	64.8	93.55	125.875	242
Benzo(a)anthracene	91.6	324.9	614	218	274	467.75	614
Benzo(a)pyrene	138	459.3	971	319.25	364	631.5	971
Benzo(b)fluoranthene	133	483.3	976	321.5	407	717.125	976
Benzo(g,h,i)perylene	92.8	281.1	597	217.75	226.5	320.25	597
Benzo(k)fluoranthene	88.1	289.5	502	206	253.5	405.125	502
Chrysene	99.6	369.2	717	260	318.5	517.75	717
Dibenzo(a,h)anthracene	22.5	74.0	179	50.775	66	81.875	179
Fluoranthene	184	616.7	1300	428.25	544.5	858.375	1300
Fluorene	29.4	36.6	110	14.375	30	43.525	110
Indeno(1,2,3-cd)pyrene	83.9	264.8	533	200.25	210.5	334.25	533
2-Methylnaphthalene	24.2	23.1	46.25	12.375	19.6	30.875	46.25
Naphthalene	16.5	38.8	68.2	30	34.8	46.3125	68.2
Phenanthrene	55.4	216.0	520	132.5	169.5	292	520
Pyrene	161	551.3	1230	362.5	441.5	763	1230
TOTAL PAHS	**1276.5**	**4236.9**	**8161.8**	**2930.125**	**3535.9**	**5823.075**	**8161.8**
GC Semi-volatiles (ppb) (SW846 8081A)							
Aldrin	--	--	--	--	--	--	--
alpha-BHC	--	--	--	--	--	--	--
beta-BHC	--	--	--	--	--	--	--
delta-BHC	--	--	--	--	--	--	--
gamma-BHC (Lindane)*	--	--	--	--	--	--	--
Chlordane (alpha(cis)-)	399	76.4	399	30.25	37.75	75	399
Dieldrin	--	--	--	--	--	--	--
4,4'-DDD	1.25	90.2	864.5	1.65	3.15	8.875	864.5
4,4'-DDE	5.4	27.9	183	4.8	10	14.45	183
4,4'-DDT	4.2	5.1	39.35	1.2	1.6	3.075	39.35
Endrin	--	--	--	--	--	--	--
Endosulfan sulfate	--	--	--	--	--	--	--
Endrin aldehyde	--	--	--	--	--	--	--
Endosulfan-I	--	--	--	--	--	--	--
Endosulfan-II	--	--	--	--	--	--	--
Heptachlor	--	--	--	--	--	--	--
Heptachlor epoxide	--	--	--	--	--	--	--
Methoxychlor	32.4	7.0	32.4	3.03	3.78	7.5	32.4
Toxaphene	--	--	--	--	--	--	--
Aroclor 1016*	--	--	--	--	--	--	--
Aroclor 1221	--	--	--	--	--	--	--
Aroclor 1232	--	--	--	--	--	--	--
Aroclor 1242	125	19.8	125	5.38	7.50	15.50	125
Aroclor 1248*	73.4	221.3	1110	60.93	118.00	214.00	1110
Aroclor 1254*	7.5	147.0	735	13.13	77.55	168.25	735
Aroclor 1260*	6.5	42.9	264	6.50	15.00	42.83	264
TOTAL PCBs	**45**	**418.7**	**1845**	**162.88**	**217.65**	**408.93**	**1845**
Metals Analysis (ppm)							
Arsenic	9.8	19.3	33.2	15.15	17.40	23.28	33.20
Cadmium	1.9	3.7	7.8	2.42	3.14	3.84	7.80
Chromium	19.1	191.6	509.5	101.96	211.60	237.81	509.53
Copper	60.6	133.2	184.7	120.75	141.71	151.83	184.66
Iron	8.7	31.6	52.0	17.66	33.82	41.65	52.03
Lead	71.6	225.2	557.4	163.34	179.18	237.90	557.38
Nickel	23.5	55.6	92.4	48.80	52.21	59.42	92.36
Zinc	187.0	358.9	686.8	246.31	337.42	386.25	686.83
Mercury	0.32	2.3	6.2	0.68	1.74	3.68	6.16
	7.15	22.7	42.1	11	24.15	27.325	42.1

1/2 detection limit presented for

U - not detected

-- not detected in any wetland, a

Table E2. Historic Surface Water Inorganic Data

Wetland	Sawmill		Maximum
Sample ID	CIMIC-1999	Average	Detected
Sampling Date	1999	Value	Value
Inorganics (ug/L)			
Cadmium	57.1	57.1	57.1
Chromium	27.2	27.2	27.2
Copper	38.7	38.7	38.7
Iron	595	595	595
Lead	370	370	370
Nickel	244	244	244
Zinc	50.3	50.3	50.3

Wetland	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny	Kearny
Sample ID	W1	W2	W3	W4	W5	W6	W7	W8	W9	W9 DUPE	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20	W21
Sampling Date	4/7/99	4/7/99	4/7/99	4/7/99	4/7/99	4/7/99	4/7/99	4/7/99	4/7/99	4/8/99	4/8/99	4/8/99	4/8/99	4/8/99	4/8/99	4/8/99	4/8/99	4/8/99	4/8/99	4/8/99	4/8/99	4/8/99
Inorganics (ug/L)																						
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.58	ND	ND	ND	ND
Lead	7.73	9.45	8.14	7.52	6.18	14.5	11.6	9.47	7.33	8.18	8.9	10.2	12.2	12.9	9.6	10.5	11	7.26	12.4	20.6	7.99	10.5
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.7	ND	ND	1.24	38.1	ND	ND	ND	ND
Zinc	ND	ND	ND	ND	ND	ND	47	30	47	24	30	ND	ND	ND	45	23	30	ND	34	24	60	ND

Wetland	Oritani	Oritani	Oritani	Oritani	Oritani	Oritani	Oritani	Oritani	Oritani	Oritani	Oritani	Oritani
Sample ID	SW-1	SW-2A	SW-2B	SW-3	SW-5	SW-6	SW-10	SW-11	SW-13	SW-18	SW-20	
Sampling Date	4/6/00	4/6/00	4/6/00	4/6/00	4/6/00	4/6/00	4/6/00	4/6/00	4/6/00	4/6/00	4/6/00	
Inorganics (ug/L)												
Arsenic	7.5	4.8	67.9	14.7	3.6 U	3.7	3.6 U	3.6 U	5.3	3.6 U	3.6 U	
Arsenic, dissolved	7.2 U	7.2 U	7.2 U	21.0	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	
Cadmium	0.4 U	0.4 U	1.8	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	
Chromium	44.2	7	81.5	34.8	6.1	4.1	3.8	14.3	13.3	16	19.3	
Chromium, dissolve	2.2 U	4.6	2.2 U	4.7	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	
Copper	32.7	8	90.9	23.6	6.4	4.4	4.4	12.6	7.8	13.9	18.3	
Cyanide (mg/l)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.024	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	
Lead	32.3	8.1	90.7	79.5	4.6	3.2	3.4	10.7	6	12.4	17.9	
Mercury	0.86	0.1 U	1.3	0.5	0.1 U	0.1 U	0.1 U	0.36	0.42	0.46	0.45	
Nickel	17.2	6.1	43.1	12.9	6.2	6	6.2	6.2	7.4	9.2	11.6	
Nickel, dissolved	7.0	5.3	8.0	4.6	6.1	6.4	6.2	5.7	6.5	7.5	6.4	
Silver	1.1 U	1.1 U	2.2	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1	
Zinc	96.9	33.3	309	84.5	34.8	31.1	30.1	45	46.8	48.8	58.1	
Zinc, dissolved	73.4	30.7	23.2	20.6	36.7	38.7	41.6	28.7	46.2	40.6	43.1	

Wetland	Secaucus		Secaucus		Secaucus		Secaucus		Secaucus		Average	Maximum
Sample ID	W-1		W-2		W-2 FD		W-3		W-4		Value	Detected
Sampling Date	7/17/00		7/17/00		7/17/00		7/17/00		7/17/00			Value
Inorganics (ug/L)	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered		
Antimony	6.5 U	33 U	6.5 U	33 U	13 U	33 U	13 U	33 U	6.5 U	33 U	21.05	33
Arsenic	7.2 U	36 U	7.2 U	36 U	14 U	36 U	14 U	36 U	44	36 U	25.64	44
Barium	46 U	230 U	46 U	230 U	91 U	230 U	91 U	230 U	650	230 U	207.4	650
Beryllium	4.9 U	25 U	4.9 U	25 U	9.8 U	25 U	9.8 U	25 U	5.8	25 U	16.02	25
Cadmium	2.8 U	14 U	2.8 U	14 U	5.6 U	14 U	5.6 U	14 U	4.3	14 U	9.11	14
Chromium	32 U	160 U	32 U	160 U	63 U	160 U	63 U	160 U	200	160 U	169	700
Copper	40 U	200 U	40 U	200 U	80 U	200 U	80 U	200 U	770	200 U	201	770
Lead	6.9 U	34 U	6.9 U	34 U	14 U	34 U	14 U	34 U	510	34 U	72.18	510
Mercury	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.26	0.22 U	12	0.22 U	1.402	12
Nickel	30 U	150 U	30 U	150 U	60 U	150 U	60 U	150 U	120	150 U	105	130
Selenium	39 U	200 U	39 U	200 U	79 U	200 U	79 U	200 U	39 U	200 U	127.6	200
Silver	10 U	52 U	10 U	52 U	21 U	52 U	21 U	52 U	10 U	52 U	33.2	52
Thallium	6.2 U	31 U	6.2 U	31 U	12 U	31 U	12 U	31 U	6.2 U	31 U	19.76	31
Zinc	40 U	200 U	40 U	200 U	80 U	200 U	80 U	200 U	1200	200 U	244	1200

NA - Not analyzed
ND - Not detected (no detection limit provided)
U - Not detected, it has been assumed that 1/2 the detection limit is presented
Data downloaded from http://cimic.rutgers.edu/ecorisk/

Summary Across 4 Wetlands

Analytes	Average Value	Maximum Detected Value	Percentiles 25	50	75	100
Inorganics (ug/L)						
Antimony	21.1	33	8.125	23	33	33
Arsenic (total & dissolved)	15.0	67.9	6.735	7.2	16.275	67.9
Barium	207.4	650	91	230	230	650
Beryllium	16.0	25	6.8	17.4	25	25
Cadmium	6.9	57.1	0.4	2.8	9.8	57.1
Chromium (total & dissolved)	60.3	700	2.2	14.3	63	700
Copper	153.2	770	12.925	39.35	172.725	770
Cyanide (mg/L)	0.011	0.024	0.01	0.01	0.01	0.024
Iron	595	595	595	595	595	595
Lead	34.6	510	8.1	10.7	17.9	510
Mercury	0.9	12	0.22	0.22	0.45	12
Nickel (total & dissolved)	47.4	47.4	6.2	9.2	60	242
Selenium	127.5	200	49	139.5	200	200
Silver	16.4	52	1.1	9.7	29.35	52
Thallium	19.8	31	7.65	21.5	31	31
Zinc (total & dissolved)	92.3	1200	30	41.1	70.35	1200

Data downloaded from http://cimic.rutgers.edu/ecorisk/

Appendix E Table E3
Surface Water Organic Data for Food Web - Predicted Values

COPC	Maximum Sediment Concentration (ug/kg)	fraction organic carbon [1]	Koc	Predicted Maximum Surface Water Concentration (ug/L)	Predicted Maximum Surface Water Concentration (mg/L)
ALPHA CHLORDANE	399.0	0.05	58.8	135.63	0.136
4, 4-DDE	183.0	0.05	15002029.0	2.44E-04	2.44E-07
TOTAL PAH	8161.8	0.05	1014798.9	0.16	1.61E-04
TOTAL PCB	2208.0	0.05	827770.6	0.05	5.33E-05

Predicted values based on theory of equilibrium partitioning.

Water Concentration (ug/L) = [Sediment concentration (ug/kg)] / [fraction organic carbon x Koc (L/kg)]

1 - Sediment percentile values presented in Appendix E Table 1; calculated from qualified sediment data for current study and historic studies (See Appendix F; Langan EES, 1999; Louis Berger, 2001; TAMS, 2001a; TAMS, 2001b; ECI, 1997a; ECI, 1997b; HMDC, 1997; Weis, J. and P. Weis, undated).

2 - Value based on review of historic Meadowlands sediment data from 4 of the wetlands (Langan EES, 1999; Louis Berger, 2001; TAMS, 2001a, TaMs 2001b)).

The measured TOCs ranged from 1.2% to 76% with a median of 5.1%.

Appendix E Table E4

ASSUMPTIONS FOR MINK RISK ASSESSMENT

Parameters	Value	Units
Soil Ingestion Rate	--	(kg_{dw}/day)
Sediment Ingestion Rate	0.0022	(kg_{dw}/day)
Water Consumption Rate	--	(kg/day)
Wetland Invertebrate Consumption Rate	0.0281	(kg_{ww}/day)
Fish Consumption Rate	0.1496	(kg_{ww}/day)
Wetland Plant Consumption Rate	--	(kg_{ww}/day)
Body Weight	0.850	(kg)
Exposure Duration	1	(unitless)
Area Use Factor	1	(unitless)

kg_{dw}/day = kilograms dry weight per day

kg_{ww}/day = kilograms wet weight per day

kg/day = kilograms per day

Appendix E Table E5

ASSUMPTIONS FOR GREAT BLUE HERON RISK ASSESSMENT

Parameters	Value	Units
Soil Ingestion Rate	--	(kg_{dw}/day)
Sediment Ingestion Rate	0.0049	(kg_{dw}/day)
Water Consumption Rate	--	(kg/day)
Wetland Invertebrate Consumption Rate	0.0211	(kg_{ww}/day)
Fish Consumption Rate	0.3791	(kg_{ww}/day)
Wetland Plant Consumption Rate	--	(kg_{ww}/day)
Body Weight	2.340	(kg)
Exposure Duration	1	(unitless)
Area Use Factor	1	(unitless)

kg_{dw}/day = kilograms dry weight per day

kg_{ww}/day = kilograms wet weight per day

kg/day = kilograms per day

Appendix E Table E6

ASSUMPTIONS FOR MALLARD RISK ASSESSMENT

Parameters	Value	Units
Soil Ingestion Rate	--	(kg_{dw}/day)
Sediment Ingestion Rate	0.0013	(kg_{dw}/day)
Water Consumption Rate	--	(kg/day)
Wetland Invertebrate Consumption Rate	--	(kg_{ww}/day)
Fish Consumption Rate	--	(kg_{ww}/day)
Wetland Plant Consumption Rate	0.0728	(kg_{ww}/day)
Body Weight	1.134	(kg)
Exposure Duration	1	(unitless)
Area Use Factor	1	(unitless)

kg_{dw}/day = kilograms dry weight per day

kg_{ww}/day = kilograms wet weight per day

kg/day = kilograms per day

Appendix E Table E7

ASSUMPTIONS FOR MUSKRAT RISK ASSESSMENT

Parameters	Value	Units
Soil Ingestion Rate	--	(kg_{dw}/day)
Sediment Ingestion Rate	0.0030	(kg_{dw}/day)
Water Consumption Rate	--	(kg/day)
Wetland Invertebrate Consumption Rate	--	(kg_{ww}/day)
Fish Consumption Rate	--	(kg_{ww}/day)
Wetland Plant Consumption Rate	0.3990	(kg_{ww}/day)
Body Weight	1.400	(kg)
Exposure Duration	1	(unitless)
Area Use Factor	1	(unitless)

kg_{dw}/day = kilograms dry weight per day

kg_{ww}/day = kilograms wet weight per day

kg/day = kilograms per day

Appendix E Table E8
POTENTIAL RISKS TO THE MINK - MAXIMUM EXPOSURE

Analyte	Site Concentrations				Potential Daily Dose (mg/kg_{bw}-day)					TRV (mg/kg_{bw}day)	HQ
	Sediment (mg/kg_{dw})	Wetland Invertebrate (mg/kg_{ww})	Fish (mg/kg_{ww})	Wetland Plant (mg/kg_{ww})	Sediment	Wetland Invertebrates	Fish	Wetland Plant	Total		
INORGANICS											
ARSENIC	3.32E+01	2.99E+01	7.74E+00	1.79E-01	8.40E-02	9.86E-01	1.36E+00	NC	2.43E+00	5.42E-02	**4.49E+01**
CADMIUM	7.80E+00	2.65E+01	5.18E+01	4.26E-01	1.97E-02	8.76E-01	9.11E+00	NC	1.00E+01	7.70E-01	**1.30E+01**
CHROMIUM	5.10E+02	1.99E+02	1.33E+01	5.73E-01	1.29E+00	6.56E+00	2.34E+00	NC	1.02E+01	2.19E+03	4.65E-03
COPPER	1.85E+02	5.54E+01	5.47E+02	1.11E+01	4.67E-01	1.83E+00	9.62E+01	NC	9.85E+01	1.22E+01	**8.10E+00**
LEAD	5.57E+02	3.51E+02	4.59E-02	3.76E+00	1.41E+00	1.16E+01	8.08E-03	NC	1.30E+01	6.40E+00	**2.03E+00**
MERCURY	6.16E+00	5.46E-01	4.69E+01	3.92E-02	1.56E-02	1.80E-02	8.26E+00	NC	8.30E+00	1.87E-02	**4.43E+02**
ZINC	6.87E+02	3.91E+02	2.47E+03	1.24E-10	1.74E+00	1.29E+01	4.35E+02	NC	4.50E+02	1.28E+02	**3.51E+00**
ORGANICS											
ALPHA CHLORDANE	3.99E-01	1.41E+00	9.49E+00	2.11E-01	1.01E-03	4.64E-02	1.67E+00	NC	1.72E+00	1.98E+00	8.69E-01
4, 4-DDE	1.83E-01	4.15E+00	8.84E-03	6.41E-05	4.63E-04	1.37E-01	1.56E-03	NC	1.39E-01	6.40E-01	2.17E-01
TOTAL PAHs	8.16E+00	9.71E-01	8.85E-01	1.39E-02	2.06E-02	3.21E-02	1.56E-01	NC	2.08E-01	4.30E-01	4.85E-01
TOTAL PCBs	1.85E+00	7.81E+00	8.35E+00	3.55E-03	4.67E-03	2.58E-01	1.47E+00	NC	1.73E+00	1.42E-01	**1.22E+01**

-- Indicates that compound was not selected for further analysis in that matrix.
NC = Not calculated

Appendix E Table E9
POTENTIAL RISKS TO THE HERON - MAXIMUM EXPOSURE

Analyte	Site Concentrations				Potential Daily Dose (mg/kg_{bw}-day)					TRV (mg/kg_{bw}day)	HQ
	Sediment (mg/kg_{dw})	Wetland Invertebrate (mg/kg_{ww})	Fish (mg/kg_{ww})	Wetland Plant (mg/kg_{ww})	Sediment	Wetland Invertebrates	Fish	Wetland Plant	Total		
INORGANICS											
ARSENIC	3.32E+01	2.99E+01	7.74E+00	1.79E-01	7.02E-02	2.69E-01	1.25E+00	NC	1.59E+00	5.14E+00	3.10E-01
CADMIUM	7.60E+00	2.65E+01	5.18E+01	4.26E-01	1.65E-02	2.39E-01	8.39E+00	NC	8.65E+00	1.45E+00	**5.96E+00**
CHROMIUM	5.10E+02	1.99E+02	1.33E+01	5.73E-01	1.08E+00	1.79E+00	2.15E+00	NC	5.02E+00	1.00E+00	**5.02E+00**
COPPER	1.85E+02	5.54E+01	5.47E+02	1.11E+01	3.91E-01	4.99E-01	8.86E+01	NC	8.95E+01	4.70E+01	**1.90E+00**
LEAD	5.57E+02	3.51E+02	4.59E-02	3.76E+00	1.18E+00	3.16E+00	7.44E-03	NC	4.35E+00	1.13E+00	**3.85E+00**
MERCURY	6.16E+00	5.46E-01	4.69E+01	3.92E-02	1.30E-02	4.91E-03	7.60E+00	NC	7.62E+00	6.40E-03	**1.19E+03**
ZINC	6.87E+02	3.91E+02	2.47E+03	1.24E-10	1.45E+00	3.52E+00	4.00E+02	NC	4.05E+02	2.95E+01	**1.37E+01**
ORGANICS											
ALPHA CHLORDANE	3.99E-01	1.41E+00	9.49E+00	2.11E-01	8.44E-04	1.27E-02	1.54E+00	NC	1.55E+00	2.14E+00	7.25E-01
4, 4-DDE	1.83E-01	4.15E+00	8.84E-03	6.41E-05	3.87E-04	3.74E-02	1.43E-03	NC	3.92E-02	1.40E-02	**2.80E+00**
TOTAL PAHs	8.16E+00	9.71E-01	8.85E-01	1.39E-02	1.73E-02	8.74E-03	1.43E-01	NC	1.69E-01	4.00E+01	4.23E-03
TOTAL PCBs	1.85E+00	7.81E+00	8.35E+00	3.55E-03	3.90E-03	7.03E-02	1.35E+00	NC	1.43E+00	4.10E-01	**3.48E+00**

-- Indicates that compound was not selected for further analysis in that matrix.
NC = Not calculated

Appendix E Table E10
POTENTIAL RISKS TO THE MALLARD - MAXIMUM EXPOSURE

Analyte	Site Concentrations				Potential Daily Dose (mg/kg_{bw}-day)					TRV (mg/kg_{bw}day)	HQ
	Sediment (mg/kg_{dw})	Wetland Invertebrate (mg/kg_{ww})	Fish (mg/kg_{ww})	Wetland Plant (mg/kg_{ww})	Sediment	Wetland Invertebrates	Fish	Wetland Plant	Total		
INORGANICS											
ARSENIC	3.32E+01	2.99E+01	7.74E+00	1.79E-01	3.70E-02	NC	NC	1.15E-02	4.85E-02	5.14E+00	9.44E-03
CADMIUM	7.80E+00	2.65E+01	5.18E+01	4.26E-01	8.69E-03	NC	NC	2.74E-02	3.61E-02	1.45E+00	2.49E-02
CHROMIUM	5.10E+02	1.99E+02	1.33E+01	5.73E-01	5.68E-01	NC	NC	3.68E-02	6.04E-01	1.00E+00	6.04E-01
COPPER	1.85E+02	5.54E+01	5.47E+02	1.11E+01	2.06E-01	NC	NC	7.12E-01	9.17E-01	4.70E+01	1.95E-02
LEAD	5.57E+02	3.51E+02	4.59E-02	3.76E+00	6.21E-01	NC	NC	2.42E-01	8.63E-01	1.13E+00	7.63E-01
MERCURY	6.16E+00	5.46E-01	4.69E+01	3.92E-02	6.86E-03	NC	NC	2.52E-03	9.38E-03	6.40E-03	***1.47E+00***
ZINC	6.87E+02	3.91E+02	2.47E+03	1.24E-10	7.65E-01	NC	NC	7.94E-12	7.65E-01	2.95E+01	2.59E-02
ORGANICS											
ALPHA CHLORDANE	3.99E-01	1.41E+00	9.49E+00	2.11E-01	4.44E-04	NC	NC	1.36E-02	1.40E-02	2.14E+00	6.55E-03
4, 4-DDE	1.83E-01	4.15E+00	8.84E-03	6.41E-05	2.04E-04	NC	NC	4.12E-06	2.08E-04	1.40E-02	1.49E-02
TOTAL PAHs	8.16E+00	9.71E-01	8.85E-01	1.39E-02	9.09E-03	NC	NC	8.95E-04	9.99E-03	4.00E+01	2.50E-04
TOTAL PCBs	1.85E+00	7.81E+00	8.35E+00	3.55E-03	2.06E-03	NC	NC	2.28E-04	2.28E-03	4.10E-01	5.57E-03

-- Indicates that compound was not selected for further analysis in that matrix.
NC = Not calculated

Appendix E Table E11
POTENTIAL RISKS TO THE MUSKRAT - MAXIMUM EXPOSURE

Analyte	Site Concentrations				Potential Daily Dose (mg/kg_{bw}-day)					TRV (mg/kg_{bw}day)	HQ
	Sediment (mg/kg_{dw})	Wetland Invertebrate (mg/kg_{ww})	Fish (mg/kg_{ww})	Wetland Plant (mg/kg_{ww})	Sediment	Wetland Invertebrates	Fish	Wetland Plant	Total		
INORGANICS											
ARSENIC	3.32E+01	2.99E+01	7.74E+00	1.79E-01	7.10E-02	NC	NC	5.11E-02	1.22E-01	4.79E-02	***2.55E+00***
CADMIUM	7.80E+00	2.65E+01	5.18E+01	4.26E-01	1.67E-02	NC	NC	1.21E-01	1.38E-01	6.80E-01	2.03E-01
CHROMIUM	5.10E+02	1.99E+02	1.33E+01	5.73E-01	1.09E+00	NC	NC	1.63E-01	1.25E+00	1.94E+03	6.44E-04
COPPER	1.85E+02	5.54E+01	5.47E+02	1.11E+01	3.95E-01	NC	NC	3.16E+00	3.55E+00	1.08E+01	3.30E-01
LEAD	5.57E+02	3.51E+02	4.59E-02	3.76E+00	1.19E+00	NC	NC	1.07E+00	2.26E+00	5.68E+00	3.99E-01
MERCURY	6.16E+00	5.46E-01	4.69E+01	3.92E-02	1.32E-02	NC	NC	1.12E-02	2.43E-02	1.66E-02	***1.47E+00***
ZINC	6.87E+02	3.91E+02	2.47E+03	1.24E-10	1.47E+00	NC	NC	3.52E-11	1.47E+00	1.14E+02	1.29E-02
ORGANICS											
ALPHA CHLORDANE	3.99E-01	1.41E+00	9.49E+00	2.11E-01	8.53E-04	NC	NC	6.02E-02	6.10E-02	1.75E+00	3.49E-02
4, 4-DDE	1.83E-01	4.15E+00	8.84E-03	6.41E-05	3.91E-04	NC	NC	1.83E-05	4.09E-04	5.68E-01	7.21E-04
TOTAL PAHs	8.16E+00	9.71E-01	8.85E-01	1.39E-02	1.74E-02	NC	NC	3.97E-03	2.14E-02	3.80E-01	5.64E-02
TOTAL PCBs	1.85E+00	7.81E+00	8.35E+00	3.55E-03	3.94E-03	NC	NC	1.01E-03	4.96E-03	1.26E-01	3.93E-02

-- Indicates that compound was not selected for further analysis in that matrix.
NC = Not calculated

Appendix E Table E12
Surface Water Organic Data for Standard Curves- Predicted Values

COPC [1]	Percentile Sediment Concentration (ug/kg)	fraction organic carbon [2]	Koc	Predicted Surface Water Concentration (ug/L)	Predicted Surface Water Concentration (mg/L)
ALPHA CHLORDANE_25	18.5	0.05	58.8	6.289	0.006
ALPHA CHLORDANE_50	32.0	0.05	58.8	10.878	0.011
ALPHA CHLORDANE_75	45.7	0.05	58.8	15.534	0.016
ALPHA CHLORDANE_100	399.0	0.05	58.8	135.629	0.136
4, 4-DDE_25	0.2	0.05	15002029.0	3.17E-07	3.17E-10
4, 4-DDE_50	2.0	0.05	15002029.0	2.64E-06	2.64E-09
4, 4-DDE_75	9.2	0.05	15002029.0	1.23E-05	1.23E-08
4, 4-DDE_100	183.0	0.05	15002029.0	2.44E-04	2.44E-07
TOTAL PAH_25	2930.1	0.05	1014798.9	0.058	5.77E-05
TOTAL PAH_50	3537.9	0.05	1014798.9	0.070	6.97E-05
TOTAL PAH_75	5823.1	0.05	1014798.9	0.115	1.15E-04
TOTAL PAH_100	8161.8	0.05	1014798.9	0.161	1.61E-04
TOTAL PCB_25	51.4	0.05	827770.6	0.001	1.24E-06
TOTAL PCB_50	136.5	0.05	827770.6	0.003	3.30E-06
TOTAL PCB_75	306.5	0.05	827770.6	0.007	7.41E-06
TOTAL PCB_100	2208.0	0.05	827770.6	0.053	5.33E-05

Predicted values based on theory of equilibrium partitioning.
Water Concentration (ug/L) = [Sediment concentration (ug/kg)] / [fraction organic carbon x Koc (L/kg)]

1 - Sediment percentile values presented in Appendix E Table 1; calculated from qualified sediment data for current study and historic studies (See Appendix F; Langan EES, 1999; Louis Berger, 2001; TAMS, 2001a; TAMS, 2001b; ECI, 1997a; ECI, 1997b; HMDC, 1

2 - Value based on review of historic Meadowlands sediment data from 4 of the wetlands (Langan EES, 1999; Louis Berger, 2001; TAMS, 2001a, TaMs 2001b)).
The measured TOCs ranged from 1.2% to 76% with a median of 5.1%.

Appendix E Table E13
POTENTIAL RISKS TO THE MINK - MULTIPLE CONCENTRATIONS

Analyte	Site Concentrations				Potential Daily Dose (mg/kg_{bw}-day)					TRV (mg/kg_{bw}day)	HQ
	Sediment (mg/kg_{dw})	Wetland Invertebrate (mg/kg_{ww})	Fish (mg/kg_{ww})	Wetland Plant (mg/kg_{ww})	Sediment	Wetland Invertebrates	Fish	Wetland Plant	Total		
METALS											
ARSENIC_25	8 92	8 03	0.77	0.05	0.02	0.26	0 13	NC	0.42	0 05	***7.80***
ARSENIC_50	17.30	15.57	0.82	0 09	0.04	0.51	0.14	NC	0.70	0.05	***12.96***
ARSENIC_75	34.55	31.10	1.86	0 19	0.09	1.03	0.33	NC	1.44	0.05	***26.58***
ARSENIC_100	185.50	166.95	7.74	1.00	0 47	5.51	1.36	NC	7.34	0.05	***135.49***
CADMIUM_25	0 50	1.70	0.36	0 03	0 00	0.06	0.06	NC	0.12	0.77	0 16
CADMIUM_50	1 35	4.50	2.54	0.07	0 00	0.15	0.45	NC	0.60	0.77	0 78
CADMIUM_75	6 60	22.42	8.89	0.36	0 02	0 74	1.56	NC	2.32	0.77	***3.01***
CADMIUM_100	946 00	3216.40	51.79	51.65	2.39	106 14	9.11	NC	117 65	0.77	***152.79***
CHROMIUM_25	35 28	13 76	0 04	0.04	0.09	0.45	0.01	NC	0.55	2189.60	2.515E-04
CHROMIUM_50	159 90	62 36	0 27	0.18	0.40	2.06	0 05	NC	2.51	2189.60	1.146E-03
CHROMIUM_75	340.00	132 60	1 20	0.38	0.86	4.36	0 21	NC	5.45	2189.60	2.488E-03
CHROMIUM_100	5950.00	2320.50	13 30	6 69	15.05	76.58	2 34	NC	93.97	2189.60	0.04
COPPER_25	34.60	10.38	9.18	2 08	0.09	0.34	1 62	NC	2.05	12 17	0 17
COPPER_50	110.00	33.00	27.94	6.60	0.28	1.09	4.92	NC	6.28	12.17	0 52
COPPER_75	186.41	55.92	122.63	11 18	0.47	1.85	21.58	NC	23.90	12.17	***1.96***
COPPER_100	860.00	258.00	546.70	51.60	2.18	8.51	96.22	NC	106.91	12.17	***8.79***
LEAD_25	87.98	55.42	0.00	0.59	0.22	1.83	1.283E-04	NC	2 05	6.40	0 32
LEAD_50	174.68	110.05	0.00	1.18	0 44	3 63	1.695E-04	NC	4 07	6.40	0.64
LEAD_75	295.00	185.85	0.00	1.99	0 75	6 13	2.835E-04	NC	6 88	6.40	***1.07***
LEAD_100	2030.00	1278.90	0.05	13.70	5 14	42 20	0.01	NC	47 35	6.40	***7.40***
MERCURY_25	0.50	0.04	0.86	3.186E-03	1 265E-03	1.462E-03	0.15	NC	0.15	0.02	***8.24***
MERCURY_50	2.90	0.26	0 86	0 02	0 01	0.01	0.15	NC	0.17	0.02	***8.94***
MERCURY_75	10.40	0.92	1.76	0 07	0.03	0.03	0.31	NC	0.37	0.02	***19.58***
MERCURY_100	152.00	13.47	46 94	0 97	0.38	0.44	8.26	NC	9.09	0.02	***485.63***
ZINC_25	91.50	52 16	61 77	1 647E-11	0.23	1.72	10.87	NC	12.82	128.00	0.10
ZINC_50	244.00	139.08	84.62	4 392E-11	0.62	4.59	14.89	NC	20.10	128.00	0.16
ZINC_75	466.00	265.62	144 23	8 388E-11	1.18	8.77	25.38	NC	35.33	128.00	0 28
ZINC_100	6429.00	3664.53	2470.80	1.157E-09	16 27	120.93	434.86	NC	572 06	128.00	***4.47***
ORGANICS											
ALPHA CHLORDANE_25	0.02	0.07	0.44	0.01	4 681E-05	2 152E-03	0.08	NC	0 08	1.98	0.04
ALPHA CHLORDANE_50	0.03	0.11	0.76	0.02	8.096E-05	3 723E-03	0.13	NC	0 14	1.98	0.07
ALPHA CHLORDANE_75	0.05	0.16	1.09	0.02	1 156E-04	0.01	0.19	NC	0.20	1.98	0.10
ALPHA CHLORDANE_100	0.40	1.41	9.49	0.21	1.009E-03	0.05	1.67	NC	1.72	1.98	0.87
4, 4-DDE_25	0.00	0.01	1.148E-05	8.324E-08	5.009E-07	1.778E-04	2.020E-06	NC	1.804E-04	0.64	2.819E-04
4, 4-DDE_50	0.00	0 04	9 569E-05	6.940E-07	5.009E-06	1.482E-03	1 684E-05	NC	1.504E-03	0.64	2 350E-03
4, 4-DDE_75	0.01	0 21	4 446E-04	3 225E-06	2.328E-05	0.01	7.825E-05	NC	0.01	0.64	0 01
4, 4-DDE_100	0.18	4 15	0.01	6 414E-05	4.630E-04	0.14	1.557E-03	NC	0.14	0.64	0.22
TOTAL PAH_25	2.93	0.35	0.32	0.01	0.01	0.01	0.06	NC	0.07	0.43	0.17
TOTAL PAH_50	3.54	0.42	0.38	0.01	0.01	0.01	0.07	NC	0 09	0.43	0.21
TOTAL PAH_75	5.82	0.69	0.63	0.01	0.01	0 02	0 11	NC	0.15	0.43	0.35
TOTAL PAH_100	8 16	0.97	0.88	0.01	0.02	0 03	0.16	NC	0.21	0.43	0 48
TOTAL PCB_25	0 05	0.22	0 23	9.904E-05	1.301E-04	0.01	0.04	NC	0.05	0.14	0 34
TOTAL PCB_50	0 14	0.58	0 62	2.628E-04	3.453E-04	0.02	0.11	NC	0.13	0.14	0 90
TOTAL PCB_75	0.31	1 30	1 39	5 901E-04	7 754E-04	0.04	0.24	NC	0.29	0.14	***2.02***
TOTAL PCB_100	2.21	9.34	9 99	4 251E-03	0 01	0.31	1.75	NC	2 07	0.14	***14.54***

Appendix E Table E14
POTENTIAL RISKS TO THE HERON - MULTIPLE CONCENTRATIONS

Analyte	Site Concentrations				Potential Daily Dose (mg/kg_{bw}-day)					TRV (mg/kg_{bw}day)	HQ
	Sediment (mg/kg_{dw})	Wetland Invertebrate (mg/kg_{ww})	Fish (mg/kg_{ww})	Wetland Plant (mg/kg_{ww})	Sediment	Wetland Invertebrates	Fish	Wetland Plant	Total		
METALS											
ARSENIC_25	8.92	8.03	0.77	0.05	0.02	0.07	0.12	NC	0.22	5.14	0.04
ARSENIC_50	17.30	15.57	0.82	0.09	0.04	0.14	0.13	NC	0.31	5.14	0.06
ARSENIC_75	34.55	31.10	1.86	0.19	0.07	0.28	0.30	NC	0.65	5.14	0.13
ARSENIC_100	185.50	166.95	7.74	1.00	0.39	1.50	1.25	NC	3.15	5.14	0.61
CADMIUM_25	0.50	1.70	0.36	0.03	1.058E-03	0.02	0.06	NC	0.08	1.45	0.05
CADMIUM_50	1.35	4.59	2.54	0.07	2.855E-03	0.04	0.41	NC	0.46	1.45	0.31
CADMIUM_75	6.60	22.42	8.89	0.36	0.01	0.20	1.44	NC	1.66	1.45	***1.14***
CADMIUM_100	946.00	3216.40	51.79	51.65	2.00	28.95	8.39	NC	39.34	1.45	***27.13***
CHROMIUM_25	35.28	13.76	0.04	0.04	0.07	0.12	0.01	NC	0.21	1.00	0.21
CHROMIUM_50	159.90	62.36	0.27	0.18	0.34	0.56	0.04	NC	0.94	1.00	0.94
CHROMIUM_75	340.00	132.60	1.20	0.38	0.72	1.19	0.19	NC	2.11	1.00	***2.11***
CHROMIUM_100	5950.00	2320.50	13.30	6.69	12.58	20.88	2.15	NC	35.62	1.00	***35.62***
COPPER_25	34.60	10.38	9.18	2.08	0.07	0.09	1.49	NC	1.65	47.00	0.04
COPPER_50	110.00	33.00	27.94	6.60	0.23	0.30	4.53	NC	5.06	47.00	0.11
COPPER_75	186.41	55.92	122.63	11.18	0.39	0.50	19.87	NC	20.76	47.00	0.44
COPPER_100	860.00	258.00	546.70	51.60	1.82	2.32	88.57	NC	92.71	47.00	***1.97***
LEAD_25	87.98	55.42	7.290E-04	0.59	0.19	0.50	1.181E-04	NC	0.69	1.13	0.61
LEAD_50	174.68	110.05	9.630E-04	1.18	0.37	0.99	1.560E-04	NC	1.36	1.13	***1.20***
LEAD_75	295.00	185.85	1.611E-03	1.99	0.62	1.67	0.00	NC	2.30	1.13	***2.03***
LEAD_100	2030.00	1278.90	0.05	13.70	4.29	11.51	0.01	NC	15.81	1.13	***13.99***
MERCURY_25	0.50	0.04	0.86	3.186E-03	1.056E-03	3.987E-04	0.14	NC	0.14	0.01	***22.01***
MERCURY_50	2.90	0.26	0.86	0.02	0.01	2.312E-03	0.14	NC	0.15	0.01	***23.10***
MERCURY_75	10.40	0.92	1.76	0.07	0.02	0.01	0.29	NC	0.32	0.01	***49.29***
MERCURY_100	152.00	13.47	48.94	0.97	0.32	0.12	7.60	NC	8.05	0.01	***1257.41***
ZINC_25	91.50	52.16	61.77	1.647E-11	0.19	0.47	10.01	NC	10.67	29.50	0.36
ZINC_50	244.00	139.08	84.62	4.392E-11	0.52	1.25	13.71	NC	15.48	29.50	0.52
ZINC_75	466.00	265.62	144.23	8.388E-11	0.99	2.39	23.37	NC	26.74	29.50	0.91
ZINC_100	6429.00	3664.53	2470.80	1.157E-09	13.66	32.98	400.27	NC	446.85	29.50	15.15
ORGANICS											
ALPHA CHLORDANE_25	0.02	0.07	0.44	0.01	3.913E-05	5.869E-04	0.07	NC	0.07	2.14	0.03
ALPHA CHLORDANE_50	0.03	0.11	0.76	0.02	6.758E-05	1.015E-03	0.12	NC	0.12	2.14	0.06
ALPHA CHLORDANE_75	0.05	0.16	1.09	0.02	9.686E-05	1.450E-03	0.18	NC	0.18	2.14	0.08
ALPHA CHLORDANE_100	0.40	1.41	9.49	0.21	8.439E-04	0.01	1.54	NC	1.55	2.14	0.73
4, 4-DDE_25	2.375E-04	0.01	1.148E-05	8.324E-08	5.023E-07	4.849E-05	0.00	NC	5.086E-05	0.01	3.533E-03
4, 4-DDE_50	1.980E-03	0.04	9.565E-05	6.940E-07	4.188E-06	4.043E-04	0.00	NC	4.240E-04	0.01	0.03
4, 4-DDE_75	0.01	0.21	4.446E-04	3.225E-06	1.946E-05	1.878E-03	0.00	NC	1.970E-03	0.01	0.14
4, 4-DDE_100	0.18	4.15	0.01	6.414E-05	3.870E-04	0.04	0.00	NC	0.04	0.01	***2.80***
TOTAL PAH_25	2.93	0.35	0.32	0.01	0.01	3.138E-03	0.05	NC	0.06	40.00	1.520E-03
TOTAL PAH_50	3.54	0.42	0.38	0.01	0.01	3.787E-03	0.06	NC	0.07	40.00	1.835E-03
TOTAL PAH_75	5.82	0.69	0.63	0.01	0.01	0.01	0.10	NC	0.12	40.00	3.020E-03
TOTAL PAH_100	8.16	0.97	0.88	0.01	0.02	0.01	0.14	NC	0.17	40.00	4.233E-03
TOTAL PCB_25	0.05	0.22	0.23	5.904E-05	1.088E-04	1.959E-03	0.04	NC	0.04	0.41	0.10
TOTAL PCB_50	0.14	0.58	0.62	2.628E-04	2.888E-04	0.01	0.10	NC	0.11	0.41	0.26
TOTAL PCB_75	0.31	1.30	1.39	5.901E-04	6.482E-04	0.01	0.22	NC	0.24	0.41	0.58
TOTAL PCB_100	2.21	9.34	9.99	4.251E-03	4.670E-03	0.08	1.62	NC	1.71	0.41	***4.16***

