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Swan Creek Reservoir Investigation

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Swan Creek Reservoir Investigation

Abstract
Swan Creek Reservoir is 23 acres in area and located within West Amwell Township, New Jersey. The reservoir serves as a source of public drinking water for residents of the surrounding area and is owned and operated by SUEZ Water New Jersey Lambertville, a water utility. Prior to distribution, SUEZ Water New Jersey Lambertville treats reservoir water to applicable drinking water standards. An investigation of current phosphorus levels in the reservoir was investigated to aid in the future management of algal blooms within the reservoir as it was hypothesized that nutrient levels had increased. A monthly sampling program was developed from four locations during January, February and March 2018. Water quality parameters recorded at each location included appearance, dissolved oxygen, pH, oxidation-reduction potential, specific conductivity, temperature and turbidity. Ammonia-N, chlorophyll a, nitrate-N, soluble reactive phosphorus, total dissolved phosphorus, total particulate phosphorus, total phosphorus and total suspended solids were also analyzed. All collected data was compared to applicable historic data made available by SUEZ Water New Jersey Lambertville with results showing that the reservoir is hypereutrophic, similar to other nearby water bodies. Additionally, total phosphorus levels were found to have increased over time in the reservoir, and as overland flow is a primary mechanism for phosphorus transport, it was hypothesized that phosphorus was being carried via overland flow from neighboring agricultural lands where phosphorus containing fertilizers may have been applied. Therefore, the uses of properties within or adjacent to the reservoir's approximately 690 acre watershed were examined. Information regarding these properties was reviewed from EDR, Inc., government databases, the New Jersey Department of Environmental Protection, StatelnsfoServices.com and West Amwell Township. This review, however, did not identify a source of phosphorus to the reservoir as the majority of surrounding land is either undisturbed woodland/wetland habitat or land utilized for farming on a small-scale.

Disciplines
Earth Sciences | Physical Sciences and Mathematics | Water Resource Management

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SWAN CREEK RESERVOIR INVESTIGATION

Matthew J. Nogier

Environmental Geology Concentration
Master of Science in Applied Geosciences (MSAG)
University of Pennsylvania
Spring 2018

Maria-Antonia Andrews
Raymond J. Cywinski
DEDICATION

I dedicate this MSAG Project Design to my parents, Jim and Ann, and my sister, Christine. They have taught me to do my best and have served as a source of encouragement throughout my graduate education.
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Raymond J. Cywinski, SUEZ Water New Jersey Lambertville
Yvette Bordeaux, University of Pennsylvania
ABSTRACT

SWAN CREEK RESERVOIR INVESTIGATION

Matthew J. Nogier

Maria-Antonia Andrews

Swan Creek Reservoir is 23 acres in area and located within West Amwell Township, New Jersey. The reservoir serves as a source of public drinking water for residents of the surrounding area and is owned and operated by SUEZ Water New Jersey Lambertville, a water utility. Prior to distribution, SUEZ Water New Jersey Lambertville treats reservoir water to applicable drinking water standards. An investigation of current phosphorus levels in the reservoir was investigated to aid in the future management of algal blooms within the reservoir as it was hypothesized that nutrient levels had increased. A monthly sampling program was developed from four locations during January, February and March 2018. Water quality parameters recorded at each location included appearance, dissolved oxygen, pH, oxidation-reduction potential, specific conductivity, temperature and turbidity. Ammonia-N, chlorophyll a, nitrate-N, soluble reactive phosphorus, total dissolved phosphorus, total particulate phosphorus, total phosphorus and total suspended solids were also analyzed. All collected data was compared to applicable historic data made available by SUEZ Water New Jersey Lambertville with results showing that the reservoir is hypereutrophic, similar to other nearby water bodies. Additionally, total phosphorus levels were found to have increased over time in the reservoir, and as overland flow is a primary mechanism for phosphorus transport, it was hypothesized that phosphorus was being carried via overland flow from neighboring agricultural lands where phosphorus containing fertilizers may have been applied. Therefore, the uses of properties within or adjacent to the reservoir’s approximately 690 acre watershed were examined. Information regarding these properties was reviewed from EDR, Inc., government databases, the New Jersey Department of Environmental Protection, StateInfoServices.com and West Amwell Township. This review, however, did not identify a source of phosphorus to the reservoir as the majority of surrounding land is either undisturbed woodland/wetland habitat or land utilized for farming on a small-scale.
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1 INTRODUCTION