Appendix E Table E15
POTENTIAL RISKS TO THE MALLARD - MULTIPLE CONCENTRATIONS

Analyte	Site Concentrations				Potential Daily Dose (mg/kg_{bw}-day)						
	Sediment (mg/kg_{ww})	Wetland Invertebrate (mg/kg_{ww})	Fish (mg/kg_{ww})	Wetland Plant (mg/kg_{ww})	Sediment	Wetland Invertebrates	Fish	Wetland Plant	Total	TRV (mg/kg_{bw}day)	HQ
METALS											
ARSENIC_25	8 92	8 03	0.77	0.05	0 01	NC	NC	3 093E-03	0 01	5.14	2.535E-03
ARSENIC_50	17 30	15 57	0 82	0 09	0 02	NC	NC	0 01	0 03	5 14	4 817E-03
ARSENIC_75	34 55	31.10	1 86	0.19	0 04	NC	NC	0.03	0.05	5 14	0 01
ARSENIC_100	185 50	166 95	7 74	1 00	0 21	NC	NC	0 06	0 27	5 14	0.05
CADMIUM_25	0 50	1.70	0.36	0.03	5.570E-04	NC	NC	1.763E-03	2 310E-03	1.45	1 593E-03
CADMIUM_50	1 35	4 59	2 54	0 07	1.504E-03	NC	NC	4 734E-03	0 01	1 45	4.302E-03
CADMIUM_75	6 60	22 42	8 89	0 36	0 01	NC	NC	0.02	0 03	1 45	0 02
CADMIUM_100	946.00	3216.40	51.79	51 65	1.05	NC	NC	3 32	4 37	1 45	***3.01***
CHROMIUM_25	35 28	13 76	0 04	0 04	0 04	NC	NC	2 549E-03	0 04	1 00	0.04
CHROMIUM_50	159 90	62 36	0 27	0 18	0.18	NC	NC	0.01	0.19	1 00	0.19
CHROMIUM_75	340 00	132.60	1.20	0.38	0.38	NC	NC	0.02	0 40	1 00	0.40
CHROMIUM_100	5950 00	2320.50	13.30	6 69	6.63	NC	NC	0 43	7 06	1 00	***7.06***
COPPER_25	34 60	10 38	9.18	2 08	0 04	NC	NC	0.13	0 17	47 00	3 657E-03
COPPER_50	110 00	33 00	27 94	6 60	0 12	NC	NC	0.42	0 55	47.00	0 01
COPPER_75	186.41	55.92	122.63	11.18	0 21	NC	NC	0 72	0 93	47.00	0 02
COPPER_100	860.00	258.00	546.70	51 60	0 96	NC	NC	3 31	4 27	47 00	0 09
LEAD_25	87 98	55 42	7 290E-04	0 59	0 10	NC	NC	0 04	0 14	1 13	0 12
LEAD_50	174 68	110 05	9 630E-04	1.18	0.19	NC	NC	0.08	0 27	1 13	0.24
LEAD_75	295 00	185.85	1.611E-03	1 98	0.33	NC	NC	0 13	0 46	1 13	0.40
LEAD_100	2030 00	1278 90	0 05	13 70	2 26	NC	NC	0 88	3 14	1 13	***2.78***
MERCURY_25	0 50	0.04	0 86	3 186E-03	5 570E-04	NC	NC	2.046E-04	0.00	0 01	0.12
MERCURY_50	2 90	0 26	0.86	0.02	3.231E-03	NC	NC	1.187E-03	0.00	0 01	0.69
MERCURY_75	10 40	0.92	1.76	0 07	0.01	NC	NC	4 255E-03	0 02	0 01	***2.48***
MERCURY_100	152 00	13 47	46.94	0 97	0 17	NC	NC	0.06	0.23	0 01	***36.18***
ZINC_25	91 50	52 16	61 77	1 647E-11	0.10	NC	NC	1.058E-12	0 10	29.50	3 455E-03
ZINC_50	244 00	139.08	84.52	4.392E-11	0 27	NC	NC	2 821E-12	0 27	29.50	0.01
ZINC_75	466.00	265.62	144.23	8.368E-11	0 52	NC	NC	5 367E-12	0 52	29 50	0 02
ZINC_100	6428 00	3664 53	2470 80	1 157E-09	7 16	NC	NC	7 432E-11	7.16	29 50	0 24
ORGANICS											
ALPHA CHLORDANE_25	0 02	0 07	0 44	0.01	2.061E-05	NC	NC	6 268E 04	6 494E-04	2.14	3 035E-04
ALPHA CHLORDANE_50	0 03	0.11	0 76	0 02	3 565E-05	NC	NC	1 088E-03	1 129E-03	2 14	5 249E-04
ALPHA CHLORDANE_75	0 05	0.16	1 09	0.02	5.091E-05	NC	NC	1.553E-03	1.604E-03	2.14	7.497E-04
ALPHA CHLORDANE_100	0 40	1 41	9.49	0.21	4 445E-04	NC	NC	0 01	0 01	2 14	0 01
4, 4-DDE_25	2.375E-04	0 01	1 148E-05	8 324E-08	2 648L-07	NC	NC	5.346E-09	2.689E-07	0 01	1 928E-05
4, 4-DDE_50	1 980F-03	0 04	9 569E-05	6.940E-07	2 206E-06	NC	NC	4.457E-08	2 250E-06	0 01	1.607E-04
4, 4-DDE_75	0 01	0.21	4.446E-04	3 225E-06	1 025E-05	NC	NC	2.071E-07	1 046E-05	0 01	7 469E-04
4, 4-DDE_100	0 18	4 15	0 01	6 414E-05	2 039E-04	NC	NC	4.119E-06	2.080E-04	0 01	0 01
TOTAL PAH_25	2 93	0 35	0.32	0 01	3 264E-03	NC	NC	3 214F-04	3 586E-03	40 00	8 964E-05
TOTAL PAH_50	3 54	0.42	0.38	0 01	3 939E-03	NC	NC	3 879E-04	4 327E-03	40 00	1 082F-04
TOTAL PAH_75	5 82	0 69	0 63	0.01	0 01	NC	NC	6.388E-04	0.01	40.00	1 781E-04
TOTAL PAH_100	8 16	0.97	0.88	0.01	0 01	NC	NC	8 953E-04	0 01	40.00	2 497E-04
TOTAL PCB_25	0 05	0.22	0 23	9 904E-05	5 731E-05	NC	NC	6 361E-06	6 367E-05	0.41	1 553E-04
TOTAL PCB_50	0 14	0 58	0 62	2 628E-04	1.520E-04	NC	NC	1 687E-05	1 689E-04	0.41	4 120E-04
TOTAL PCB_75	0.31	1 30	1 39	5.901E-04	3 414E-04	NC	NC	3 790E-05	3 793E-04	0 41	9.252E-04
TOTAL PCB_100	2.21	9.34	9 99	4 251E-03	2 460E-03	NC	NC	2.730E-04	2 733E-03	0.41	0 01

Appendix E Table E16
POTENTIAL RISKS TO THE MUSKRAT - MULTIPLE CONCENTRATIONS

Analyte	Site Concentrations				Potential Daily Dose (mg/kg_{bw}-day)					TRV (mg/kg_{bw}day)	HQ
	Sediment (mg/kg_{dw})	Wetland Invertebrate (mg/kg_{ww})	Fish (mg/kg_{ww})	Wetland Plant (mg/kg_{ww})	Sediment	Wetland Invertebrates	Fish	Wetland Plant	Total		
METALS											
ARSENIC_25	8.92	8.03	0.77	0.05	0.02	NC	NC	0.01	0.03	0.05	0.68
ARSENIC_50	17.30	15.57	0.82	0.09	0.04	NC	NC	0.03	0.06	0.05	***1.33***
ARSENIC_75	34.55	31.10	1.86	0.19	0.07	NC	NC	0.05	0.13	0.05	***2.65***
ARSENIC_100	185.50	166.95	7.74	1.00	0.40	NC	NC	0.29	0.68	0.05	***14.24***
CADMIUM_25	0.50	1.70	0.36	0.03	1.069E-03	NC	NC	0.01	0.01	0.68	0.01
CADMIUM_50	1.35	4.59	2.54	0.07	2.888E-03	NC	NC	0.02	0.02	0.68	0.04
CADMIUM_75	6.60	22.42	8.89	0.36	0.01	NC	NC	0.10	0.12	0.68	0.17
CADMIUM_100	946.00	3216.40	51.79	51.65	2.02	NC	NC	14.72	16.74	0.68	***24.62***
CHROMIUM_25	35.28	13.76	0.04	0.04	0.08	NC	NC	0.01	0.09	1943.27	4.462E-05
CHROMIUM_50	159.90	62.36	0.27	0.18	0.34	NC	NC	0.05	0.39	1943.27	2.023E-04
CHROMIUM_75	340.00	132.60	1.20	0.38	0.73	NC	NC	0.11	0.84	1943.27	4.301E-04
CHROMIUM_100	5950.00	2320.50	13.30	6.69	12.72	NC	NC	1.91	14.63	1943.27	0.01
COPPER_25	34.60	10.38	9.18	2.08	0.07	NC	NC	0.59	0.67	10.76	0.06
COPPER_50	110.00	33.00	27.94	6.60	0.24	NC	NC	1.88	2.12	10.76	0.20
COPPER_75	186.41	55.92	122.63	11.18	0.40	NC	NC	3.19	3.59	10.76	0.33
COPPER_100	860.00	258.00	545.70	51.60	1.84	NC	NC	14.71	16.54	10.76	***1.54***
LEAD_25	87.98	55.42	7.290E-04	0.59	0.19	NC	NC	0.17	0.36	5.68	0.06
LEAD_50	174.68	110.05	9.630E-04	1.18	0.37	NC	NC	0.34	0.71	5.68	0.12
LEAD_75	295.00	185.85	1.611E-03	1.99	0.63	NC	NC	0.57	1.20	5.68	0.21
LEAD_100	2030.00	1278.90	0.05	13.70	4.34	NC	NC	3.91	8.24	5.68	***1.45***
MERCURY_25	0.50	0.04	0.86	3.186E-03	1.069E-03	NC	NC	9.079E-04	1.977E-03	0.02	0.12
MERCURY_50	2.90	0.25	0.86	0.02	0.01	NC	NC	0.01	0.01	0.02	0.69
MERCURY_75	10.40	0.92	1.76	0.07	0.02	NC	NC	0.02	0.04	0.02	***2.48***
MERCURY_100	152.00	13.47	46.94	0.97	0.32	NC	NC	0.28	0.60	0.02	***36.29***
ZINC_25	91.50	52.16	61.77	1.647E-11	0.20	NC	NC	4.694E-12	0.20	113.60	1.722E-03
ZINC_50	244.00	139.08	84.62	4.392E-11	0.52	NC	NC	1.252E-11	0.52	113.60	4.591E-03
ZINC_75	466.00	265.62	144.23	8.388E-11	1.00	NC	NC	2.391E-11	1.00	113.60	0.01
ZINC_100	6429.00	3664.53	2470.80	1.157E-09	13.74	NC	NC	3.298E-10	13.74	113.60	0.12
ORGANICS											
ALPHA CHLORDANE_25	0.02	0.07	0.44	0.01	3.954E-05	NC	NC	2.791E-03	2.830E-03	1.75	1.619E-03
ALPHA CHLORDANE_50	0.03	0.11	0.76	0.02	6.840E-05	NC	NC	4.827E-03	4.895E-03	1.75	2.801E-03
ALPHA CHLORDANE_75	0.05	0.16	1.09	0.02	9.768E-05	NC	NC	0.01	0.01	1.75	4.000E-03
ALPHA CHLORDANE_100	0.40	1.41	9.49	0.21	8.529E-04	NC	NC	0.06	0.06	1.75	0.03
4, 4-DDE_25	2.375E-04	0.01	1.148E-05	8.324E-08	5.077E-07	NC	NC	2.372E-08	5.314E-07	0.57	9.355E-07
4, 4-DDE_50	1.980E-03	0.04	9.569E-05	6.940E-07	4.232E-06	NC	NC	1.978E-07	4.430E-06	0.57	7.799E-06
4, 4-DDE_75	0.01	0.21	4.446E-04	3.225E-06	1.907E-05	NC	NC	9.190E-07	2.058E-05	0.57	3.624E-05
4, 4-DDE_100	0.18	4.15	0.01	6.414E-05	3.912E-04	NC	NC	1.828E-05	4.094E-04	0.57	7.209E-04
TOTAL PAH_25	2.93	0.35	0.32	0.01	6.263E-03	NC	NC	1.426E-03	0.01	0.38	0.02
TOTAL PAH_50	3.54	0.42	0.38	0.01	0.01	NC	NC	1.721E-03	0.01	0.38	0.02
TOTAL PAH_75	5.82	0.69	0.63	0.01	0.01	NC	NC	2.835E-03	0.02	0.38	0.04
TOTAL PAH_100	8.16	0.97	0.88	0.01	0.02	NC	NC	3.973E-03	0.02	0.38	0.06
TOTAL PCB_25	0.05	0.22	0.23	9.904E-05	1.100E-04	NC	NC	2.823E-05	1.382E-04	0.13	1.096E-03
TOTAL PCB_50	0.14	0.58	0.62	2.628E-04	2.917E-04	NC	NC	7.489E-05	3.666E-04	0.13	2.909E-03
TOTAL PCB_75	0.31	1.30	1.39	5.901E-04	6.551E-04	NC	NC	1.682E-04	8.233E-04	0.13	0.01
TOTAL PCB_100	2.21	9.34	9.99	4.251E-03	4.720E-03	NC	NC	1.212E-03	0.01	0.13	0.05

Appendix E Table E17
POTENTIAL RISKS TO THE MINK - MULTIPLE SEDIMENT CONCENTRATIONS - NO WATER CONTRIBUTION

Analyte	Site Concentrations				Potential Daily Dose (mg/kg_{bw}-day)					TRV (mg/kg_{bw}day)	HQ
	Sediment (mg/kg_{dw})	Wetland Invertebrate (mg/kg_{ww})	Fish (mg/kg_{ww})	Wetland Plant (mg/kg_{ww})	Sediment	Wetland Invertebrates	Fish	Wetland Plant	Total		
INORGANICS											
ARSENIC_25	8.92	8.03	0.00	0.05	0.02	0.26	0.00	NC	0.29	0.05	***5.31***
ARSENIC_50	17.30	15.57	0.00	0.09	0.04	0.51	0.00	NC	0.56	0.05	***10.29***
ARSENIC_75	34.55	31.10	0.00	0.19	0.09	1.03	0.00	NC	1.11	0.05	***20.55***
ARSENIC_100	185.50	166.95	0.00	1.00	0.47	5.51	0.00	NC	5.98	0.05	***110.35***
CADMIUM_25	0.50	1.70	0.00	0.03	0.00	0.06	0.00	NC	0.06	0.77	0.07
CADMIUM_50	1.35	4.59	0.00	0.07	0.00	0.15	0.00	NC	0.15	0.77	0.20
CADMIUM_75	6.60	22.42	0.00	0.36	0.02	0.74	0.00	NC	0.76	0.77	0.98
CADMIUM_100	946.00	3216.40	0.00	51.65	2.39	106.14	0.00	NC	108.53	0.77	***140.95***
CHROMIUM_25	35.28	13.76	0.00	0.04	0.09	0.45	0.00	NC	0.54	2189.60	2.48E-04
CHROMIUM_50	159.90	62.36	0.00	0.18	0.40	2.06	0.00	NC	2.46	2189.60	1.12E-03
CHROMIUM_75	340.00	132.60	0.00	0.38	0.86	4.38	0.00	NC	5.24	2189.60	2.39E-03
CHROMIUM_100	5950.00	2320.50	0.00	6.69	15.05	76.58	0.00	NC	91.63	2189.60	0.04
COPPER_25	34.60	10.38	0.00	2.08	0.09	0.34	0.00	NC	0.43	12.17	0.04
COPPER_50	110.00	33.00	0.00	6.60	0.28	1.09	0.00	NC	1.37	12.17	0.11
COPPER_75	186.41	55.92	0.00	11.18	0.47	1.85	0.00	NC	2.32	12.17	0.19
COPPER_100	860.00	258.00	0.00	51.60	2.18	8.51	0.00	NC	10.69	12.17	0.88
LEAD_25	87.98	55.42	0.00	0.59	0.22	1.83	0.00	NC	2.05	6.40	0.32
LEAD_50	174.68	110.05	0.00	1.18	0.44	3.63	0.00	NC	4.07	6.40	0.64
LEAD_75	295.00	185.85	0.00	1.99	0.75	6.13	0.00	NC	6.88	6.40	***1.07***
LEAD_100	2030.00	1278.90	0.00	13.70	5.14	42.20	0.00	NC	47.34	6.40	***7.40***
MERCURY_25	0.50	0.04	0.00	0.00	0.00	0.00	0.00	NC	0.00	0.02	0.15
MERCURY_50	2.90	0.26	0.00	0.02	0.01	0.01	0.00	NC	0.02	0.02	0.84
MERCURY_75	10.40	0.92	0.00	0.07	0.03	0.03	0.00	NC	0.06	0.02	***3.03***
MERCURY_100	152.00	13.47	0.00	0.97	0.38	0.44	0.00	NC	0.83	0.02	***44.28***
ZINC_25	91.50	52.16	0.00	0.00	0.23	1.72	0.00	NC	1.95	128.00	0.02
ZINC_50	244.00	139.08	0.00	0.00	0.62	4.59	0.00	NC	5.21	128.00	0.04
ZINC_75	466.00	265.62	0.00	0.00	1.18	8.77	0.00	NC	9.94	128.00	0.08
ZINC_100	5429.00	3664.53	0.00	0.00	16.27	120.93	0.00	NC	137.19	128.00	***1.07***
ORGANICS											
ALPHA CHLORDANE_25	0.02	0.07	0.00	0.01	4.68E-05	2.15E-03	0.00	NC	2.20E-03	1.98	1.11E-03
ALPHA CHLORDANE_50	0.03	0.11	0.00	0.02	8.10E-05	3.72E-03	0.00	NC	3.80E-03	1.98	1.92E-03
ALPHA CHLORDANE_75	0.05	0.16	0.00	0.02	1.16E-04	0.01	0.00	NC	0.01	1.98	2.75E-03
ALPHA CHLORDANE_100	0.40	1.41	0.00	0.21	1.01E-03	0.05	0.00	NC	0.05	1.98	0.02
4, 4-DDE_25	2.38E-04	0.01	0.00	8.32E-08	5.01E-07	1.78E-04	0.00	NC	1.78E-04	0.64	0.00
4, 4-DDE_50	1.98E-03	0.04	0.00	6.94E-07	5.01E-06	1.48E-03	0.00	NC	1.49E-03	0.64	0.00
4, 4-DDE_75	0.01	0.21	0.00	3.22E-06	2.33E-05	0.01	0.00	NC	0.01	0.64	0.01
4, 4-DDE_100	0.18	4.15	0.00	6.41E-05	4.63E-04	0.14	0.00	NC	0.14	0.64	0.21
TOTAL PAH_25	2.93	0.35	0.00	0.01	0.01	0.01	0.00	NC	0.02	0.43	0.04
TOTAL PAH_50	3.54	0.42	0.00	0.01	0.01	0.01	0.00	NC	0.02	0.43	0.05
TOTAL PAH_75	5.82	0.69	0.00	0.01	0.01	0.02	0.00	NC	0.04	0.43	0.09
TOTAL PAH_100	8.16	0.97	0.00	0.01	0.02	0.03	0.00	NC	0.05	0.43	0.12
TOTAL PCB_25	0.05	0.22	0.00	9.90E-05	1.30E-04	0.01	0.00	NC	0.01	0.14	0.05
TOTAL PCB_50	0.14	0.58	0.00	2.63E-04	3.45E-04	0.02	0.00	NC	0.02	0.14	0.14
TOTAL PCB_75	0.31	1.30	0.00	5.90E-04	7.75E-04	0.04	0.00	NC	0.04	0.14	0.31
TOTAL PCB_100	2.21	9.34	0.00	4.25E-03	0.01	0.31	0.00	NC	0.31	0.14	***2.20***

Appendix E Table E18
POTENTIAL RISKS TO THE HERON - MULTIPLE SEDIMENT CONCENTRATIONS - NO WATER CONTRIBUTION

Analyte	Site Concentrations					Potential Daily Dose (mg/kg_{bw}-day)					TRV (mg/kg_{bw}-day)	HQ
	Sediment (mg/kg_{dw})	Estuarine Surface Water (mg/L)	Wetland Invertebrate (mg/kg_{ww})	Fish (mg/kg_{ww})	Wetland Plant (mg/kg_{ww})	Sediment	Wetland Invertebrates	Fish	Wetland Plant	Total		
INORGANICS												
ARSENIC_25	8.92	0.00	8.03	0.00	0.05	0.02	0.07	0.00	NC	0.09	5.14	0.02
ARSENIC_50	17.30	0.00	15.57	0.00	0.09	0.04	0.14	0.00	NC	0.18	5.14	0.03
ARSENIC_75	34.55	0.00	31.10	0.00	0.19	0.07	0.28	0.00	NC	0.35	5.14	0.07
ARSENIC_100	185.50	0.00	166.95	0.00	1.00	0.39	1.50	0.00	NC	1.89	5.14	0.37
CADMIUM_25	0.50	0.00	1.70	0.00	0.03	1.06E-03	0.02	0.00	NC	0.02	1.45	0.01
CADMIUM_50	1.35	0.00	4.59	0.00	0.07	2.86E-03	0.04	0.00	NC	0.04	1.45	0.03
CADMIUM_75	6.60	0.00	22.42	0.00	0.36	0.01	0.20	0.00	NC	0.22	1.45	0.15
CADMIUM_100	946.00	0.00	3216.40	0.00	51.65	2.00	28.95	0.00	NC	30.95	1.45	***21.34***
CHROMIUM_25	35.28	0.00	13.76	0.00	0.04	0.07	0.12	0.00	NC	0.20	1.00	0.20
CHROMIUM_50	159.90	0.00	62.36	0.00	0.18	0.34	0.56	0.00	NC	0.90	1.00	0.90
CHROMIUM_75	340.00	0.00	132.60	0.00	0.36	0.72	1.19	0.00	NC	1.91	1.00	***1.91***
CHROMIUM_100	5950.00	0.00	2320.50	0.00	6.69	12.58	20.88	0.00	NC	33.47	1.00	***33.47***
COPPER_25	34.60	0.00	10.38	0.00	2.08	0.07	0.09	0.00	NC	0.17	47.00	3.54E-03
COPPER_50	110.00	0.00	33.00	0.00	6.60	0.23	0.30	0.00	NC	0.53	47.00	0.01
COPPER_75	186.41	0.00	55.92	0.00	11.18	0.39	0.50	0.00	NC	0.90	47.00	0.02
COPPER_100	860.00	0.00	258.00	0.00	51.60	1.82	2.32	0.00	NC	4.14	47.00	0.09
LEAD_25	87.98	0.00	55.42	0.00	0.59	0.19	0.50	0.00	NC	0.68	1.13	0.61
LEAD_50	174.68	0.00	110.05	0.00	1.18	0.37	0.99	0.00	NC	1.36	1.13	***1.20***
LEAD_75	295.00	0.00	185.85	0.00	1.99	0.62	1.67	0.00	NC	2.30	1.13	***2.03***
LEAD_100	2030.00	0.00	1278.90	0.00	13.70	4.29	11.51	0.00	NC	15.80	1.13	***13.99***
MERCURY_25	0.50	0.00	0.04	0.00	3.19E-03	1.06E-03	3.99E-04	0.00	NC	1.46E-03	0.01	0.23
MERCURY_50	2.90	0.00	0.26	0.00	0.02	0.01	2.31E-03	0.00	NC	0.01	0.01	***1.32***
MERCURY_75	10.40	0.00	0.92	0.00	0.07	0.02	0.01	0.00	NC	0.03	0.01	***4.73***
MERCURY_100	152.00	0.00	13.47	0.00	0.97	0.32	0.12	0.00	NC	0.44	0.01	***69.17***
ZINC_25	91.50	0.00	52.16	0.00	1.65E-11	0.19	0.47	0.00	NC	0.66	29.50	0.02
ZINC_50	244.00	0.00	139.08	0.00	4.39E-11	0.52	1.25	0.00	NC	1.77	29.50	0.06
ZINC_75	466.00	0.00	265.62	0.00	8.39E-11	0.99	2.39	0.00	NC	3.38	29.50	0.11
ZINC_100	6429.00	0.00	3664.53	0.00	1.16E-09	13.60	32.98	0.00	NC	46.58	29.50	1.58
ORGANICS												
ALPHA CHLORDANE_25	0.02	0.00	0.07	0.00	0.01	3.91E-05	5.87E-04	0.00	NC	6.26E-04	2.14	2.93E-04
ALPHA CHLORDANE_50	0.03	0.00	0.11	0.00	0.02	6.77E-05	1.02E-03	0.00	NC	1.08E-03	2.14	5.06E-04
ALPHA CHLORDANE_75	0.05	0.00	0.16	0.00	0.02	9.87E-05	1.45E-03	0.00	NC	1.55E-03	2.14	7.23E-04
ALPHA CHLORDANE_100	0.40	0.00	1.41	0.00	0.21	8.44E-04	0.01	0.00	NC	0.01	2.14	0.01
4, 4-DDE_25	2.38E-04	0.00	0.01	0.00	8.32E-08	5.02E-07	4.85E-05	0.00	NC	4.90E-05	0.01	3.50E-03
4, 4-DDE_50	1.98E-03	0.00	0.04	0.00	6.94E-07	4.19E-06	4.04E-04	0.00	NC	4.08E-04	0.01	0.03
4, 4-DDE_75	0.01	0.00	0.21	0.00	3.22E-06	1.95E-05	1.88E-03	0.00	NC	1.90E-03	0.01	0.14
4, 4-DDE_100	0.18	0.00	4.15	0.00	6.41E-05	3.87E-04	0.04	0.00	NC	0.04	0.01	***2.70***
TOTAL PAH_25	2.93	0.00	0.35	0.00	0.01	0.01	3.14E-03	0.00	NC	0.01	40.00	2.33E-04
TOTAL PAH_50	3.54	0.00	0.42	0.00	0.01	0.01	3.79E-03	0.00	NC	0.01	40.00	2.82E-04
TOTAL PAH_75	5.82	0.00	0.69	0.00	0.01	0.01	0.01	0.00	NC	0.02	40.00	4.64E-04
TOTAL PAH_100	8.16	0.00	0.97	0.00	0.01	0.02	0.01	0.00	NC	0.03	40.00	6.50E-04
TOTAL PCB_25	0.05	0.00	0.22	0.00	9.90E-05	1.09E-04	1.96E-03	0.00	NC	2.07E-03	0.41	0.01
TOTAL PCB_50	0.14	0.00	0.58	0.00	2.63E-04	2.89E-04	0.01	0.00	NC	0.01	0.41	0.01
TOTAL PCB_75	0.31	0.00	1.30	0.00	5.90E-04	6.48E-04	0.01	0.00	NC	0.01	0.41	0.03
TOTAL PCB_100	2.21	0.00	9.34	0.00	4.25E-03	4.67E-03	0.08	0.00	NC	0.09	0.41	0.22

Appendix E Table E19
POTENTIAL RISKS TO THE MALLARD - MULTIPLE SEDIMENT CONCENTRATIONS - NO WATER CONTRIBUTION

	Site Concentrations					Potential Daily Dose (mg/kg$_{bw}$-day)											
Analyte	Sediment (mg/kg$_{dw}$)	Estuarine Surface Water (mg/L)	Wetland Invertebrate (mg/kg$_{ww}$)	Fish (mg/kg$_{ww}$)	Wetland Plant (mg/kg$_{dw}$)	Surface Soil	Sediment	Estuarine Surface Water	Wetland Invertebrates	Fish	Wetland Plant	Amphibian	Small Mammal	Terrestrial Plant	Total	TRV (mg/kg$_{bw}$-day)	HQ
INORGANICS																	
ARSENIC_25	8.92	0.00	8.03	0.00	0.05	NC	0.01	NC	NC	NC	3.09E-03	NC	NC	NC	0.01	5.14	2.54E-03
ARSENIC_50	17.30	0.00	15.57	0.00	0.09	NC	0.02	NC	NC	NC	0.01	NC	NC	NC	0.03	5.14	4.62E-03
ARSENIC_75	34.55	0.00	31.10	0.00	0.19	NC	0.04	NC	NC	NC	0.01	NC	NC	NC	0.05	5.14	0.01
ARSENIC_100	186.50	0.00	166.95	0.00	1.00	NC	0.21	NC	NC	NC	0.06	NC	NC	NC	0.27	5.14	0.05
CADMIUM_25	0.50	0.00	1.70	0.00	0.03	NC	5.67E-04	NC	NC	NC	1.75E-03	NC	NC	NC	0.00	1.45	1.55E-03
CADMIUM_50	1.35	0.00	4.59	0.00	0.07	NC	1.56E-03	NC	NC	NC	4.73E-03	NC	NC	NC	0.01	1.45	4.30E-03
CADMIUM_75	6.60	0.00	22.42	0.00	0.36	NC	0.01	NC	NC	NC	0.02	NC	NC	NC	0.03	1.45	0.02
CADMIUM_100	946.00	0.00	3216.40	0.00	51.65	NC	1.05	NC	NC	NC	3.32	NC	NC	NC	4.37	1.45	**3.01**
CHROMIUM_25	35.28	0.00	13.76	0.00	0.04	NC	0.04	NC	NC	NC	2.55E-03	NC	NC	NC	0.04	1.00	0.04
CHROMIUM_50	159.90	0.00	62.36	0.00	0.18	NC	0.18	NC	NC	NC	0.01	NC	NC	NC	0.19	1.00	0.19
CHROMIUM_75	340.00	0.00	132.60	0.00	0.38	NC	0.38	NC	NC	NC	0.02	NC	NC	NC	0.40	1.00	0.40
CHROMIUM_100	5950.00	0.00	2320.50	0.00	6.69	NC	6.63	NC	NC	NC	0.43	NC	NC	NC	7.06	1.00	**7.06**
COPPER_25	34.60	0.00	10.38	0.00	2.08	NC	0.04	NC	NC	NC	0.13	NC	NC	NC	0.17	47.00	3.66E-03
COPPER_50	110.50	0.00	33.00	0.00	5.60	NC	0.12	NC	NC	NC	0.42	NC	NC	NC	0.55	47.00	0.01
COPPER_75	185.41	0.00	55.92	0.00	11.18	NC	0.21	NC	NC	NC	0.72	NC	NC	NC	0.93	47.00	0.02
COPPER_100	860.00	0.00	258.00	0.00	51.60	NC	0.96	NC	NC	NC	3.31	NC	NC	NC	4.27	47.00	0.09
LEAD_25	57.98	0.00	55.42	0.00	0.50	NC	0.10	NC	NC	NC	0.04	NC	NC	NC	0.14	1.13	0.12
LEAD_50	174.65	0.00	110.05	0.00	1.18	NC	0.19	NC	NC	NC	0.08	NC	NC	NC	0.27	1.13	0.24
LEAD_75	295.00	0.00	185.85	0.00	1.99	NC	0.33	NC	NC	NC	0.13	NC	NC	NC	0.46	1.13	0.40
LEAD_100	2030.00	0.00	1278.90	0.00	13.70	NC	2.26	NC	NC	NC	0.88	NC	NC	NC	3.14	1.13	**2.78**
MERCURY_25	0.50	0.00	0.04	0.00	3.19E-03	NC	5.57E-04	NC	NC	NC	2.05E-04	NC	NC	NC	7.62E-04	6.01	0.12
MERCURY_50	2.90	0.00	0.26	0.00	0.02	NC	0.00	NC	NC	NC	1.19E-03	NC	NC	NC	4.42E-03	6.01	0.69
MERCURY_75	10.40	0.00	0.92	0.00	0.07	NC	0.01	NC	NC	NC	4.26E-03	NC	NC	NC	0.02	6.01	**2.48**
MERCURY_100	152.00	0.00	13.47	0.00	0.97	NC	0.17	NC	NC	NC	0.06	NC	NC	NC	0.23	6.01	**36.18**
ZINC_25	91.50	0.00	52.16	0.00	1.65E-11	NC	0.10	NC	NC	NC	1.06E-12	NC	NC	NC	0.10	29.50	3.46E-03
ZINC_50	244.00	0.00	139.08	0.00	4.39E-11	NC	0.27	NC	NC	NC	2.82E-12	NC	NC	NC	0.27	29.50	0.01
ZINC_75	466.00	0.00	265.62	0.00	8.39E-11	NC	0.52	NC	NC	NC	5.39E-12	NC	NC	NC	0.52	29.50	0.02
ZINC_100	6429.00	0.00	3664.53	0.00	1.16E-09	NC	7.16	NC	NC	NC	7.43E-11	NC	NC	NC	7.16	29.50	0.24
ORGANICS																	
ALPHA CHLORDANE_25	0.02	0.00	0.07	0.00	0.01	NC	2.96E-05	NC	NC	NC	5.29E-04	NC	NC	NC	5.49E-04	2.14	3.03E-04
ALPHA CHLORDANE_50	0.03	0.00	0.11	0.00	0.02	NC	3.56E-05	NC	NC	NC	1.09E-03	NC	NC	NC	1.12E-03	2.14	5.25E-04
ALPHA CHLORDANE_75	0.05	0.00	0.16	0.00	0.02	NC	5.09E-05	NC	NC	NC	1.55E-03	NC	NC	NC	1.60E-03	2.14	7.50E-04
ALPHA CHLORDANE_100	0.40	0.00	1.41	0.00	0.21	NC	4.44E-04	NC	NC	NC	0.01	NC	NC	NC	1.40E-02	2.14	0.01
4, 4-DDE_25	2.38E-04	0.00	0.01	0.00	0.00	NC	2.85E-07	NC	NC	NC	5.35E-09	NC	NC	NC	2.70E-07	0.01	1.93E-05
4, 4-DDE_50	1.98E-03	0.00	0.04	0.00	0.00	NC	2.21E-06	NC	NC	NC	4.46E-08	NC	NC	NC	2.25E-06	0.01	1.61E-04
4, 4-DDE_75	0.01	0.00	0.21	0.00	0.00	NC	1.02E-05	NC	NC	NC	2.07E-07	NC	NC	NC	1.05E-05	0.01	7.47E-04
4, 4-DDE_100	0.18	0.00	4.15	0.00	0.00	NC	2.04E-04	NC	NC	NC	4.12E-06	NC	NC	NC	2.08E-04	0.01	0.01
TOTAL PAH_25	2.93	0.00	0.35	0.00	0.01	NC	3.26E-03	NC	NC	NC	3.21E-04	NC	NC	NC	3.59E-03	40.00	8.96E-05
TOTAL PAH_50	3.54	0.00	0.42	0.00	0.01	NC	3.94E-03	NC	NC	NC	3.88E-04	NC	NC	NC	4.33E-03	40.00	1.08E-04
TOTAL PAH_75	5.82	0.00	0.69	0.00	0.01	NC	0.01	NC	NC	NC	6.39E-04	NC	NC	NC	0.01	40.00	1.78E-04
TOTAL PAH_100	8.16	0.00	0.97	0.00	0.01	NC	0.01	NC	NC	NC	8.96E-04	NC	NC	NC	0.01	40.00	2.50E-04
TOTAL PCB_25	0.05	0.00	0.22	0.00	0.00	NC	5.73E-05	NC	NC	NC	6.36E-06	NC	NC	NC	0.00	0.41	1.56E-04
TOTAL PCB_50	0.19	0.00	0.58	0.00	0.00	NC	1.52E-04	NC	NC	NC	1.69E-05	NC	NC	NC	1.69E-04	0.41	4.12E-04
TOTAL PCB_75	0.31	0.00	1.30	0.00	0.00	NC	3.41E-04	NC	NC	NC	3.79E-05	NC	NC	NC	3.79E-04	0.41	9.25E-04
TOTAL PCB_100	2.21	0.00	9.34	0.00	0.00	NC	2.46E-03	NC	NC	NC	2.73E-04	NC	NC	NC	2.73E-03	0.41	0.01

Appendix E Table E20
POTENTIAL RISKS TO THE MUSKRAT - MULTIPLE SEDIMENT CONCENTRATIONS - NO WATER CONTRIBUTION

	Site Concentrations					Potential Daily Dose (mg/kg_{bw}-day)						
Analyte	Sediment (mg/kg_{dw})	Surface Water (mg/L)	Wetland Invertebrate (mg/kg_{ww})	Fish (mg/kg_{ww})	Wetland Plant (mg/kg_{ww})	Sediment	Wetland Invertebrates	Fish	Wetland Plant	Total	TRV (mg/kg_{bw}day)	HQ
INORGANICS												
ARSENIC_25	8.92	0.00	8.03	0.00	0.05	0.02	NC	NC	0.01	0.03	0.05	0.68
ARSENIC_50	17.30	0.00	15.57	0.00	0.09	0.04	NC	NC	0.03	0.06	0.05	***1.33***
ARSENIC_75	34.55	0.00	31.10	0.00	0.19	0.07	NC	NC	0.05	0.13	0.05	***2.65***
ARSENIC_100	185.50	0.00	166.95	0.00	1.00	0.40	NC	NC	0.29	0.68	0.05	***14.24***
CADMIUM_25	0.50	0.00	1.70	0.00	0.03	1.07E-03	NC	NC	0.01	0.01	0.68	0.01
CADMIUM_50	1.35	0.00	4.59	0.00	0.07	2.89E-03	NC	NC	0.02	0.02	0.68	0.04
CADMIUM_75	6.60	0.00	22.42	0.00	0.36	0.01	NC	NC	0.10	0.12	0.68	0.17
CADMIUM_100	946.00	0.00	3216.40	0.00	51.65	2.02	NC	NC	14.72	16.74	0.68	***24.62***
CHROMIUM_25	35.28	0.00	13.76	0.00	0.04	0.08	NC	NC	0.01	0.09	1943.27	4.46E-05
CHROMIUM_50	159.90	0.00	62.36	0.00	0.18	0.34	NC	NC	0.05	0.39	1943.27	2.02E-04
CHROMIUM_75	340.00	0.00	132.60	0.00	0.38	0.73	NC	NC	0.11	0.84	1943.27	4.30E-04
CHROMIUM_100	5950.00	0.00	2320.50	0.00	6.69	12.72	NC	NC	1.91	14.63	1943.27	0.01
COPPER_25	34.60	0.00	10.38	0.00	2.08	0.07	NC	NC	0.59	0.67	10.76	0.06
COPPER_50	110.00	0.00	33.00	0.00	6.60	0.24	NC	NC	1.88	2.12	10.76	0.20
COPPER_75	186.41	0.00	55.92	0.00	11.18	0.40	NC	NC	3.19	3.59	10.76	0.33
COPPER_100	860.00	0.00	258.00	0.00	51.60	1.84	NC	NC	14.71	16.54	10.76	***1.54***
LEAD_25	87.98	0.00	55.42	0.00	0.59	0.19	NC	NC	0.17	0.36	5.68	0.06
LEAD_50	174.68	0.00	110.05	0.00	1.18	0.37	NC	NC	0.34	0.71	5.68	0.12
LEAD_75	295.00	0.00	185.85	0.00	1.99	0.63	NC	NC	0.57	1.20	5.68	0.21
LEAD_100	2030.00	0.00	1278.90	0.00	13.70	4.34	NC	NC	3.91	8.24	5.68	***1.45***
MERCURY_25	0.50	0.00	0.04	0.00	3.19E-03	1.07E-03	NC	NC	9.08E-04	1.98E-03	0.02	0.12
MERCURY_50	2.90	0.00	0.26	0.00	0.02	0.01	NC	NC	0.01	0.01	0.02	0.69
MERCURY_75	10.40	0.00	0.92	0.00	0.07	0.02	NC	NC	0.02	0.04	0.02	***2.48***
MERCURY_100	152.00	0.00	13.47	0.00	0.97	0.32	NC	NC	0.28	0.60	0.02	***36.29***
ZINC_25	91.50	0.00	52.16	0.00	1.65E-11	0.20	NC	NC	4.69E-12	0.20	113.60	1.72E-03
ZINC_50	244.00	0.00	139.08	0.00	4.39E-11	0.52	NC	NC	1.25E-11	0.52	113.60	4.59E-03
ZINC_75	466.00	0.00	265.62	0.00	8.39E-11	1.00	NC	NC	2.39E-11	1.00	113.60	0.01
ZINC_100	6429.00	0.00	3664.53	0.00	1.16E-09	13.74	NC	NC	3.30E-10	13.74	113.60	0.12
		#N/A										
ORGANICS		0.00										
ALPHA CHLORDANE_25	0.02	0.00	0.07	0.00	0.01	3.95E-05	NC	NC	2.79E-03	2.83E-03	1.75	1.62E-03
ALPHA CHLORDANE_50	0.03	0.00	0.11	0.00	0.02	6.84E-05	NC	NC	4.83E-03	4.90E-03	1.75	2.80E-03
ALPHA CHLORDANE_75	0.05	0.00	0.16	0.00	0.02	9.77E-05	NC	NC	0.01	0.01	1.75	4.00E-03
ALPHA CHLORDANE_100	0.40	0.00	1.41	0.00	0.21	8.53E-04	NC	NC	0.06	0.06	1.75	0.03
4, 4-DDE_25	2.38E-04	0.00	0.01	0.00	8.32E-08	5.08E-07	NC	NC	2.37E-08	5.31E-07	0.57	9.36E-07
4, 4-DDE_50	1.98E-03	0.00	0.04	0.00	6.94E-07	4.23E-06	NC	NC	1.98E-07	4.43E-06	0.57	7.80E-06
4, 4-DDE_75	0.01	0.00	0.21	0.00	3.22E-06	1.97E-05	NC	NC	9.19E-07	2.06E-05	0.57	3.62E-05
4, 4-DDE_100	0.18	0.00	4.15	0.00	6.41E-05	3.91E-04	NC	NC	1.83E-05	4.09E-04	0.57	7.21E-04
TOTAL PAH_25	2.93	0.00	0.35	0.00	0.01	0.01	NC	NC	1.43E-03	0.01	0.38	0.02
TOTAL PAH_50	3.54	0.00	0.42	0.00	0.01	0.01	NC	NC	1.72E-03	0.01	0.38	0.02
TOTAL PAH_75	5.82	0.00	0.69	0.00	0.01	0.01	NC	NC	2.83E-03	0.02	0.38	0.04
TOTAL PAH_100	8.16	0.00	0.97	0.00	0.01	0.02	NC	NC	3.97E-03	0.02	0.38	0.06
TOTAL PCB_25	0.05	0.00	0.22	0.00	9.90E-05	1.10E-04	NC	NC	2.82E-05	1.38E-04	0.13	1.10E-03
TOTAL PCB_50	0.14	0.00	0.58	0.00	2.63E-04	2.92E-04	NC	NC	7.49E-05	3.67E-04	0.13	2.91E-03
TOTAL PCB_75	0.31	0.00	1.30	0.00	5.90E-04	6.55E-04	NC	NC	1.68E-04	8.23E-04	0.13	0.01
TOTAL PCB_100	2.21	0.00	9.34	0.00	4.25E-03	4.72E-03	NC	NC	1.21E-03	0.01	0.13	0.05

Appendix E
Historic Meadowlands Wetland Study Data

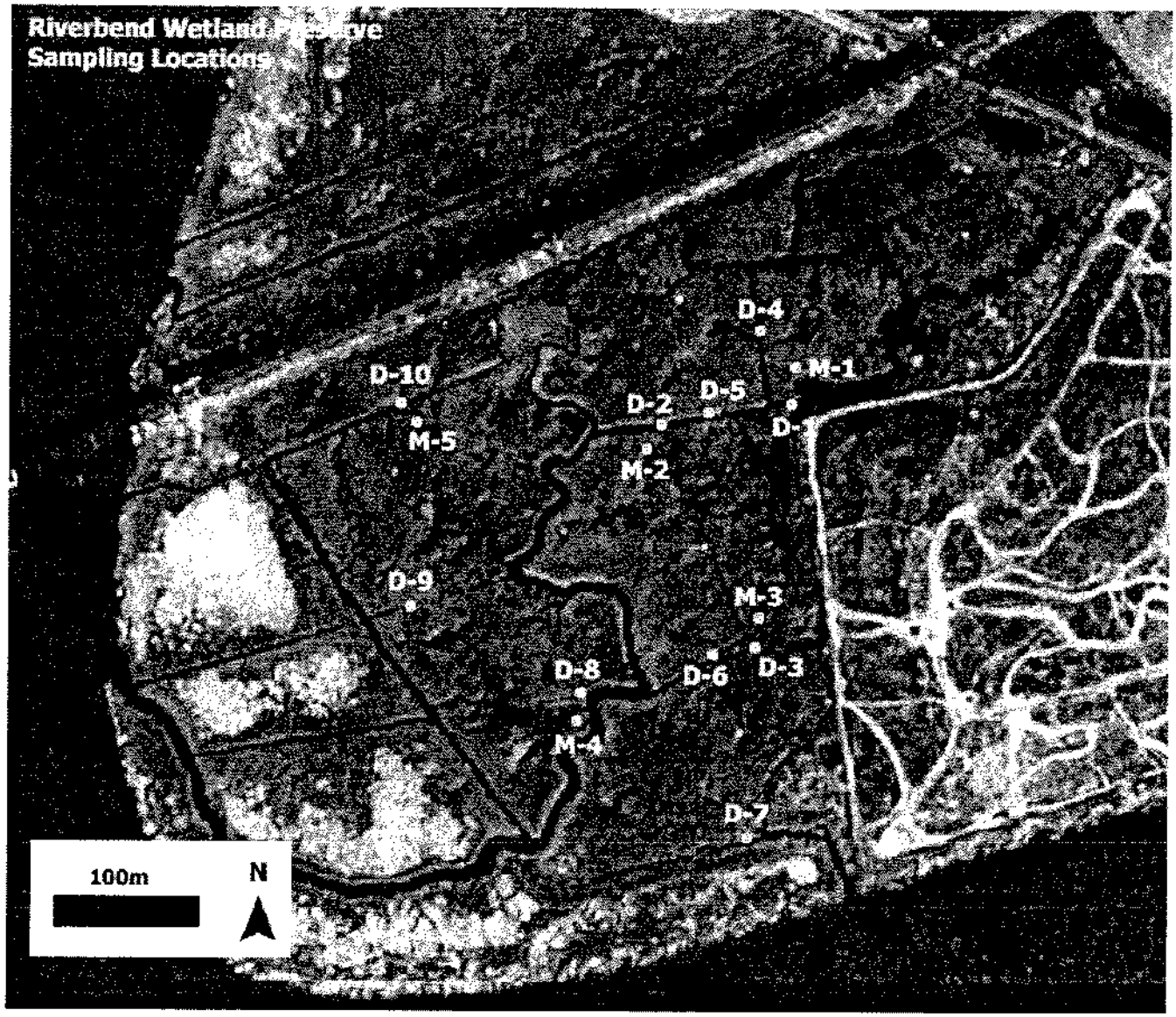
Riverbend Wetland Preserve
Sampling Locations
D-4
M-1
D-10
D-5
D-2
D-1
M-5
M-2
D-9
M-3
D-8
D-6
D-3
M-4
D-7
100m
N

Table 2
Sediment Detections and Comparison to Ecological-Based Standards

Field Sample ID:		November 1998		D-1	D-1	D-1	D-1	D-1 Comp	D-2	D-2	D-2	D-2	D-2 Comp	D-3	D-3	D-3	D-3 Comp
Depths (in):		NJDEP		0 - 6	6 - 12	12 - 18	18 - 24	0 - 24	0 - 6	6 - 12	12 - 18	18 - 24	0 - 24	0 - 6	6 - 12	12 - 18	0 - 18
Lab Sample ID:		Sed. Guidelines		AB32547	AB32548	AB32549	AB32550	AB32589	AB32552	AB32553	AB32551	AB32554	AB32590	AB32555	AB32556	AB32557	AB32592
Date Sampled:		ERL	ERM	4/27/01	4/27/01	4/27/01	4/27/01	4/28/01	4/27/01	4/27/01	4/27/01	4/27/01	4/28/01	4/27/01	4/27/01	4/27/01	4/28/01
		mg/kg	mg/kg														
VOCs																	
Acetone	mg/kg				0.08					0.076					0.079		
Carbon disulfide	mg/kg				0.012 U					0.012 U					0.0028 J		
Methylene chloride	mg/kg				0.03 B					0.027 B					0.02 B		
SVOCs																	
1,2,4-Trichlorobenzene (1)	mg/kg		9.2	0.79 U	0.78 U	0.85 U	0.67 U	1.6 U	0.79 U	0.78 U	0.69 U	0.93 U	0.79 U	1.4 U	0.88 U	0.9 U	1.6 U
1,4-Dichlorobenzene (1)	mg/kg		0.35	0.79 U	0.78 U	0.85 U	0.67 U	1.6 U	0.79 U	0.78 U	0.69 U	0.93 U	0.79 U	1.4 U	0.88 U	0.9 U	1.6 U
2-Pentanone, 4-hydroxy-4-methyl-	mg/kg			50 J	51 J	57 J	49 J	120 J	52 J	68 J	51 J	56 J	42 J	94 J	58 J	44 J	77 J
Acenaphthene	mg/kg	0.016	0.5	0.79 U	0.78 U	0.85 U	0.67 U	1.6 U	0.79 U	0.78 U	0.69 U	0.93 U	0.79 U	1.4 U	0.88 U	0.9 U	1.6 U
Acenaphthylene	mg/kg	0.044	0.64	0.79 U	0.78 U	0.85 U	0.67 U	1.6 U	0.79 U	0.78 U	0.69 U	0.12 J	0.09 J	1.4 U	0.88 U	0.9 U	1.6 U
Anthracene	mg/kg	0.085	1.1	0.79 U	0.78 U	0.85 U	0.069 J	1.6 U	0.79 U	0.78 U	0.69 U	0.17 J	0.18 J	1.4 U	0.88 U	0.9 U	1.6 U
Benzo[a]anthracene	mg/kg	0.261	1.6	0.12 J	0.78 U	0.15 J	0.25 J	0.28 J	0.22 J	0.16 J	0.69 U	0.59 J	0.51 J	1.4 U	0.88 U	0.9 U	1.6 U
Benzo[a]pyrene	mg/kg	0.43	1.6	0.1 J	0.78 U	0.2 J	0.28 J	0.37 J	0.22 J	0.15 J	0.69 U	0.7 J	0.55 J	1.4 U	0.88 U	0.9 U	1.6 U
Benzo[b]fluoranthene	mg/kg			0.12 J	0.082 J	0.22 J	0.33 J	0.47 J	0.33 J	0.2 J	0.69 U	1	0.73 J	1.4 U	0.88 U	0.9 U	1.6 U
Benzo[g,h,i]perylene	mg/kg	0.17		0.79 U	0.78 U	0.13 J	0.17 J	0.32 J	0.79 U	0.1 J	0.69 U	0.16 J	0.24 J	1.4 U	0.88 U	0.9 U	1.6 U
Benzo[k]fluoranthene	mg/kg	0.24		0.79 U	0.78 U	0.1 J	0.093 J	1.6 U	0.14 J	0.78 U	0.69 U	0.38 J	0.33 J	1.4 U	0.88 U	0.9 U	1.6 U
Bis(2-Ethylhexyl)phthalate	mg/kg			0.41 J	0.62 J	0.79 J	8.4	1.1 J	1.3 B	3	0.79	7.2 B	1.5 B	0.28 J	0.15 J	0.22 J	0.55 JB
Chrysene	mg/kg	0.384	2.8	0.097 J	0.78 U	0.15 J	0.24 J	0.23 J	0.19 J	0.14 J	0.69 U	0.45 J	0.51 J	1.4 U	0.88 U	0.9 U	1.6 U
Dibenzo[a,h]anthracene	mg/kg	0.063	0.26	0.79 U	0.78 U	0.85 U	0.67 U	1.6 U	0.79 U	0.78 U	0.69 U	0.93 U	0.086 J	1.4 U	0.88 U	0.9 U	1.6 U
Di-n-butylphthalate (1)	mg/kg		11	0.79 U	0.13 J	0.85 U	0.67 U	1.6 U	0.79 U	0.78 U	0.074 J	0.93 U	0.082 J	1.4 U	0.88 U	0.9 U	0.17 J
Di-n-octylphthalate	mg/kg			0.79 U	0.78 U	0.85 U	0.67 U	1.6 U	0.79 U	0.78 U	0.69 U	0.93 U	0.085 J	1.4 U	0.88 U	0.9 U	1.6 U
Fluoranthene	mg/kg	0.6	5.1	0.12 J	0.12 J	0.23 J	0.45 J	0.22 J	0.28 J	0.26 J	0.074 J	0.88 J	0.72 J	1.4 U	0.88 U	0.9 U	1.6 U
Fluorene	mg/kg	0.019	0.54	0.79 U	0.78 U	0.85 U	0.67 U	1.6 U	0.79 U	0.78 U	0.69 U	0.93 U	0.79 U	1.4 U	0.88 U	0.9 U	1.6 U
Indeno[1,2,3-cd]pyrene	mg/kg	0.2		0.79 U	0.78 U	0.12 J	0.16 J	1.6 U	0.79 U	0.083 J	0.69 U	0.17 J	0.25 J	1.4 U	0.88 U	0.9 U	1.6 U
Naphthalene	mg/kg	0.16	2.1	0.79 U	0.78 U	0.85 U	0.67 U	1.6 U	0.79 U	0.78 U	0.69 U	0.93 U	0.79 U	1.4 U	0.88 U	0.9 U	1.6 U
Phenanthrene	mg/kg	0.24	1.5	0.79 U	0.78 U	0.85 U	0.67 U	1.6 U	0.09 J	0.78 U	0.69 U	0.2 J	0.19 J	1.4 U	0.88 U	0.9 U	1.6 U
Phenol	mg/kg			3 U	2.9 U	3.2 U	2.5 U	8.7	3 U	2.9 U	3.1	4.1	3 U	5.5	3.5	10	5.9 U
Pyrene	mg/kg	0.665	2.6	0.15 J	0.15 J	0.25 J	0.67	0.35 J	0.35 J	0.35 J	0.1 J	1	0.83	1.4 U	0.88 U	0.9 U	1.6 U
Total PAHs[2]	mg/kg	4	45	5.4	8.2	5.4	5.4	11.0	5.8	5.3	5.7	8.6	7.2	12.6	7.7	8.1	14.4
Pesticides/PCBs																	
P,P'-DDD	mg/kg			0.0079 U	0.0078 U	0.0085 U	0.015	0.016 U	0.0079 U	0.0078 U	0.0071	0.0093 U	0.0079 U	0.014 U	0.0088 U	0.009 U	0.016 U
P,P'-DDE	mg/kg	0.0022	0.027	0.0079 U	0.0078 U	0.0085 U	0.02	0.016 U	0.0079 U	0.0078 U	0.0069 U	0.0093 U	0.0097	0.014 U	0.0088 U	0.009 U	0.016 U
P,P'-DDT	mg/kg	0.0016	0.046	0.009	0.0087	0.0085 U	0.02	0.016 U	0.0079 U	0.0098	0.0069 U	0.0093 U	0.017	0.014 U	0.0088 U	0.009 U	0.016 U
Aroclor-1248	mg/kg	0.03	0.184	0.16	0.19	0.043 U	0.5	0.079 U	0.081	0.12	0.11	0.046 U	0.04 U	0.069 U	0.044 U	0.045 U	0.079 U
Aroclor-1260	mg/kg	0.005	0.184	0.088	0.12	0.043 U	0.26	0.079 U	0.054	0.074	0.072	0.046 U	0.04 U	0.069 U	0.044 U	0.045 U	0.079 U
Metals/Cyanide																	
Antimony	mg/kg			4.8 U	6.3	5.1 U	12	9.5 U	5.1	6.1	6.4	5.6 U	7.1	8.3 U	5.3 U	5.4 U	9.5 U
Arsenic	mg/kg	8.2	70	8.3	13	5.1 U	14	46	9.1	11	12	5.6 U	19	8.3 U	5.3 U	5.4 U	80
Barium	mg/kg			55	75	26 U	130	89	70	84	79	28 U	100	42 U	27	27 U	48 U
Cadmium	mg/kg	1.2	9.6	1.4 U	1.4 U	1.5 U	5.4	3.1	1.4 U	1.4 U	1.2 U	1.7 U	1.9	2.5 U	1.6 U	1.6 U	3.3
Chromium	mg/kg	81	370	120	180	18	380	150	160	190	200	24	220	21	19	18	51
Copper	mg/kg	34	270	68	100	13 U	230	98	95	120	120	14 U	140	21 U	13 U	14 U	42
Lead	mg/kg	47	218	86	130	13 U	280	120	120	140	150	14	170	21 U	13 U	14 U	41
Mercury	mg/kg	0.15	0.71	1.6	2.5	0.36 U	5	2.8	2.3	2.5	2.9	0.38 U	1.3	0.59 U	0.37 U	0.38 U	0.68 U
Nickel	mg/kg	21	52	21	31	13 U	62	73	33	35	36	14 U	42	21 U	14	14	99
Selenium	mg/kg			4.8 U	4.7 U	5.1 U	4 U	9.5 U	4.8 U	4.7 U	4.2 U	5.6 U	5	8.3 U	5.3 U	5.4 U	9.5 U
Zinc	mg/kg	150	410	140	210	27	540	780	200	230	220	35	270	42 U	36	36	490
Others																	
% Solids	Percent			42	43	39	50	21	42	43	48	36	42	24	38	37	21
Particle Size				Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]
Petroleum Hydrocarbons (Total)	mg/kg			81 U	79 U	130	320	160 U	81 U	79 U	71 U	94 U	81 U	140 U	89 U	92 U	160
pH	Units			7.2	7.2	7.3	7.2	5.6	7.1	7.1	7	7	5	7.1	7.3	7.3	8
Redox Potential (field)	mV			-240	-300	-305	-307		-266	-300	-300	-303		-268	-293	-310	
Temperature (field)	°C			13.0	13.0	13.0	13.0		13.1	13.0	13.0	13.0		13.2	12.7	12.5	
Total Organic Carbon	mg/kg			40000	51000	100000	73000	200000	55000	69000	58000	83000	56000	110000	73000	84000	190000

Table 2
Sediment Detections and Comparison to Ecological-Based Standards

Field Sample ID:		November 1998		D-4	D-5	D-6	D-7	D-8	D-9	D-9 FD	D-10	M-1	M-2	M-2 FD	M-3	M-4	M-5
Depths (in):		NJDEP		0 - 6	0 - 6	0 - 6	0 - 6	0 - 6	0 - 6	0 - 6	0 - 6	0 - 6	0 - 6	0 - 6	0 - 6	0 - 6	0 - 6
Lab Sample ID:		Sed. Guidelines		AB32563	AB32558	AB32559	AB32560	AB32561	AB32593	AB32595	AB32562	AB32586	AB32583	AB32584	AB32588	AB32587	AB32585
Date Sampled:		ERL	ERM	4/26/01	4/26/01	4/26/01	4/26/01	4/26/01	4/28/01	4/28/01	4/26/01	4/28/01	4/28/01	4/28/01	4/28/01	4/28/01	4/28/01
		mg/kg	mg/kg														
VOCs																	
Acetone	mg/kg																
Carbon disulfide	mg/kg																
Methylene chloride	mg/kg																
SVOCs																	
1,2,4-Trichlorobenzene	mg/kg		9.2[1]	1 U	0.79 U	1.2 U	1.4 U	0.097 J	2.4 U	1.4 U	1 U	0.98 U	0.98 U	0.85 U	0.85 U	0.79 U	0.72 U
1,4-Dichlorobenzene	mg/kg		0.35[1]	1 U	0.79 U	1.2 U	1.4 U	0.09 J	2.4 U	1.4 U	1 U	0.98 U	0.98 U	0.85 U	0.85 U	0.79 U	0.72 U
2-Pentanone, 4-hydroxy-4-methyl-	mg/kg			31 J	20 J	97 J	46 J	28 J	98 J	54 J	32 J	78 J	35 J	38 J	40 J	68 J	45 J
Acenaphthene	mg/kg	0.016	0.5	1 U	0.79 U	1.2 U	1.4 U	0.12 J	2.4 U	1.4 U	1 U	0.98 U	0.98 U	0.85 U	0.85 U	0.79 U	0.72 U
Acenaphthylene	mg/kg	0.044	0.64	1 U	0.098 J	1.2 U	1.4 U	0.25 J	2.4 U	0.2 J	1 U	0.98 U	0.98 U	0.85 U	0.093 J	0.13 J	0.091 J
Anthracene	mg/kg	0.085	1.1	1 U	0.79 U	1.2 U	1.4 U	0.45 J	2.4 U	0.23 J	1 U	0.98 U	0.98 U	0.85 U	0.14 J	0.17 J	0.14 J
Benzo[a]anthracene	mg/kg	0.261	1.6	0.76 U	0.6 U	0.69 U	1.1 U	0.66 U	1.8 U	1.1 U	0.78 U	0.26 J	0.22 J	0.27 J	0.47 J	0.6 J	0.41 J
Benzo[a]pyrene	mg/kg	0.43	1.6	0.13 J	0.37 J	1.2 U	1.4 U	1.4	2.4 U	1 J	1 U	0.32 J	0.25 J	0.31 J	0.48 J	0.63 J	0.49 J
Benzo[b]fluoranthene	mg/kg			0.18 J	0.4 J	1.2 U	1.4 U	1.7	2.4 U	1.2 J	1 U	0.44 J	0.39 J	0.48 J	0.78 J	1	0.7 J
Benzo[g,h,i]perylene	mg/kg	0.17		1 U	0.17 J	1.2 U	1.4 U	0.47 J	2.4 U	0.48 J	1 U	0.11 J	0.23 J	0.098 J	0.14 J	0.18 J	0.16 J
Benzo[k]fluoranthene	mg/kg	0.24		1 U	0.19 J	1.2 U	1.4 U	0.79 J	2.4 U	0.5 J	1 U	0.17 J	0.15 J	0.23 J	0.28 J	0.31 J	0.32 J
Bis(2-Ethylhexyl)phthalate	mg/kg			0.39 JB	0.53 JB	0.56 J	0.56 JB	2.6 B	0.81 JB	1.6 B	0.33 JB	0.97 JB	1.5	1.1 B	1.5 B	1.7 B	1.2 B
Chrysene	mg/kg	0.384	2.8	0.13 J	0.38 J	1.2 U	1.4 U	1.5	2.4 U	0.81 J	1 U	0.24 J	0.29 J	0.28 J	0.42 J	0.57 J	0.45 J
Dibenzo[a,h]anthracene	mg/kg	0.063	0.26	1 U	0.081 J	1.2 U	1.4 U	0.18 J	2.4 U	0.19 J	1 U	0.98 U	0.98 U	0.85 U	0.85 U	0.79 U	0.72 U
Di-n-butylphthalate	mg/kg		11[1]	0.18 JB	0.79 U	1.2 U	0.26 JB	0.18 JB	2.4 U	0.21 J	0.12 JB	0.98 U	0.12 J	0.85 U	0.85 U	0.11 J	0.088 J
Di-n-octylphthalate	mg/kg			1 U	0.79 U	1.2 U	1.4 U	0.88 U	2.4 U	1.4 U	1 U	0.98 U	0.98 U	0.13 J	0.85 U	0.13 J	0.72 U
Fluoranthene	mg/kg	0.6	5.1	0.15 J	0.35 J	1.2 U	1.4 U	1.9	2.4 U	1 J	1 U	0.31 J	0.25 J	0.34 J	0.52 J	0.74 J	0.55 J
Fluorene	mg/kg	0.019	0.54	1 U	0.79 U	1.2 U	1.4 U	0.097 J	2.4 U	1.4 U	1 U	0.98 U	0.98 U	0.85 U	0.85 U	0.79 U	0.72 U
Indeno[1,2,3-cd]pyrene	mg/kg	0.2		1 U	0.16 J	1.2 U	1.4 U	0.51 J	2.4 U	0.46 J	1 U	0.12 J	0.22 J	0.09 J	0.17 J	0.17 J	0.2 J
Naphthalene	mg/kg	0.16	2.1	1 U	0.79 U	1.2 U	1.4 U	0.12 J	2.4 U	1.4 U	1 U	0.98 U	0.98 U	0.85 U	0.85 U	0.79 U	0.073 J
Phenanthrene	mg/kg	0.24	1.5	1 U	0.11 J	1.2 U	1.4 U	0.48 J	2.4 U	0.29 J	1 U	0.14 J	0.12 J	0.14 J	0.18 J	0.25 J	0.21 J
Phenol	mg/kg			3.8 U	4.8	6.6	8	5.7	8.9 U	5.4 U	4.7	3.9	3.7 U	3.2 U	3.2 U	3 U	3.6
Pyrene	mg/kg	0.665	2.6	0.16 J	0.41 J	1.2 U	1.4 U	2.1	2.4 U	1 J	1 U	0.36 J	0.31 J	0.43 J	0.59 J	0.7 J	0.55 J
Total PAHs[2]	mg/kg	4.0	45.0	7.1	5.4	10.6	12.5	13.3	21.3	11.4	8.9	6.4	6.4	6.1	6.8	7.8	6.1
Pesticides/PCBs																	
P,P'-DDD	mg/kg			0.01 U	0.0079 U	0.012 U	0.014 U	0.011	0.024 U	0.049	0.01 U	0.0098 U	0.0098 U	0.0085 U	0.0085 U	0.0079 U	0.0072 U
P,P'-DDE	mg/kg	0.0022	0.027	0.01 U	0.0079 U	0.012 U	0.014 U	0.0088 U	0.024 U	0.034	0.01 U	0.013	0.0098 U	0.0085 U	0.012	0.0079 U	0.0072 U
P,P'-DDT	mg/kg	0.0016	0.046	0.01 U	0.0079 U	0.012 U	0.014 U	0.011	0.024 U	0.027	0.01 U	0.04	0.013	0.023	0.011	0.013	0.011
Aroclor-1248	mg/kg	0.03	0.18[4]	0.051 U	0.04 U	0.06 U	0.072 U	0.044 U	0.12 U	0.43	0.052 U	0.17	0.075	0.087	0.1	0.096	0.09
Aroclor-1260	mg/kg	0.005	0.18[4]	0.051 U	0.04 U	0.06 U	0.072 U	0.044 U	0.12 U	0.072 U	0.052 U	0.2	0.049 U	0.06	0.082	0.094	0.085
Metals/Cyanide																	
Antimony	mg/kg			6.1 U	5.9	7.1 U	8.7 U	7.1	14 U	12	6.2 U	15	7	7.4	6.1	5.2	6
Arsenic	mg/kg	8.2	70	7	13	7.1 U	8.7 U	11	28	57	84	18	9.6	12	14	12	14
Barium	mg/kg			54	68	36 U	43 U	95	71 U	81	31 U	150	75	80	110	90	99
Cadmium	mg/kg	1.2	9.6	1.8 U	1.4 U	2.1 U	2.6 U	1.6 U	4.3 U	3	1.9 U	1.8 U	1.8 U	1.5 U	1.5 U	1.4 U	1.3 U
Chromium	mg/kg	81	370	74	160	18 U	87	210	38	370	69	470	190	200	190	160	190
Copper	mg/kg	34	270	28	79	18 U	23	120	36 U	220	100	170	100	120	130	110	120
Lead	mg/kg	47	218	200	130	18 U	22 U	150	36 U	240	90	290	150	160	160	140	160
Mercury	mg/kg	0.15	0.71	1	1.2	0.51 U	4	4	1 U	0.62 U	0.47	4.6	2.7	2.7	0.95	1.7	1.6
Nickel	mg/kg	21	52	15 U	28	18 U	22 U	34	40	67	55	100	35	44	42	30	37
Selenium	mg/kg			6.1 U	4.8 U	7.1 U	8.7 U	5.3 U	14 U	8.7 U	6.2 U	6.8	5.9 U	5.1 U	5.1 U	4.8 U	4.5
Zinc	mg/kg	150	410	89	180	36 U	52	260	200	390	280	360	140	210	270	180	210
Others																	
% Solids	Percent			33	42	28	23	38	14	23	32	34	34	39	38	42	46
Particle Size				Appendix C[3]	Appendix C[3]	Attached[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]	Appendix C[3]
Petroleum Hydrocarbons (Total)	mg/kg			100 U	81 U	120 U	150 U	89	240 U	150 U	110 U	100 U	100 U	87 U	87 U	81 U	74 U
pH	Units			7.2	7.5	7	7	7.4	7.8	7.2	7	5.8	4.5	4.5	4.6	4.7	5.3
Redox Potential (field)	mV			-299	-300	0.56	-360	-372	-263	-263	-360	130	46	46	-166	-022	0
Temperature (field)	°C			13	13	12.9	13.1	14	12.5	12.5	12.2	13	13.7	13.7	13.3	13.5	12.1
Total Organic Carbon	mg/kg			100000	86000	110000	74000	38000	160000	96000	49000	72000	59000	55000	40000	42000	51000

Detected values are bold

indicates a detection or 1/2 the detection limit exceeds the ERL
indicates a detection exceeds the ERM

NOTES:

1. Value taken from USEPA Ecotox Thresholds (1996).
2. Total PAHs calculated by summing the detected PAH concentrations and 1/2 of the detection limit of non-detected PAHs.
3. Grain size data are presented in Appendix C.
4. ERM value shown for individual Aroclors is the value for total PCBs

B = analyte present in accompanying blank
J = estimated value
U = analyzed for and not detected

FD = Field Duplicate
ERL = Effects Range Low
ERM = Effects Range Medium

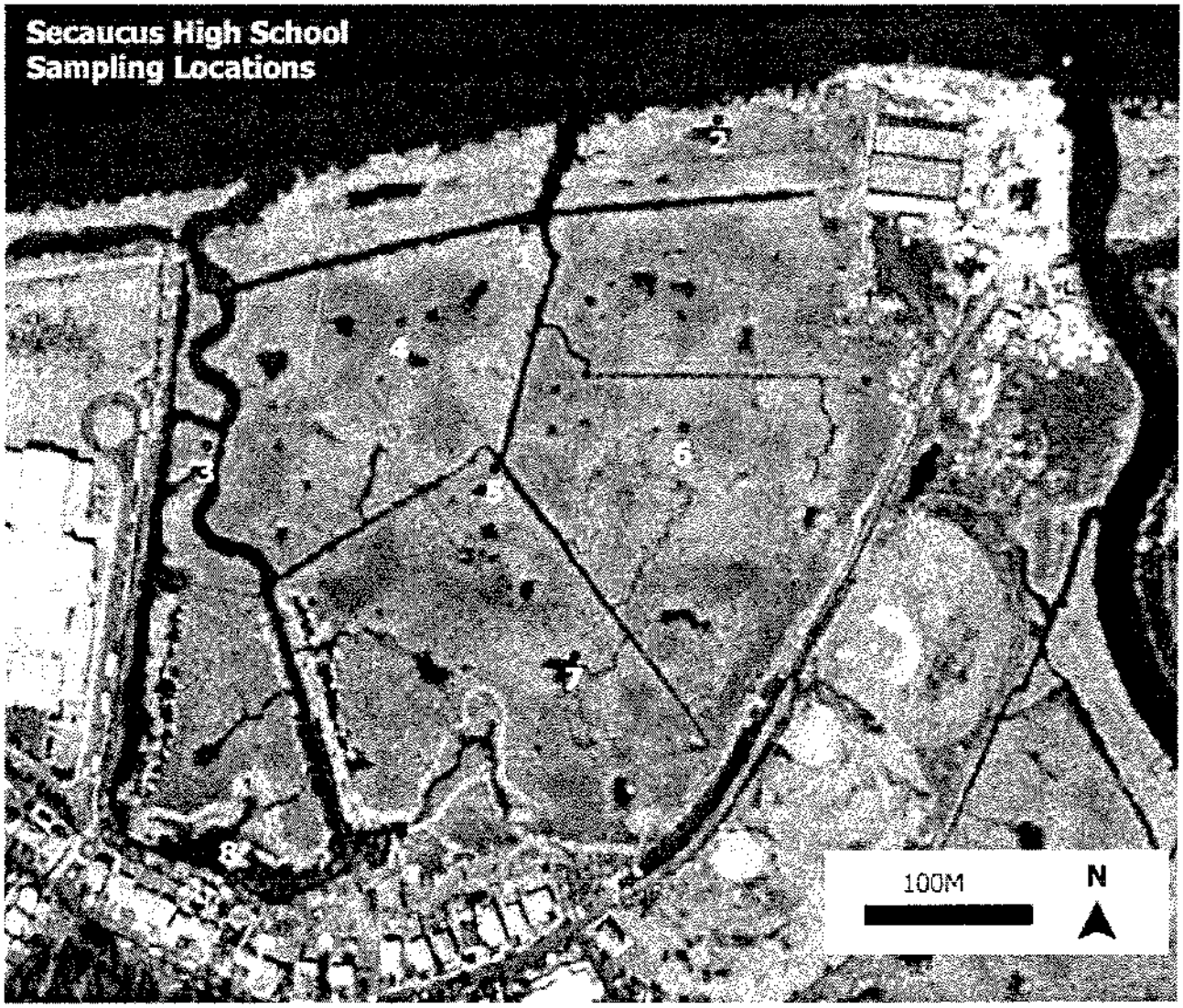
Secaucus High School
Sampling Locations
1
2
3
4
5
6
7
8
100M
N

Table 3
Sediment Detections and Comparison to Ecological-Based Standards

Field Sample ID:		vember 1998 NJDEP Sediment Guidance Guideline		S - 1		S - 1		S - 2		S - 3		S - 3	
Depths (in):				0 - 6		6 - 36		0 - 6		0 - 6		6 - 36	
Lab Sample ID:				AB12015		AB12016		AB12017		AB12012		AB12013	
Date Sampled:		ERL	ERM	7/20/00		7/20/00		7/20/00		7/20/00		7/20/00	
SVOCs													
2-Pentanone, 4-hydroxy-4-methyl-	mg/kg			150	J	130	J	200	J	120	J	93	J
3-Penten-2-one, 4-methyl-	mg/kg			0.53	J	0.7	J	0.82	J	0.69	J	0.44	J
Acenaphthylene	mg/kg	0.044	0.64	0.19	J	0.1	J	0.69	U	0.15	J	0.35	U
Anthracene	mg/kg	0.085	1.1	0.17	J	0.097	J	0.69	U	0.49	U	0.35	U
Benzo[a]anthracene	mg/kg	0.261	1.6	0.6		0.33	J	0.69	U	0.33	J	0.18	J
Benzo[a]pyrene	mg/kg	0.43	1.6	0.84		0.38		0.14	J	0.47	J	0.24	J
Benzo[b]fluoranthene	mg/kg			1.2		0.61		0.22	J	0.5		0.38	
Benzo[g,h,i]perylene	mg/kg	0.17		0.21	J	0.35	U	0.69	U	0.19	J	0.09	J
Benzo[k]fluoranthene	mg/kg	0.24		0.51		0.25	J	0.69	U	0.23	J	0.11	J
Bis(2-Ethylhexyl)phthalate	mg/kg			0.42	B	1.3	B	0.29	J	0.25	JB	0.68	B
Butylbenzylphthalate (2)	mg/kg		11	0.36	U	0.35	U	0.69	U	0.49	U	0.35	U
Chrysene	mg/kg	0.384	2.8	0.74		0.37		0.17	J	0.41	J	0.28	J
Dibenzo[a,h]anthracene	mg/kg	0.063	0.26	0.096	J	0.35	U	0.69	U	0.49	U	0.35	U
Di-n-butylphthalate (2)	mg/kg		11	0.17	JB	0.11	JB	0.69	U	0.49	U	0.073	JB
Di-n-octylphthalate	mg/kg			0.32	J	0.37		0.69	U	0.12	J	0.15	J
Fluoranthene	mg/kg	0.6	5.1	0.74		0.46		0.19	J	0.37	J	0.31	J
Indeno[1,2,3-cd]pyrene	mg/kg	0.2		0.25	J	0.35	U	0.69	U	0.17	J	0.073	J
Naphthalene	mg/kg	0.16	2.1	0.079	J	0.35	U	0.69	U	0.49	U	0.35	U
Phenanthrene	mg/kg	0.24	1.5	0.33	J	0.2	J	0.69	U	0.17	J	0.14	J
Pyrene	mg/kg	0.665	2.6	0.98		0.59		0.18	J	0.41	J	0.34	J
Total PAHs[3]	mg/kg	4.0	45.0	7.70		4.79		5.39		5.12		3.54	
Pesticides/PCBs													
P,P'-DDD	mg/kg			0.16		0.0069	U	0.014	U	0.0098	U	0.056	
P,P'-DDE	mg/kg	0.0022	0.027	0.28		0.0069	U	0.014	U	0.0098	U	0.03	
P,P'-DDT	mg/kg	0.0016	0.046	0.15		0.078		0.014	U	0.0098	U	0.036	
Chlordane	mg/kg	0.007		0.015	U	0.014	U	0.028	U	0.02	U	0.014	U
Dieldrin	mg/kg	0.002		0.0076	U	0.0069	U	0.014	U	0.0098	U	0.0069	U
Heptachlor Epoxide	mg/kg	0.005		0.0076	U	0.0069	U	0.014	U	0.0098	U	0.0083	
Aroclor-1248	mg/kg	0.03		0.038	U	0.035	U	0.069	U	0.077		0.035	U
Aroclor-1260	mg/kg	0.005		0.13		0.2		0.069	U	0.049	U	0.035	U
Metals/Cyanide													
Antimony	mg/kg			14		8		6	U	4.3	U	3.6	
Arsenic	mg/kg	8.2	70	50		25		12		17		21	
Barium	mg/kg			140		310		120		210		84	
Beryllium	mg/kg			1		1		1.7	U	1.2	U	0.89	
Cadmium	mg/kg	1.2	9.6	1.3		5.3		1.2	U	1.2		0.62	U
Chromium	mg/kg	81	370	1400		740		160		280		260	
Copper	mg/kg	34	270	210		250		97		120		74	
Lead	mg/kg	47	218	270		370		130		170		120	
Mercury	mg/kg	0.15	0.71	27		7.2		4.5		5.7		4	
Nickel	mg/kg	21	52	55		200		69		120		41	
Selenium	mg/kg			5.7	U	11		10	U	7.9		5.2	U
Thallium	mg/kg			2.7	U	12		5	U	3.8		2.5	U
Zinc	mg/kg	150	410	350		740		240		380		180	
Cyanide	mg/kg			0.57	U	3		1	U	2.9		0.52	U
Others													
% Solids	Percent			44		48		24		34		48	
Particle Size				Attached[4]		Attached[4]		Attached[4]		Attached[4]		Attached[4]	
Petroleum Hydrocarbons (Total)	mg/kg			110		84		140	U	100	U	71	U
Total Organic Carbon	mg/kg			44000		21000		67000		51000		24000	
Total Organic Carbon	Percent			4.4		2.1		6.7		5.1		2.4	

Mitigation Site Baseline Studies: Sampling Analyses of

Table 3
Sediment Detections and Comparison to Ecological-Based Standards

Field Sample ID:		vember 1998 NJDEP Sedimen t Guidenc e		FD S- 3		FD S- 3		S - 4		S - 4		S - 5		S - 5	
Depths (in)				0 - 6		6 - 36		0 - 6		6 - 36		0 - 6		6 - 36	
Lab Sample ID:		Guidelin		AB12009		AB12010		AB11804		AB11805		AB11882		AB11883	
Description															
Date Sampled		ERL	ERM	7/20/00		7/20/00		7/19/00		7/19/00		7/19/00		7/19/00	
SVOCs															
2-Pentanone, 4-hydroxy-4-methyl-	mg/kg			100	J	110	J	160	J	130	J	97	J	93	J
3-Penten-2-one, 4-methyl-	mg/kg			0.58	J	0.48	J	1	J			0.34	J		
Acenaphthylene	mg/kg	0.044	0.64	0.45	U	0.23	J	0.79	U	0.76	U	0.41	U	0.14	J
Anthracene	mg/kg	0.085	1.1	0.45	U	0.12	J	0.79	U	0.76	U	0.41	U	0.13	J
Benzo[a]anthracene	mg/kg	0.261	1.6	0.23	J	0.54		0.79	U	0.76	U	0.23	J	0.42	
Benzo[a]pyrene	mg/kg	0.43	1.6	0.27	J	0.69		0.18	J	0.76	U	0.28	J	0.53	
Benzo[b]fluoranthene	mg/kg			0.35	J	0.94		0.23	J	0.16	J	0.36	J	0.69	
Benzo[g,h,i]perylene	mg/kg	0.17		0.45	U	0.23	J	0.79	U	0.76	U	0.089	J	0.19	J
Benzo[k]fluoranthene	mg/kg	0.24		0.11	J	0.31	J	0.79	U	0.76	U	0.17	J	0.32	J
Bis(2-Ethylhexyl)phthalate	mg/kg			0.6	B	0.35	JB	0.64	JB	0.47	JB	1.3	B	0.64	B
Butylbenzylphthalate	mg/kg		11[3]	0.13	J	0.43	U	0.79	U	0.76	U	0.41	U	0.39	U
Chrysene	mg/kg	0.384	2.8	0.22	J	0.6		0.21	J	0.76	U	0.3	J	0.47	
Dibenzo[a,h]anthracene	mg/kg	0.063	0.26	0.45	U	0.11	J	0.79	U	0.76	U	0.41	U	0.39	U
Di-n-butylphthalate	mg/kg		11[3]	0.14	JB	0.16	JB	0.79	U	0.2	JB	0.2	JB	0.39	U
Di-n-octylphthalate	mg/kg			0.15	J	0.13	J	0.79	U	0.76	U	0.13	J	0.11	J
Fluoranthene	mg/kg	0.6	5.1	0.28	J	0.52		0.27	J	0.16	J	0.31	J	0.51	
Indeno[1,2,3-cd]pyrene	mg/kg	0.2		0.45	U	0.22	J	0.79	U	0.76	U	0.098	J	0.17	J
Naphthalene	mg/kg	0.16	2.1	0.45	U	0.43	U	0.79	U	0.76	U	0.41	U	0.085	J
Phenanthrene	mg/kg	0.24	1.5	0.13	J	0.22	J	0.79	U	0.76	U	0.12	J	0.2	J
Pyrene	mg/kg	0.665	2.6	0.31	J	0.68		0.27	J	0.17	J	0.33	J	0.57	
Total PAHs[2]	mg/kg	4.0	45.0	4.15		6.49		6.30		6.19		3.93		5.40	
Pesticides/PCBs															
P,P'-DDD	mg/kg			0.009	U	0.3		0.016	U	1.5		0.0081	U	0.036	
P,P'-DDE	mg/kg	0.0022	0.027	0.009	U	0.13		0.016	U	0.3	U	0.0081	U	0.0078	U
P,P'-DDT	mg/kg	0.0016	0.046	0.02		0.058		0.016	U	1		0.0081	U	0.033	
Chlordane	mg/kg	0.007		0.018	U	0.017	U	0.032	U	0.61	U	0.016	U	0.016	U
Dieldrin	mg/kg	0.002		0.009	U	0.0085	U	0.2		0.3	U	0.0081	U	0.0078	U
Heptachlor Epoxide	mg/kg	0.005		0.009	U	0.0085	U	0.016	U	0.3	U	0.0081	U	0.0078	U
Aroclor-1248	mg/kg	0.03		0.15		0.17		0.59		0.26		0.15		0.62	
Aroclor-1260	mg/kg	0.005		0.045	U	0.043	U	0.079	U	0.076	U	0.1		0.22	
Metals/Cyanide															
Antimony	mg/kg			3.9	U	6.2		6.9	U	6.6	U	9.4		9.6	
Arsenic	mg/kg	8.2	70	13		57		16		21		29		27	
Barium	mg/kg			130		180		160		88		150		180	
Beryllium	mg/kg			1.1	U	1.5		1.9	U	1.8	U	1.2		1.3	
Cadmium	mg/kg	1.2	9.6	0.81	U	1		1.5		1.4	U	4.2		2.1	
Chromium	mg/kg	81	370	190		410		370		370		930		980	
Copper	mg/kg	34	270	110		200		110		100		210		240	
Lead	mg/kg	47	218	130		290		210		170		230		280	
Mercury	mg/kg	0.15	0.71	4.4		7.3		5.7		1.9		23		15	
Nickel	mg/kg	21	52	56		87		100		80		52		64	
Selenium	mg/kg			6.8	U	6.6		12	U	11	U	6.1		5.8	U
Thallium	mg/kg			3.2	U	3.1	U	5.7	U	5.5	U	2.9	U	2.8	U
Zinc	mg/kg	150	410	250		400		310		280		440		370	
Cyanide	mg/kg			0.68	U	0.64	U	1.2	U	1.1	U	0.61	U	0.58	U
Others															
% Solids	Percent			37		39		21		22		41		43	
Particle Size				Attached[4]		Attached[4]		Attached[4]		Attached[4]		Attached[4]		Attached[4]	
Petroleum Hydrocarbons (Total)	mg/kg			92	U	87	U	640		220		130		110	
Total Organic Carbon	mg/kg			53000		36000		160000		140000		33000		32000	
Total Organic Carbon	Percent			5.3		3.6		16		14		3.3		3.2	