1.1 Project Problem

SUEZ Water New Jersey Lambertville (SUEZ), a water utility, suspected that increased phosphorus concentrations in their Swan Creek Reservoir (an artificial lake) may be the cause of the water quality issue. This project was two-fold, first a water quality sampling program whereby Swan Creek Reservoir was sampled for phosphorus and other water quality parameters and second a land use study whereby public documentation for properties near the reservoir was reviewed in search of potential sources of runoff to the reservoir. The results of this study are intended to be used toward future management of the reservoir. While SUEZ treats reservoir water to all regulatory drinking water standards, complaints from customers regarding taste and odor remain an ongoing issue. These taste and odor impacts have been linked to annual summer algal blooms experienced by the reservoir and SUEZ has suspected phosphorus to be the nutrient driving these blooms. However, this is poorly understood and the source of nutrients to the reservoir remains unknown.

1.2 Project Study Components and Description

For the water quality sampling portion of this project, a list of parameters for investigation that would provide insight into the overall water quality of the reservoir were developed. These parameters are listed and defined in Section 1.2.1 along with the applicable New Jersey Surface Water Quality Standard (SWQS) for the reservoir. Similarly, to better understand land use within and adjacent to the watershed, State of New Jersey Department of Treasury assigned property classifications were reviewed for
all properties of interest to the land use study. The watershed boundary for the reservoir was obtained from the U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS), and adjacent properties outside the watershed were studied to make the land use study more conservative. Relevant classifications are defined in Section 1.2.2, with property classifications being more precise than zoning designations as they are applied on a parcel basis.

1.2.1 Sampling Program Parameters

Appearance (In Situ Measurement):
The visual appearance of a water sample and is defined as either being clear or cloudy for the purposes of this study. No New Jersey SWQS exists for appearance (State of New Jersey, 2016).

Dissolved Oxygen (In Situ Measurement):
The amount of oxygen dissolved in a water sample is reported in milligrams per liter (mg/L). Oxygen can become dissolved in water either through wave action at the surface or through the photosynthesis of aquatic plants (South Central Eco Institute, 2018) with reservoir related dissolved oxygen levels typically ranging from less than 1.0 mg/L to more than 20.0 mg/L (Fondriest Environmental, Inc., 2013). In order to meet the New Jersey SWQS, dissolved oxygen levels in the reservoir should be no less than 4.0 mg/L (State of New Jersey, 2016).
**pH (In Situ Measurement):**

The acidity or alkalinity of a water sample is reported on a scale of 0 to 14. Waters with a pH value below 7 are acidic and waters with a pH value above 7 are alkaline (Princeton Hydro, 2011). A water body’s pH can be influenced by a variety of factors such as the photosynthesis of aquatic plants or the respiration of aquatic lifeforms, which may increase or decrease pH levels, respectively (Princeton Hydro, 2011). In order to meet the New Jersey SWQS, pH levels within the reservoir should be between 6.5 and 8.5 (State of New Jersey, 2016).

**Oxidation-Reduction Potential (In Situ Measurement):**

The oxidation-reduction potential, or redox potential, of a water sample is reported in millivolts (mV). Redox potential is the tendency of a chemical species to be reduced, or acquire electrons, with drinking water typically having a positive redox potential ranging from between 200 mV to 400 mV (Molecular Hydrogen Foundation, 2017). No New Jersey SWQS exists for redox potential (State of New Jersey, 2016).