Table 3
Sediment Detections and Comparison to Ecological-Based Standards

Field Sample ID:		November 1998		S - 6	S - 6	S - 7	S - 7	S - 8	S - 8
Depths (in):		NJDEP Sediment Guidence		0 - 6	6 - 36	0 - 6	6 - 36	0 - 6	6 - 36
Lab Sample ID:		Sed. Guidelines		AB12143	AB12144	AB12147	AB12148	AB12011[1]	AB12014
Date Sampled:		ERL mg/kg	ERM mg/kg	7/21/00	7/21/00	7/21/00	7/21/00	7/21/00	7/20/00
SVOCs									
2-Pentanone, 4-hydroxy-4-methyl-	mg/kg			180 J	210 J	170 J	220 J	130 J	140 J
3-Penten-2-one, 4-methyl-	mg/kg					0.66 J	0.9 J	0.83 J	0.63 J
Acenaphthylene	mg/kg	0.044	0.64	**0.88** U	**0.76** U	**0.57** U	**0.76** U	**0.48** U	0.37 U
Anthracene	mg/kg	0.085	1.1	**0.88** U	**0.76** U	**0.57** U	**0.76** U	**0.48** U	0.37 U
Benzo[a]anthracene	mg/kg	0.261	1.6	**0.88** U	**0.76** U	**0.17** J	0.39 J	**0.21** J	0.37 U
Benzo[a]pyrene	mg/kg	0.43	1.6	**0.2** J	0.76 U	**0.22** J	0.36 J	**0.22** J	0.37 U
Benzo[b]fluoranthene	mg/kg			0.27 J	0.76 U	0.28 J	0.44 J	0.36 J	0.37 U
Benzo[g,h,i]perylene	mg/kg	0.17		**0.88** U	**0.76** U	**0.2** J	0.22 J	**0.48** U	0.37 U
Benzo[k]fluoranthene	mg/kg	0.24		**0.88** U	**0.76** U	**0.57** U	0.19 J	**0.12** J	0.37 U
Bis(2-Ethylhexyl)phthalate	mg/kg			0.25 JB	0.17 JB	0.53 J	0.38 J	1.4 B	0.2 JB
Butylbenzylphthalate	mg/kg		11[2]	0.88 U	0.76 U	0.57 U	0.76 U	0.48 U	0.37 U
Chrysene	mg/kg	0.384	2.8	**0.22** J	0.76 U	**0.23** J	0.36 J	**0.21** J	0.37 U
Dibenzo[a,h]anthracene	mg/kg	0.063	0.26	**0.88** U	**0.76** U	**0.57** U	**0.76** U	**0.48** U	0.37 U
Di-n-butylphthalate	mg/kg		11[2]	0.35 JB	0.3 JB	0.14 J	0.21 J	0.65 B	0.37 U
Di-n-octylphthalate	mg/kg			0.88 U	0.76 U	0.57 U	0.76 U	0.22 J	0.11 J
Fluoranthene	mg/kg	0.6	5.1	0.28 J	0.17 J	0.26 J	0.5 J	0.32 J	0.37 U
Indeno[1,2,3-cd]pyrene	mg/kg	0.2		**0.88** U	**0.76** U	**0.16** J	0.22 J	0.48 U	0.37 U
Naphthalene	mg/kg	0.16	2.1	**0.88** U	**0.76** U	**0.57** U	**0.76** U	0.48 U	0.37 U
Phenanthrene	mg/kg	0.24	1.5	0.88 U	**0.76** U	**0.12** J	0.27 J	0.14 J	0.37 U
Pyrene	mg/kg	0.665	2.6	**0.26** J	0.17 J	0.27 J	0.53 J	0.38 J	0.37 U
Total PAHs[3]	mg/kg	4.00	45.00	**6.95**	**6.42**	**4.48**	6.52	**4.36**	3.33 U
Pesticides/PCBs									
P,P'-DDD	mg/kg			0.075	2.1	0.011 U	0.015 U	0.0095 U	0.0074 U
P,P'-DDE	mg/kg	0.0022	0.027	**0.04**	**0.56**	**0.011** U	**0.015** U	**0.0095** U	0.0074 U
P,P'-DDT	mg/kg	0.0016	0.046	**0.018** U	**2.7**	**0.066**	**0.059**	**0.0095** U	0.0074 U
Chlordane	mg/kg	0.007		**0.035** U	**0.3** U	**0.29**	**0.3**	**0.019** U	0.015 U
Dieldrin	mg/kg	0.002		**0.018** U	**0.15** U	**0.011** U	**0.015** U	**0.0095** U	0.0074 U
Heptachlor Epoxide	mg/kg	0.005		**0.018** U	**0.15** U	**0.011** U	**0.015** U	**0.0095** U	0.0074 U
Aroclor-1248	mg/kg	0.03		**0.088** U	**0.36**	**0.21**	0.076 U	0.47	0.037 U
Aroclor-1260	mg/kg	0.005		**0.088** U	**0.25**	**0.14**	**0.17**	**0.048** U	0.037 U
Metals/Cyanide									
Antimony	mg/kg			7.7	6.6 U	5 U	12	4.1 U	3.2 U
Arsenic	mg/kg	8.2	70	**13**	**27**	**14**	**31**	**16**	6.6
Barium	mg/kg			170	61	200	240	190	22
Beryllium	mg/kg			2.1 U	1.8 U	1.4 U	1.8 U	1.1 U	0.89 U
Cadmium	mg/kg	1.2	9.6	1.6 U	1.4 U	**1.8**	**2**	**1.4**	0.67 U
Chromium	mg/kg	81	370	**340**	**130**	**340**	**970**	**190**	11
Copper	mg/kg	34	270	**140**	**120**	**160**	**190**	**120**	8.6
Lead	mg/kg	47	218	**280**	**250**	**210**	**500**	**210**	9.1
Mercury	mg/kg	0.15	0.71	**4.7**	**1.4**	**7.3**	**11**	**3.5**	0.39
Nickel	mg/kg	21	52	**190**	**51**	**160**	**310**	**71**	6.6
Selenium	mg/kg			13 U	11 U	8.6 U	11 U	7.1 U	5.6 U
Thallium	mg/kg			6.3 U	5.5 U	4.1 U	5.5 U	3.4 U	2.7 U
Zinc	mg/kg	150	410	**380**	**150**	**410**	**750**	**390**	29
Cyanide	mg/kg			1.3 U	1.1 U	0.86 U	1.1 U	0.71 U	0.56 U
Others									
% Solids	Percent			19	22	29	22	35	45
Particle Size				Attached[4]	Attached[4]	Attached[4]	Attached[4]	Attached[4]	Attached[4]
Petroleum Hydrocarbons (Total)	mg/kg			350	380	190	440	160	76 U
Total Organic Carbon	mg/kg			160000	150000	40000	76000	38000	74000
Total Organic Carbon	Percent			16	15	4	7.6	3.8	7.4

NOTES:
1. Sample S-8 also includes lab number AB12145 (particle size)
2. Value taken from USEPA Ecotox Thresholds (1996)
3. Total PAHs calculated by summing the detected PAH concentrations and 1/2 of the detection limit of non-detected PAHs
4. Grain size data is presented in Appendix B

B = analyte present in accompanying blank
J = estimated value
U = analyzed for and not detected
FD = Field Duplicate
ERL = Effects Range Low
ERM = Effects Range Medium


sp13
TA1
sp16
sp14
sp15
sp18
TA4
sp17
sp12
sp6
sp8
sp7
sp5
TA5
sp10
TA2
sp4
sp11
sp9
sp3
TA3
sp2b
sp2a
sp1
N
100m
sp = water/soil sampling point
TA = Mammal/Avian Observation Location

TABLE 10
SUMMARY OF SEMIVOLATILE ORGANICS IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP	Criteria	SS-1_0-6		SS-1_6-12		SS-1_24-36		SS-2_0-6		SS-2_6-36		SS-3_0-6		SS-3_6-36		SS-4_0-6		SS-4_6-36		SS-4_36-72	
Lab Sample Number		Effects Range Low	Effects Range Medium	Source	210019		210020		210021		210017		210018		205785		205786		205782		205783		205784	
Sampling Date		ER-L	ER-M		06/09/00		06/09/00		06/09/00		06/09/00		06/09/00		05/16/00		05/16/00		05/16/00		05/16/00		05/16/00	
Matrix		(ug/kg)	(ug/kg)		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
Dilution Factor					1.0		1.0		1.0		1.0		1.0				1.0				1.0		1.0	
Units					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg				ug/Kg				ug/Kg		ug/Kg	
SEMIVOLATILE COMPOUNDS (GC/MS)																								
	Phenol	NC	NC		790	U	790	U	910	U	430	J	310	J		NR	280	J		NR	840	U	2400	U
	2-Chlorophenol	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	2-Nitrophenol	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	2,4-Dimethylphenol	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	2,4-Dichlorophenol	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	4-Chloro-3-methylphenol	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	2,4,6-Trichlorophenol	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	2,4-Dinitrophenol	NC	NC		3200	U	3000	U	3600	U	15000	U	9800	U		NR	13000	U		NR	3400	U	9700	U
	4-Nitrophenol	NC	NC		3200	U	3000	U	3600	U	15000	U	9800	U		NR	13000	U		NR	3400	U	9700	U
	4,6-Dinitro-2-methylphenol	NC	NC		3200	U	3000	U	3600	U	15000	U	9800	U		NR	13000	U		NR	3400	U	9700	U
	Pentachlorophenol	NC	NC		3200	U	3000	U	3600	U	15000	U	9800	U		NR	13000	U		NR	3400	U	9700	U
	N-Nitrosodimethylamine	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	bis(2-Chloroethyl)ether	NC	NC		79	U	74	U	91	U	370	U	240	U		NR	330	U		NR	84	U	240	U
	1,3-Dichlorobenzene	NC	NC		790	U	81	J	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	1,4-Dichlorobenzene	NC	NC		790	U	120	J	910	U	3700	U	100	J		NR	3300	U		NR	840	U	2400	U
	1,2-Dichlorobenzene	NC	NC		790	U	160	J	910	U	3700	U	82	J		NR	3300	U		NR	840	U	2400	U
	bis(2-chloroisopropyl)ether	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	N-Nitroso-di-n-propylamine	NC	NC		79	U	74	U	91	U	370	U	240	U		NR	330	U		NR	84	U	240	U
	Hexachloroethane	NC	NC		79	U	74	U	91	U	370	U	240	U		NR	330	U		NR	84	U	240	U
	Nitrobenzene	NC	NC		79	U	74	U	91	U	370	U	240	U		NR	330	U		NR	84	U	240	U
	Isophorone	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	bis(2-Chloroethoxy)methane	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	1,2,4-Trichlorobenzene	NC	NC		79	U	270		91	U	370	U	72	J		NR	330	U		NR	84	U	240	U
	Naphthalene	160	2100		**200**	J	**370**	J	**210**	J	**3700**	U	110	J		NR	**3300**	U		NR	**840**	U	**2400**	U
	Hexachlorobutadiene	NC	NC		160	U	150	U	180	U	750	U	490	U		NR	670	U		NR	170	U	490	U
	Hexachlorocyclopentadiene	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	2-Chloronaphthalene	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	Dimethylphthalate	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	Acenaphthylene	44	640		**440**	J	**820**		**500**	J	**94**	J	**180**	J		NR	**3300**	U		NR	**840**	U	**2400**	U
(1)	2,6-Dinitrotoluene	NC	NC		160	U	150	U	180	U	750	U	490	U		NR	670	U		NR	170	U	490	U
	Acenaphthene	16	500		**42**	J	**130**	J	**49**	J	**3700**	U	**86**	J		NR	**3300**	U		NR	**840**	U	**2400**	U
(1)	2,4-Dinitrotoluene	NC	NC		160	U	150	U	180	U	750	U	490	U		NR	670	U		NR	170	U	490	U
	Diethylphthalate	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	4-Chlorophenyl-phenylether	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	Fluorene	19	540		**86**	J	**130**	J	**130**	J	**3700**	U	**110**	J		NR	**3300**	U		NR	**840**	U	**2400**	U
	N-Nitrosodiphenylamine	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	4-Bromophenyl-phenylether	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	Hexachlorobenzene	NC	NC		79	U	74	U	91	U	370	U	240	U		NR	330	U		NR	84	U	240	U
	Phenanthrene	240	1500		**630**	J	**1400**		**560**	J	**280**	J	**650**	J		NR	**3300**	U		NR	**840**	U	56	J
	Anthracene	85	1100		**220**	J	**630**	J	**240**	J	**110**	J	**210**	J		NR	**3300**	U		NR	**840**	U	**2400**	U
	Di-n-butylphthalate	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	Fluoranthene	600	5100		**1000**		**3600**		**690**	J	**480**	J	**930**	J		NR	**3300**	U		NR	23	J	50	J
	Pyrene	665	2600		**1000**		**3000**		**870**	J	490	J	**1000**	J		NR	**3300**	U		NR	25	J	69	J
	Benzidine	NC	NC		3200	U	3000	U	3600	U	15000	U	9800	U		NR	13000	U		NR	3400	U	9700	U
	Butylbenzylphthalate	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	3,3-Dichlorobenzidine	NC	NC		1600	U	1500	U	1800	U	7500	U	4900	U		NR	6700	U		NR	1700	U	4900	U
	Benzo(a)anthracene	261	1600		**780**		**2000**		750		260	J	**460**			NR	**330**	U		NR	42	J	240	U
	Chrysene	384	2800		**1100**		**2600**		**1100**		250	J	**460**	J		NR	**3300**	U		NR	22	J	**2400**	U
	bis(2-Ethylhexyl)phthalate	NC	NC		790	U	890		910	U	960	J	600	J		NR	3300	U		NR	840	U	2400	U
	Di-n-octylphthalate	NC	NC		790	U	740	U	910	U	3700	U	2400	U		NR	3300	U		NR	840	U	2400	U
	Benzo(b)fluoranthene	NC	NC		1100	J	2900		1100		360	J	760			NR	330	U		NR	84	U	240	U
	Benzo(k)fluoranthene	240	1,340,000	LEL/SEL	**590**	J	**1300**		**460**		170	J	**310**			NR	**330**	U		NR	84	U	**240**	U
	Benzo(a)pyrene	430	1600		**820**	J	**1600**		**1100**		240	J	**490**			NR	330	U		NR	18	J	240	U
	Indeno(1,2,3-cd)pyrene	200	320,000	LEL/SEL	**550**	J	**960**		**560**		120	J	**270**			NR	**330**	U		NR	84	U	**240**	U
	Dibenz(a,h)anthracene	63	260		**160**	J	310		170		**370**	U	**240**	U		NR	**330**	U		NR	**84**	U	**240**	U
	Benzo(g,h,i)perylene	170	320,000	LEL/SEL	**550**	J	**840**		**620**	J	99	J	**260**	J		NR	**3300**	U		NR	**840**	U	**2400**	U
Total Confident Conc. BNAs (s)		NC			7080		22430		5240		0		2290				0				0		0	
Total Estimated Conc. BNA TICs (s)		NC			11920		26350		32800		198900		149500				207700				44380		229300	

(1) Values listed reflect the combined standards for the 2,4/2,6-Dinitrotoluene mixture.
^ Value is a revision to the Class IIA ground water quality standard based upon the November 18, 1996 Safe Drinking Water Act maximum contaminant level changes and the February 5, 1997 policy memo issued by Assistant Commissioner R. Gimelio

Qualifiers

U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value
Bold numbers indicate exceedance of NJDEP ER-L
NR - Not analyzed.

-- Blind duplicate sample.
NC - No Criteria.
(LEL) - Lowest Effects Level instead of ER-L
(SEL) - Severe Effects Level instead of ER-M

TABLE 10 (contd)
SUMMARY OF SEMIVOLATILE ORGANICS IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP		SS-5_24-36		SS-6_0-6		SS-6_6-12		SS-6_24-36		SS-6_36-60		SS-6_60-84		SS-7_0-6		SS-7_6-12		SS-7_12-24		SS-7_24-36	
Sample Number		Effects Range Low	Effects Range Medium		205781		207450		207451		207452		207453		207454		205787		205788		205789		205790	
Sampling Date		ER-L	ER-M		05/16/00		05/23/00		05/23/00		05/23/00		05/23/00		05/23/00		05/16/00		05/16/00		05/16/00		05/16/00	
Matrix		(ug/kg)	(ug/kg)		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
Dilution Factor					1.0		2.0		2.0		1.0		1.0		1.0				1.0		1.0		1.0	
Units					ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg				ug/Kg		ug/Kg		ug/Kg	
COMPOUNDS (GC/MS)																								
	Phenol	NC	NC		430	U	99	J	93	J	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	2-Chlorophenol	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	2-Nitrophenol	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	2,4-Dimethylphenol	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	2,4-Dichlorophenol	NC	NC		430	U	1300	U	1100	U	1500	U	55	J	2300	U		NR	1700	U	750	U	2700	U
	4-Chloro-3-methylphenol	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	2,4,6-Trichlorophenol	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	2,4-Dinitrophenol	NC	NC		1700	U	5100	U	4500	U	6100	U	9100	U	9200	U		NR	6700	U	3000	U	11000	U
	4-Nitrophenol	NC	NC		1700	U	5100	U	4500	U	6100	U	9100	U	9200	U		NR	6700	U	3000	U	11000	U
	4,6-Dinitro-2-methylphenol	NC	NC		1700	U	5100	U	4500	U	6100	U	9100	U	9200	U		NR	6700	U	3000	U	11000	U
	Pentachlorophenol	NC	NC		1700	U	5100	U	4500	U	6100	U	9100	U	9200	U		NR	6700	U	3000	U	11000	U
	N-Nitrosodimethylamine	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	bis(2-Chloroethyl)ether	NC	NC		43	U	130	U	110	U	150	U	230	U	230	U		NR	170	U	75	U	270	U
	1,3-Dichlorobenzene	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	1,4-Dichlorobenzene	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	1,2-Dichlorobenzene	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	bis(2-chloroisopropyl)ether	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	N-Nitroso-di-n-propylamine	NC	NC		43	U	130	U	110	U	150	U	230	U	230	U		NR	170	U	75	U	270	U
	Hexachloroethane	NC	NC		43	U	130	U	110	U	150	U	230	U	230	U		NR	170	U	75	U	270	U
	Nitrobenzene	NC	NC		43	U	130	U	110	U	150	U	230	U	230	U		NR	170	U	75	U	270	U
	Isophorone	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	bis(2-Chloroethoxy)methane	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	1,2,4-Trichlorobenzene	NC	NC		43	U	130	U	110	U	150	U	230	U	230	U		NR	170	U	75	U	270	U
	Naphthalene	160	2100		**430**	U	110	J	140	J	57	J	90	J	**2300**	U		NR	39	J	110	J	**2700**	U
	Hexachlorobutadiene	NC	NC		85	U	250	U	220	U	300	U	450	U	460	U		NR	340	U	150	U	530	U
	Hexachlorocyclopentadiene	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	2-Chloronaphthalene	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	Dimethylphthalate	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	Acenaphthylene	44	640		30	J	**1400**		**2400**		**200**	J	**770**	J	**290**	J		NR	**250**	J	**1400**		**61**	J
(1)	2,6-Dinitrotoluene	NC	NC		85	U	250	U	220	U	300	U	450	U	460	U		NR	340	U	150	U	530	U
	Acenaphthene	16	500		**430**	U	**50**	J	**82**	J	**1500**	U	**2300**	U	**2300**	U		NR	**1700**	U	**40**	J	**2700**	U
(1)	2,4-Dinitrotoluene	NC	NC		85	U	250	U	220	U	300	U	450	U	460	U		NR	340	U	150	U	530	U
	Diethylphthalate	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	4-Chlorophenyl-phenylether	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	Fluorene	19	540		**430**	U	**1300**	U	**220**	J	**43**	J	**93**	J	**2300**	U		NR	**1700**	U	**130**	J	**2700**	U
	N-Nitrosodiphenylamine	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	4-Bromophenyl-phenylether	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	Hexachlorobenzene	NC	NC		43	U	130	U	110	U	150	U	230	U	230	U		NR	170	U	75	U	270	U
	Phenanthrene	240	1500		28	J	**510**	J	**840**	J	110	J	**330**	J	120	J		NR	**120**	J	**440**	J	**2700**	U
	Anthracene	85	1100		20	J	**600**	J	**1000**	J	72	J	**280**	J	**92**	J		NR	**94**	J	**430**	J	**2700**	U
	Di-n-butylphthalate	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	Fluoranthene	600	5100		75	J	**2000**		**3500**		250	J	**940**	J	310	J		NR	270	J	**1200**		79	J
	Pyrene	665	2600		76	J	**2500**		**3800**		280	J	**1200**	J	400	J		NR	350	J	**1800**		98	J
	Benzidine	NC	NC		1700	U	5100	U	4500	U	6100	U	9100	U	9200	U		NR	6700	U	3000	U	11000	U
	Butylbenzylphthalate	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	3,3-Dichlorobenzidine	NC	NC		850	U	2600	U	2200	U	3000	U	4500	U	4600	U		NR	3400	U	1500	U	5300	U
	Benzo(a)anthracene	261	1600		66		**2600**		**4200**		**280**		**1200**		**480**			NR	**300**		**1900**		94	J
	Chrysene	384	2800		73	J	**3300**		**5400**		370	J	**1600**	J	**440**	J		NR	**440**	J	**2500**		100	J
	bis(2-Ethylhexyl)phthalate	NC	NC		430	U	480	J	440	J	1000	J	1800	J	3600			NR	1700	U	750	U	2700	U
	Di-n-octylphthalate	NC	NC		430	U	1300	U	1100	U	1500	U	2300	U	2300	U		NR	1700	U	750	U	2700	U
	Benzo(b)fluoranthene	NC	NC		87		3200		6000		420		1900		690			NR	530		3200		120	J
	Benzo(k)fluoranthene	240	1,340,000	LEL/SEL	38	J	**1400**		**2100**		160		**710**		**270**			NR	180		**1200**		90	J
	Benzo(a)pyrene	430	1600		72		**3300**		**5700**		340		**1800**		**580**			NR	**460**		**2600**		120	J
	Indeno(1,2,3-cd)pyrene	200	320,000	LEL/SEL	51		**1700**		**2800**		190		**720**		**280**			NR	**200**		**1100**		**270**	U
	Dibenz(a,h)anthracene	63	260		43	U	**540**		**850**		62	J	**190**	J	**91**	J		NR	**170**	U	**130**		**270**	U
	Benzo(g,h,i)perylene	170	320,000	LEL/SEL	**430**	U	**1600**		**2200**		**190**	J	**550**	J	**2300**	U		NR	130	J	**890**		**2700**	U
dent Conc. BNAs (s)		NC			276		23540		38750		1390		6330		5900				1670		17920		0	
ed Conc. BNA TICs (s)		NC			9840		122500		63200		320000		696900		718600				402400		75200		420700	

(1) Values listed reflect the combined standards for the 2,4/2,6-Dinitrotoluene mixture.
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Qualifiers
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Bold numbers indicate exceedance of NJDEP ER-L
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TABLE 10 (contd)
SUMMARY OF SEMIVOLATILE ORGANICS IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP	Criteria	SS-10_6-36		SS-10_36-40		SS-11_0-6		SS-11_12-24		SS-11_24-36		SS-11_36-40		SS-13_0-6		SS-13_6-12		SS-13_12-24		SS-13_24-36	
Sample Number		Effects Range Low	Effects Range Medium	Source	210027		210028		210022		210023		210024		210025		207460		207461		207462		207463	
Sampling Date		ER-L	ER-M		06/09/00		06/09/00		06/09/00		06/09/00		06/09/00		06/09/00		05/24/00		05/24/00		05/24/00		05/24/00	
Matrix		(ug/kg)	(ug/kg)		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
Dilution Factor					1.0		1.0		1.0		1.0		1.0		1.0									
Units					ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg									
COMPOUNDS (GC/MS)																								
	Phenol	NC	NC		110	J	1200	U	200	J	230	J	340	J	1400		430	U	420	U	420	U	480	U
	2-Chlorophenol	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	2-Nitrophenol	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	2,4-Dimethylphenol	NC	NC		1100	U	1200	U	1100	U	53	J	1500	U	34	J	430	U	420	U	420	U	480	U
	2,4-Dichlorophenol	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	28	J	430	U	420	U	420	U	480	U
	4-Chloro-3-methylphenol	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	2,4,6-Trichlorophenol	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	2,4-Dinitrophenol	NC	NC		4300	U	4700	U	4200	U	3800	U	6100	U	4800	U	1700	U	1700	U	1700	U	1900	U
	4-Nitrophenol	NC	NC		4300	U	4700	U	4200	U	3800	U	6100	U	4800	U	1700	U	1700	U	1700	U	1900	U
	4,6-Dinitro-2-methylphenol	NC	NC		4300	U	4700	U	4200	U	3800	U	6100	U	4800	U	1700	U	1700	U	1700	U	1900	U
	Pentachlorophenol	NC	NC		4300	U	4700	U	4200	U	3800	U	6100	U	4800	U	1700	U	1700	U	1700	U	1900	U
	N-Nitrosodimethylamine	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	bis(2-Chloroethyl)ether	NC	NC		110	U	120	U	110	U	96	U	150	U	120	U	43	U	42	U	42	U	48	U
	1,3-Dichlorobenzene	NC	NC		34	J	66	J	40	J	30	J	1500	U	25	J	430	U	420	U	420	U	480	U
	1,4-Dichlorobenzene	NC	NC		100	J	180	J	100	J	110	J	84	J	97	J	430	U	420	U	420	U	480	U
	1,2-Dichlorobenzene	NC	NC		51	J	100	J	65	J	70	J	100	J	93	J	430	U	420	U	420	U	480	U
	bis(2-chloroisopropyl)ether	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	N-Nitroso-di-n-propylamine	NC	NC		110	U	120	U	110	U	96	U	150	U	120	U	43	U	42	U	42	U	48	U
	Hexachloroethane	NC	NC		110	U	120	U	110	U	96	U	150	U	120	U	43	U	42	U	42	U	48	U
	Nitrobenzene	NC	NC		110	U	120	U	110	U	96	U	150	U	120	U	43	U	42	U	42	U	48	U
	Isophorone	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	bis(2-Chloroethoxy)methane	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	1,2,4-Trichlorobenzene	NC	NC		170		280		180		160		140	J	160		43	U	42	U	42	U	48	U
	Naphthalene	160	2100		130	J	190	J	150	J	570	J	220	J	480	J	430	U	420	U	420	U	480	U
	Hexachlorobutadiene	NC	NC		220	U	230	U	210	U	190	U	300	U	240	U	86	U	84	U	84	U	96	U
	Hexachlorocyclopentadiene	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	2-Chloronaphthalene	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	Dimethylphthalate	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	Acenaphthylene	44	640		250	J	290	J	360	J	2800		430	J	990	J	430	U	420	U	420	U	480	U
(1)	2,6-Dinitrotoluene	NC	NC		220	U	230	U	210	U	190	U	300	U	240	U	86	U	84	U	84	U	96	U
	Acenaphthene	16	500		50	J	70	J	64	J	350	J	83	J	240	J	430	U	420	U	420	U	480	U
(1)	2,4-Dinitrotoluene	NC	NC		220	U	230	U	210	U	190	U	300	U	240	U	86	U	84	U	84	U	96	U
	Diethylphthalate	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	4-Chlorophenyl-phenylether	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	Fluorene	19	540		92	J	91	J	95	J	370	J	110	J	280	J	430	U	420	U	420	U	480	U
	N-Nitrosodiphenylamine	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	4-Bromophenyl-phenylether	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	Hexachlorobenzene	NC	NC		110	U	120	U	110	U	96	U	150	U	120	U	43	U	42	U	42	U	48	U
	Phenanthrene	240	1500		290	J	350	J	400	J	5100		820	J	2400		45	J	420	U	420	U	480	U
	Anthracene	85	1100		250	J	260	J	360	J	4100		390	J	1100	J	430	U	420	U	420	U	480	U
	Di-n-butylphthalate	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	Fluoranthene	600	5100		650	J	810	J	1300		20000		1500	J	5800		87	J	420	U	420	U	480	U
	Pyrene	665	2600		580	J	760	J	1300		17000		1400	J	4600		75	J	420	U	420	U	480	U
	Benzidine	NC	NC		4300	U	4700	U	4200	U	3800	U	6100	U	4800	U	1700	U	1700	U	1700	U	1900	U
	Butylbenzylphthalate	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	3,3-Dichlorobenzidine	NC	NC		2200	U	2300	U	2100	U	1900	U	3000	U	2400	U	860	U	840	U	840	U	960	U
	Benzo(a)anthracene	261	1600		470		500		920		11000		830		2900		37	J	42	U	42	U	48	U
	Chrysene	384	2800		420	J	520	J	1200		13000		1200	J	4000		71	J	420	U	420	U	480	U
	bis(2-Ethylhexyl)phthalate	NC	NC		2700		2700		2500		500	J	1000	J	1100	J	150	J	120	J	190	J	540	
	Di-n-octylphthalate	NC	NC		1100	U	1200	U	1100	U	960	U	1500	U	1200	U	430	U	420	U	420	U	480	U
	Benzo(b)fluoranthene	NC	NC		1100	J	1100	J	1600		18000		1500		5200	J	62		42	U	42	U	48	U
	Benzo(k)fluoranthene	240	1,340,000	LEL/SEL	420	J	420	J	590		6700		650		2200	J	43	U	42	U	42	U	48	U
	Benzo(a)pyrene	430	1600		510	J	610	J	870		9100		800		2300	J	36	J	42	U	42	U	48	U
	Indeno(1,2,3-cd)pyrene	200	320,000	LEL/SEL	240	J	310	J	450		3500		410		960	J	43	U	42	U	42	U	48	U
	Dibenz(a,h)anthracene	63	260		75	J	99	J	120		980		150	J	290	J	43	U	42	U	42	U	48	U
	Benzo(g,h,i)perylene	170	320,000	LEL/SEL	190	J	240	J	390	J	2600		400	J	780	J	430	U	420	U	420	U	480	U
Ident Conc. BNAs (s)		NC			5810		5920		11030		114040		4190		32210		82		0		0		540	
Total Estimated Conc. BNA TICs (s)		NC			76030		99000		103200		53980		52800		140300		6170		19420		7040		15270	

(1) Values listed reflect the combined standards for the 2,4/2,6-Dinitrotoluene mixture
^ Value is a revision to the Class IIA ground water quality standard based upon the November 18, 1996 Safe Drinking Water Act maximum contaminant level changes and the February 5, 1997 policy memo issued by Assistant Commissioner R. Gimello.

Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.
Bold numbers indicate exceedance of NJDEP ER-L

NR - Not analyzed.
-- Blind duplicate sample.
NC - No Criteria.
(LEL) - Lowest Effects Level instead of ER-L
(SEL) - Severe Effects Level instead of ER-M

TABLE 10 (contd)
SUMMARY OF SEMIVOLATILE ORGANICS IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP	Criteria	SS-14_12-24	SS-14_24-36	SS-14_36-60	SS-14_60-84	SS-15_0-6	SS-15_6-36	SS-15_36-72	SS-15_72-84	SS-16_0-6	SS-16_6-12	S
Lab Sample Number		Effects Range Low	Effects Range Medium	Source	207446	207447	207448	207449	207471	207472	207473	207474	207464	207465	
Sampling Date		ER-L	ER-M		05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	
Matrix		(ug/kg)	(ug/kg)		SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	
Dilution Factor					1.0	1.0	1.0	1.0				1.0			
Units					ug/kg	ug/kg	ug/kg	ug/kg				ug/kg			
SEMIVOLATILE COMPOUNDS (GC/MS)															
	Phenol	NC	NC		530 U	65 J	110 J	150 J	610 U	600 U	2200 U	550 U	860 U	620 U	
	2-Chlorophenol	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	2-Nitrophenol	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	2,4-Dimethylphenol	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	2,4-Dichlorophenol	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	4-Chloro-3-methylphenol	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	2,4,6-Trichlorophenol	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	2,4-Dinitrophenol	NC	NC		2100 U	2500 U	3500 U	4300 U	2400 U	2400 U	8800 U	2200 U	3400 U	2500 U	
	4-Nitrophenol	NC	NC		2100 U	2500 U	3500 U	4300 U	2400 U	2400 U	8800 U	2200 U	3400 U	2500 U	
	4,6-Dinitro-2-methylphenol	NC	NC		2100 U	2500 U	3500 U	4300 U	2400 U	2400 U	8800 U	2200 U	3400 U	2500 U	
	Pentachlorophenol	NC	NC		2100 U	2500 U	3500 U	4300 U	2400 U	2400 U	8800 U	2200 U	3400 U	2500 U	
	N-Nitrosodimethylamine	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	bis(2-Chloroethyl)ether	NC	NC		53 U	62 U	88 U	110 U	61 U	60 U	220 U	55 U	86 U	62 U	
	1,3-Dichlorobenzene	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	1,4-Dichlorobenzene	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	1,2-Dichlorobenzene	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	bis(2-chloroisopropyl)ether	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	N-Nitroso-di-n-propylamine	NC	NC		53 U	62 U	88 U	110 U	61 U	60 U	220 U	55 U	86 U	62 U	
	Hexachloroethane	NC	NC		53 U	62 U	88 U	110 U	61 U	60 U	220 U	55 U	86 U	62 U	
	Nitrobenzene	NC	NC		53 U	62 U	88 U	110 U	61 U	60 U	220 U	55 U	86 U	62 U	
	Isophorone	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	bis(2-Chloroethoxy)methane	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	1,2,4-Trichlorobenzene	NC	NC		53 U	62 U	88 U	110 U	61 U	60 U	220 U	55 U	86 U	62 U	
	Naphthalene	160	2100		36 J	120 J	42 J	**1100** U	**610** U	**600** U	**2200** U	**550** U	**860** U	67 J	
	Hexachlorobutadiene	NC	NC		110 U	120 U	180 U	210 U	120 U	120 U	440 U	110 U	170 U	120 U	
	Hexachlorocyclopentadiene	NC	NC		530 U	620 U	880 U	**1100** U	610 U	600 U	2200 U	550 U	860 U	620 U	
	2-Chloronaphthalene	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	Dimethylphthalate	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	Acenaphthylene	44	640		**510** J	**580** J	67 J	**1100** U	**110** J	**600** U	**2200** U	**550** U	**89** J	**710**	
(1)	2,6-Dinitrotoluene	NC	NC		110 U	120 U	180 U	210 U	120 U	120 U	440 U	110 U	170 U	120 U	
	Acenaphthene	16	500		22 J	32 J	**880** U	**1100** U	**610** U	**600** U	**2200** U	**550** U	**860** U	32 J	
(1)	2,4-Dinitrotoluene	NC	NC		110 U	120 U	180 U	210 U	120 U	120 U	440 U	110 U	170 U	120 U	
	Diethylphthalate	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	4-Chlorophenyl-phenylether	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	Fluorene	19	540		48 J	75 J	**880** U	**1100** U	**610** U	**600** U	**2200** U	**550** U	**860** U	**100** J	
	N-Nitrosodiphenylamine	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	4-Bromophenyl-phenylether	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	Hexachlorobenzene	NC	NC		53 U	62 U	88 U	110 U	61 U	60 U	220 U	55 U	86 U	62 U	
	Phenanthrene	240	1500		140 J	220 J	47 J	33 J	110 J	**600** U	**2200** U	**550** U	90 J	**240** J	
	Anthracene	85	1100		**180** J	**210** J	31 J	**1100** U	59 J	**600** U	**2200** U	**550** U	57 J	**230** J	
	Di-n-butylphthalate	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	Fluoranthene	600	5100		520 J	**660**	93 J	33 J	200 J	23 J	**2200** U	18 J	**170** J	**630**	
	Pyrene	665	2600		**690**	**760**	99 J	36 J	230 J	24 J	**2200** U	18 J	180 J	**890**	
	Benzidine	NC	NC		2100 U	2500 U	3500 U	4300 U	2400 U	2400 U	8800 U	2200 U	3400 U	2500 U	
	Butylbenzylphthalate	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	3,3-Dichlorobenzidine	NC	NC		1100 U	1200 U	1800 U	2100 U	1200 U	1200 U	4400 U	1100 U	1700 U	1200 U	
	Benzo(a)anthracene	261	1600		**660**	**760**	93	110 U	140	18 J	220 U	12 J	110	**720**	
	Chrysene	384	2800		**940**	**1000**	90 J	29 J	210 J	21 J	**2200** U	14 J	150 J	**1200**	
	bis(2-Ethylhexyl)phthalate	NC	NC		210 J	340 J	800 J	920 J	730	740 J	1000 J	760 J	300 J	620 U	
	Di-n-octylphthalate	NC	NC		530 U	620 U	880 U	1100 U	610 U	600 U	2200 U	550 U	860 U	620 U	
	Benzo(b)fluoranthene	NC	NC		1300 J	1300	150	41 J	250	17 J	220 U	18 J	210	1400	
	Benzo(k)fluoranthene	240	1,340,000	LEL/SEL	**480** J	**490**	56 J	110 U	110	60 U	220 U	55 U	81 J	**650**	
	Benzo(a)pyrene	430	1600		**880** J	**1000**	96	34 J	170	18 J	220 U	55 U	150	**1000**	
	Indeno(1,2,3-cd)pyrene	200	320,000	LEL/SEL	**350** J	**520**	64 J	29 J	92	60 U	**220** U	55 U	86 U	**530**	
	Dibenz(a,h)anthracene	63	260		**120** J	**140**	**88** U	**110** U	61 U	60 U	**220** U	55 U	**86** U	**210**	
	Benzo(g,h,i)perylene	170	320,000	LEL/SEL	**290** J	**410** J	53 J	22 J	78 J	**600** U	**2200** U	**550** U	50 J	**430** J	
Total Confident Conc. BNAs (s)					**5420**	**6630**	**339**	**0**	**1492**	**740**	**0**	**760**	**470**	**7940**	
Total Estimated Conc. BNA TICs (s)					**38040**	**29640**	**117600**	**245400**	**14180**	**62080**	**950900**	**70420**	**12270**	**22400**	

(1) Values listed reflect the combined standards for the 2,4/2,6-Dinitrotoluene mixture.
^ Value is a revision to the Class IIA ground water quality standard based upon the November 18, 1996 Safe Drinking Water Act maximum contaminant level changes and the February 5, 1997 policy memo issued by Assistant Commissioner R. Gimello.

Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.
Bold numbers indicate exceedance of NJDEP ER-L
NR - Not analyzed.
-- Blind duplicate sample.
NC - No Criteria.
(LEL) - Lowest Effects Level instead of ER-L
(SEL) - Severe Effects Level instead of ER-M

TABLE 10 (contd)
SUMMARY OF SEMIVOLATILE ORGANICS IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP	Criteria	SS-16_36-60	SS-16_60-84	SS-16_84-96	SS-17_0-6	SS-17_6-36	SS-18_0-6	SS-18_6-12	SS-18_12-24	SS-18_24-36
Lab Sample Number		Effects Range Low	Effects Range Medium	Source	207468	207469	207470	207455	207456	207440	207441	207442	207443
Sampling Date		ER-L	ER-M		05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00
Matrix		(ug/kg)	(ug/kg)		SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor								1.0	1.0	1.0	1.0	1.0	1.0
Units								ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SEMIVOLATILE COMPOUNDS (GC/MS)													
	Phenol	NC	NC		1300 U	2300 U	1600 U	500 U	78 J	440 U	430 U	420 U	420 U
	2-Chlorophenol	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	2-Nitrophenol	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	2,4-Dimethylphenol	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	2,4-Dichlorophenol	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	4-Chloro-3-methylphenol	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	2,4,6-Trichlorophenol	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	2,4-Dinitrophenol	NC	NC		5100 U	9200 U	6300 U	2000 U	2500 U	1800 U	1700 U	1700 U	1700 U
	4-Nitrophenol	NC	NC		5100 U	9200 U	6300 U	2000 U	2500 U	1800 U	1700 U	1700 U	1700 U
	4,6-Dinitro-2-methylphenol	NC	NC		5100 U	9200 U	6300 U	2000 U	2500 U	1800 U	1700 U	1700 U	1700 U
	Pentachlorophenol	NC	NC		5100 U	9200 U	94 J	2000 U	2500 U	1800 U	1700 U	1700 U	1700 U
	N-Nitrosodimethylamine	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	bis(2-Chloroethyl)ether	NC	NC		130 U	230 U	160 U	50 U	63 U	44 U	43 U	42 U	42 U
	1,3-Dichlorobenzene	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	1,4-Dichlorobenzene	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	1,2-Dichlorobenzene	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	bis(2-chloroisopropyl)ether	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	N-Nitroso-di-n-propylamine	NC	NC		130 U	230 U	160 U	50 U	63 U	44 U	43 U	42 U	42 U
	Hexachloroethane	NC	NC		130 U	230 U	160 U	50 U	63 U	44 U	43 U	42 U	42 U
	Nitrobenzene	NC	NC		130 U	230 U	160 U	50 U	63 U	44 U	43 U	42 U	42 U
	Isophorone	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	bis(2-Chloroethoxy)methane	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	1,2,4-Trichlorobenzene	NC	NC		130 U	230 U	160 U	50 U	63 U	44 U	43 U	42 U	42 U
	Naphthalene	160	2100		1300 U	2300 U	1600 U	45 J	83 J	84 J	430 U	420 U	420 U
	Hexachlorobutadiene	NC	NC		260 U	460 U	310 U	100 U	130 U	88 U	86 U	85 U	85 U
	Hexachlorocyclopentadiene	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	2-Chloronaphthalene	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	Dimethylphthalate	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	Acenaphthylene	44	640		1300 U	2300 U	1600 U	380 J	1500	150 J	22 J	420 U	420 U
(1)	2,6-Dinitrotoluene	NC	NC		260 U	460 U	310 U	100 U	130 U	88 U	86 U	85 U	85 U
	Acenaphthene	16	500		1300 U	2300 U	1600 U	25 J	64 J	11 J	430 U	420 U	420 U
(1)	2,4-Dinitrotoluene	NC	NC		260 U	460 U	310 U	100 U	130 U	88 U	86 U	85 U	85 U
	Diethylphthalate	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	4-Chlorophenyl-phenylether	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	Fluorene	19	540		1300 U	2300 U	40 J	51 J	630 U	26 J	430 U	420 U	420 U
	N-Nitrosodiphenylamine	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	4-Bromophenyl-phenylether	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	Hexachlorobenzene	NC	NC		130 U	230 U	160 U	50 U	63 U	44 U	43 U	42 U	42 U
	Phenanthrene	240	1500		66 J	2300 U	62 J	200 J	550 J	120 J	36 J	17 J	420 U
	Anthracene	85	1100		1300 U	2300 U	1600 U	150 J	560 J	90 J	14 J	420 U	420 U
	Di-n-butylphthalate	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	Fluoranthene	600	5100		130 J	2300 U	76 J	590	1900	260 J	48 J	30 J	420 U
	Pyrene	665	2600		140 J	85 J	68 J	630	2300	290 J	47 J	25 J	420 U
	Benzidine	NC	NC		5100 U	9200 U	6300 U	2000 U	2500 U	1800 U	1700 U	1700 U	1700 U
	Butylbenzylphthalate	NC	NC		1300 U	510 J	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	3,3-Dichlorobenzidine	NC	NC		2600 U	4600 U	3100 U	1000 U	1300 U	880 U	860 U	850 U	850 U
	Benzo(a)anthracene	261	1600		58 J	230 U	160 U	590	2400	250	38 J	22 J	42 U
	Chrysene	384	2800		76 J	2300 U	54 J	790	3200	350 J	47 J	14 J	420 U
	bis(2-Ethylhexyl)phthalate	NC	NC		1300 U	2300 U	520 J	300 J	380 J	440 U	150 J	420 U	420 U
	Di-n-octylphthalate	NC	NC		1300 U	2300 U	1600 U	500 U	630 U	440 U	430 U	420 U	420 U
	Benzo(b)fluoranthene	NC	NC		110 J	230 U	48 J	960	3900	370	50	16 J	42 U
	Benzo(k)fluoranthene	240	1,340,000	LEL/SEL	39 J	230 U	160 U	380	1600	160	43 U	42 U	42 U
	Benzo(a)pyrene	430	1600		50 J	230 U	160 U	800	3500	300	40 J	9.2 J	42 U
	Indeno(1,2,3-cd)pyrene	200	320,000	LEL/SEL	130 U	230 U	160 U	390	1300	230	34 J	42 U	42 U
	Dibenz(a,h)anthracene	63	260		130 U	230 U	160 U	110	410	60	8.7 J	42 U	42 U
	Benzo(g,h,i)perylene	170	320,000	LEL/SEL	1300 U	2300 U	1600 U	320 J	1100	230 J	32 J	420 U	420 U
Total Confident Conc. BNAs (s)					0	0	0	5240	23110	1370	50	0	0
Total Estimated Conc. BNA TICs (s)					171100	1062000	742500	4430	96270	22130	410	0	0

(1) Values listed reflect the combined standards for the 2,4/2,6-Dinitrotoluene mixture

^ Value is a revision to the Class IIA ground water quality standard based upon the November 18, 1996 Safe Drinking Water Act maximum contaminant level changes and the February 5, 1997 policy memo issued by Assistant Commissioner R. Gimello.

Qualifiers

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

Bold numbers indicate exceedance of NJDEP ER-L

NR - Not analyzed.

~ Blind duplicate sample.

NC - No Criteria.

(LEL) - Lowest Effects Level instead of ER-L

(SEL) - Severe Effects Level instead of ER-M

TABLE 10
SUMMARY OF SEMIVOLATILE ORGANICS IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP	SS-5_0-6		SS-5_6-12		SS-5_12-24	
Lab Sample Number		Effects Range Low	Effects Range Medium	205778		205779		205780	
Sampling Date		ER-L	ER-M	05/16/00		05/16/00		05/16/00	
Matrix		(ug/kg)	(ug/kg)	SOLID		SOLID		SOLID	
Dilution Factor						1.0		1.0	
Units						ug/Kg		ug/Kg	
SEMIVOLATILE COMPOUNDS (GC/MS)									
	Phenol	NC	NC		NR	380	U	420	U
	2-Chlorophenol	NC	NC		NR	380	U	420	U
	2-Nitrophenol	NC	NC		NR	380	U	420	U
	2,4-Dimethylphenol	NC	NC		NR	380	U	420	U
	2,4-Dichlorophenol	NC	NC		NR	380	U	420	U
	4-Chloro-3-methylphenol	NC	NC		NR	380	U	420	U
	2,4,6-Trichlorophenol	NC	NC		NR	380	U	420	U
	2,4-Dinitrophenol	NC	NC		NR	1500	U	1700	U
	4-Nitrophenol	NC	NC		NR	1500	U	1700	U
	4,6-Dinitro-2-methylphenol	NC	NC		NR	1500	U	1700	U
	Pentachlorophenol	NC	NC		NR	1500	U	1700	U
	N-Nitrosodimethylamine	NC	NC		NR	380	U	420	U
	bis(2-Chloroethyl)ether	NC	NC		NR	38	U	42	U
	1,3-Dichlorobenzene	NC	NC		NR	380	U	420	U
	1,4-Dichlorobenzene	NC	NC		NR	380	U	420	U
	1,2-Dichlorobenzene	NC	NC		NR	380	U	420	U
	bis(2-chloroisopropyl)ether	NC	NC		NR	380	U	420	U
	N-Nitroso-di-n-propylamine	NC	NC		NR	38	U	42	U
	Hexachloroethane	NC	NC		NR	38	U	42	U
	Nitrobenzene	NC	NC		NR	38	U	42	U
	Isophorone	NC	NC		NR	380	U	420	U
	bis(2-Chloroethoxy)methane	NC	NC		NR	380	U	420	U
	1,2,4-Trichlorobenzene	NC	NC		NR	38	U	42	U
	Naphthalene	160	2100		NR	**380**	U	**420**	U
	Hexachlorobutadiene	NC	NC		NR	76	U	83	U
	Hexachlorocyclopentadiene	NC	NC		NR	380	U	420	U
	2-Chloronaphthalene	NC	NC		NR	380	U	420	U
	Dimethylphthalate	NC	NC		NR	380	U	420	U
	Acenaphthylene	44	640		NR	**380**	U	16	J
(1)	2,6-Dinitrotoluene	NC	NC		NR	76	U	83	U
	Acenaphthene	16	500		NR	**380**	U	**420**	U
(1)	2,4-Dinitrotoluene	NC	NC		NR	76	U	83	U
	Diethylphthalate	NC	NC		NR	380	U	420	U
	4-Chlorophenyl-phenylether	NC	NC		NR	380	U	420	U
	Fluorene	19	540		NR	**380**	U	**420**	U
	N-Nitrosodiphenylamine	NC	NC		NR	380	U	420	U
	4-Bromophenyl-phenylether	NC	NC		NR	380	U	420	U
	Hexachlorobenzene	NC	NC		NR	38	U	42	U
	Phenanthrene	240	1500		NR	140	J	14	J
	Anthracene	85	1100		NR	55	J	**420**	U
	Di-n-butylphthalate	NC	NC		NR	380	U	420	U
	Fluoranthene	600	5100		NR	490		37	J
	Pyrene	665	2600		NR	450		40	J
	Benzidine	NC	NC		NR	1600	U	1700	U
	Butylbenzylphthalate	NC	NC		NR	380	U	420	U
	3,3-Dichlorobenzidine	NC	NC		NR	760	U	830	U
	Benzo(a)anthracene	261	1600		NR	**270**		36	J
	Chrysene	384	2800		NR	270	J	36	J
	bis(2-Ethylhexyl)phthalate	NC	NC		NR	380	U	420	U
	Di-n-octylphthalate	NC	NC		NR	380	U	420	U
	Benzo(b)fluoranthene	NC	NC		NR	270		46	
	Benzo(k)fluoranthene	240	1,340,000		NR	100		23	J
	Benzo(a)pyrene	430	1600		NR	190		32	J
	Indeno(1,2,3-cd)pyrene	200	320,000		NR	91		42	U
	Dibenz(a,h)anthracene	63	260		NR	31	J	42	U
	Benzo(g,h,i)perylene	170	320,000		NR	78	J	**420**	U
Total Confident Conc. BNAs (s)		NC				1861		46	
Total Estimated Conc. BNA TICs (s)		NC				2650		1770	

(1) Values listed reflect the combined standards for the 2,4/2,6-Dinitrotoluene mixtur
^ Value is a revision to the Class IIA ground water quality standard based upon the M

Qualifiers

U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. Th
The concentration given is an approximate value.
Bold numbers indicate exceedance of NJDEP ER-L
NR - Not analyzed.

TABLE 10 (contd)
SUMMARY OF SEMIVOLATILE ORGANICS IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP	SS-7_36-60		SS-7_60-84		SS-8_0-6		SS-8_6-36		SS-8_36-72		SS-10_0-6	
Sample Number		Effects Range Low	Effects Range Medium	205791		205792		207457		207458		207459		210026	
Sampling Date		ER-L	ER-M	05/16/00		05/16/00		05/24/00		05/24/00		05/24/00		06/09/00	
Matrix		(ug/kg)	(ug/kg)	SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
Dilution Factor				1.0		1.0		1.0						1.0	
Units				ug/Kg		ug/Kg		ug/kg						ug/kg	
COMPOUNDS (GC/MS)															
	Phenol	NC	NC	2600	U	720	U	2000	U	2000	U	390	J	140	J
	2-Chlorophenol	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	2-Nitrophenol	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	2,4-Dimethylphenol	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	2,4-Dichlorophenol	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	4-Chloro-3-methylphenol	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	2,4,6-Trichlorophenol	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	2,4-Dinitrophenol	NC	NC	10000	U	2900	U	8100	U	10000	U	12000	U	3700	U
	4-Nitrophenol	NC	NC	10000	U	2900	U	8100	U	10000	U	12000	U	3700	U
	4,6-Dinitro-2-methylphenol	NC	NC	10000	U	2900	U	8100	U	10000	U	12000	U	3700	U
	Pentachlorophenol	NC	NC	10000	U	2900	U	8100	U	10000	U	12000	U	3700	U
	N-Nitrosodimethylamine	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	bis(2-Chloroethyl)ether	NC	NC	260	U	72	U	200	U	260	U	310	U	93	U
	1,3-Dichlorobenzene	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	55	J
	1,4-Dichlorobenzene	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	170	J
	1,2-Dichlorobenzene	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	84	J
	bis(2-chloroisopropyl)ether	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	N-Nitroso-di-n-propylamine	NC	NC	260	U	72	U	200	U	260	U	310	U	93	U
	Hexachloroethane	NC	NC	260	U	72	U	200	U	260	U	310	U	93	U
	Nitrobenzene	NC	NC	260	U	72	U	200	U	260	U	310	U	93	U
	Isophorone	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	bis(2-Chloroethoxy)methane	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	1,2,4-Trichlorobenzene	NC	NC	260	U	72	U	200	U	260	U	310	U	200	
	Naphthalene	160	2100	**1000**	J	**720**	U	87	J	**2600**	U	**3100**	U	**180**	J
	Hexachlorobutadiene	NC	NC	530	U	140	U	400	U	520	U	620	U	190	U
	Hexachlorocyclopentadiene	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	2-Chloronaphthalene	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	Dimethylphthalate	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	Acenaphthylene	44	640	**94**	J	**720**	U	**170**	J	**2600**	U	**79**	J	**230**	J
(1)	2,6-Dinitrotoluene	NC	NC	530	U	140	U	400	U	520	U	620	U	190	U
	Acenaphthene	16	500	**2600**	U	**720**	U	**2000**	U	**2600**	U	**3100**	U	**66**	J
(1)	2,4-Dinitrotoluene	NC	NC	530	U	140	U	400	U	520	U	620	U	190	U
	Diethylphthalate	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	4-Chlorophenyl-phenylether	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	Fluorene	19	540	**2600**	U	**720**	U	**46**	J	**2600**	U	**3100**	U	**78**	J
	N-Nitrosodiphenylamine	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	4-Bromophenyl-phenylether	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	Hexachlorobenzene	NC	NC	260	U	72	U	200	U	260	U	310	U	93	U
	Phenanthrene	240	1500	58	J	**720**	U	170	J	54	J	110	J	**310**	J
	Anthracene	85	1100	**2600**	U	**720**	U	**98**	J	**2600**	U	**3100**	U	**220**	J
	Di-n-butylphthalate	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	Fluoranthene	600	5100	130	J	**720**	U	280	J	**2600**	U	120	J	**790**	J
	Pyrene	665	2600	140	J	**720**	U	240	J	**2600**	U	130	J	**680**	J
	Benzidine	NC	NC	10000	U	2900	U	8100	U	10000	U	12000	U	3700	U
	Butylbenzylphthalate	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	3,3-Dichlorobenzidine	NC	NC	5300	U	**1400**	U	4000	U	5200	U	6200	U	1900	U
	Benzo(a)anthracene	261	1600	150	J	72	U	180	J	260	U	**310**	U	**520**	
	Chrysene	384	2800	120	J	**720**	U	200	J	**2600**	U	89	J	**520**	J
	bis(2-Ethylhexyl)phthalate	NC	NC	2600	U	720	U	470	J	780	J	810	J	3400	
	Di-n-octylphthalate	NC	NC	2600	U	720	U	2000	U	2600	U	3100	U	930	U
	Benzo(b)fluoranthene	NC	NC	180	J	72	U	240		260	U	170	J	1200	J
	Benzo(k)fluoranthene	240	1,340,000	83	J	72	U	100	J	**260**	U	100	J	**540**	J
	Benzo(a)pyrene	430	1600	180	J	72	U	**170**	J	260	U	110	J	**610**	J
	Indeno(1,2,3-cd)pyrene	200	320,000	71	J	72	U	130	J	**260**	U	**310**	U	**260**	J
	Dibenz(a,h)anthracene	63	260	**260**	U	72	U	56	J	**260**	U	**310**	U	**84**	J
	Benzo(g,h,i)perylene	170	320,000	65	J	**720**	U	150	J	**2600**	U	**3100**	U	**200**	J
dent Conc. BNAs (s)		NC		0		0		240		0		0		6730	
ed Conc. BNA TICs (s)		NC		921300		135500		112600		367800		199400		108900	

(1) Values listed reflect the combined standards for the 2,4/2,6-Dinitrotoluene mixtur
^ Value is a revision to the Class IIA ground water quality standard based upon the h

Qualifiers

U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. Th
The concentration given is an approximate value.
Bold numbers indicate exceedance of NJDEP ER-L
NR - Not analyzed.

TABLE 10 (contd)
SUMMARY OF SEMIVOLATILE ORGANICS IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP	SS-14_0-6		SS-14_6-12	
Sample Number		Effects Range Low	Effects Range Medium	207444		207445	
Sampling Date		ER-L	ER-M	05/23/00		05/23/00	
Matrix		(ug/kg)	(ug/kg)	SOLID		SOLID	
Dilution Factor				2.0		1.0	
Units				ug/kg		ug/kg	
SEMIVOLATILE COMPOUNDS (GC/MS)							
	Phenol	NC	NC	1200	U	680	U
	2-Chlorophenol	NC	NC	1200	U	680	U
	2-Nitrophenol	NC	NC	1200	U	680	U
	2,4-Dimethylphenol	NC	NC	1200	U	680	U
	2,4-Dichlorophenol	NC	NC	1200	U	680	U
	4-Chloro-3-methylphenol	NC	NC	1200	U	680	U
	2,4,6-Trichlorophenol	NC	NC	1200	U	680	U
	2,4-Dinitrophenol	NC	NC	4900	U	2700	U
	4-Nitrophenol	NC	NC	4900	U	2700	U
	4,6-Dinitro-2-methylphenol	NC	NC	4900	U	2700	U
	Pentachlorophenol	NC	NC	4900	U	2700	U
	N-Nitrosodimethylamine	NC	NC	1200	U	680	U
	bis(2-Chloroethyl)ether	NC	NC	120	U	68	U
	1,3-Dichlorobenzene	NC	NC	1200	U	680	U
	1,4-Dichlorobenzene	NC	NC	1200	U	680	U
	1,2-Dichlorobenzene	NC	NC	1200	U	680	U
	bis(2-chloroisopropyl)ether	NC	NC	1200	U	680	U
	N-Nitroso-di-n-propylamine	NC	NC	120	U	68	U
	Hexachloroethane	NC	NC	120	U	68	U
	Nitrobenzene	NC	NC	120	U	68	U
	Isophorone	NC	NC	1200	U	680	U
	bis(2-Chloroethoxy)methane	NC	NC	1200	U	680	U
	1,2,4-Trichlorobenzene	NC	NC	120	U	68	U
	Naphthalene	160	2100	**270**	J	120	J
	Hexachlorobutadiene	NC	NC	240	U	140	U
	Hexachlorocyclopentadiene	NC	NC	1200	U	680	U
	2-Chloronaphthalene	NC	NC	1200	U	680	U
	Dimethylphthalate	NC	NC	1200	U	680	U
	Acenaphthylene	44	640	**580**	J	**1400**	
(1)	2,6-Dinitrotoluene	NC	NC	240	U	140	U
	Acenaphthene	16	500	**33**	J	**60**	J
(1)	2,4-Dinitrotoluene	NC	NC	240	U	140	U
	Diethylphthalate	NC	NC	1200	U	680	U
	4-Chlorophenyl-phenylether	NC	NC	1200	U	680	U
	Fluorene	19	540	**95**	J	**680**	U
	N-Nitrosodiphenylamine	NC	NC	1200	U	680	U
	4-Bromophenyl-phenylether	NC	NC	1200	U	680	U
	Hexachlorobenzene	NC	NC	120	U	68	U
	Phenanthrene	240	1500	**330**	J	**430**	J
	Anthracene	85	1100	**270**	J	**460**	J
	Di-n-butylphthalate	NC	NC	1200	U	680	U
	Fluoranthene	600	5100	**640**	J	**1500**	
	Pyrene	665	2600	**740**	J	**1900**	
	Benzidine	NC	NC	4900	U	2700	U
	Butylbenzylphthalate	NC	NC	1200	U	680	U
	3,3-Dichlorobenzidine	NC	NC	2400	U	1400	U
	Benzo(a)anthracene	261	1600	**840**		**1700**	
	Chrysene	384	2800	**1200**	J	**2400**	
	bis(2-Ethylhexyl)phthalate	NC	NC	390	J	450	J
	Di-n-octylphthalate	NC	NC	1200	U	680	U
	Benzo(b)fluoranthene	NC	NC	1500		3400	J
	Benzo(k)fluoranthene	240	1,340,000	**570**		**1300**	J
	Benzo(a)pyrene	430	1600	**810**		**2400**	J
	Indeno(1,2,3-cd)pyrene	200	320,000	**550**		**930**	J
	Dibenz(a,h)anthracene	63	260	**160**		**290**	J
	Benzo(g,h,i)perylene	170	320,000	**470**	J	**760**	J
Tentative Conc. BNAs (s)		NC		4430		17980	
Total Estimated Conc. BNA TICs (s)		NC		37600		60440	

(1) Values listed reflect the combined standards for the 2,4/2,6-Dinitrotoluene mixtur
^ Value is a revision to the Class IIA ground water quality standard based upon the M

Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. Th
The concentration given is an approximate value.
Bold numbers indicate exceedance of NJDEP ER-L

TABLE 10 (contd)
SUMMARY OF SEMIVOLATILE ORGANICS IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP	SS-16_12-24		SS-16_24-36	
Lab Sample Number		Effects Range Low	Effects Range Medium	207466		207467	
Sampling Date		ER-L	ER-M	05/23/00		05/23/00	
Matrix		(ug/kg)	(ug/kg)	SOLID		SOLID	
Dilution Factor							
Units							
SEMIVOLATILE COMPOUNDS (GC/MS)							
	Phenol	NC	NC	520	U	720	U
	2-Chlorophenol	NC	NC	520	U	720	U
	2-Nitrophenol	NC	NC	520	U	720	U
	2,4-Dimethylphenol	NC	NC	520	U	720	U
	2,4-Dichlorophenol	NC	NC	520	U	720	U
	4-Chloro-3-methylphenol	NC	NC	520	U	720	U
	2,4,6-Trichlorophenol	NC	NC	520	U	720	U
	2,4-Dinitrophenol	NC	NC	2100	U	2900	U
	4-Nitrophenol	NC	NC	2100	U	2900	U
	4,6-Dinitro-2-methylphenol	NC	NC	2100	U	2900	U
	Pentachlorophenol	NC	NC	2100	U	2900	U
	N-Nitrosodimethylamine	NC	NC	520	U	720	U
	bis(2-Chloroethyl)ether	NC	NC	52	U	72	U
	1,3-Dichlorobenzene	NC	NC	520	U	720	U
	1,4-Dichlorobenzene	NC	NC	520	U	720	U
	1,2-Dichlorobenzene	NC	NC	520	U	720	U
	bis(2-chloroisopropyl)ether	NC	NC	520	U	720	U
	N-Nitroso-di-n-propylamine	NC	NC	52	U	72	U
	Hexachloroethane	NC	NC	52	U	72	U
	Nitrobenzene	NC	NC	52	U	72	U
	Isophorone	NC	NC	520	U	720	U
	bis(2-Chloroethoxy)methane	NC	NC	520	U	720	U
	1,2,4-Trichlorobenzene	NC	NC	52	U	72	U
	Naphthalene	160	2100	**520**	U	**720**	U
	Hexachlorobutadiene	NC	NC	100	U	140	U
	Hexachlorocyclopentadiene	NC	NC	520	U	720	U
	2-Chloronaphthalene	NC	NC	520	U	720	U
	Dimethylphthalate	NC	NC	520	U	720	U
	Acenaphthylene	44	640	**520**	U	**80**	J
(1)	2,6-Dinitrotoluene	NC	NC	100	U	140	U
	Acenaphthene	16	500	**520**	U	**720**	U
(1)	2,4-Dinitrotoluene	NC	NC	100	U	140	U
	Diethylphthalate	NC	NC	520	U	720	U
	4-Chlorophenyl-phenylether	NC	NC	520	U	720	U
	Fluorene	19	540	**520**	U	**720**	U
	N-Nitrosodiphenylamine	NC	NC	520	U	720	U
	4-Bromophenyl-phenylether	NC	NC	520	U	720	U
	Hexachlorobenzene	NC	NC	52	U	72	U
	Phenanthrene	240	1500	**520**	U	48	J
	Anthracene	85	1100	**520**	U	29	J
	Di-n-butylphthalate	NC	NC	520	U	720	U
	Fluoranthene	600	5100	520	U	110	J
	Pyrene	665	2600	30	J	130	J
	Benzidine	NC	NC	2100	U	2900	U
	Butylbenzylphthalate	NC	NC	520	U	720	U
	3,3-Dichlorobenzidine	NC	NC	1000	U	1400	U
	Benzo(a)anthracene	261	1600	18	J	99	
	Chrysene	384	2800	24	J	160	J
	bis(2-Ethylhexyl)phthalate	NC	NC	520	U	150	J
	Di-n-octylphthalate	NC	NC	520	U	720	U
	Benzo(b)fluoranthene	NC	NC	52	U	170	
	Benzo(k)fluoranthene	240	1,340,000	52	U	69	J
	Benzo(a)pyrene	430	1600	22	J	110	
	Indeno(1,2,3-cd)pyrene	200	320,000	52	U	72	U
	Dibenz(a,h)anthracene	63	260	52	U	72	U
	Benzo(g,h,i)perylene	170	320,000	**520**	U	**720**	U
Total Confident Conc. BNAs (s)				**0**		**379**	
Total Estimated Conc. BNA TICs (s)				**11150**		**109440**	

(1) Values listed reflect the combined standards for the 2,4/2,6-Dinitrotoluene mixtur
^ Value is a revision to the Class IIA ground water quality standard based upon the N

Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. Th
The concentration given is an approximate value.
Bold numbers indicate exceedance of NJDEP ER-L
NR - Not analyzed.

TABLE 11
SUMMARY OF PCBs IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID	Lab Sample Number	Sampling Date	Matrix	Dilution Factor	Units	NJDEP Effects Range Low ER-L (ug/kg)	NJDEP Effects Range Medium ER-M (ug/kg)	Criteria Source	SS-2_0-6	SS-2 6-36	SS 1 0-6	SS-1 6-12	SS-1 24-36	SS-11 0-6	SS-11 12-24	SS-11 24-36	-SS-11 36-40	SS-10 0-6	SS-10 6-36	-SS-10 36-40	SS-18 0-6
									210017	210018	210019	210020	210021	210022	210023	210024	210025	210026	210027	210028	207440
									06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	05/23/00
									SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
									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
									ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
PESTICIDES/PCBs																					
(1)	Aroclor-1016		7	53,000	LEL/SEL	750 U	490 U	160 U	150 U	180 U	210 U	190 U	310 U	240 U	190 U	220 U	240 U	89 U
(1)	Aroclor-1221		NC	NC		750 U	490 U	160 U	150 U	180 U	210 U	190 U	310 U	240 U	190 U	220 U	240 U	89 U
(1)	Aroclor-1232		NC	NC		750 U	490 U	160 U	150 U	180 U	210 U	190 U	310 U	240 U	190 U	220 U	240 U	89 U
(1)	Aroclor-1242		NC	NC		750 U	490 U	160 U	150 U	180 U	210 U	190 U	310 U	240 U	190 U	220 U	240 U	89 U
(1)	Aroclor-1248		30	150,000	LEL/SEL	750 U	490 U	160 U	570	180 U	210 U	770	280	1100	790	630	720	620	130
(1)	Aroclor-1254		60	34,000	LEL/SEL	750 U	490 U	160 U	150 U	180 U	210 U	190 U	310 U	240 U	190 U	220 U	240 U	120
(1)	Aroclor-1260		5	24,000	LEL/SEL	750 U	490 U	160 U	180 U	180 U	260	190 U	310 U	430	340	430	240 U	89 U
(1)	Aroclor-1262		NC	NC		750 U	490 U	160 U	150 U	180 U	210 U	190 U	310 U	240 U	190 U	220 U	240 U	89 U
(1)	Aroclor-1268		NC	NC		750 U	490 U	160 U	150 U	180 U	210 U	190 U	310 U	240 U	190 U	220 U	240 U	89 U

Sample ID	Lab Sample Number	Sampling Date	Matrix	Dilution Factor	Units	NJDEP Effects Range Low ER-L (ug/kg)	NJDEP Effects Range Medium ER-M (ug/kg)	Criteria Source	SS-18 6-12	SS-18 12-24	SS-18 24-36	SS-14 0-6	SS-14 6-12	SS-14 12-24	SS-14 24-36	SS-14 36-60	SS-14 60-84	SS-6 0-6	SS-6 6-12	SS-6 24-36	SS-6 36-60
									207441	207442	207443	207444	207445	207446	207447	207448	207449	207450	207451	207452	207453
									05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00
									SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
									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
									ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
PESTICIDES/PCBs																					
(1)	Aroclor-1016		7	53,000	LEL/SEL	86 U	86 U	85 U	120 U	140 U	110 U	120 U	180 U	210 U	130 U	110 U	300 U	460 U
(1)	Aroclor-1221		NC	NC		86 U	86 U	85 U	120 U	140 U	110 U	120 U	180 U	210 U	130 U	110 U	300 U	460 U
(1)	Aroclor-1232		NC	NC		86 U	86 U	85 U	120 U	140 U	110 U	120 U	180 U	210 U	130 U	110 U	300 U	460 U
(1)	Aroclor-1242		NC	NC		86 U	86 U	85 U	120 U	140 U	110 U	120 U	180 U	210 U	130 U	110 U	300 U	460 U
(1)	Aroclor-1248		30	150,000	LEL/SEL	86 U	86 U	85 U	120 U	430	110 U	380	180 U	210 U	130 U	110 U	300 U	460 U
(1)	Aroclor-1254		60	34,000	LEL/SEL	86 U	86 U	85 U	120 U	440	110 U	340	180 U	210 U	130 U	110 U	300 U	460 U
(1)	Aroclor-1260		5	24,000	LEL/SEL	86 U	86 U	85 U	120 U	140 U	110 U	120 U	180 U	210 U	130 U	110 U	300 U	460 U
(1)	Aroclor-1262		NC	NC		86 U	86 U	85 U	120 U	140 U	110 U	120 U	180 U	210 U	130 U	110 U	300 U	460 U
(1)	Aroclor-1268		NC	NC		86 U	86 U	85 U	120 U	140 U	110 U	120 U	180 U	210 U	130 U	110 U	300 U	460 U

Sample ID	Lab Sample Number	Sampling Date	Matrix	Dilution Factor	Units	NJDEP Effects Range Low ER-L (ug/kg)	NJDEP Effects Range Medium ER-M (ug/kg)	Criteria Source	SS-6 60-84	SS-17 0-6	SS-17 6-36	SS-8 0-6	SS-8 6-36	SS-8 36-72	SS-13 0-6	SS-13 6-12	SS-13 12-24	SS-13 24-36	SS-16 0-6	SS-16 6-12
									207454	207455	207456	207457	207458	207459	207460	207461	207462	207463	207464	207465
									05/23/00	05/23/00	05/23/00	05/24/00	05/24/00	05/24/00	05/24/00	05/24/00	05/24/00	05/24/00	05/23/00	05/23/00
									SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
									1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
									ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
PESTICIDES/PCBs																					
(1)	Aroclor-1016		7	53,000	LEL/SEL	460 U	100 U	130 U	410 U	520 U	620 U	86 U	84 U	84 U	96 U	170 U	120 U
(1)	Aroclor-1221		NC	NC		460 U	100 U	130 U	410 U	520 U	620 U	86 U	84 U	84 U	96 U	170 U	120 U
(1)	Aroclor-1232		NC	NC		460 U	100 U	130 U	410 U	520 U	620 U	86 U	84 U	84 U	96 U	170 U	120 U
(1)	Aroclor-1242		NC	NC		460 U	100 U	130 U	410 U	520 U	620 U	86 U	84 U	84 U	96 U	170 U	120 U
(1)	Aroclor-1248		30	150,000	LEL/SEL	460 U	230	130 U	410 U	520 U	620 U	86 U	84 U	84 U	96 U	360	120 U
(1)	Aroclor-1254		60	34,000	LEL/SEL	460 U	160	130 U	410 U	520 U	620 U	86 U	84 U	84 U	96 U	170 U	120 U
(1)	Aroclor-1260		5	24,000	LEL/SEL	460 U	100 U	130 U	410 U	520 U	620 U	86 U	84 U	84 U	96 U	170 U	120 U
(1)	Aroclor-1262		NC	NC		460 U	100 U	130 U	410 U	520 U	620 U	86 U	84 U	84 U	96 U	170 U	120 U
(1)	Aroclor-1268		NC	NC		460 U	100 U	130 U	410 U	520 U	620 U	86 U	84 U	84 U	96 U	170 U	120 U

(1) Values listed reflect the combined standards for "Total PCBs"

(2) Soil Cleanup criteria is provided for "Endosulfan" without specification if it is for Endosulfan I or Endosulfan II

Qualifiers

U The compound was not detected at the indicated concentration

Bold numbers indicate exceedance of NJDEP ER-L

NR - Not analyzed

~ Blind duplicate sample

NC - No criteria

(LEL) - Lowest Effects Level instead of ER-L

(SEL) - Severe Effects Level instead of ER-M

TABLE 11 (Continued)
SUMMARY OF PCBs IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID	NJDEP	NJDEP	Criteria	SS-16 12-24	SS-16 24-36	SS-16 36-60	SS-16 60-84	SS-16 84-96	SS-15 0-6	SS-15 6-36	SS 15 36-72	SS-16 72-84	SS-5 0-6	SS-5 6-12	SS-5 12-24
Lab Sample Number	Effects Range Low	Effects Range Medium	Source	207466	207467	207468	207469	207470	207471	207472	207473	207474	205778	205779	205780
Sampling Date	ER-L	ER-M		05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/16/00	05/16/00	05/16/00
Matrix	(ug/kg)	(ug/kg)		SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor				1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0
Units				ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		ug/kg	ug/kg
PESTICIDES/PCBs															
(1) Aroclor-1016	7	53,000	LEL/SEL	**100** U	**140** U	**260** U	**460** U	320 U	**120** U	**120** U	**440** U	110 U	NR	**75** U	**84** U
(1) Aroclor-1221	NC	NC		100 U	140 U	260 U	460 U	320 U	120 U	120 U	440 U	110 U	NR	75 U	84 U
(1) Aroclor-1232	NC	NC		100 U	140 U	260 U	460 U	320 U	120 U	120 U	440 U	110 U	NR	75 U	84 U
(1) Aroclor-1242	NC	NC		100 U	140 U	260 U	460 U	320 U	120 U	120 U	440 U	110 U	NR	75 U	84 U
(1) Aroclor 1248	30	150,000	LEL/SEL	**100** U	**140** U	**260** U	**460** U	320 U	**150**	**120** U	**440** U	110 U	NR	75 U	84 U
(1) Aroclor-1254	60	34,000	LEL/SEL	**100** U	**140** U	**260** U	**460** U	320 U	**120** U	**120** U	**440** U	110 U	NR	75 U	84 U
(1) Aroclor-1260	5	24,000	LEL/SEL	**100** U	**140** U	**260** U	**460** U	320 U	**120** U	**120** U	**440** U	110 U	NR	**75** U	**84** U
(1) Aroclor-1262	NC	NC		100 U	140 U	260 U	460 U	320 U	120 U	120 U	440 U	110 U	NR	75 U	84 U
(1) Aroclor-1268	NC	NC		100 U	140 U	260 U	460 U	320 U	120 U	120 U	440 U	110 U	NR	75 U	84 U

Sample ID	NJDEP	NJDEP	Criteria	SS-5 24-36	SS-4 0-6	SS-4 6-36	SS-4 36-72	SS-3 0-6	SS-3 6-36	SS-7 0-6	SS-7 6-12	SS-7 12-24	SS-7 24-36	SS-7 36-60	SS-7 60-84
Lab Sample Number	Effects Range Low	Effects Range Medium	Source	205781	205782	205783	205784	205785	205786	205787	205788	205789	205790	205791	205792
Sampling Date	ER-L	ER-M		05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00
Matrix	(ug/kg)	(ug/kg)		SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor				1.0		1.0	1.0		1.0		1.0	1.0	1.0	1.0	1.0
Units				ug/kg		ug/kg	ug/kg		ug/kg		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
PESTICIDES/PCBs															
(1) Aroclor 1016	7	53,000	LEL/SEL	**86** U	NR	**170** U	**490** U	NR	**670** U	NR	**340** U	**150** U	**540** U	**530** U	**140** U
(1) Aroclor-1221	NC	NC		86 U	NR	170 U	490 U	NR	670 U	NR	340 U	150 U	540 U	530 U	140 U
(1) Aroclor-1232	NC	NC		86 U	NR	170 U	490 U	NR	670 U	NR	340 U	150 U	540 U	530 U	140 U
(1) Aroclor-1242	NC	NC		86 U	NR	170 U	490 U	NR	670 U	NR	340 U	150 U	540 U	530 U	140 U
(1) Aroclor-1248	30	150,000	LEL/SEL	**86** U	NR	**170** U	**490** U	NR	**670** U	NR	**340** U	**150** U	**540** U	**530** U	**140** U
(1) Aroclor-1254	60	34,000	LEL/SEL	**86** U	NR	**170** U	**490** U	NR	**670** U	NR	**340** U	**150** U	**540** U	**530** U	**140** U
(1) Aroclor-1260	5	24,000	LEL/SEL	**86** U	NR	**170** U	**490** U	NR	**670** U	NR	**340** U	**150** U	**540** U	**530** U	**140** U
(1) Aroclor 1262	NC	NC		86 U	NR	170 U	490 U	NR	670 U	NR	340 U	150 U	540 U	530 U	140 U
(1) Aroclor-1268	NC	NC		86 U	NR	170 U	490 U	NR	670 U	NR	340 U	150 U	540 U	530 U	140 U

(1) Values listed reflect the combined standards for "Total PCBs"
(2) Soil Cleanup criteria is provided for "Endosulfan" without specification if it is for Endosulfan I or Endosulfan II

Qualifiers
U - The compound was not detected at the indicated concentration
Bold numbers indicate exceedance of NJDEP ER-L
NR - Not analyzed
-- Blind duplicate sample.
NC - No criteria
(LEL) - Lowest Effects Level instead of ER-L
(SEL) - Severe Effects Level instead of ER-M

TABLE 12
SUMMARY OF METALS IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID	NJDEP	NJDEP	SS-2 0-6	SS-2 6-36	SS-1 0-6	SS-1 6-12	SS-1 24-36	SS-11 0-6	SS-11 12-24	SS-11 24-36	-SS-11 36-40	SS-10 0-6	SS-10 6-36	-SS-10 36-40	SS-18 0-6
Lab Sample Number	Effects Range Low	Effects Range Medium	210017	210018	210019	210020	210021	210022	210023	210024	210025	210026	210027	210028	207440
Sampling Date	ER-L	ER-M	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	05/23/00
Matrix	(mg/kg)	(mg/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
METALS															
Antimony	NC	NC	9.2 UJ	6.6 UJ	1.9 UJ	3.6 J	2.2 UJ	2.6 U	30.9 J	7.8 J	5.1 J	2.5 UJ	2.9 UJ	3.2 UJ	1.2 UJ
Arsenic	8.2	70	27.0	33.8	28.0	26.9	25.3	20.1	63.3	60.6	49.8	15.3	20.0	22.9	10.4
Beryllium	NC	NC	1.1 J	0.29 U	1.1	1.7	0.66 J	1.2	0.86 J	1.3 J	1.1 J	1.2	1.4	1.5	0.69
Cadmium	1.2	9.6	1.1 J	2.1 J	0.17 U	0.16 U	0.57 J	2.7 J	0.49 J	7.3	3.2 J	2.4 J	1.5 J	4.9	0.35 J
Chromium	81	370	202	495	140	188	122	313	260	1040	676	261	310	369	48.9
Copper	34	270	96.6	113	123	155	174	157	255	414	356	122	141	158	37.5
Lead	47	218	289	433	141	204	142	174	251	361	280	141	166	188	45.1
Mercury	0.15	0.71	2.9	5.6	2.9	2.2	3.0	8.9	4.0	11.5	9.5	8.2	7.7	8.1	4.0
Nickel	21	52	94.4	137	24.5	20.9	26.4	57.8	56.4	119	88.0	45.9	51.3	86.9	27.5
Selenium	NC	NC	9.2 U	6.6 U	1.9 U	2.1	3.8	2.6 U	2.6 U	4.1 U	3.3 U	2.5 U	2.9 U	3.2 U	1.2 U
Silver	1.0	3.7	2.2 U	1.8 J	0.48 U	0.60 J	1.4 J	3.8 J	1.1 J	4.1 J	2.8 J	2.7 J	3.2 J	2.9 J	0.29 U
Thallium	NC	NC	8.4 U	6.0 U	1.8 U	1.7 U	2.0 U	2.4 U	2.3 U	3.6 U	3.0 U	2.3 U	2.6 U	2.9 U	1.1 U
Zinc	150	410	275	427	121	100.0	141	354	221	550	378	313	254	468	114