**Specific Conductivity (In Situ Measurement):**

The specific conductivity of a water sample is reported in milli-Siemens per centimeter (mS/cm). Specific conductivity is a measure of a water’s ability to conduct an electrical current and, therefore, is a measure of its dissolved constituents (Princeton Hydro, 2011). Drinking water values for specific conductivity typically range from between 0.05 mS/cm to 0.5 mS/cm (Lenntech B.V., 2018) and no New Jersey SWQS exists for specific conductivity (State of New Jersey, 2016).
**Temperature (In Situ Measurement):**

The temperature of a water sample is reported in degrees Celsius (°C). Temperature is a measure of the heat present in a water sample and higher temperature waters have lower levels of dissolved oxygen (South Central Eco Institute, 2018), and vice versa. In order to meet the New Jersey SWQS, temperature levels in the reservoir should not exceed 31 °C (State of New Jersey, 2016).

**Turbidity (In Situ Measurement):**

The turbidity of a water sample is reported in nephelometric turbidity units (NTU). Turbidity is a measure of the amount of organic and inorganic particles present in a water sample (Minnesota Pollution Control Agency, 2008). In order to meet the New Jersey SWQS, turbidity levels in the reservoir should not exceed 50 NTU (State of New Jersey, 2016).

**Ammonia-N (Laboratory Analysis):**

The ammonia-N or ammonia concentration of a water sample is recorded in mg/L. Ammonia is a chemical compound and when found in water bodies is typically the result of plant decomposition, septic system discharges or agricultural runoff (Princeton Hydro, 2011). The New Jersey SWQS for ammonia is a calculated value dependent upon a water’s pH and temperature, with a winter value for the reservoir not to exceed 0.01 mg/L (State of New Jersey, 2016).
Chlorophyll $a$ (Laboratory Analysis):

The chlorophyll $a$ is the chlorophyll concentration of a water sample in micrograms per liter ($\mu$g/L). Chlorophyll is a green pigment contained within plants, algae and cyanobacteria facilitating the process of photosynthesis (Kansas Department of Health and Environment, 2011). Water bodies with a chlorophyll value of 10 $\mu$g/L or greater will begin to experience taste and odor impacts (Kansas Department of Health and Environment, 2011) and no New Jersey SWQS exists for chlorophyll (State of New Jersey, 2016).

Nitrate-N (Laboratory Analysis):

The nitrate-N or nitrate concentration of a water sample is recorded in mg/L. Nitrate is a chemical compound and a nutrient necessary for plant growth formed as a result of the oxidation of ammonia by bacteria (American Water Works Association and Economic and Engineering Services, Inc., 2002). This process is also known as nitrification and is illustrated below (American Water Works Association and Economic and Engineering Services, Inc., 2002).

$$\text{NH}_3 + \text{O}_2 \rightarrow \text{NO}_2^- + 3\text{H}^+ + 2e^-$$

$$\text{NO}_2^- + \text{H}_2\text{O} \rightarrow \text{NO}_3^- + 2\text{H}^+ + 2e^-$$

Concentrations of nitrate found in water bodies are strongly correlated with season, with lower values typically seen in winter as opposed to summer (Princeton Hydro, 2011). In order to meet the New Jersey SWQS, nitrate levels in the reservoir should not exceed 2 mg/L (State of New Jersey, 2016).
Soluble Reactive Phosphorus (Laboratory Analysis):
The soluble reactive phosphorus concentration of a water sample is recorded in mg/L. Soluble reactive phosphorus is a measure of a water’s orthophosphate content, which is in turn the filterable inorganic version of phosphorus utilized by plant cells (Murphy, 2007). No New Jersey SWQS exists for soluble reactive phosphorus (State of New Jersey, 2016).

Total Dissolved Phosphorous (Laboratory Analysis):
The total dissolved phosphorus concentration of a water sample is recorded in mg/L. Total dissolved phosphorus is a measure of a water’s dissolved organic and inorganic content (Murphy, 2007). No New Jersey SWQS exists for total dissolved phosphorus (State of New Jersey, 2016).

Total Particulate Phosphorous (Laboratory Analysis):
The total particulate phosphorus concentration of a water sample is recorded in mg/L. Total particulate phosphorus refers to the amount of phosphorus that is attached either to sediment particles, or plant and animal detritus (Corcoran, 2011). No New Jersey SWQS exists for total particulate phosphorus (State of New Jersey, 2016).

Total Phosphorus (Laboratory Analysis):
The total phosphorus concentration of a water sample is recorded in mg/L. Total phosphorus refers to the total concentration of phosphorus in soluble and particle form, with phosphorus being an essential nutrient for organism growth (Corcoran, 2011).
However, it is usually the limiting nutrient in freshwater environments leading to algal blooms (Corcoran, 2011; Hyland et al., 2005a) at high concentrations. As a focus of this study, further background information regarding phosphorus is included in Section 2.1 and Section 2.2 of this report. In order to meet the New Jersey SWQS, total phosphorus levels in the reservoir should not exceed 0.05 mg/L (State of New Jersey, 2016).

**Total Suspended Solids (Laboratory Analysis):**

The total suspended solids of a water sample is recorded in mg/L. Total suspended solids refers to both the inorganic and organic particulates in a water sample that are non-filterable [Princeton Hydro, LLC (Princeton Hydro), 2011]. High total suspended solids values are typically the result of erosion within a lake’s watershed (Princeton Hydro, 2011). In order to meet the New Jersey SWQS, total suspended solids values in the reservoir should not exceed 40 mg/L (State of New Jersey, 2016).

### 1.2.2 Land Use Study Classifications

**Church & Charitable:**

The Church & Charitable property classification, also known as Class 15D, refers to property owned by religious or charitable organizations utilized for their work activities (State of New Jersey, 2018).
Commercial:
The Commercial property classification, also known as Class 4A, refers to an income generating property whose income is not gained through agriculture/horticulture, apartment rental, industry, residential land use or vacant land use (State of New Jersey, 2018).

Farm:
The Farm property classification, also known as Class 3A and Class 3B, refers to property being utilized for agriculture/horticulture in addition to property containing farm related improvements or support structures, such as housing (State of New Jersey, 2018).

Other Exempt:
The Other Exempt property classification, also known as Class 15F, refers to property exempt from taxation but not belonging to any other New Jersey tax classification (State of New Jersey, 2018).

Public Property:
The Public Property classification, also known as Class 15C, refers to property owned and utilized by Federal, State, county or local governments or their agencies (State of New Jersey, 2018).
Residential:

The Residential property classification, also known as Class 2, refers to property typically containing a dwelling/house not designed for the use of more than four families (State of New Jersey, 2018).

Vacant Land:

The Vacant Land property classification, also known as Class 1, refers to property that is idle, and is not being used for agriculture or any purpose (State of New Jersey, 2018).

1.3 SUEZ Water New Jersey Lambertville

SUEZ is a water utility that owns and operates the reservoir, surrounding land and a water treatment plant. Reservoir water is treated to drinking water standards prior to distribution (SUEZ, 2016a; SUEZ, 2016b) with the surface waters of the reservoir having been designated by the State of New Jersey as category FW2-NT (Category 2 Fresh Waters, Non-Trout, suitable for swimming and fishing) (State of New Jersey, 2016). Despite this rating, no recreational activities are permitted as the SUEZ facility is not open to the public (SUEZ, 2018) and applicable New Jersey surface water quality standards apply (State of New Jersey, 2016).

1.3.1 Swan Creek Reservoir Water Quality

In addition to treating reservoir water at the treatment plant, SUEZ conducted periodic water quality studies and treatments within the reservoir (Cartnick and Lubnow, 2013). These studies have focused on many different parameters with SUEZ managers
historically and currently contending with taste and odor complaints resulting from Geosmin and 2-methylisoborneol (MIB) concentrations within reservoir water. Geosmin and MIB are compounds released by algae and bacteria giving water an earthy taste (Hunter Water, 2011) posing an aesthetic, not health related issue (Lubnow, 2014; U.S. EPA, 2017). The presence of these compounds and the observed summer algal blooms suggests that nutrient concentrations have increased over time.