Sample ID	NJDEP	NJDEP	SS-18 6-12	SS-18 12-24	SS-18 24-36	SS-14 0-6	SS-14 6-12	SS-14 12-24	SS-14 24-36	SS-14 36-60	SS-14 60-84	SS-6 0-6	SS-6 6-12	SS-6 24-36	SS-6 36-60
Lab Sample Number	Effects Range Low	Effects Range Medium	207441	207442	207443	207444	207445	207446	207447	207448	207449	207450	207451	207452	207453
Sampling Date	ER-L	ER-M	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00
Matrix	(mg/kg)	(mg/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
METALS															
Antimony	NC	NC	1.2 UJ	1.1 UJ	1.1 UJ	1.7 UJ	1.7 UJ	1.4 UJ	1.7 UJ	2.4 UJ	2.9 UJ	1.8 UJ	1.6 J	4.1 UJ	6.1 UJ
Arsenic	8.2	70	14.1	7.7	6.5	18.4	27.6	7.4	25.9	7.4	7.3 U	24.9	17.9	12.3	4.9 U
Beryllium	NC	NC	0.72	0.93	0.80	0.86	0.87	0.66	0.69 J	0.95 J	0.13 U	0.84	0.57 J	0.23 J	0.27 U
Cadmium	1.2	9.6	0.46 J	0.10 U	0.10 U	0.96 J	0.43 J	0.22 J	0.56 J	0.21 U	0.26 U	1.3 J	0.50 J	0.41 J	0.54 U
Chromium	81	370	69.6	26.1	22.2	165	174	26.2	131	24.8	8.0	67.3	96.0	30.5	25.5
Copper	34	270	46.8	30.7	28.3	187	98.6	28.6	96.6	20.8	13.1 J	73.2	78.1	24.1	25.9 J
Lead	47	218	53.5	15.6	12.7	134	140	12.8	88.1	14.5	15.7	65.6	103	37.7	26.5
Mercury	0.15	0.71	0.89	0.05	0.03 J	3.7	3.9	0.21	4.1	0.32	0.22	1.5	1.2	2.0	0.41
Nickel	21	52	28.0	35.2	28.6	37.4	34.1	26.4	32.3	22.2	5.1 J	35.8	23.9	14.5 J	10.9 J
Selenium	NC	NC	1.2 U	1.1 U	1.1 U	1.8 J	1.7 U	1.4 U	1.7 J	2.4 U	2.9 U	1.8	1.5 U	4.1 U	6.1 U
Silver	1.0	3.7	0.28 U	0.28 U	0.28 U	1.1 J	0.41 U	0.35 U	0.83 J	0.58 U	0.71 U	0.38 U	0.48 J	1.00 U	1.5 U
Thallium	NC	NC	1.1 U	1.0 U	1.0 U	1.5 U	1.5 U	1.3 U	1.5 U	2.2 U	2.6 U	1.4 U	1.4 U	3.7 U	5.6 U
Zinc	150	410	140	82.9	85.7	183	186	112	195	58.6	20.8	338	125	179	63.3

Sample ID	NJDEP	NJDEP	SS-6 60-84	SS-17 0-6	SS-17 6-36	SS-8 0-6	SS-8 6-36	SS-8 36-72	SS-13 0-6	SS-13 6-12	SS-13 12-24	SS-13 24-36	SS-16 0-6	SS-16 6-12
Lab Sample Number	Effects Range Low	Effects Range Medium	207454	207455	207456	207457	207458	207459	207460	207461	207462	207463	207464	207465
Sampling Date	ER-L	ER-M	05/23/00	05/23/00	05/23/00	05/24/00	05/24/00	05/24/00	05/24/00	05/24/00	05/24/00	05/24/00	05/23/00	05/23/00
Matrix	(mg/kg)	(mg/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
METALS														
Antimony	NC	NC	5.7 UJ	1.8 J	1.6 UJ	5.5 UJ	7.0 UJ	7.6 UJ	1.4 UJ	1.5 UJ	1.3 UJ	1.7 UJ	2.7 UJ	2.0 UJ
Arsenic	8.2	70	10.4	17.3	22.0	12.1	5.6 U	17.6	7.5	2.3	0.73 U	2.8	39.3	29.0
Beryllium	NC	NC	0.28 J	0.87	0.78	0.61 J	0.39 U	0.74 J	0.27 J	0.16 J	0.10 J	0.34 J	1.4	0.88
Cadmium	1.2	9.6	0.50 U	0.30 J	0.17 J	0.56 J	0.62 U	0.67 U	0.094 U	0.10 U	0.092 U	0.11 U	0.19 U	0.39 J
Chromium	81	370	62.5	132	69.8	73.3	8.6 J	97.2	19.1	5.0	2.6	9.3	154	152
Copper	34	270	33.3	57.9	100	48.7	6.4 J	48.1	30.7	6.5	2.1 J	9.3	100	135
Lead	47	218	41.7	64.6	90.5	67.9	5.5 J	62.0	146	5.3	1.6	5.6	100	165
Mercury	0.15	0.71	0.90	3.0	1.1	0.97	0.16 J	2.2	0.19	0.03 J	0.021 U	0.024 U	4.9	2.6
Nickel	21	52	16.7 J	40.1	24.3	22.4 J	3.7 J	34.3 J	13.8	4.4 J	2.8 J	13.2	57.8	33.9
Selenium	NC	NC	5.7 U	1.4 U	1.6 U	5.5 U	7.0 U	7.6 U	0.99 U	1.1 U	0.96 U	1.2 U	2.0 U	1.4 U
Silver	1.0	3.7	1.4 U	0.44 J	0.38 U	1.3 U	1.7 U	1.9 U	0.33 U	0.35 U	0.32 U	0.40 U	0.65 U	1.0 J
Thallium	NC	NC	5.2 U	1.2 U	1.4 U	5.0 U	6.4 U	6.9 U	1.1 U	1.2 U	1.1 U	1.3 U	2.2 U	1.6 U
Zinc	150	410	95.8	173	121	115	16.4 J	188	48.7	13.9	13.6	33.0	341	165

Qualifiers
- U - The compound was not detected at the indicated concentration.
- J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value
- UJ - The analyte was not detected above the sample quantitation limit (SQL); however, the SQL may be inaccurate or imprecise. Bold numbers indicate exceedance of NJDEP ER-L.
- NR - Not analyzed
- -- Blind duplicate sample
- NC - No criteria

TABLE 12 (Continued)
SUMMARY OF METALS IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID	NJDEP	NJDEP	SS-16 12-24	SS-16 24-36	SS-16 36-60	SS-16 60-84	~SS-16 84-96	SS-15 0-6	SS-15 6-36	SS-15 36-72	~SS-15 72-84	SS-5 0-6	SS-5 6-12	SS-5 12-24
Lab Sample Number	Effects Range Low	Effects Range Medium	207466	207467	207468	207469	207470	207471	207472	207473	207474	205778	205779	205780
Sampling Date	ER-L	ER-M	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/16/00	05/16/00	05/16/00
Matrix	(mg/kg)	(mg/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor			NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg	mg/kg
METALS														
Antimony	NC	NC	1.6 UJ	2.3 UJ	4.4 UJ	7.3 UJ	5.5 UJ	2.1 UJ	1.9 UJ	7.0 UJ	1.9 UJ	NR	1.0 UJ	1.7 UJ
Arsenic	8.2	70	**11.0**	**14.3**	**23.0**	6.9	3.0 U	**18.9**	**8.9**	3.9 U	7.7	NR	5.2	5.6
Beryllium	NC	NC	0.93	0.87	2.0	0.38 U	0.28 U	1.0	0.69	0.38 U	0.69	NR	0.46	0.76
Cadmium	1.2	9.6	0.11 U	0.16 U	0.31 U	0.51 U	0.38 U	0.89 J	0.22 J	0.48 U	0.13 U	NR	0.091 U	0.15 U
Chromium	81	370	30.5	40.3	57.5	11.1 J	3.5 J	**129**	21.5	1.9 U	22.4	NR	19.8	24.7
Copper	34	270	**42.8**	**54.9**	**87.0**	22.2 J	3.5 J	**95.1**	24.4	4.5 U	36.2	NR	16.9	**48.6**
Lead	47	218	34.2	**52.7**	**77.8**	22.9	2.2 U	**78.5**	14.6	2.8 U	14.8	NR	12.0	14.6
Mercury	0.15	0.71	0.08	**0.43**	**0.23**	**0.28**	0.079 U	**3.5**	0.07	0.11 U	0.08	NR	0.09	0.11
Nickel	21	52	**36.9**	**37.1**	**79.3**	9.7 J	1.7 J	**42.9**	**29.7**	1.9 U	**27.3**	NR	18.2	**28.5**
Selenium	NC	NC	1.2 U	1.7 U	3.2 U	5.3 U	4.0 U	1.5 U	1.4 U	5.1 U	1.4 U	NR	1.0 U	1.7 U
Silver	1.0	3.7	0.40 U	0.55 U	**1.1 U**	1.8 U	1.3 U	0.51 U	0.46 U	**1.7 U**	0.46 U	NR	0.75 U	0.41 U
Thallium	NC	NC	1.3 U	1.9 U	3.6 U	5.9 U	4.4 U	1.7 U	1.5 U	5.7 U	1.5 U	NR	0.93 U	1.5 U
Zinc	150	410	127	**152**	**244**	76.4	15.1 J	**232**	120	39.7	79.8	NR	41.5	66.3

Sample ID	NJDEP	NJDEP	SS-5 24-36	SS-4 0-6	SS-4 6-36	SS-4 36-72	SS-3 0-6	SS-3 6-36	SS-7 0-6	SS-7 6-12	SS-7 12-24	SS-7 24-36	SS-7 36-60	SS-7 60-84
Lab Sample Number	Effects Range Low	Effects Range Medium	205781	205782	205783	205784	205785	205786	205787	205788	205789	205790	205791	205792
Sampling Date	ER-L	ER-M	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00
Matrix	(mg/kg)	(mg/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor			NA		NA	NA		NA		NA	NA	NA	NA	NA
Units			mg/kg		mg/kg	mg/kg		mg/kg		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
METALS														
Antimony	NC	NC	1.2 UJ	NR	2.3 UJ	6.6 UJ	NR	9.0 UJ	NR	4.1 UJ	2.0 UJ	7.2 UJ	6.5 UJ	1.9 UJ
Arsenic	8.2	70	5.4	NR	**10.6**	5.3 U	NR	7.2 U	NR	**9.1**	**19.1**	5.8 U	5.2 U	1.5 U
Beryllium	NC	NC	0.45 J	NR	0.66 J	0.79 U	NR	0.40 U	NR	0.35 J	0.74 J	0.32 U	0.29 U	0.15 J
Cadmium	1.2	9.6	0.10 U	NR	0.20 U	0.58 U	NR	0.80 U	NR	0.37 U	0.18 U	0.64 U	0.58 U	0.17 U
Chromium	81	370	25.5	NR	27.8	14.6	NR	6.7 J	NR	44.9	**99.6**	19.2	35.7	3.9 J
Copper	34	270	19.7	NR	24.3	13.1 J	NR	5.6 J	NR	32.8	**77.6**	17.6 J	28.2 J	2.5 J
Lead	47	218	14.5	NR	24.3	6.8 J	NR	4.8 J	NR	43.9	**91.5**	19.2	32.5	2.6
Mercury	0.15	0.71	**0.36**	NR	**0.15**	0.12 U	NR	**0.17 U**	NR	**1.1**	**1.4**	**0.72**	**0.56**	0.036 U
Nickel	21	52	16.5	NR	**24.6**	6.0 J	NR	4.5 J	NR	12.6 J	**25.1**	6.3 J	11.1 J	1.6 J
Selenium	NC	NC	1.2 U	NR	2.3 U	6.6 U	NR	9.0 U	NR	4.1 U	2.0 U	7.2 U	6.5 U	1.9 U
Silver	1.0	3.7	0.28 U	NR	0.56 U	1.6 U	NR	**2.2 U**	NR	**1.0 U**	0.49 U	**1.8 U**	**1.6 U**	0.47 U
Thallium	NC	NC	1.0 U	NR	2.1 U	6.0 U	NR	8.2 U	NR	3.8 U	1.8 U	8.6 U	5.9 U	1.8 U
Zinc	150	410	51.5	NR	76.5	18.2 J	NR	19.0 J	NR	68.7	104	38.8 J	54.8	10.3 J

Qualifiers
- U - The compound was not detected at the indicated concentration.
- J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.
- UJ - The analyte was not detected above the sample quantitation limit (SQL), however, the SQL may be inaccurate or imprecise.
  Bold numbers indicate exceedance of NJDEP ER-L
- NR - Not analyzed
- ~ - Blind duplicate sample
- NC - No criteria

TABLE 8
SUMMARY OF VOLATILE ORGANICS IN SEDIMENT SAMPLES
ORITANI MARSH, NEW JERSEY

Sample ID	NJDEP	NJDEP	SS-2 0-6	SS-2 6-36	SS-1 0-6	SS-1 6-12	SS-1 24-36	SS-11 0-6	SS-11 12-24	SS-11 24-36	-SS-11 36-40	SS-10 0-6	SS-10 6-36	-SS-10 36-40	SS-15 0-6
Lab Sample Number	Effects Range Low	Effects Range Medium	210017	210018	210019	210020	210021	210022	210023	210024	210025	210026	210027	210028	207440
Sampling Date	ER-L	ER-M	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	05/23/00
Matrix	(mg/kg)	(mg/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor			1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	
Units			ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		ug/kg	ug/kg	ug/kg		ug/kg	ug/kg	
VOLATILE COMPOUNDS (GC/MS)															
Chloromethane	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 U	21 U	17 U	NR	15 U	16 U	NR
Bromomethane	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 U	21 U	17 U	NR	15 U	16 U	NR
Vinyl Chloride	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 U	21 U	17 U	NR	15 U	16 U	NR
Chloroethane	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 U	21 U	17 U	NR	15 U	16 U	NR
Methylene Chloride	NC	NC	NR	20 U	NR	6.2 U	7.6 U	NR	8.0 U	13 U	10 U	NR	9.0 U	9.6 U	NR
Trichlorofluoromethane	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 U	21 U	17 U	NR	15 U	16 U	NR
1,1-Dichloroethene	NC	NC	NR	14 U	NR	4.1 U	5.2 U	NR	5.4 U	8.5 U	6.7 U	NR	6.0 U	6.5 U	NR
1,1-Dichloroethane	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 U	21 U	17 U	NR	15 U	16 U	NR
trans-1,2-Dichloroethene	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 U	21 U	17 U	NR	15 U	16 U	NR
cis-1,2-Dichloroethene	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 U	21 U	17 U	NR	15 U	16 U	NR
Chloroform	NC	NC	NR	34 U	NR	10 U	16 J	NR	2.9 J	21 U	17 U	NR	15 U	16 U	NR
1,2-Dichloroethane	NC	NC	NR	14 U	NR	4.1 U	5.2 U	NR	5.4 U	8.5 U	6.7 U	NR	6.0 U	6.5 U	NR
1,1,1-Trichloroethane	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 UJ	21 UJ	17 UJ	NR	15 U	16 U	NR
CarbonTetrachloride	NC	NC	NR	14 U	NR	4.1 U	5.2 U	NR	5.4 UJ	8.5 UJ	6.7 UJ	NR	6.0 U	6.5 U	NR
Bromodichloromethane	NC	NC	NR	6.8 U	NR	2.1 U	2.6 U	NR	2.7 UJ	4.3 UJ	3.3 UJ	NR	3.0 U	3.3 U	NR
1,2-Dichloropropane	NC	NC	NR	6.8 U	NR	2.1 U	2.6 U	NR	2.7 UJ	4.3 UJ	3.3 UJ	NR	3.0 U	3.3 U	NR
(1) cis-1,3-Dichloropropene	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 UJ	21 UJ	17 UJ	NR	15 U	16 U	NR
Trichloroethene	NC	NC	NR	6.8 U	NR	2.1 J	1.7 J	NR	11 J	6.7 J	2.0 J	NR	3.0 U	3.3 U	NR
Dibromochloromethane	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 UJ	21 UJ	17 UJ	NR	15 U	16 U	NR
1,1,2-Trichloroethane	NC	NC	NR	20 U	NR	6.2 U	7.8 U	NR	8.0 UJ	13 UJ	10 UJ	NR	9.0 U	9.8 U	NR
Benzene	NC	NC	NR	6.8 U	NR	1.7 J	2.6 U	NR	7.2 J	2.3 J	3.3 UJ	NR	3.0 U	3.3 U	NR
(1) trans-1,3-Dichloropropene	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 UJ	21 UJ	17 UJ	NR	15 U	16 U	NR
2-ChloroethylVinylEther	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 UJ	21 UJ	17 UJ	NR	15 U	16 U	NR
Bromoform	NC	NC	NR	27 U	NR	8.3 U	10 U	NR	11 UJ	17 UJ	13 UJ	NR	12 U	13 U	NR
Tetrachloroethene	NC	NC	NR	6.8 U	NR	16 J	3.4	NR	52 J	4.3 UJ	3.3 UJ	NR	3.0 U	3.3 U	NR
1,1,2,2-Tetrachloroethane	NC	NC	NR	6.8 U	NR	2.1 U	2.6 U	NR	2.7 UJ	4.3 UJ	3.3 UJ	NR	3.0 U	3.3 U	NR
Toluene	NC	NC	NR	6.8 J	NR	2.3 J	1.3 U	NR	5.5 J	340 J	21 J	NR	15 U	16 U	NR
Chlorobenzene	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 UJ	21 UJ	17 UJ	NR	15 U	16 U	NR
Ethylbenzene	NC	NC	NR	27 U	NR	8.3 U	10 U	NR	11 UJ	17 UJ	13 UJ	NR	12 U	13 U	NR
Xylene(Total)	NC	NC	NR	34 U	NR	10 U	13 U	NR	13 UJ	21 UJ	17 UJ	NR	15 U	16 U	NR
Total Confident Conc. VOAs (a)				0		27	3.5		81	347	21		0	0	
Total Estimated Conc. VOA TICs (a)				140		0	0		0	127	33		57	193	

Sample ID	NJDEP	NJDEP	SS-18 8-12	SS-18 12-24	SS-18 24-36	SS-14 0-6	SS-14 6-12	SS-14 12-24	SS-14 24-36	SS-14 36-60	SS-14 60-84	SS 6 0-6	SS-6 6-12	SS-6 24-36	SS 6 36-60
Lab Sample Number	Effects Range Low	Effects Range Medium	207441	207442	207443	207444	207445	207446	207447	207448	207449	207450	207451	207452	207453
Sampling Date	ER-L	ER-M	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00
Matrix	(mg/kg)	(mg/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Units			ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		ug/kg	ug/kg	ug/kg		ug/kg	ug/kg	ug/kg
VOLATILE COMPOUNDS (GC/MS)															
Chloromethane	NC	NC	6.4 U	6.2 U	6.3 U	NR	9.5 U	8.2 U	9.1 U	13 U	15 U	NR	6.4 U	22 U	32 U
Bromomethane	NC	NC	6.4 U	6.2 U	6.3 U	NR	9.5 U	8.2 U	9.1 U	13 U	15 U	NR	6.4 U	22 U	32 U
VinylChloride	NC	NC	6.4 U	6.2 U	6.3 U	NR	9.5 U	8.2 U	9.1 U	13 U	15 U	NR	6.4 U	22 U	32 U
Chloroethane	NC	NC	6.4 U	6.2 U	6.3 U	NR	9.5 U	8.2 U	9.1 U	13 U	15 U	NR	6.4 U	22 U	32 U
Methylene Chloride	NC	NC	4.6 J	3.8 J	3.7 J	NR	5.7 U	4.9 U	5.5 J	9.8 J	10 J	NR	5.8 J	13 U	19 U
Trichlorofluoromethane	NC	NC	6.4 U	6.2 U	6.3 U	NR	9.5 U	8.2 U	9.1 U	13 U	15 U	NR	6.4 U	22 U	32 U
1,1-Dichloroethene	NC	NC	2.6 U	2.5 U	2.5 U	NR	3.8 U	3.3 U	3.6 U	5.1 U	6.2 U	NR	3.3 U	8.8 U	13 U
1,1-Dichloroethane	NC	NC	6.4 U	6.2 U	6.3 U	NR	9.5 U	8.2 U	9.1 U	13 U	15 U	NR	6.4 U	22 U	32 U
trans-1,2-Dichloroethene	NC	NC	6.4 U	6.2 U	6.3 U	NR	9.5 U	8.2 U	9.1 U	13 U	15 U	NR	6.4 U	22 U	32 U
cis-1,2-Dichloroethene	NC	NC	6.4 U	6.2 U	6.3 U	NR	9.5 U	8.2 U	9.1 U	13 U	15 U	NR	6.4 U	22 U	32 U
Chloroform	NC	NC	6.4 U	6.2 U	6.3 U	NR	9.5 U	8.2 U	9.1 U	13 U	15 U	NR	6.4 U	22 U	32 U
1,2-Dichloroethane	NC	NC	2.6 U	2.5 U	2.5 U	NR	3.8 U	3.3 U	3.6 U	5.1 U	6.2 U	NR	3.3 U	8.8 U	13 U
1,1,1-Trichloroethane	NC	NC	6.4 UJ	6.2 UJ	6.3 UJ	NR	9.5 UJ	8.2 U	9.1 U	13 U	15 UJ	NR	6.4 U	22 UJ	32 UJ
CarbonTetrachloride	NC	NC	2.6 UJ	2.5 UJ	2.5 UJ	NR	3.8 UJ	3.3 U	3.6 U	5.1 U	6.2 UJ	NR	3.3 U	8.8 UJ	13 UJ
Bromodichloromethane	NC	NC	1.3 UJ	1.2 UJ	1.3 UJ	NR	1.9 UJ	1.6 U	1.8 U	2.6 U	3.1 UJ	NR	1.7 U	4.4 UJ	6.5 UJ
1,2-Dichloropropane	NC	NC	1.3 UJ	1.2 UJ	1.3 UJ	NR	1.9 UJ	1.6 U	1.8 U	2.6 U	3.1 UJ	NR	1.7 U	4.4 UJ	6.5 UJ
(1) cis-1,3-Dichloropropene	NC	NC	6.4 UJ	6.2 UJ	6.3 UJ	NR	9.5 UJ	8.2 U	9.1 U	13 U	15 UJ	NR	6.4 U	22 UJ	32 UJ
Trichloroethene	NC	NC	1.3 UJ	1.2 UJ	1.3 UJ	NR	1.9 UJ	1.6 U	1.8 U	2.6 U	3.1 UJ	NR	1.7 U	4.4 UJ	6.5 UJ
Dibromochloromethane	NC	NC	6.4 UJ	6.2 UJ	6.3 UJ	NR	9.5 UJ	8.2 U	9.1 U	13 U	15 UJ	NR	6.4 U	22 UJ	32 UJ
1,1,2-Trichloroethane	NC	NC	2.6 UJ	2.5 UJ	2.5 UJ	NR	3.8 UJ	3.3 U	3.6 U	5.1 U	6.2 UJ	NR	3.3 U	8.8 UJ	13 UJ
Benzene	NC	NC	1.3 UJ	1.2 UJ	1.3 UJ	NR	1.9 UJ	1.6 U	1.8 U	2.6 U	2.7 J	NR	1.7 U	4.4 UJ	3.6 J
(1) trans-1,3-Dichloropropene	NC	NC	6.4 UJ	6.2 UJ	6.3 UJ	NR	9.5 UJ	8.2 U	9.1 U	13 U	15 UJ	NR	6.4 U	22 UJ	32 UJ
2-ChloroethylVinylEther	NC	NC	6.4 UJ	6.2 UJ	6.3 UJ	NR	9.5 UJ	8.2 U	9.1 U	13 U	15 UJ	NR	6.4 U	22 UJ	32 UJ
Bromoform	NC	NC	5.1 UJ	5.0 UJ	5.0 UJ	NR	7.6 UJ	6.6 U	7.3 U	10 U	12 UJ	NR	6.7 U	18 UJ	26 UJ
Tetrachloroethene	NC	NC	1.3 UJ	1.2 UJ	1.3 UJ	NR	1.9 UJ	1.6 U	1.8 U	2.6 U	3.1 UJ	NR	1.7 U	4.4 UJ	6.5 UJ
1,1,2,2-Tetrachloroethane	NC	NC	1.3 UJ	1.2 UJ	1.3 UJ	NR	1.9 UJ	1.6 U	1.8 U	2.6 U	3.1 UJ	NR	1.7 U	4.4 UJ	6.5 UJ
Toluene	NC	NC	6.4 UJ	6.2 UJ	6.3 UJ	NR	9.5 UJ	8.2 U	14 J	3.1 J	12 J	NR	2.5 J	5.8 J	9.0 J
Chlorobenzene	NC	NC	6.4 UJ	6.2 UJ	6.3 UJ	NR	9.5 UJ	8.2 U	9.1 U	13 U	15 UJ	NR	6.4 U	22 UJ	32 UJ
Ethylbenzene	NC	NC	5.1 UJ	5.0 UJ	5.0 UJ	NR	7.6 UJ	6.6 U	7.3 U	10 U	12 UJ	NR	6.7 U	18 UJ	26 UJ
Xylene(Total)	NC	NC	6.4 UJ	6.2 UJ	6.3 UJ	NR	9.5 UJ	8.2 U	9.1 U	13 U	15 UJ	NR	6.4 U	22 UJ	32 UJ
Total Confident Conc. VOAs (a)			4.6	3.6	0		0	0	5.5	9.8	16		5.8	0	0
Total Estimated Conc. VOA TICs (a)			131	55	26		0	29	184	542	276		655	628	

(1) Values listed reflect the combined standards for the cis and trans isomers of 1,3-Dichloropropene
^ Value is a revision to the Class IIA ground water quality standard based upon the November 18, 1996 Safe Drinking Water Act maximum contaminant level changes and the February 9, 1997 policy memo issued by Assistant Commissioner R. Gimello

Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.
UJ - The analyte was not detected above the sample quantitation limit (SQL); however, the SQL may be inaccurate or imprecise.
NR - Not analyzed
- - Blind duplicate sample
NC - No criteria

TABLE 9 (Continued)
SUMMARY OF VOLATILE ORGANICS IN SEDIMENT SAMPLES
ORITANI MARSH, NEW JERSEY

	Sample ID	NJDEP Effects Range Low ER-L (mg/kg)	NJDEP Effects Range Medium ER-M (mg/kg)	SS-6 60-84	SS-17 0-6	SS-17 6-36	SS-6 0-6	SS-8 6-36	SS-8 36-72	SS 13 0-6	SS-13 6-12	SS-13 12-24	SS 13 24-36	SS-16 0-6	SS-16 6-12
	Lab Sample Number			207454	207455	207456	207457	207458	207459	207460	207461	207462	207463	207464	207465
	Sampling Date			05/23/00	05/23/00	05/23/00	05/24/00	05/24/00	05/24/00	05/24/00	05/24/00	05/24/00	05/24/00	05/23/00	05/23/00
	Matrix			SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	Dilution Factor			1.0		1.0		1.0	1.0		1.0	1.0	1.0		1.0
	Units			ug/kg		ug/kg		ug/kg	ug/kg		ug/kg	ug/kg	ug/kg		ug/kg
	VOLATILE COMPOUNDS (GC/MS)														
	Chloromethane	NC	NC	34 U	NR	9.4 U	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	Bromomethane	NC	NC	34 U	NR	9.4 U	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	Vinyl Chloride	NC	NC	34 U	NR	9.4 U	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	Chloroethane	NC	NC	34 U	NR	9.4 U	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	Methylene Chloride	NC	NC	20 U	NR	5.6 U	NR	23 UJ	27 UJ	NR	4.2 U	3.5 J	4.2 U	NR	5.6 U
	Trichlorofluoromethane	NC	NC	34 U	NR	9.4 U	NR	35 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	1,1-Dichloroethene	NC	NC	14 U	NR	3.8 U	NR	16 UJ	18 UJ	NR	2.5 U	2.5 U	2.8 U	NR	3.7 U
	1,1-Dichloroethane	NC	NC	34 U	NR	9.4 U	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	trans-1,2-Dichloroethene	NC	NC	34 U	NR	9.4 U	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	cis-1,2-Dichloroethene	NC	NC	34 U	NR	9.4 U	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	Chloroform	NC	NC	34 U	NR	9.4 U	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	1,2-Dichloroethane	NC	NC	14 U	NR	3.8 U	NR	16 UJ	18 UJ	NR	2.5 U	2.5 U	2.8 U	NR	3.7 U
	1,1,1-Trichloroethane	NC	NC	34 UJ	NR	9.4 UJ	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	Carbon Tetrachloride	NC	NC	14 UJ	NR	3.8 UJ	NR	16 UJ	18 UJ	NR	2.5 U	2.5 U	2.8 U	NR	3.7 U
	Bromodichloromethane	NC	NC	6.9 UJ	NR	1.9 UJ	NR	7.8 UJ	9.0 UJ	NR	1.2 U	1.2 U	1.4 U	NR	1.9 U
	1,2-Dichloropropane	NC	NC	6.9 UJ	NR	1.9 UJ	NR	7.8 UJ	9.0 UJ	NR	1.2 U	1.2 U	1.4 U	NR	1.9 U
(1)	cis-1,3-Dichloropropene	NC	NC	34 UJ	NR	9.4 UJ	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	Trichloroethene	NC	NC	6.9 UJ	NR	1.9 UJ	NR	7.8 UJ	9.0 UJ	NR	1.2 U	1.2 U	1.4 U	NR	1.9 U
	Dibromochloromethane	NC	NC	34 UJ	NR	9.4 UJ	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	1,1,2-Trichloroethane	NC	NC	20 UJ	NR	5.6 UJ	NR	23 UJ	27 UJ	NR	3.6 U	3.7 U	4.2 U	NR	5.6 U
	Benzene	NC	NC	6.9 UJ	NR	1.9 UJ	NR	7.8 UJ	9.0 UJ	NR	1.2 U	1.2 U	1.4 U	NR	1.9 U
(1)	trans-1,3-Dichloropropene	NC	NC	34 UJ	NR	9.4 UJ	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	2-ChloroethylVinylEther	NC	NC	34 UJ	NR	9.4 UJ	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	Bromoform	NC	NC	27 UJ	NR	7.5 UJ	NR	31 UJ	36 UJ	NR	5.0 U	5.0 U	5.6 U	NR	7.5 U
	Tetrachloroethene	NC	NC	6.9 UJ	NR	1.9 UJ	NR	7.8 UJ	9.0 UJ	NR	1.2 U	1.2 U	1.4 U	NR	1.9 U
	1,1,2,2-Tetrachloroethane	NC	NC	6.9 UJ	NR	1.9 UJ	NR	7.8 UJ	9.0 UJ	NR	1.2 U	1.2 U	1.4 U	NR	1.9 U
	Toluene	NC	NC	6.6 J	NR	9.4 UJ	NR	39 UJ	11 J	NR	1.2 J	6.2 U	7.0 U	NR	1.4 J
	Chlorobenzene	NC	NC	34 UJ	NR	9.4 UJ	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	Ethylbenzene	NC	NC	27 UJ	NR	7.5 UJ	NR	31 UJ	36 UJ	NR	5.0 U	5.0 U	5.6 U	NR	7.5 U
	Xylene(Total)	NC	NC	34 UJ	NR	9.4 UJ	NR	39 UJ	45 UJ	NR	6.2 U	6.2 U	7.0 U	NR	9.3 U
	Total Confident Conc. VOAs (s)			0		0		0	0		0	0	0		0
	Total Estimated Conc. VOA TICs (s)			712		60		238	545		29	65	37		367

	Sample ID	NJDEP Effects Range Low ER-L (mg/kg)	NJDEP Effects Range Medium ER-M (mg/kg)	SS-16 12-24	SS-16 24-36	SS-16 36-60	SS-16 60-64	~SS 16 84-96	SS-15 0-6	SS-15 6-36	SS-15 36-72	~SS-15 72-84	SS-5 0-6	SS-5 6-12	SS-5 12-24
	Lab Sample Number			207466	207467	207468	207469	207470	207471	207472	207473	207474	205778	205779	205780
	Sampling Date			05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/16/00	05/16/00	05/16/00
	Matrix			SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	Dilution Factor			1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0
	Units			ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		ug/kg	ug/kg	ug/kg		ug/Kg	ug/Kg
	VOLATILE COMPOUNDS (GC/MS)														
	Chloromethane	NC	NC	7.6 U	10 U	19 U	34 U	23 U	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	Bromomethane	NC	NC	7.6 U	10 U	19 U	34 U	23 U	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	Vinyl Chloride	NC	NC	7.6 U	10 U	19 U	34 U	23 U	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	Chloroethane	NC	NC	7.6 U	10 U	19 U	34 U	23 U	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	Methylene Chloride	NC	NC	2.0 J	3.6 J	11 U	7.2 J	11 J	NR	2.7 J	19 J	3.6 J	NR	3.3 U	3.6 UJ
	Trichlorofluoromethane	NC	NC	7.6 U	10 U	19 U	34 U	23 U	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	1,1-Dichloroethene	NC	NC	3.0 U	4.1 U	7.6 U	14 U	9.2 U	NR	3.4 U	13 U	3.1 U	NR	2.2 U	2.4 UJ
	1,1-Dichloroethane	NC	NC	7.6 U	10 U	19 U	34 U	23 U	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	trans-1,2-Dichloroethene	NC	NC	7.6 U	10 U	19 U	34 U	23 U	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	cis-1,2-Dichloroethene	NC	NC	7.6 U	10 U	19 U	34 U	23 U	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	Chloroform	NC	NC	7.6 U	10 U	19 U	34 U	23 U	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	1,2-Dichloroethane	NC	NC	3.0 U	4.1 U	7.6 U	14 U	9.2 U	NR	3.4 U	13 U	3.1 U	NR	2.2 U	2.4 UJ
	1,1,1-Trichloroethane	NC	NC	7.6 U	10 U	19 U	34 UJ	23 UJ	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	Carbon Tetrachloride	NC	NC	3.0 U	4.1 U	7.6 U	14 UJ	9.2 UJ	NR	3.4 U	13 U	3.1 U	NR	2.2 U	2.4 UJ
	Bromodichloromethane	NC	NC	1.5 U	2.1 U	3.8 U	6.8 UJ	4.6 UJ	NR	1.7 U	6.5 U	1.5 U	NR	1.1 U	1.2 UJ
	1,2-Dichloropropane	NC	NC	1.5 U	2.1 U	3.8 U	6.8 UJ	4.6 UJ	NR	1.7 U	6.5 U	1.5 U	NR	1.1 U	1.2 UJ
(1)	cis-1,3-Dichloropropene	NC	NC	7.6 U	10 U	19 U	34 UJ	23 UJ	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	Trichloroethene	NC	NC	1.5 U	2.1 U	3.8 U	6.8 UJ	4.6 UJ	NR	1.7 U	6.5 U	1.5 U	NR	1.1 U	1.2 UJ
	Dibromochloromethane	NC	NC	7.6 U	10 U	19 U	34 UJ	23 UJ	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	1,1,2-Trichloroethane	NC	NC	4.5 U	6.2 U	11 U	20 UJ	14 UJ	NR	5.1 U	19 U	4.6 U	NR	3.3 U	3.6 UJ
	Benzene	NC	NC	1.5 U	2.1 U	3.8 U	6.8 UJ	4.6 UJ	NR	1.7 U	6.5 U	1.5 U	NR	1.1 U	1.2 UJ
(1)	trans-1,3-Dichloropropene	NC	NC	7.6 U	10 U	19 U	34 UJ	23 UJ	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	2-ChloroethylVinylEther	NC	NC	7.6 U	10 U	19 U	34 UJ	23 UJ	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	Bromoform	NC	NC	6.1 U	8.3 U	15 U	27 UJ	18 UJ	NR	6.9 U	26 U	6.2 U	NR	4.4 U	4.8 UJ
	Tetrachloroethene	NC	NC	1.5 U	2.1 U	3.8 U	6.8 UJ	4.6 UJ	NR	1.7 U	6.5 U	1.5 U	NR	1.1 U	1.2 UJ
	1,1,2,2-Tetrachloroethane	NC	NC	1.5 U	2.1 U	3.8 U	6.8 UJ	4.6 UJ	NR	1.7 U	6.5 U	1.5 U	NR	1.1 U	1.2 UJ
	Toluene	NC	NC	7.6 U	10 U	19 U	34 UJ	7.7 J	NR	8.6 U	8.1 J	7.7 U	NR	5.5 U	6.0 UJ
	Chlorobenzene	NC	NC	7.6 U	10 U	19 U	34 UJ	23 UJ	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	Ethylbenzene	NC	NC	6.1 U	8.3 U	15 U	27 UJ	18 UJ	NR	6.9 U	26 U	6.2 U	NR	4.4 U	4.8 UJ
	Xylene(Total)	NC	NC	7.6 U	10 U	19 U	34 UJ	23 UJ	NR	8.6 U	32 U	7.7 U	NR	5.5 U	6.0 UJ
	Total Confident Conc. VOAs (s)			0	0	0	0	0		0	0	0		0	0
	Total Estimated Conc. VOA TICs (s)			190	160	110	540	540		245	1264	53		31	66

(1) Values listed reflect the combined standards for the cis and trans isomers of 1,3-Dichloropropene
^ Value is a revision to the Class IIA ground water quality standard based upon the November 18, 1996 Safe Drinking Water Act maximum contaminant level changes and the February 5, 1997 policy memo issued by Assistant Commissioner R. Gimello

Qualifiers
U - The compound was not detected at the indicated concentration
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value
UJ - The analyte was not detected above the sample quantitation limit (SQL); however, the SQL may be inaccurate or imprecise
NR - Not analyzed
~ - Blind duplicate sample
NC - No criteria