1.3.2 Swan Creek Drinking Water Treatment
The SUEZ facility is part of a larger watershed that is rural in nature servicing approximately 4,000 residents within West Amwell and the City of Lambertville (Lambertville), New Jersey (Figure 1) (SUEZ, 2016a). Prior to distribution, SUEZ treats reservoir water to meet drinking water standards (SUEZ, 2016b). Treatment occurs at a water treatment plant located west of and downgradient from the reservoir (Figure 2) with reservoir water reaching the plant by way of an underground pipe system (SUEZ, 2016a). At this plant, water is treated with chlorine dioxide, soda ash, and undergoes rapid sand filtration and post-chlorination processes (SUEZ, 2016b) prior to being stored or distributed to customers (SUEZ, 2016b).

1.4 Swan Creek Reservoir and Watershed
The reservoir is located within West Amwell, in southern Hunterdon County, New Jersey (Figure 1). This reservoir has an area of approximately 23 acres (Cartnick and Lubnow, 2013) and partially fills a valley carved by of the Swan Creek [U.S. Geological Survey (U.S.G.S.), 1995] with the reservoir resulting when the Swan Creek was first impounded
by a dam constructed circa 1877 (Department of the Army Corps of Engineers, 1981). The average depth of the reservoir is approximately 6 feet (Cartnick and Lubnow, 2013) and the reservoir’s watershed covers a predominately wooded and rural area of approximately 690 acres (Figure 2) (USDA NRCS, 2007).

1.5 Watershed Topography

The reservoir fills a partially flooded valley (Figure 1). During this study the surface of the reservoir had an elevation of approximately 290 feet above mean sea level (ft amsl) with topography rising along the northern, eastern and southern banks to heights of approximately 360 ft amsl within the watershed (U.S.G.S., 1995). To the west of the reservoir is the Lambertville Water Company Dam (Department of the Army Corps of Engineers, 1981), a concrete dam, below which topography slopes toward the Delaware River (U.S.G.S., 1995). The river has an elevation of approximately 60 ft amsl at Lambertville located approximately a mile west of the reservoir (U.S.G.S., 1995).

1.6 Regional Geology

Southern Hunterdon County is located within the Piedmont Physiographic Province and is characterized by the Hunterdon Plateau, a gently sloping landform underlain by bedrock composed of Jurassic to Devonian-aged shales (Figure 3) (Lucey, 1970). The Hunterdon Plateau is furthermore crossed by isolated ridges underlain by Jurassic-aged diabase intrusions (Lucey, 1970). The southernmost of these diabase intrusions, the Sourland Mountain, is where the reservoir is located (Sourland Planning Council, 2013) and its watershed extends onto the Hunterdon Plateau [New Jersey Department of
Environmental Protection (NJDEP), 1999].

1.7 Watershed Surficial Geology

The surficial geology underlying the watershed is composed of weathered alluvium and colluvium that is Holocene to Pleistocene in age (Figure 4) (NDJEP, 2018a). These materials are typically deposited in the beds of streams that feed the reservoir and are related to the regional shale and diabase bedrock. Diabase boulders are commonly found at the surface within the vicinity of the reservoir (Appendix A) and soils are composed of regional varieties of silt loam (NDJEP, 2018a).

1.8 Watershed Hydrology

The reservoir is the primary surface water body located within the watershed and it is fed by unnamed streams that drain the areas of higher topography found to the north, east and south (Figure 1, Figure 2, Plate 1) (U.S.G.S., 1995). Based on field observations, the dam is constructed that when the reservoir reaches a height of 290 ft amsl water will flow into a concrete spillway feeding Swan Creek below the dam. Swan Creek then travels westward for approximately one mile prior to entering the Delaware River at Lambertville (U.S.G.S., 1995). In addition to the reservoir, there are other minor self-contained ponds within or directly adjacent to the watershed with all water bodies connected to the diabase or shale bedrock aquifers that underlie them (NJDEP, 2018a; Sourland Planning Council, 2013).
1.9 **Regional Climate**

Hunterdon County is located within New Jersey’s northern climate zone (Robinson, 2004) and has a continental climate little influenced by the Atlantic Ocean (Robinson, 2004). Temperatures are typically cooler in Hunterdon County than along New Jersey’s shore with the average annual temperature for New Jersey being approximately 13 °C (Rutgers Climate Institute, 2013). Precipitation in Hunterdon County typically results from storms that form within the Midwestern United States (Robinson, 2004) with the average precipitation for New Jersey being approximately 44 inches (Rutgers Climate Institute, 2013).

1.10 **Watershed Ecology**

The area of the watershed belongs to two U.S. EPA designated ecoregions (Woods et al., 2007), those being the Trap Rock Ridges and Palisades and the Triassic Lowlands (Figure 5). The Trap Rock Ridges and Palisades are associated with the areas of the Sourland Mountain and the Triassic Lowlands are associated with the areas of the Hunterdon Plateau.

Both of these areas/ecoregions support the deciduous forests and wetlands observed during the sampling program (Plate 1). As the sampling program was conducted during months when plant life was dormant and unidentifiable, the following plant species are expected to be found within the watershed based on a summer 2015 study of a similar area within Bucks County, Pennsylvania (Nogier, 2015). Based on this study and site observations, a diverse canopy dominated by Atlantic White Cedar (*Chamaecyparis*...
thyoides), Blackgum (Nyssa sylvatica), Red Oak (Quercus rubra) and Tuliptree (Liriodendron) is expected. A subcanopy layer would potentially include trees like the Flowering Dogwood (Cornus florida), Ironwood (Carpinus caroliniana) and Sassafrass (Sassafras albidum). Japanese Barberry (Berberis thunbergii) and Spicebush (Lindera benzoin) would be found within the shrub layer while herbaceous plants would likely include various ferns (Polypodiopsida), Hog-Peanut (Amphicarpa bracteata) and Poison Ivy (Toxicodendron radicans).

Regarding wildlife, Canada Goose (Branta canadensis), Common Merganser (Mergus merganser), Great Blue Heron (Ardea herodias), Mute Swan (Cygnus olor) and White-Tailed Deer (Odocoileus virginianus) were observed during the sampling program. Additionally, the watershed and its vicinity serve as potential habitat for Bald Eagle (Haliaeetus leucocephalus), Cooper's Hawk (Accipiter cooperii), Kentucky Warbler (Geothlypis formosa), Northern Copperhead (Agkistrodon contortrix mokasen), Veery (Catharus fuscens), Wood Thrush (Hylocichla mustelina) and Worm-eating Warbler (Helmitheros vermivorum) (NJDEP, 2018a).
2 BACKGROUND

2.1 Phosphorus and the Eutrophication of Water Bodies

The U.S. EPA has determined that, nationally, nutrients are the leading cause of impairment in lakes with excessive nutrient levels resulting from runoff known as eutrophication (U.S. EPA, 2000). Water bodies with excessive nutrient concentrations are at risk to algal blooms that in turn can have a variety of impacts. These can range from relatively minor taste and odor issues found within drinking water supplies (Hunter Water, 2011) to major impacts if dissolved oxygen levels are lowered for entire ecosystems. The resulting “dead zones” being places where aquatic life cannot be sustained (Smith, 2017; U.S. EPA, 2000).