TABLE 8 (Continued)
SUMMARY OF VOLATILE ORGANICS IN SEDIMENT SAMPLES
ORITANI MARSH, NEW JERSEY

Sample ID Lab Sample Number Sampling Date Matrix Dilution Factor Units	NJDEP Effects Range Low ER-L (mg/kg)	NJDEP Effects Range Medium ER-M (mg/kg)	SS-5 24-36 205781 05/16/00 SOLID 1.0 ug/Kg	SS-4 0-6 205782 05/16/00 SOLID	SS-4 6-36 205783 05/16/00 SOLID 1.0 ug/Kg	SS-4 36-72 205784 05/16/00 SOLID 1.0 ug/Kg	SS-3 0-6 205785 05/16/00 SOLID	SS-3 6-36 205786 05/16/00 SOLID 1.0 ug/Kg	SS-7 0-6 205787 05/16/00 SOLID	SS-7 6-12 205788 05/16/00 SOLID 1.0 ug/Kg	SS-7 12-24 205789 05/16/00 SOLID 1.0 ug/Kg	SS-7 24-36 205790 05/16/00 SOLID 1.0 ug/Kg	SS-7 36-60 205791 05/16/00 SOLID 1.0 ug/Kg	SS-7 60-84 205792 05/16/00 SOLID 1.0 ug/Kg
VOLATILE COMPOUNDS (GC/MS)														
Chloromethane	NC	NC	6.1 U	NR	12 U	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 U
Bromomethane	NC	NC	6.1 U	NR	12 U	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 U
VinylChloride	NC	NC	6.1 U	NR	12 U	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 U
Chloroethane	NC	NC	6.1 U	NR	12 U	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 U
Methylene Chloride	NC	NC	3.7 U	NR	7.4 U	22 UJ	NR	29 UJ	NR	14 U	6.5 UJ	24 UJ	24 UJ	6.2 U
Trichlorofluoromethane	NC	NC	6.1 U	NR	12 U	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 U
1,1-Dichloroethene	NC	NC	2.4 U	NR	5.0 U	14 UJ	NR	20 UJ	NR	9.7 U	4.4 UJ	14 J	11 J	4.1 U
1,1-Dichloroethane	NC	NC	6.1 U	NR	12 U	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 U
trans-1,2-Dichloroethene	NC	NC	6.1 U	NR	12 U	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 U
cis-1,2-Dichloroethene	NC	NC	6.1 U	NR	12 U	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 U
Chloroform	NC	NC	6.1 U	NR	12 U	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 U
1,2-Dichloroethane	NC	NC	2.4 U	NR	5.0 U	14 UJ	NR	20 UJ	NR	9.7 U	4.4 UJ	16 UJ	16 UJ	4.1 U
1,1,1-Trichloroethane	NC	NC	6.1 U	NR	12 UJ	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 UJ
CarbonTetrachloride	NC	NC	2.4 U	NR	5.0 UJ	14 UJ	NR	20 UJ	NR	9.7 U	4.4 UJ	16 UJ	16 UJ	4.1 UJ
Bromodichloromethane	NC	NC	1.2 U	NR	2.5 UJ	7.2 UJ	NR	9.8 UJ	NR	4.8 U	2.2 UJ	7.9 UJ	7.8 UJ	2.1 UJ
1,2-Dichloropropane	NC	NC	1.2 U	NR	2.5 UJ	7.2 UJ	NR	9.8 UJ	NR	4.8 U	2.2 UJ	7.9 UJ	7.6 UJ	2.1 UJ
(1) cis-1,3-Dichloropropene	NC	NC	6.1 U	NR	12 UJ	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 UJ
Trichloroethene	NC	NC	1.2 U	NR	2.5 UJ	7.2 UJ	NR	9.8 UJ	NR	4.8 U	2.2 UJ	7.9 UJ	7.6 UJ	2.1 UJ
Dibromochloromethane	NC	NC	6.1 U	NR	12 UJ	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 UJ
1,1,2-Trichloroethane	NC	NC	3.7 U	NR	7.4 UJ	22 UJ	NR	29 UJ	NR	14 U	6.5 UJ	24 UJ	24 UJ	6.2 UJ
Benzene	NC	NC	1.2 U	NR	2.5 UJ	7.2 UJ	NR	9.8 UJ	NR	4.8 U	2.2 UJ	7.9 UJ	7.8 UJ	2.1 UJ
(1) trans-1,3-Dichloropropene	NC	NC	6.1 U	NR	12 UJ	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 UJ
2-ChloroethylVinylEther	NC	NC	6.1 U	NR	12 UJ	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 UJ
Bromoform	NC	NC	4.9 U	NR	9.9 UJ	29 UJ	NR	39 UJ	NR	19 U	8.7 UJ	32 UJ	31 UJ	8.3 UJ
Tetrachloroethene	NC	NC	1.2 U	NR	2.5 UJ	7.2 UJ	NR	9.8 UJ	NR	4.8 U	2.2 UJ	7.9 UJ	7.8 UJ	2.1 UJ
1,1,2,2-Tetrachloroethane	NC	NC	1.2 U	NR	2.5 UJ	7.2 UJ	NR	9.8 UJ	NR	4.8 U	2.2 UJ	7.9 UJ	7.9 UJ	2.1 UJ
Toluene	NC	NC	6.1 U	NR	12 UJ	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 UJ
Chlorobenzene	NC	NC	6.1 U	NR	12 UJ	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 UJ
Ethylbenzene	NC	NC	4.9 U	NR	9.9 UJ	29 UJ	NR	39 UJ	NR	19 U	8.7 UJ	32 UJ	31 UJ	8.3 UJ
Xylene(Total)	NC	NC	6.1 U	NR	12 UJ	36 UJ	NR	49 UJ	NR	24 U	11 UJ	40 UJ	39 UJ	10 UJ
Total Confident Conc. VOAs (s)			0		0	0		0		0	0	0	0	0
Total Estimated Conc. VOA TICs (s)			0		0	141		300		0	55	245	89	0

(1) Values listed reflect the combined standards for the cis and trans isomers of 1,3-Dichloropropene.
* Value is a revision to the Class IIA ground water quality standard based upon the November 18, 1996 Safe Drinking Water Act maximum contaminant level changes and the February 5, 1997 policy memo issued by Assistant Commissioner R. Gimello

Qualifiers
U - The compound was not detected at the indicated concentration
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero
The concentration given is an approximate value
UJ - The analyte was not detected above the sample quantitation limit (SQL); however, the SQL may be inaccurate or imprecise
NR - Not analyzed
-- Blind duplicate sample
NC - No criteria

TABLE 10
SUMMARY OF PESTICIDES IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID Lab Sample Number Sampling Date Matrix Dilution Factor Units	NJDEP Effects Range Low ER-L (ug/kg)	NJDEP Effects Range Medium ER-M (ug/kg)	Criteria Source	SS-2_0-6 210017 06/09/00 SOLID 1.0 ug/kg	SS-2_6-36 210018 06/09/00 SOLID 1.0 ug/kg	SS-1_0-6 210019 06/09/00 SOLID 1.0 ug/kg	SS-1_6-12 210020 06/09/00 SOLID 1.0 ug/kg	SS-1_24-36 210021 06/09/00 SOLID 1.0 ug/kg	SS-11_0-6 210022 06/09/00 SOLID 1.0 ug/kg	SS-11_12-24 210023 06/09/00 SOLID 1.0 ug/kg	SS-11_24-36 210024 06/09/00 SOLID 1.0 ug/kg	~SS-11_36-40 210025 06/09/00 SOLID 1.0 ug/kg	SS-10_0-6 210026 06/09/00 SOLID 1.0 ug/kg
PESTICIDES													
Aldrin	2	8000	LEL/SEL	**75 U**	**49 U**	**16 U**	**15 U**	**18 U**	**21 U**	**19 U**	**31 U**	**24 U**	**19**
alpha-BHC	6	10,000	LEL/SEL	**75 U**	**49 U**	**16 U**	**15 U**	**18 U**	**21 U**	**19 U**	**31 U**	**24 U**	**19**
beta-BHC	5	21,000	LEL/SEL	**75 U**	**49 U**	**16 U**	**15 U**	**18 U**	**21 U**	**19 U**	**31 U**	**24 U**	**19**
delta-BHC	NC	NC		75 U	49 U	16 U	15 U	**18 U**	21 U	19 U	31 U	24 U	19
gamma-BHC(Lindane)	3	1000	LEL/SEL	**75 U**	**49 U**	16 U	15 U	**18 U**	**21 U**	**19 U**	**31 U**	**24 U**	**19**
Chlordane	7	6000	LEL/SEL	**750 U**	**490 U**	**160 U**	**150 U**	**180 U**	**210 U**	**190 U**	**310 U**	**240 U**	**190**
4,4'-DDD	NC	NC		75 U	49 U	16 U	34	18 U	21 U	44	97 J	97	38
4,4'-DDE	2.2	27		**75 U**	**60**	**16 U**	**25**	**18 U**	**28**	**39**	**96**	**85**	**33**
4,4'-DDT	1.6	46		75 U	**49 U**	**16 U**	**19 J**	**18 U**	**21 U**	**46**	**31 U**	**24 U**	**19**
Dieldrin	2	91,000	LEL/SEL	**75 U**	**49 U**	**16 U**	**15 U**	18 U	21 U	19 U	**31 U**	**24 U**	**19**
(2) Endosulfan I	NC	NC		75 U	49 U	16 U	15 U	18 U	21 U	19 U	31 U	24 U	27
(2) Endosulfan II	NC	NC		**75 U**	49 U	16 U	36 J	18 U	21 U	19 U	31 U	24 U	19
Endosulfansulfate	NC	NC		75 U	49 U	16 U	15 U	18 U	21 U	19 U	31 U	24 U	19
Endrin	3	130,000	LEL/SEL	**75 U**	**49 U**	**16 U**	**32**	**18 U**	**21 U**	**19 U**	**31 U**	**24 U**	**19**
Endrinaldehyde	NC	NC		75 U	49 U	16 U	15 U	**18 U**	21 U	**19 U**	31 U	24 U	19
Heptachlor	NC	NC		75 U	49 U	16 U	15 U	**18 U**	21 U	19 U	31 U	24 U	19
Heptachlor epoxide	5	5000	LEL/SEL	**75 U**	**49 U**	**16 U**	**15 U**	**18 U**	**21 U**	**19 U**	**31 U**	**24 U**	**19**
Toxaphene	NC	NC		750 U	490 U	160 U	150 U	180 U	210 U	190 U	310 U	240 U	190

(1) Values listed reflect the combined standards for "Total PCBs"
(2) Soil Cleanup criteria is provided for "Endosulfan" without specification if it is for Endosulfan I or Endosulfan II.

Qualifiers
U - The compound was not detected at the indicated concentration.
Bold numbers indicate exceedence of NJDEP ER-L
NR - Not analyzed.
~ - Blind duplicate sample
NC - No criteria
(LEL) - Lowest Effects Level instead of ER-L.
(SEL) - Severe Effects Level instead of ER-M.

TABLE 10
SUMMARY OF PESTICIDES IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP	SS-10_6-36	~SS-10_36-40	SS-18_0-6	SS-18_6-12	SS-18_12-24	SS-18_24-36	SS-14_0-6	SS-14_6-12	SS-14_12-24	SS-14_2
Lab Sample Number		Effects Range Low	Effects Range Medium	210027	210028	207440	207441	207442	207443	207444	207445	207446	207447
Sampling Date		ER-L	ER-M	06/09/00	06/09/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00
Matrix		(ug/kg)	(ug/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor				**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
Units				ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
PESTICIDES													
	Aldrin	2	8000 U	**22 U**	**24 U**	**8.9 U**	**8.6 U**	**8.6 U**	**8.5 U**	**12 U**	**14 U**	11 U	**12**
	alpha-BHC	6	10,000 U	**22 U**	**24 U**	**8.9 U**	**8.6 U**	**8.6 U**	**8.5 U**	**12 U**	**14 U**	**11 U**	**12**
	beta-BHC	5	21,000 U	**22 U**	**24 U**	**8.9 U**	**8.6 U**	**8.6 U**	**8.5 U**	**12 U**	**14 U**	**11 U**	**12**
	delta-BHC	NC	NC U	22 U	24 U	8.9 U	8.6 U	8.6 U	8.5 U	12 U	14 U	**11 U**	12
	gamma-BHC(Lindane)	3	1000 U	**22 U**	**24 U**	**8.9 U**	**8.6 U**	**8.6 U**	**8.5 U**	**12 U**	**14 U**	**11 U**	**12**
	Chlordane	7	6000 U	**220 U**	**240 U**	**89 U**	**86 U**	**86 U**	**85 U**	**120 U**	**140 U**	**110 U**	**120**
	4,4'-DDD	NC	NC	22 U	24 U	8.9 U	8.6 U	8.6 U	8.5 U	12 U	14 U	11 U	12
	4,4'-DDE	2.2	27	**28**	**39**	**8.9 U**	**8.6 U**	**8.6 U**	**8.5 U**	**12 U**	**14 U**	**11 U**	**12**
	4,4'-DDT	1.6	46 U	**22 U**	**24 U**	**8.9 U**	**8.6 U**	**8.6 U**	**8.5 U**	**12 U**	**14 U**	**11 U**	**12**
	Dieldrin	2	91,000 U	**22 U**	**24 U**	**8.9 U**	**8.6 U**	**8.6 U**	**8.5 U**	**12 U**	**14 U**	11 U	**12**
(2)	Endosulfan I	NC	NC J	22 U	24 U	8.9 U	8.6 U	8.6 U	8.5 U	12 U	14 U	11 U	12
(2)	Endosulfan II	NC	NC U	22 U	24 U	8.9 U	8.6 U	8.6 U	8.5 U	12 U	14 U	11 U	12
	Endosulfansulfate	NC	NC U	22 U	24 U	8.9 U	8.6 U	8.6 U	8.5 U	12 U	14 U	11 U	12
	Endrin	3	130,000 U	**22 U**	**24 U**	**8.9 U**	**8.6 U**	**8.6 U**	**8.5 U**	**12 U**	**14 U**	**11 U**	12
	Endrinaldehyde	NC	NC U	22 U	24 U	8.9 U	8.6 U	8.6 U	8.5 U	12 U	14 U	**11 U**	12
	Heptachlor	NC	NC U	22 U	24 U	8.9 U	8.6 U	8.6 U	8.5 U	12 U	14 U	**11 U**	12
	Heptachlor epoxide	5	5000 U	**22 U**	**24 U**	**8.9 U**	**8.6 U**	**8.6 U**	**8.5 U**	**12 U**	**14 U**	**11 U**	12
	Toxaphene	NC	NC U	220 U	240 U	89 U	86 U	86 U	85 U	120 U	140 U	110 U	120

(1) Values listed reflect the combined standards for "Total PCBs"
(2) Soil Cleanup criteria is provided for "Endosulfan" without specification if it is for Endos

Qualifiers
U - The compound was not detected at the indicated concentration.
Bold numbers indicate exceedence of NJDEP ER-L
NR - Not analyzed.
~- Blind duplicate sample
NC - No criteria.
(LEL) - Lowest Effects Level instead of ER-L.
(SEL) - Severe Effects Level instead of ER-M.

TABLE 10
SUMMARY OF PESTICIDES IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP	SS-14_36-60	SS-14_60-84	SS-6_0-6	SS-6_6-12	SS-6_24-36	SS-6_36-60	SS-6_60-84	SS-17_0-6	SS-17_6-
Lab Sample Number		Effects Range Low	Effects Range Medium	207448	207449	207450	207451	207452	207453	207454	207455	207456
Sampling Date		ER-L	ER-M	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00
Matrix		(ug/kg)	(ug/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor				1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Units				ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
PESTICIDES												
	Aldrin	2	8000 U	**18 U**	**21 U**	**13 U**	**11 U**	**30 U**	**46 U**	**46 U**	**10 U**	**13**
	alpha-BHC	6	10,000 U	**18 U**	**21 U**	**13 U**	**11 U**	**30 U**	**46 U**	**46 U**	**10 U**	**13**
	beta-BHC	5	21,000 U	**18 U**	**21 U**	**13 U**	**11 U**	**30 U**	**46 U**	**46 U**	**10 U**	**13**
	delta-BHC	NC	NC U	18 U	21 U	13 U	11 U	30 U	46 U	46 U	10 U	13
	gamma-BHC(Lindane)	3	1000 U	**18 U**	**21 U**	**13 U**	**11 U**	**30 U**	**46 U**	**46 U**	**10 U**	**13**
	Chlordane	7	6000 U	**180 U**	**210 U**	**130 U**	**110 U**	**300 U**	**460 U**	**460 U**	**100 U**	**130**
	4,4'-DDD	NC	NC U	18 U	21 U	13 U	11 U	30 U	46 U	46 U	10 U	13
	4,4'-DDE	2.2	27 U	**18 U**	**21 U**	**13 U**	**11 U**	**30 U**	**46 U**	**46 U**	**10 U**	**13**
	4,4'-DDT	1.6	46 U	**18 U**	**21 U**	**13 U**	**16 J**	**30 U**	**46 U**	**46 U**	**10 U**	**13**
	Dieldrin	2	91,000 U	**18 U**	**21 U**	**13 U**	**11 U**	**30 U**	**46 U**	**46 U**	**10 U**	**13**
(2)	Endosulfan I	NC	NC U	18 U	21 U	13 U	11 U	30 U	46 U	46 U	10 U	13
(2)	Endosulfan II	NC	NC U	18 U	21 U	13 U	**11 U**	30 U	46 U	46 U	10 U	13
	Endosulfansulfate	NC	NC U	18 U	21 U	13 U	**11 U**	30 U	46 U	46 U	10 U	13
	Endrin	3	130,000 U	**18 U**	**21 U**	**13 U**	**13 J**	**30 U**	**46 U**	**46 U**	**10 U**	**13**
	Endrinaldehyde	NC	NC U	18 U	21 U	13 U	11 U	30 U	46 U	46 U	**10 U**	13
	Heptachlor	NC	NC U	**18 U**	21 U	13 U	11 U	30 U	46 U	46 U	**10 U**	13
	Heptachlor epoxide	5	5000 U	**18 U**	**21 U**	**13 U**	**11 U**	**30 U**	**46 U**	**46 U**	**10 U**	**13**
	Toxaphene	NC	NC U	180 U	210 U	130 U	110 U	300 U	460 U	460 U	100 U	130

(1) Values listed reflect the combined standards for "Total PCBs"
(2) Soil Cleanup criteria is provided for "Endosulfan" without specification if it is for Endos

Qualifiers
U - The compound was not detected at the indicated concentration.
Bold numbers indicate exceedence of NJDEP ER-L
NR - Not analyzed.
-- Blind duplicate sample
NC - No criteria.
(LEL) - Lowest Effects Level instead of ER-L.
(SEL) - Severe Effects Level instead of ER-M

TABLE 10
SUMMARY OF PESTICIDES IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID	NJDEP	NJDEP	SS-8_0-6	SS-8_6-36	SS-8_36-72	SS-13_0-6	SS-13_6-12	SS-13_12-24	SS-13_24-36	SS-16_0-6	SS-16_6-
Lab Sample Number	Effects Range Low	Effects Range Medium	207457	207458	207459	207460	207461	207462	207463	207464	207465
Sampling Date	ER-L	ER-M	05/24/00	05/24/00	05/24/00	05/24/00	05/24/00	05/24/00	05/24/00	05/23/00	05/23/00
Matrix	(ug/kg)	(ug/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Units			ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
PESTICIDES											
Aldrin	2	8000 U	**41 U**	**52 U**	**62 U**	**8.6 U**	**8.4 U**	**8.4 U**	**9.6 U**	**17 U**	**12**
alpha-BHC	6	10,000 U	**41 U**	**52 U**	**62 U**	**8.6 U**	**8.4 U**	**8.4 U**	**9.6 U**	**17 U**	**12**
beta-BHC	5	21,000 U	**41 U**	**52 U**	**62 U**	**8.6 U**	**8.4 U**	**8.4 U**	**9.6 U**	**17 U**	**12**
delta-BHC	NC	NC U	41 U	52 U	62 U	8.6 U	8.4 U	8.4 U	9.6 U	17 U	12
gamma-BHC(Lindane)	3	1000 U	**41 U**	**52 U**	**62 U**	**8.6 U**	**8.4 U**	**8.4 U**	**9.6 U**	**17 U**	**12**
Chlordane	7	6000 U	**410 U**	**520 U**	**620 U**	**86 U**	**84 U**	**84 U**	**96 U**	**170 U**	**120**
4,4'-DDD	NC	NC U	41 U	52 U	62 U	8.6 U	8.4 U	8.4 U	9.6 U	17 U	12
4,4'-DDE	2.2	27 U	**41 U**	**52 U**	**62 U**	**8.6 U**	**8.4 U**	**8.4 U**	**9.6 U**	**17 U**	**12**
4,4'-DDT	1.6	46 U	**41 U**	**52 U**	**62 U**	**8.6 U**	**8.4 U**	**8.4 U**	**9.6 U**	**17 U**	**12**
Dieldrin	2	91,000 U	**41 U**	**52 U**	**62 U**	**8.6 U**	**8.4 U**	**8.4 U**	**9.6 U**	**17 U**	**12**
(2) Endosulfan I	NC	NC U	41 U	52 U	62 U	8.6 U	8.4 U	8.4 U	9.6 U	17 U	12
(2) Endosulfan II	NC	NC U	41 U	52 U	62 U	8.6 U	8.4 U	8.4 U	9.6 U	17 U	12
Endosulfansulfate	NC	NC U	41 U	52 U	62 U	8.6 U	8.4 U	8.4 U	9.6 U	17 U	12
Endrin	3	130,000 U	**41 U**	**52 U**	**62 U**	**8.6 U**	**8.4 U**	**8.4 U**	**9.6 U**	**17 U**	**12**
Endrinaldehyde	NC	NC U	41 U	52 U	62 U	8.6 U	8.4 U	8.4 U	9.6 U	17 U	12
Heptachlor	NC	NC U	41 U	52 U	62 U	8.6 U	8.4 U	8.4 U	9.6 U	17 U	12
Heptachlor epoxide	5	5000 U	**41 U**	**52 U**	**62 U**	**8.6 U**	**8.4 U**	**8.4 U**	**9.6 U**	**17 U**	**12**
Toxaphene	NC	NC U	410 U	520 U	620 U	86 U	84 U	84 U	96 U	170 U	120

(1) Values listed reflect the combined standards for "Total PCBs"
(2) Soil Cleanup criteria is provided for "Endosulfan" without specification if it is for Endos

Qualifiers
U - The compound was not detected at the indicated concentration.
Bold numbers indicate exceedence of NJDEP ER-L
NR - Not analyzed.
~ - Blind duplicate sample
NC - No criteria.
(LEL) - Lowest Effects Level instead of ER-L
(SEL) - Severe Effects Level instead of ER-M.

TABLE 10
SUMMARY OF PESTICIDES IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID	NJDEP	NJDEP	SS-16_12-24	SS-16_24-36	SS-16_36-60	SS-16_60-84	~SS-16_84-96	SS-15_0-6	SS-15_6-36	SS-15_36-72	~SS-15_
Lab Sample Number	Effects Range Low	Effects Range Medium	207466	207467	207468	207469	207470	207471	207472	207473	207474
Sampling Date	ER-L	ER-M	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00	05/23/00
Matrix	(ug/kg)	(ug/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Units			ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
PESTICIDES											
Aldrin	2	8000 U	**10 U**	**14 U**	**26 U**	**46 U**	**32 U**	**12 U**	12 U	**44 U**	**11**
alpha-BHC	6	10,000 U	**10 U**	**14 U**	**26 U**	**46 U**	**32 U**	**12 U**	**12 U**	**44 U**	**11**
beta-BHC	5	21,000 U	**10 U**	**14 U**	**26 U**	**46 U**	**32 U**	**12 U**	**12 U**	**44 U**	**11**
delta-BHC	NC	NC U	10 U	14 U	26 U	46 U	32 U	12 U	12 U	44 U	11
gamma-BHC(Lindane)	3	1000 U	**10 U**	**14 U**	**26 U**	**46 U**	**32 U**	**12 U**	**12 U**	**44 U**	**11**
Chlordane	7	6000 U	**100 U**	**140 U**	**260 U**	**460 U**	**320 U**	**120 U**	**120 U**	**440 U**	**110**
4,4'-DDD	NC	NC U	10 U	14 U	26 U	46 U	32 U	12 U	12 U	44 U	**11**
4,4'-DDE	2.2	27 U	**10 U**	**14 U**	**26 U**	**46 U**	**32 U**	**12 U**	**12 U**	**44 U**	**11**
4,4'-DDT	1.6	46 U	**10 U**	**14 U**	**26 U**	**46 U**	**32 U**	**12 U**	**12 U**	**44 U**	**11**
Dieldrin	2	91,000 U	**10 U**	**14 U**	**26 U**	**46 U**	**32 U**	**12 U**	**12 U**	44 U	**11**
(2) Endosulfan I	NC	NC U	10 U	14 U	26 U	46 U	32 U	12 U	12 U	44 U	11
(2) Endosulfan II	NC	NC U	10 U	14 U	26 U	46 U	32 U	12 U	12 U	44 U	11
Endosulfansulfate	NC	NC U	10 U	14 U	26 U	46 U	32 U	12 U	12 U	44 U	11
Endrin	3	130,000 U	**10 U**	**14 U**	**26 U**	**46 U**	**32 U**	**12 U**	**12 U**	**44 U**	**11**
Endrinaldehyde	NC	NC U	10 U	14 U	26 U	46 U	32 U	12 U	12 U	44 U	11
Heptachlor	NC	NC U	10 U	14 U	26 U	46 U	32 U	12 U	12 U	44 U	11
Heptachlor epoxide	5	5000 U	**10 U**	**14 U**	**26 U**	**46 U**	**32 U**	**12 U**	**12 U**	**44 U**	**11**
Toxaphene	NC	NC U	100 U	140 U	260 U	460 U	320 U	120 U	120 U	440 U	110

(1) Values listed reflect the combined standards for "Total PCBs"
(2) Soil Cleanup criteria is provided for "Endosulfan" without specification if it is for Endos

Qualifiers
U - The compound was not detected at the indicated concentration
Bold numbers indicate exceedence of NJDEP ER-L
NR - Not analyzed.
~- Blind duplicate sample
NC - No criteria.
(LEL) - Lowest Effects Level instead of ER-L.
(SEL) - Severe Effects Level instead of ER-M.

TABLE 10
SUMMARY OF PESTICIDES IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP 72-84	SS-5_0-6	SS-5_6-12	SS-5_12-24	SS-5_24-36	SS-4_0-6	SS-4_6-36	SS-4_36-72	SS-3_0-6	SS-3_6-3
Lab Sample Number		Effects Range Low	Effects Range Medium	205778	205779	205780	205781	205782	205783	205784	205785	205786
Sampling Date		ER-L	ER-M	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00
Matrix		(ug/kg)	(ug/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor					1.0	1.0	1.0		1.0	1.0		1.0
Units					ug/kg	ug/kg	ug/kg		ug/kg	ug/kg		ug/kg
PESTICIDES												
	Aldrin	2	8000 U	NR	**7.6** U	**8.4** U	**8.6** U	NR	**17** U	**49** U	NR	**67**
	alpha-BHC	6	10,000 U	NR	**7.6** U	**8.4** U	**8.6** U	NR	**17** U	**49** U	NR	**67**
	beta-BHC	5	21,000 U	NR	**7.6** U	**8.4** U	**8.6** U	NR	**17** U	**49** U	NR	**67**
	delta-BHC	NC	NC U	NR	7.6 U	8.4 U	8.6 U	NR	17 U	49 U	NR	67
	gamma-BHC(Lindane)	3	1000 U	NR	**7.6** U	**8.4** U	**8.6** U	NR	**17** U	**49** U	NR	**67**
	Chlordane	7	6000 U	NR	**76** U	**84** U	**86** U	NR	**170** U	**490** U	NR	**670**
	4,4'-DDD	NC	NC U	NR	7.6 U	8.4 U	8.6 U	NR	17 U	49 U	NR	67
	4,4'-DDE	2.2	27 U	NR	**7.6** U	**8.4** U	**8.6** U	NR	**17** U	**49** U	NR	**67**
	4,4'-DDT	1.6	46 U	NR	**7.6** U	**8.4** U	**8.6** U	NR	**17** U	**49** U	NR	**67**
	Dieldrin	2	91,000 U	NR	**7.6** U	**8.4** U	**8.6** U	NR	**17** U	**49** U	NR	**67**
(2)	Endosulfan I	NC	NC U	NR	7.6 U	8.4 U	8.6 U	NR	17 U	49 U	NR	67
(2)	Endosulfan II	NC	NC U	NR	7.6 U	8.4 U	8.6 U	NR	17 U	49 U	NR	67
	Endosulfansulfate	NC	NC U	NR	7.6 U	8.4 U	8.6 U	NR	17 U	49 U	NR	67
	Endrin	3	130,000 U	NR	**7.6** U	**8.4** U	**8.6** U	NR	**17** U	**49** U	NR	**67**
	Endrinaldehyde	NC	NC U	NR	7.6 U	8.4 U	8.6 U	NR	17 U	49 U	NR	67
	Heptachlor	NC	NC U	NR	7.6 U	8.4 U	8.6 U	NR	17 U	49 U	NR	67
	Heptachlor epoxide	5	5000 U	NR	**7.6** U	**8.4** U	**8.6** U	NR	**17** U	**49** U	NR	**67**
	Toxaphene	NC	NC U	NR	76 U	84 U	86 U	NR	170 U	490 U	NR	670

(1) Values listed reflect the combined standards for "Total PCBs"
(2) Soil Cleanup critena is provided for "Endosulfan" without specification if it is for Endos

Qualifiers
U - The compound was not detected at the indicated concentration.
Bold numbers indicate exceedence of NJDEP ER-L
NR - Not analyzed.
-- Blind duplicate sample
NC - No critena.
(LEL) - Lowest Effects Level instead of ER-L
(SEL) - Severe Effects Level instead of ER-M

TABLE 10
SUMMARY OF PESTICIDES IN SEDIMENT SAMPLES
ORITANI MARSH, NJ

Sample ID		NJDEP	NJDEP	SS-7_0-6	SS-7_6-12	SS-7_12-24	SS-7_24-36	SS-7_36-60	SS-7_60-84
Lab Sample Number		Effects Range Low	Effects Range Medium	205787	205788	205789	205790	205791	205792
Sampling Date		ER-L	ER-M	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00	05/16/00
Matrix		(ug/kg)	(ug/kg)	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor					1.0	1.0	1.0	1.0	1.0
Units					ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
PESTICIDES									
	Aldrin	2	8000 U	NR	**34** U	**15** U	**54** U	**53** U	**14** U
	alpha-BHC	6	10,000 U	NR	**34** U	**15** U	**54** U	**53** U	**14** U
	beta-BHC	5	21,000 U	NR	**34** U	**15** U	**54** U	**53** U	**14** U
	delta-BHC	NC	NC U	NR	34 U	15 U	54 U	53 U	14 U
	gamma-BHC(Lindane)	3	1000 U	NR	**34** U	**15** U	**54** U	**53** U	**14** U
	Chlordane	7	6000 U	NR	**340** U	**150** U	**540** U	**530** U	**140** U
	4,4'-DDD	NC	NC U	NR	34 U	15 U	54 U	53 U	14 U
	4,4'-DDE	2.2	27 U	NR	**34** U	**15** U	**54** U	**53** U	**14** U
	4,4'-DDT	1.6	46 U	NR	**34** U	**15** U	**54** U	**53** U	**14** U
	Dieldrin	2	91,000 U	NR	**34** U	**15** U	**54** U	**53** U	**14** U
(2)	Endosulfan I	NC	NC U	NR	34 U	15 U	54 U	53 U	14 U
(2)	Endosulfan II	NC	NC U	NR	34 U	15 U	54 U	53 U	14 U
	Endosulfansulfate	NC	NC U	NR	34 U	15 U	54 U	53 U	14 U
	Endrin	3	130,000 U	NR	**34** U	**15** U	**54** U	**53** U	**14** U
	Endrinaldehyde	NC	NC U	NR	34 U	15 U	54 U	53 U	14 U
	Heptachlor	NC	NC U	NR	34 U	15 U	54 U	53 U	14 U
	Heptachlor epoxide	5	5000 U	NR	**34** U	**15** U	**54** U	**53** U	**14** U
	Toxaphene	NC	NC U	NR	340 U	150 U	540 U	530 U	140 U

(1) Values listed reflect the combined standards for "Total PCBs"
(2) Soil Cleanup criteria is provided for "Endosulfan" without specification if it is for Endos

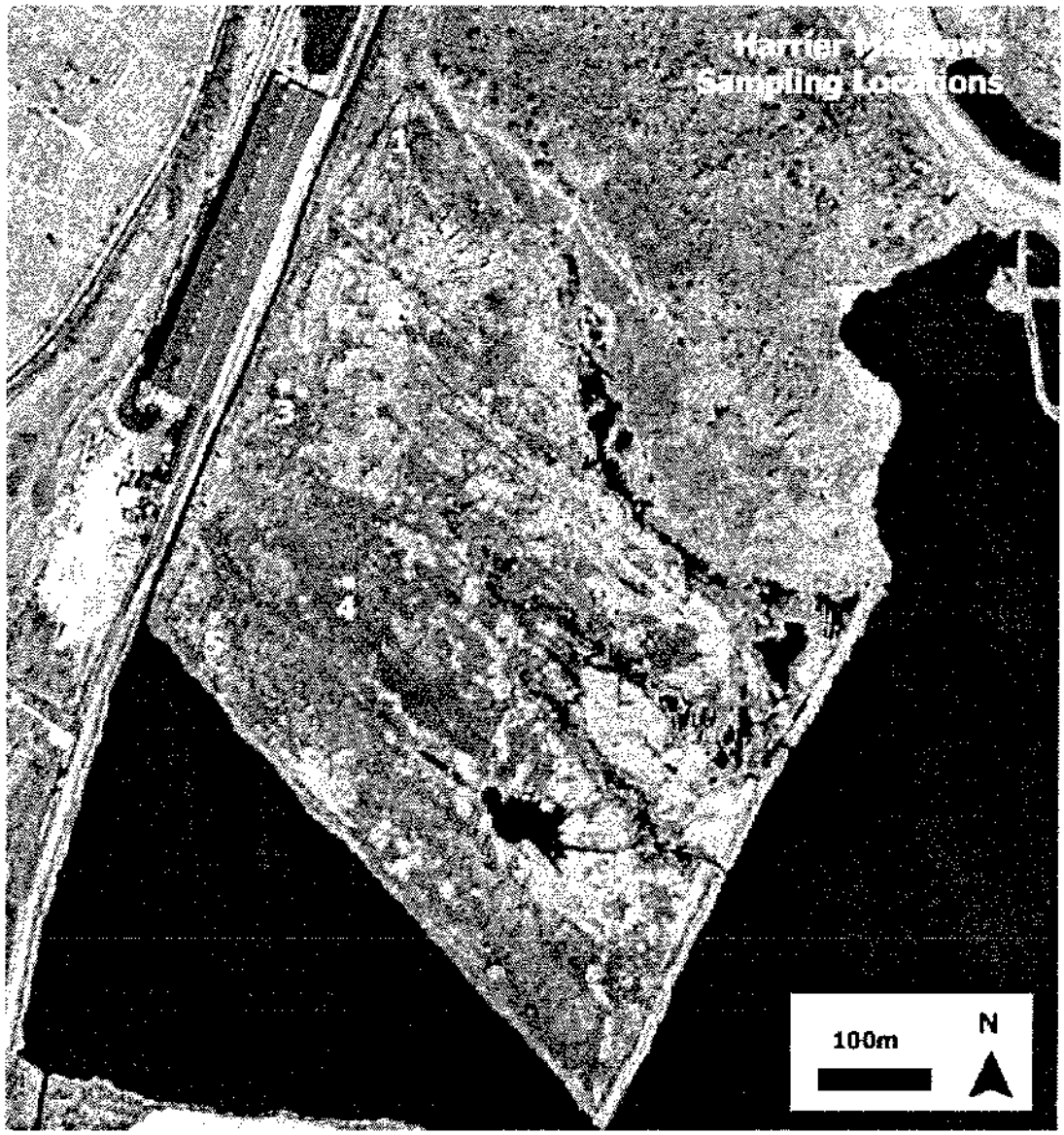
Qualifiers
U - The compound was not detected at the indicated concentration.
Bold numbers indicate exceedence of NJDEP ER-L
NR - Not analyzed.
-- Blind duplicate sample
NC - No criteria.
(LEL) - Lowest Effects Level instead of ER-L.
(SEL) - Severe Effects Level instead of ER-M


Skeetkill Creek Marsh
Sampling Locations
1
2
3
4
5
50m
N

Summary of results for selected soil samples analyzed for Pesticides/PCBs, Skeetkill Creek Marsh, Ridgefield, New Jersey (March 1997).

Sample	ER-L/LEL	970310EC1B	970310EC2B	970310EC3B	970310EC4B	970310EC5B
X		**625247.53**	**625407.91**	**625566.26**	**625690.33**	**625718.57**
Y		**726506.74**	**726490.61**	**726493.63**	**726510.78**	**726410.92**
a-chlordane (ug/kg)	7.0	2.12	**45.7**	1.42	0.211	5.03
g-chlordane (ug/kg)	NC	0.545	24.3	0.614	0.102	4.99
4,4'-DDD (ug/kg)	8.0	1.4	**113**	1.38	0.598	**12.7**
4,4'-DDE (ug/kg)	2.2000	**3.62**	**50.5**	**2.46**	0.11	**4.82**
4,4'-DDt (ug/kg)	1.6000	0.932	**13.3**	0.947	0.579	1.15
Aroclor 1254 (ug/kg)	60.0	**64.1**	**1360**	35.3	7.86	**102**
Aroclor 1260 (ug/kg)	5.0	**48.5**	**848**			**66.3**
Total PCB (ug/kg)	23	**112.6**	**2208**	**35.3**	7.86	**168.3**
Antimony (mg/kg)		**2.44**	**9.8**	**11.8**	-1	-1
Arsenic (mg/kg)	8.2	**29.8**	**16.2**	**17**	3.57	10.1
Beryllium (mg/kg)		**0.523**	**0.943**	**0.543**	**0.474**	**0.28**
Cadmium (mg/kg)	1.2	**1.27**	**2.65**	**1.22**	-1	-1
Chromium (mg/kg)	81	**216**	**1320**	77	17.6	73.6
Copper (mg/kg)	34	**134**	**363**	**83.9**	17	**40.4**
Lead (mg/kg)	47	**233**	**542**	**91**	-1	**59.4**
Mercury (mg/kg)	0.15	-1	-1	-1	-1	-1
Nickel (mg/kg)	21	**54.9**	**255**	**43.5**	16.9	13.5
Selenium (mg/kg)		**2.53**	**6.37**	**4.79**	**0.318**	**0.883**
Silver (mg/kg)		-1	**1.05**	-1	-1	-1
Thallium (mg/kg)		-1	-1	-1	-1	-1
Zinc (mg/kg)	150	**778**	**1010**	**357**	62.4	63.8

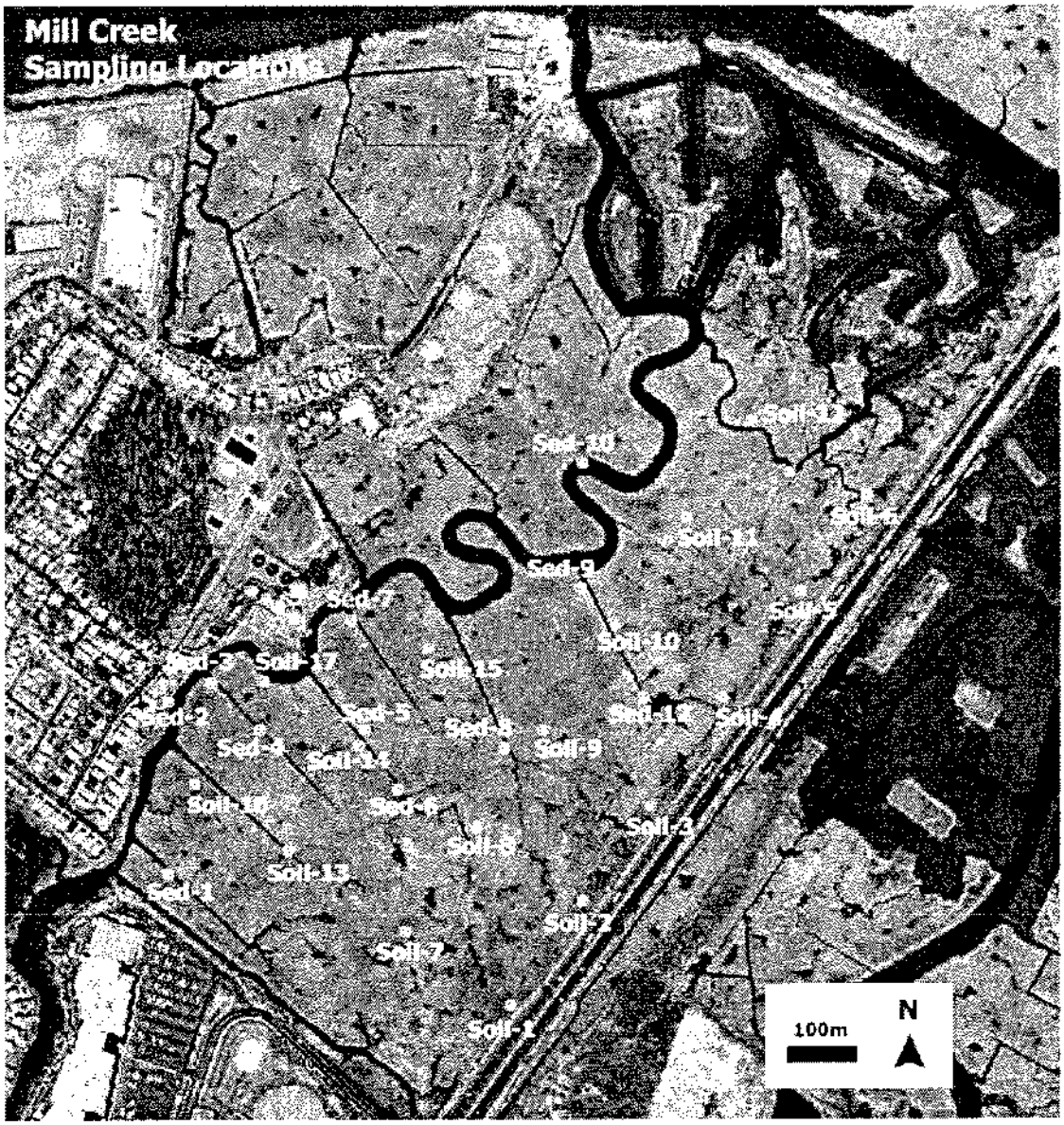
Negative values indicate reported less than detection limits
Bolded values indicate exceedance of ER-L/LEL


Harrier Locations
Sampling Locations
1
2
3
4
100m
N

Summary of results for selected soil samples analyzed for Priority Pollutant metals, Harrier Meadows site, North Arlington, New Jersey (August 1997).

Sample	ER-L or LEL	970814EC1	970814EC2	970814EC3	970814ED4	970814ED5
X		**597695.92**	**597677.51**	**597364.48**	**597552.29**	**597169.3**
Y		**712980.49**	**712483.33**	**712203.45**	**711632.63**	**711533.2**
Antimony (mg/kg)		-1	-1	-1	-1	-1
Arsenic (mg/kg)	8.2	2.52	1.09	2.1	1.83	1.16
Beryllium (mg/kg)		**0.434**	-1	**0.573**	-1	**0.387**
Cadmium (mg/kg)	1.2	-1	-1	0.954	-1	-1
Chromium (mg/kg)	81	14.3	9.59	18.4	10.4	10.5
Copper (mg/kg)	34	**60.4**	22.8	28.7	23.6	13.4
Lead (mg/kg)	47	**87.3**	31.6	**61**	40.5	-1
Mercury (mg/kg)	0.15	**0.306**	-1	-1	-1	-1
Nickel (mg/kg)	21	13.5	7.4	15.3	8.58	9.18
Selenium (mg/kg)		-1	-1	-1	-1	-1
Silver (mg/kg)		**1.23**	-1	-1	-1	-1
Thallium (mg/kg)		-1	-1	-1	-1	-1
Zinc (mg/kg)	150	94	28.5	64.3	31.1	28

Negative indicates less than detection limits
Bold values indicated reported concentration greater than or equal to ER-L/LEL


Mill Creek
Sampling Locations
Soil-12
Sed-10
Soil-11
Sed-9
Sed-7
Soil-10
Soil-17
Soil-15
Sed-2
Sed-5
Sed-3
Soil-12
Soil-9
Sed-4
Soil-14
Soil-16
Sed-6
Soil-3
Soil-8
Soil-13
Sed-1
Soil-2
Soil-7
Soil-1
100m
N

Source: Mill Creek Wetlands Mitigation Site Baseline Monitoring Program : Soil and Sediment Analysis , June 1997, Hackensack Meadowlands Development Commmision
Detected Contaminants

Sample Numbers	ER-L/LEL	0308-1 SED-001		0308-2 SED-002		0308-3 SED-003		0308-4 SED-004		0308-5 SED-005		0308-6 SED-006		0308-7 SED-007		0312-1 SED-008		0308-8 SED-009	
Pesticides(ppb)																			
4,4'-DDT**	1.6	0.012	U	20.9		0.012	U	0.012	U	5.13		5.33		1.45		0.59		0.87	J
4,4'-DDE**	2.2	0.004	U	2.26		0.004	U	0.004	U	0.004	U	0.86		0.56	J	0.93		0.004	U
PCB's(ppb)																			
Aroclor-1248**	30	0.18	U	585		44	J	52	J	0.18	U	115		70		75		512	
Phenols (ppm)	NC	0.05	<	0.05	<	0.05	<	0.05	<	0.16		0.50		0.28		0.33		0.16	
Total Cyanide (ppm)	NC	0.01	<	0.01	<	0.02		0.01	<	0.03		0.16		0.24		0.01	<	0.14	
TPHC (ppm)	NC	198.70		151.00		50.00		14.70		29.10		30.60		53.30		291.20		34.50	
pH		6.90		7.00		6.50		6.20		6.60		5.60		6.90		7.30		6.20	
Inorganics(ppm)																			
Chromium (Method 6010)	81	434.4		327.8		433.9		159.8		248.0		456.5		273.9		27.7		58.1	
Copper (Method 6010)	34	179.1		323.7		148.7		80.4		102.8		230.1		126.4		12.8		30.6	
Lead (Method 6010)	47	194.4		414.9		213.9		41.2		110.5		288.0		152.5		311.7		27.4	
Mercury (Method 7471)	0.15	13.40		10.40		1.70		0.02	<	0.02	<	2.17		10.56		0.07		0.65	
Nickel (Method 6010)	21	141.70		93.80		98.70		69.60		79.40		398.60		54.50		22.5		45.90	
Silver (Method 6010)		13.90		7.30		12.20		13.70		13.30		5.25		4.60		56.7		4.40	
Zinc (Method 6010)	150	530.40		744.80		556.50		217.60		300.00		505.40		277.20		36.2		126.50	

(U) Indicates compound was analyzed for but not detected. The number is the minimum attainable detection limit for the Sample

(J) Indicates an estimated value. The result is less then the minimum attainable detection limit but greater than zero.

(**) This flag is used when the analyte is found in the associated blank as well as in the sample

Bolded values indicate exceedance of ER-L/LEL

Source: Mill Creek Wetlands Mitigation Site Baseline Mo
Detected Contaminants

Sample Numbers	ER-L/LEL	0308-1 SED-001	0308-9 SED-010		0312-2 SED-011		0321-2 SED-012		0321-3 SED-Dpl		0321-4 Soil-001		0321-5 Soil-002		0321-6 Soil-003		0321-7 Soil-004	
Pesticides(ppb)																		
4,4'-DDT**	1.6	0.012	0.012	U	1.46		0.63		0.012	U	0.012	U	2.87		0.012	U	0.012	U
4,4'-DDE**	2.2	0.004	0.004	U	2.12		0.76		0.56		0.004	U	1.65		0.004	U	0.004	U
PCB's(ppb)																		
Aroclor-1248**	30	0.18	0.18	U	63		80		82		0.18	U	51		0.18	U	0.18	U
Phenols (ppm)	NC	0.05	0.05		0.42		0.05	<	0.32		0.38		0.40		0.10		0.23	
Total Cyanide (ppm)	NC	0.01	0.17		0.01	<	0.27		0.29		0.21		0.10		0.08		0.13	
TPHC (ppm)	NC	198.70	26.30		390.60		168.70		275.90		308.00		181.80		180.70		170.00	
pH		6.90	3.80		6.30		3.80		3.80		4.60		5.10		4.30		4.60	
Inorganics(ppm)																		
Chromium (Method 6010)	81	434.4	35.2		215.0		520.0		550.0		76.5		88.0		224.0		85.5	
Copper (Method 6010)	34	179.1	16.5		109.9		213.0		216.0		107.5		103.0		137.0		151.0	
Lead (Method 6010)	47	194.4	8.7		181.2		299.5		221.5		207.5		341.5		359.5		274.5	
Mercury (Method 7471)	0.15	13.40	0.63		8.92		8.52		18.30		3.31		3.23		0.02	<	41.17	
Nickel (Method 6010)	21	141.70	33.10		55.8		73.5		76.5		62.0		86.5		161.0		105.5	
Silver (Method 6010)		13.90	2.90		5.4		4.2		5.3		2.0		1.6		2.6		2.4	
Zinc (Method 6010)	150	530.40	73.80		245.1		312.0		740.0		198.5		291.5		250.0		520.0	

(U) Indicates compound was analyzed for but not detected. The numb
(J) Indicates an estimated value. The result is less then the minimum
(**) This flag is used when the analyte is found in the associated blank
Bolded values indicate exceedance of ER-L/LEL

Source: Mill Creek Wetlands Mitigation Site Baseline Mo
Detected Contaminants

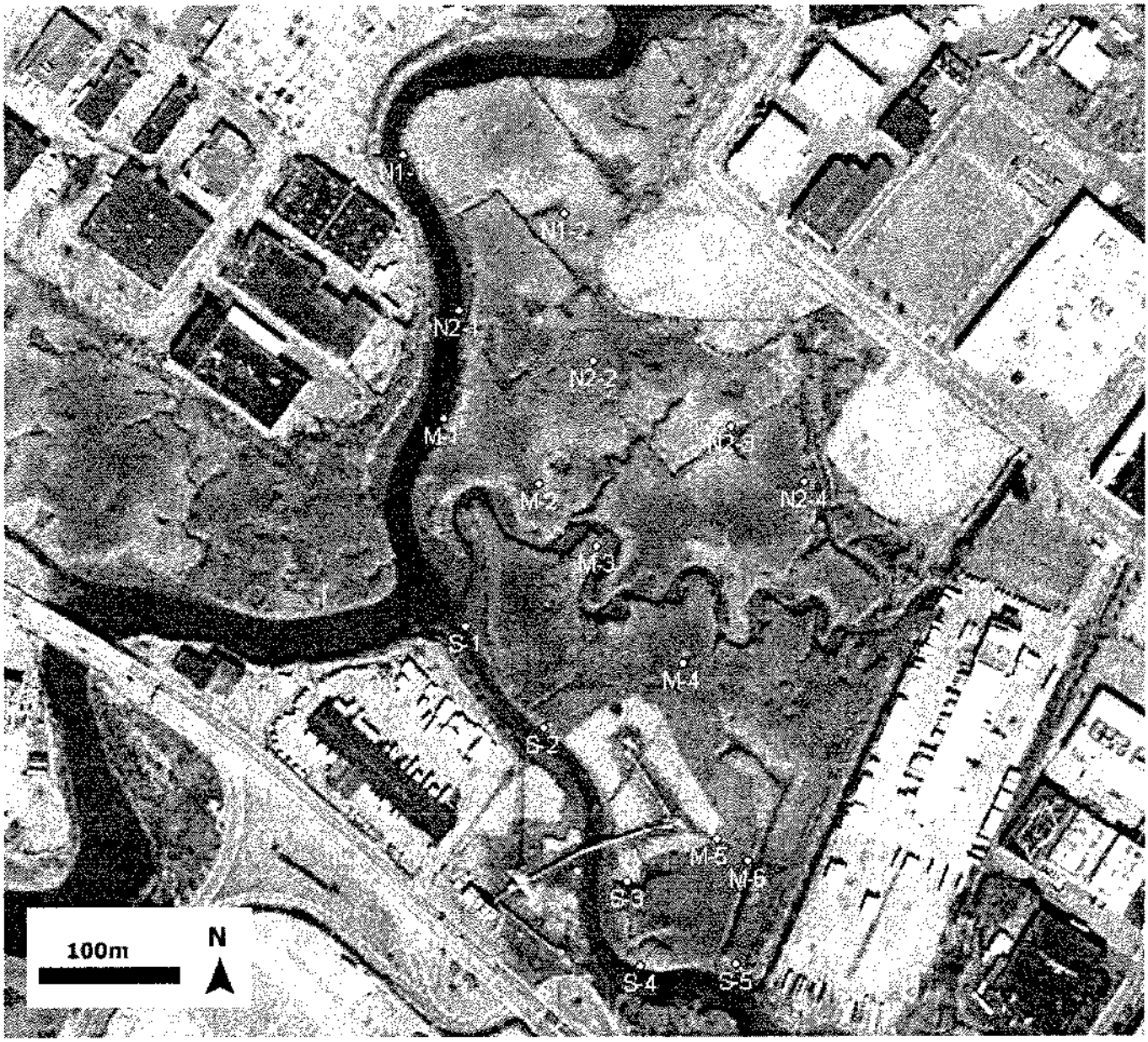
Sample Numbers	ER-L/LEL	0308-1 SED-001	0321-8 Soil-005		0321-9 Soil-006		0321-10 Soil 007		0321-11 Soil 008		0321-12 Soil 009		0321-16 Soil Dpl		0321-13 Soil 010		0321-14 Soil 011	
Pesticides(ppb)																		
4,4'-DDT**	1.6	0.012	2.88		0.012	U	0.012	U	0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
4,4'-DDE**	2.2	0.004	1.11		0.66		0.004	U	0.004	U	0.81		0.004	U	0.73		0.004	U
PCB's(ppb)																		
Aroclor-1248**	30	0.18	0.18	U	41		0.18	U	0.18	U	94		127		71		21	
Phenols (ppm)	NC	0.05	0.25		0.15		0.07		0.05	<	0.05	<	0.15		0.79		0.43	
Total Cyanide (ppm)	NC	0.01	0.03		0.10		0.96		1.06		0.90		0.20		0.53		0.31	
TPHC (ppm)	NC	198.70	119.30		102.60		335.20		414.70		201.30		35.50		82.90		75.70	
pH		6.90	6.60		5.70		5.40		4.90		6.00		5.30		4.10		6.00	
Inorganics(ppm)																		
Chromium (Method 6010)	81	434.4	97.5		296.5		44.2		103.0		95.0		128.5		257.0		145.0	
Copper (Method 6010)	34	179.1	61.0		168.5		119.0		109.0		58.0		80.5		124.5		178.5	
Lead (Method 6010)	47	194.4	144.0		890.0		273.5		277.0		76.5		76.5		132.0		354.5	
Mercury (Method 7471)	0.15	13.40	13.71		13.10		0.41		3.07		16.25		22.16		31.58		11.63	
Nickel (Method 6010)	21	141.70	51.0		123.50		62.5		90.5		49.7		30.9		49.3		151.5	
Silver (Method 6010)		13.90	3.2		6.50		2.3		3.0		1.1		3.2		3.6		3.9	
Zinc (Method 6010)	150	530.40	138.5		429.50		304.5		350.5		170.0		144.0		264.5		250.0	

(U) Indicates compound was analyzed for but not detected. The numb
(J) Indicates an estimated value. The result is less then the minimum
(**) This flag is used when the analyte is found in the associated blank
Bolded values indicate exceedance of ER-L/LEL

Source: Mill Creek Wetlands Mitigation Site Baseline Mo
Detected Contaminants

Sample Numbers	ER-L/LEL	0308-1 SED-001	0321-15 Soil 012		0313-2 SOIL-013		0313-3 SOIL-014		0313-4 SOIL-015		0313-5 SOIL-016		0313-6 SOIL-017	
Pesticides(ppb)														
4,4'-DDT**	1.6	0.012	0.012	U	0.012	U	0.012	U	**14.35**		1.16		**3.03**	
4,4'-DDE**	2.2	0.004	0.004	U	0.004	U	0.004	U	**10.4**		0.004	U	1.77	
PCB's(ppb)														
Aroclor-1248**	30	0.18	**136**		**58**		**113**		**111**		0.18	U	0.18	U
Phenols (ppm)	NC	0.05	0.37		0.51		1.58		1.18		1.35		1.64	
Total Cyanide (ppm)	NC	0.01	0.47		0.61		0.52		0.57		0.46		0.19	
TPHC (ppm)	NC	198.70	45.00		225.50		187.50		124.50		230.00		217.40	
pH		**6.90**	**5.40**		**6.00**		**4.00**		**3.60**		**4.20**		**3.70**	
Inorganics(ppm)														
Chromium (Method 6010)	81	**434.4**	**180.5**		**280.5**		**167.0**		**249.0**		**122.0**		**161.0**	
Copper (Method 6010)	34	**179.1**	**93.0**		**186.0**		**147.0**		**101.0**		30.8		**119.5**	
Lead (Method 6010)	47	**194.4**	**107.5**		**323.5**		**164.0**		**164.5**		**167.0**		**136.5**	
Mercury (Method 7471)	0.15	**13.40**	**15.79**		**12.60**		0.12		0.14		**0.74**		**0.52**	
Nickel (Method 6010)	21	**141.70**	**34.7**		**353.5**		**112.5**		**93.0**		**68.0**		**68.5**	
Silver (Method 6010)		**13.90**	**2.4**		**7.5**		**6.1**		**4.4**		**2.4**		**2.9**	
Zinc (Method 6010)	**150**	**530.40**	**164.0**		**595.0**		**250.5**		**267.5**		**190.0**		**291.5**	

(U) Indicates compound was analyzed for but not detected. The numb
(J) Indicates an estimated value. The result is less then the minimum
(**) This flag is used when the analyte is found in the associated blank
Bolded values indicate exceedance of ER-L/LEL


M1-1
N1-2
N2-1
N2-2
M-1
N2-3
M-2
N2-4
M-3
S-1
M-4
S-2
M-5
M-6
S-3
S-4
S-5
100m
N

Eight-day Swamp north transect

N1-1	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
ER-L		0.15	8.2	1.2	81	34	47	150
-1	24.5	55.75	31.9	10.6	887	356	259.5	1090
-2	18.8	55	30.1	9.3	946	227	219.5	1062
-3	19.1	35.1	27.5	9.55	579	278	208	1101
-4	15.6	19	23.9	4.7	239	109	125	541
-6	11.9	2.55	15.15	1.25	45.5	30.5	37	157
-8	11.5	0.3	5.85	0.7	25	20	24	98
-10	10.2	0.15	6.55	0.85	29.5	49.5	32.5	143
-12	8.9	0.05	6.85	0.4	19	17.5	23	82
-14	8.8	0.7	6.35	0.65	23.5	20.5	25	98.5
-16	8.4	0.04	5.9	0.45	17.5	17	22.5	85
-18	8.3	0.07	7.55	0.6	21.5	18	25.5	86.5
-20	8.2	0.3	4.4	0.45	21	18	23	97
-22	7.8	0.13	4.85	0.45	28	17.5	18.5	86
-24	8	0.39	5.65	0.6	25.5	19	24	95.58

N1-2	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
		0.15	8.2	1.2	81	34	47	150
-1	43	30.5	28.3	4.25	313	120	172	746
-2	36	39.7	25.3	3.7	298	132	200	458
-3	40.5	32.5	52.25	6.05	322	140	147	814
-4	39.5	39.5	67.9	6.45	321	130	178	924
-6	48.5	72.5	59	8.4	387	201	340	720
-8	52	82.2	29.8	7.25	554	362	349	548
-10	55	144	37.4	13.85	1074	627	433	1201
-12	51.5	262.5	73.7	24	1889	693	447	2369
-14	63.3	716.5	198.4	28.1	4823	608	562	3650
-16	59.2	527	230.5	22.8	3937	337	578	1610

N2-1	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
-1	23	48.2	39	39	471	245	263	776
-2	18.9	12.05	44.1	44.1	162	176	244	556
-3	16.1	8.38	69.7	69.7	146	163	227	598
-4	16.9	0.88	52.8	52.8	40	76.5	118	325
-6	11.7	4.42	38.6	38.6	49.5	95	165	274
-8	11	2.7	27.2	27.2	36.5	79	134	201
-10	11.4	2.82	19.8	19.8	30	55.5	114	183
-12	11	3.15	19.3	19.3	34	56.5	123	186
-14	10.8	2.53	21.2	21.2	36	50.5	115	166
-16	11.3	1.6	17.7	17.7	24	38.5	98	154
-18	11	0.56	10.6	10.6	25	33.5	89	137
-20	11.1	0.55	8.1	8.1	21.5	26.5	69	105
-22	11.2	0.48	6.7	6.7	23	30.5	80	125
-24	11.1	0.58	5	5	26	32.5	84	134
-26	10.4	0.21	4.7	4.7	20.5	26.5	69	112
-28	10.6	0.07	4.6	4.6	19.5	24	59	101
-30	10.6	0.06	3.9	3.9	18	24.5	51	98
-32	13.5	0.12	7	7	19	20.5	41	85

N2-2	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
-1	52.2	28.5	44.6	11.2	425.5	205	298.5	1543
-2	48.55	25.85	68.9	8.2	419.5	161.5	306.5	1787
-3	43.7	31.65	39	7.4	534	169.5	362	1103
-4	49.6	43.4	47.5	11.8	582.5	237.5	490	1003
-6	56.5	60.35	39.5	13.8	733.5	644	603	909
-8	57.6	99.1	22.9	11.9	1190	1015	831	941.5
-10	54.6	179	86.7	31	1992	1348	1353	2969
-12	44.5	183.6	89.5	31.2	2388	1469	837	3364
-14	54.7	444.7	126.1	89.9	4833	1484	1118	7414
-16	61	567.45	160.8	51.7	6745	1167	1226	6701
-18	56.9	780.7	199.1	28.1	11717	808.5	1306	5325
-20	54.5	437	162.7	37.6	7409	710.5	999	1598
-22	60	57.3	158.7	40.7	2763	651.5	1044	2255
-24	63	35.25	168.7	30.9	562	577.5	962	2104

Eight-day Swamp north transect

N2-3	Metals in µg/g.								N2-4	Metals in µg/g.							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn	Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
-1	41.7	**44.65**	**21.3**	**8.95**	**447**	**197**	**238**	**1442**	-1	**43**	**170**	**51.3**	**146**	**1334**	**508**	**403**	**2834**
-2	47.9	**59.25**	**23.75**	**9.75**	**590**	**253**	**296**	**1244**	-2	**33.7**	**122**	**47.2**	**23.7**	**1252**	**456**	**363**	**2724**
-3	32.8	**48.6**	**28**	**9.8**	**534**	**184**	**231**	**1586**	-3	**36**	**192.4**	**46.6**	**25.9**	**1427**	**521**	**383**	**3072**
-4	32.3	**51.2**	**31.55**	**8.55**	**537**	**193**	**234**	**1335**	-4	**36**	**148.7**	**52**	**23**	**1265**	**484**	**361**	**2834**
-6	32.5	**61.7**	**26.2**	**7.35**	**486**	**249**	**279**	**787**	-6	**34.6**	**276.5**	**82.2**	**28.7**	**1484**	**532**	**376**	**3708**
-8	35.4	**74.4**	**38.85**	**13.6**	**579**	**286**	**315**	**2050**	-8	**42.6**	**128.6**	**66.7**	**16.9**	**705**	**303**	**141**	**1729**
-10	33.1	**80.65**	**43.9**	**21.4**	**859**	**396**	**362**	**3084**	-10	**47.2**	**81.5**	**99.4**	**28**	**464**	**265**	**97**	**1667**
-12	38.8	**104.55**	**34.8**	**19.05**	**957**	**484**	**404**	**2813**	-12	**52.7**	**40.5**	**89.4**	**66.7**	**203**	**195**	**70**	**1979**
-14	45.2	**112.95**	**72.5**	**34.3**	**1013**	**709**	**555**	**4400**	-14	**58.5**	**15.8**	**124.2**	**102.5**	**124**	**109**	**60.5**	**2475**
-16	54	**142.35**	**34**	**21.1**	**1511**	**1821**	**1038**	**1924**	-16	**59.9**	**13.4**	**146.2**	**70.7**	**87.5**	**126**	**69.5**	**2647**
-18	44.2	**309.6**	**54.4**	**33**	**3311**	**2304**	**880**	**4501**	-18	**55.2**	**27.2**	**244**	**60.4**	**132**	**105**	**50**	**2159**
-20	42.3	**386.3**	**153.35**	**72.6**	**2887**	**1155**	**508**	**9920**									

Bolded values indicate exceedance of NJDEP ER-L

Eight-day Swamp middle transect

M-1	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
ER-L		**0.15**	**8.2**	**1.2**	**81**	**34**	**47**	**150**
-1	12.9	**26**	**34.8**	**2.9**	23	**82**	**91.5**	**328**
-2	13.5	**2.95**	**29.9**	**1.3**	22	**49**	**87**	**190**
-3	12.9	**2.44**	**25.7**	0.35	36	**44.5**	**98**	125.5
-4	11.1	**2.23**	**20.7**	0.3	35.5	**43.5**	**86.5**	135
-6	11.3	**0.5**	**18.6**	0.2	25	27.5	36	114.5
-8	11	**0.205**	6.1	0.2	22	17	20	79
-10	13.7	0.11	**8.2**	0.3	21.5	19	27.5	78.5
-12	15.4	**0.18**	**14.2**	0.35	21	22.5	34.5	77
-14	14.6	**0.27**	**22.5**	0.4	23	26.2	38.3	84.5
-16	11.6	0.12	**10.5**	0.15	22.5	20	25.2	75.5
-18	10.8	**0.15**	7.5	0.37	22.7	20.5	21.5	88.3
-20	13.7	0.09	7	0.3	22.8	18.3	25.2	85.8
-22	10.9	0.02	7.4	0.22	20.5	17.8	26.5	94.8
-24	9.1	0.02	6	0.2	19.5	15.5	22	81.5

M-2	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
		0.15	**8.2**	**1.2**	**81**	**34**	**47**	**150**
-1	**51.8**	**61.4**	**31.8**	**8.3**	**812**	**217**	**305**	**1079**
-2	**46.7**	**47.8**	**26.7**	**9.95**	**629**	**219**	**315**	**1045**
-3	**45.9**	**35.85**	**39**	**6.2**	**484**	**171**	**266**	**831**
-4	**52.5**	**43.05**	**62.1**	**9.9**	**592**	**228**	**315**	**1228**
-6	**60.5**	**63.75**	**53.4**	**13.1**	**772**	**278**	**390**	**1360**
-8	**60.5**	**125.3**	**78**	**61.7**	**1158**	**582**	**833**	**4868**
-10	**58.9**	**126**	**110.2**	**42.1**	**1283**	**662**	**1062**	**4972**
-12	**51.9**	**121.3**	**103.1**	**42.85**	**1334**	**595**	**806**	**4810**
-14	**39.6**	**76.2**	**45.9**	**10.05**	**1201**	**302**	**317**	**1544**
-16	**28.7**	**123**	**92.7**	**33.65**	**3010**	**860**	**920**	**6429**
-18	**48.8**	**498.3**	**371.1**	**40**	**4194**	**772**	**636**	**8769**
-20	**43.5**	**542.1**	**384.7**	**55.2**	**4205**	**643**	**489**	**5825**
-22	**45**	**270.4**	**209**	**69.3**	**3893**	**498**	**455**	**3311**
-24	**50.1**	**127.5**	**141.7**	**23.6**	**1342**	**385**	**342**	**1992**
-26	**30.8**	**10.8**	**138.8**	**6.9**	**142**	**134**	**148**	**326**

M-3	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
-1	20.35	**446**	**41.7**	**48.1**	**1702**	**799**	**467**	**5482**
-2	22	**730**	**74.6**	**126.7**	**1541**	**1480**	**569**	**22675**
-3	24.1	**801**	**133.1**	**50.8**	**9689**	**1173**	**607**	**6387**
-4	24.6	**704**	**146**	**65.2**	**8199**	**1126**	**597**	**10994**
-6	23.25	**752**	**200**	**50.3**	**7113**	**916**	**565**	**7140**
-8	23.55	**549**	**251**	**54.9**	**4379**	**942**	**476**	**8053**
-10	23.1	**516**	**171.5**	**60.2**	**5587**	**766**	**536**	**8737**
-12	20.5	**533**	**137.9**	**99.1**	**5144**	**712**	**546**	**6991**
-14	19.95	**613**	**96.2**	**129.6**	**2724**	**661**	**595**	**9808**
-16	19.75	**816**	**120.8**	**69.3**	**3502**	**644**	**663**	**8489**
-18	18.6	**917**	**57.1**	**43.7**	**7894**	**647**	**522**	**2972**
-20	17.1	**630**	**45.3**	**41.3**	**6700**	**499**	**449**	**1606**
-22	16.4	**724**	**35.9**	**58.6**	**4206**	**470**	**404**	**1650**
-24	14.1	**612**	**49.3**	**57.8**	**4653**	**575**	**432**	**1435**
-26	16.7	**444**	**64.4**	**41.3**	**6447**	**420**	**340**	**1422**
-28	15.55	**122**	**49.1**	**27.5**	**3951**	**379**	**253**	**940**
-30	14.75	**180**	**63**	**16.8**	**4001**	**418**	**307**	**866**
-32	15.8	**269**	**49.1**	**15.6**	**2798**	**415**	**363**	**718**

M-4	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
-1	**42.8**	**35.95**	**25.75**	**5.6**	**520**	**219**	**247.5**	**895**
-2	**45.4**	**29.3**	**40.9**	**8.35**	**533.5**	**198.5**	**278**	**1420**
-3	**50.5**	**27.8**	**24**	**10.6**	**667.5**	**301.5**	**360**	**958**
-4	**48.9**	**64.4**	**50.1**	**12.2**	**815.5**	**292**	**409**	**1688**
-6	**51.8**	**63.6**	**58**	**14.5**	**694**	**320**	**395**	**2017**
-8	**55**	**93.9**	**39.3**	**21.4**	**1118**	**812**	**661**	**2342**
-10	**61.3**	**220**	**73.7**	**24.8**	**2284**	**1504**	**1399**	**4057**
-12	**49.6**	**189.4**	**48.4**	**24.9**	**2520**	**1535**	**1088**	**3325**
-14	**38.1**	**250.3**	**44.2**	**25.55**	**2918**	**1590**	**757**	**3045**
-16	**45.4**	**846.5**	**154.4**	**106**	**6063**	**1796**	**897**	**11865**
-18	**53.9**	**825.3**	**309.6**	**103.8**	**8814**	**1233**	**1362**	**19296**
-20	**53.2**	**892.5**	**198.7**	**40**	**7429**	**745**	**1365**	**5446**
-22	**48.7**	**216.8**	**132.9**	**20.7**	**3602**	**583**	**940**	**1683**
-24	**62.5**	**59.4**	**188.2**	**31**	**1082**	**742**	**1034**	**1259**
-26	**65.9**	**28.3**	**145.9**	**66.3**	**421**	**524**	**804**	**2360**

Eight-day Swamp middle transect

M-5	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
-1	59.2	**34.6**	**30.3**	**4.5**	**342**	**200**	**191**	**1008**
-2	59.9	**41.3**	**39.05**	**12.7**	**408**	**249**	**283**	**1607**
-3	60.4	**51.1**	**46.4**	**15.95**	**382**	**307**	**369**	**1786**
-4	60.9	**63.4**	**39.7**	**7.2**	**497**	**292**	**385**	**823**
-6	64.3	**65.4**	**25.9**	**4.25**	**736**	**443**	**559**	**593**
-8	59.1	**98.6**	**43.15**	**17.2**	**1101**	**844**	**868**	**1834**
-10	54.9	**329.5**	**33.7**	**25.2**	**3805**	**1852**	**1068**	**2644**
-12	58.1	**784.3**	**198**	**96.2**	**6221**	**1491**	**1056**	**10007**
-14	67.2	**868.0**	**477.8**	**117.3**	**8666**	**1243**	**1474**	**20519**
-16	60.2	**794.4**	**178.8**	**20.1**	**9016**	**518**	**993**	**2395**
-18	52.9	**233.6**	**165.9**	**8.35**	**2964**	**451**	**810**	**904**
-20	49.4	**69.4**	**134.6**	**12.6**	**1371**	**491**	**553**	**1065**

M-6	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
-1	**26.7**	**58.2**	**25.6**	**8.25**	**616.5**	**267**	**200**	**988**
-2	**21.7**	**84.5**	**26.8**	**11.1**	**916**	**364**	**231**	**1312**
-3	**21.3**	**51.6**	**27.9**	**10.95**	**934**	**374**	**235**	**1447**
-4	**22.8**	**97.9**	**28.7**	**11.55**	**955**	**384**	**247**	**1328**
-6	**24.1**	**76.3**	**42.6**	**17.65**	**1758**	**505**	**320**	**2411**
-8	**26.3**	**158.6**	**45.5**	**31.35**	**1828**	**793**	**308**	**4048**
-10	**25**	**114.8**	**47.0**	**14.4**	**3516**	**497**	**383**	**1854**
-12	**28.2**	**262.3**	**73.1**	**12.3**	**5405**	**463**	**405**	**1362**
-14	**26.6**	**172.2**	**46.2**	**5.55**	**3194**	**374**	**351**	**701**
-16	**28.4**	**12.1**	**60.9**	**3.65**	**616**	**266**	**250**	**585**
-18	**31.4**	**90.1**	**78.3**	**25.35**	**1160**	**524**	**482**	**1703**
-20	**38.7**	**155.8**	**62.4**	**7.1**	**2069**	**544**	**355**	**767**
-22	**44.8**	**343.0**	**59.7**	**17.35**	**2586**	**725**	**251**	**1128**
-24	**39.6**	**96.6**	**33.0**	**18.25**	**1198**	**485**	**206**	**1401**

Bolded values indicate exceedance of NJDEP ER-L

Eight-day Swamp south transect

S-1	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
ER-L		**0.15**	**8.2**	**1.2**	**81**	**34**	**47**	**150**
-1	15.9	**41.8**	**27.0**	**8.2**	**435**	**248**	**259**	**878**
-2	15.95	**39.1**	**40.0**	**9.1**	**427**	**242**	**259**	**882**
-3	18.8	**31.8**	**75.6**	**5.45**	**341**	**217**	**466**	**640**
-4	17.6	**10.4**	**64.4**	**2.55**	**135**	**171**	**286**	**381**
-6	11.35	**1.4**	**46.5**	0.5	45.5	**71.5**	**334**	**181.5**
-8	11.05	0.1	**22.9**	0.1	23.5	17.5	**258**	80
-10	9.5	0.1	**8.5**	0.1	21	18	**295**	83.5
-12	9.55	0.1	**9.95**	0.05	19.5	17.5	**284**	86.5
-14	9.65	**0.15**	7.45	0.05	20	16.5	**271**	80
-16	11.6	0	**9.85**	0.1	22	18	**273**	83.5
-18	13	**0.3**	**11.25**	1.1	27.5	**35**	**337**	134
-20	10.3	0.1	7.4	0.75	17	17	**233**	89
-22	10.25	0.01	**8.9**	**1.2**	21	17.5	**109**	90
-24	8.3	0.01	5.75	1.05	19	17.5	**89**	88
-26	9.55	0.01	6.4	0.95	19	17	**188**	78
-28	8.7	0.01	5.5	1	17.5	16.5	**98.5**	81
-30	8.75	0.01	7.9	1	20	17.5	**89.5**	87.5

S-2	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
		0.15	**8.2**	**1.2**	**81**	**34**	**47**	**150**
-1	**17.7**	**43.0**	**22.0**	**11.75**	**729**	**309**	**259**	**1260**
-2	**15.4**	**102.4**	**48.4**	**15.95**	**1933**	**462**	**425**	**2013**
-3	**16.8**	**118.0**	**65.6**	**7.9**	**2020**	**346**	**394**	**1216**
-4	**14.9**	**98.7**	**52.5**	**3.65**	**1409**	**323**	**380**	**697**
-6	**12.4**	**59.4**	**46.1**	**5.4**	**986**	**220**	**186**	**717**
-8	**16.8**	**33.7**	**76.9**	**4.1**	**682**	**332**	**393**	**733**
-10	**26.5**	**39.9**	**42.6**	**4.75**	**692**	**396**	**323**	**875**
-12	**29.6**	**22.9**	**65.3**	**13.05**	**433**	**238**	**181**	**986**
-14	**40.9**	**39.9**	**185.5**	**19.45**	**529**	**384**	**218**	**1817**
-16	**30.7**	**10.2**	**81.2**	**26.6**	**220**	**251**	**63.5**	**2007**

S-3	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
-1	20	**43.6**	**20.6**	**6.75**	**430**	**178**	**207**	**767**
-2	22.5	**57.6**	**20**	**8.9**	**503**	**218**	**256**	**925**
-3	22	**56.6**	**18.6**	**10.5**	**568**	**235**	**288**	**1022**
-4	24	**58.8**	**29.5**	**16**	**558**	**245**	**298**	**1598**
-6	14.5	**77.3**	**31.4**	**13**	**711**	**282**	**319**	**1297**
-8	29.5	**93.8**	**42.9**	**10.1**	**874**	**220**	**346**	**1021**
-10	25	**78**	**30.8**	**13.1**	**736**	**321**	**331**	**1178**
-12	22.5	**232**	**48.4**	**12.1**	**2787**	**718**	**694**	**1597**
-14	29.9	**365**	**16.8**	**15.1**	**5192**	**1154**	**771**	**1181**
-16	21.8	**329**	**63.3**	**39.8**	**5062**	**770**	**460**	**1877**
-18	19.4	**150.6**	**85**	**41.1**	**4708**	**464**	**442**	**1679**
-20	19	**220.4**	**94.7**	**36.5**	**1919**	**451**	**391**	**1460**
-22	24.3	**135**	**63.2**	**28.8**	**2371**	**421**	**369**	**1459**
-24	20.5	**57.1**	**70.1**	**22.9**	**1325**	**560**	**401**	**1163**
-26	16.9	**16.6**	**71.7**	**9.95**	**564**	**451**	**335**	**970**
-28	26.2	**21.3**	**81.5**	**15.8**	**512**	**380**	**306**	**1152**

S-4	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
-1	**26.1**	**79.1**	**39.5**	**13.4**	**645**	**970**	**260**	**971**
-2	**22.9**	**52.0**	**39.2**	**13.9**	**442**	**993**	**220**	**193**
-3	**22.4**	**18.0**	**23.1**	**4.5**	**131**	**389**	**98**	**389**
-4	**22.2**	**2**	**11.8**	0.7	38	**133**	32	132
-6	**19.6**	**0.75**	**16**	0.3	19	**97.5**	26	97.5
-8	**18.6**	**0.65**	**36.6**	0.25	**17**	**89.5**	24	88.5
-10	**15.7**	0.1	**8.4**	0.2	16	**86**	24.5	86
-12	**16.8**	**0.15**	**26.5**	0.4	17.5	**105**	22.5	105
-14	**27**	**2.1**	**53.5**	0.95	42	**383**	37	**378**
-16	**44.3**	**7.55**	**91.7**	0.9	**98**	**1159**	**56.5**	**309**
-18	**54.1**	**1.3**	**36.7**	1.05	42	**206**	21	**206**
-20	**60.6**	**0.6**	**21.4**	1.1	42	**130**	18.5	130
-22	**70.1**	**0.75**	**13.6**	**3**	44.5	**247**	**55**	**247**

S-5	Metals in µg/g:							
Depth-cm	%Org. C	Hg	As	Cd	Cr	Cu	Pb	Zn
-1	17.1	**16.0**	**10.3**	**3.55**	**168**	**111**	**106**	**370**
-2	17.4	**15.1**	**10.6**	**3.35**	**116**	77	**82**	**272**
-3	14.6	**8.7**	**9.6**	**4.3**	75	**55**	**57**	**254**
-4	14.1	**12.7**	7.4	**6.75**	80.6	**66**	**68**	**290**
-6	11.3	**5.34**	7.6	**5.1**	47.5	**38**	**47**	**476**
-8	17.2	**7.32**	4.15	**1.7**	54	**46**	46	**200**
-10	12.7	**6.46**	6.15	**3.7**	60.5	**38**	41.5	**377**
-12	17.1	**10.95**	**12.85**	**7**	**92.5**	**51**	**48.5**	**1337**
-14	13.7	**3.25**	5.05	**6.75**	41	**37.5**	31	**554**
-16	13	**4.91**	7.55	**22**	49	**51**	33.5	**1323**
-18	23.9	**115**	**74.65**	**22.35**	**2450**	**1470**	**395**	**5736**
-20	26.5	**178**	**44.85**	**24.25**	**2570**	**450**	**392**	**2017**
-22	29.9	**179**	**96.8**	**34.3**	34	**567**	**404**	**833**
-24	25.3	**73**	**72.1**	**15.15**	15	**384**	**373**	**1153**
-26	23.3	**7.2**	**80.85**	**3.9**	4	**180**	**289**	**666**

Bolded values indicate exceedance of NJDEP ER-L

Data Acceptance Summary as Provided by NJMC/MERI 2003

Site	Mill Creek	Oritani	Riverbend	Harrier	Skeetkill
Report Name	Mill Creek Wetlands Mitigation Site-Baseline Monitoring Program: Soil and Sediment Analysis	Oritani Marsh Mitigation Site - Baseline Studies	Riverbend Wetland Preserve - Sampling and Analyses of Sediment	Harrier Meadows-Assessment of Subsurface Soil Contamination	Skeetkill Creek Marsh - Preliminary Assessment of Soil Contaminants
Report Date	June 1997	February 2001	June 2001	August 1997	March 1997
Author	Hackensack Meadowlands Development Commision	The Louis Berger Group,Inc.	TAMS Consultants,Inc.	Environmental Connection, Inc.	Environmental Connection, Inc.
Year Assessed	1997	2000	2001	1997,1998	1997
Number of Sediment Sample Locations	17	17	15	29	11
Number of Water Sample Locations	20	10	0	12	3
Number of Benthic Sample Locations	27	11	0	9	6
chemical parameter	yes	yes	yes	yes	yes
reported value	yes	yes	yes	yes	yes
units of reported value	yes	yes	yes	yes	yes
analysis method	yes	yes	yes	yes	yes
Data Available in electronic format	yes	yes	yes	no	no
Acceptance Criteria					
Source Data Has Undergone QA/QC	yes	yes	yes	yes	yes
QA/QC process for source data is documented	yes	yes	yes	yes	yes
Entity Responsible for data collection is clearly identified	yes	yes	yes	yes	yes
Sampling location ID and description	yes	yes	yes	yes	yes
latitude and longitude of sampling location	locations shown on map	locations shown on map	locations shown on map	locations shown on map	locations shown on map
date and time of sample location	yes	yes	yes	yes	yes
sample collection records	yes	yes	no	yes	yes
instrument calibration records	yes	yes	no	yes	yes
field logs	no	no	no	no	no
chain-of-custody records	yes	no	no	yes	yes
calculations	none	none	none	none	none

Data Acceptance Summary as Provided by NJMC/MERI 2003

Site	Kearny	Saw Mill Creek	Secaucus HS	8 Day Swamp
Report Name	Kearny Marsh - Sediment and Water Sampling Report		Secaucus High School Wetlands Mitigation Site Baseline Studies: Sampling and Analyses of Surface Water and Sediment	Benthic Communities and Metal Contaminations in Eight-Day Swamp, A brackish Marsh in the Hackensack Meadowlands of New Jersey
Report Date	June 1999		March 2001	
Author	Langan Engineering and Environmental Services		TAMS Consultants, Inc.	Judith S. Weis & Peddrick Weis
Year Assessed	1999	2000,2001	2001	Summer 2001
Number of Sediment Sample Locations	22	0	8	16
Number of Water Sample Locations	22	1	4	0
Number of Benthic Sample Locations	0	2	6	0
chemical parameter	yes		yes	yes
reported value	yes		yes	yes
units of reported value	yes		yes	yes
analysis method			yes	
Data Available in electronic format	yes		yes	yes
Acceptance Criteria				
Source Data Has Undergone QA/QC	yes		yes	yes
QA/QC process for source data is documented			yes	yes
Entity Responsible for data collection is clearly identified	yes		yes	yes
Sampling location ID and description	yes		yes	yes
latitude and longitude of sampling location	yes		locations shown on map	locations shown on map
date and time of sample location	yes		yes	no
sample collection records	no		yes	no
instrument calibration records	no		yes	no
field logs	no		none	no
chain-of-custody records	no		yes	no
calculations	none		none	none