Eutrophication in and of itself is a natural process normally taking place in lakes over thousands of years (NJDEP, 2011), however, the process can be accelerated due to human activities (NJDEP, 2011). This human related eutrophication can occur within a single generation, typically involving runoff from farmland where phosphorus or nitrogen containing fertilizers have been applied (NJDEP, 2011). This nutrient-rich runoff may eventually enter lake environments with these nutrients readily assimilated by aquatic algae (Delaware River Basin Commission, 2017). The scale of this impact is shown in one 2016 study concluding that at the end of 2012 approximately 7% of the lakes in the United States were believed to contain total phosphorus levels of less than 10 µg/L, the minimum level for a lake to still be classified as oligotrophic (Stoddard et al., 2016).
This phenomenon of eutrophication has been observed to take place on both large and small scales, with one of the largest impacted environments being within the Gulf of Mexico (Dartmouth Undergraduate Journal of Science, 2012). A dead zone comparable in size to that of New Jersey is currently located off the Texas-Louisiana-Mississippi coast (Smith, 2017), with such an area resulting from the large quantities of nutrients drained from agricultural farmland within the Mississippi River system (Dartmouth Undergraduate Journal of Science, 2012). As previously described, the source of these nutrients are the phosphorus and nitrogen containing fertilizers applied to agricultural fields transported to the Gulf of Mexico via runoff. And these nutrients have in turn stimulated algae growth, lowered oxygen levels and impacted marine environments (Smith, 2017).

2.2 Elemental Phosphorus and the Phosphorus Cycle

Phosphorus is a chemical element and nutrient, like nitrate, that is essential for plant life (Krauskopf and Bird, 2003; U.S.G.S., 2016) with different forms cycling through the environment. This cycle is called the Phosphorus Cycle, and generally, phosphorus exists in four forms: adsorbed phosphorus, inorganic phosphorus, mineral phosphorous and organic phosphorus (Hyland et al., 2005b). Inorganic phosphorus is the only phase available for plant use, with phosphorus transitioning from one state to another in soil through the processes of adsorption, desorption, immobilization, mineralization, precipitation and weathering (Hyland et al., 2005b). Soils that are naturally poor in inorganic phosphorus will need to be treated with a phosphorus fertilizer to increase
crop yields (Hyland et al., 2005b), but with fertilizer application comes the need for runoff control (Hyland et al., 2005a).

2.3 **Historic Lake Phosphorus Studies and Management**

Eutrophication is a common issue for managers of water bodies (Municipal Sewer & Water, 2015), with SUEZ having utilized waters from the Delaware and Raritan Canal during times of algal bloom in the reservoir as an alternate water source (Cummins, 2015). A review of how other organizations have responded to eutrophication is discussed in Section 2.3.1 through Section 2.3.3 below.

2.3.1 **Historic Phosphorus Investigation - U.S. EPA Ecoregion IX**

To address water quality issues and act in accordance with the Clean Water Act of 1972, the U.S. EPA periodically produces recommendations to the States regarding surface water quality standards. The current criteria recommendations for States located within U.S. EPA Ecoregion IX (that containing the reservoir) are contained in the December 2000 version of the U.S. EPA’s *Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Lakes and Reservoirs in Nutrient Ecoregion IX*. These criteria were created with the intention of being protective of recreational use and aquatic life with Ecoregion IX including the Trap Rock Ridges and Palisades and the Triassic Lowlands described in Section 1.10 of this report.
The purpose of this U.S. EPA prepared report was the presentation of recommended surface water criteria for total phosphorus (20 µg/L or 0.02 mg/L), total nitrogen (0.36 mg/L), chlorophyll (4.03 µg/L) and turbidity (1.53 meters, via Secci Disk and is not comparable to the values obtained during this study). These criteria were the result of extensive sampling and analysis from 13 lakes within the subecoregion.

2.3.2 Historic Phosphorus Investigation - State of New Jersey

The NJDEP also studies the surface water quality of the State with the results of the most recent study found in the NJDEP’s December 2011, Ambient Lakes Monitoring Network, Panel 5 report. This NJDEP study was performed to better understand the health/trophic state of 200 lakes not being used as drinking water sources within New Jersey, with Panel 5 including 40 lakes selected at random. Extensive sampling was performed within these water bodies to establish baseline values with samples generally collected from below the surface at multiple sampling locations.

For this study, three parameters were of primary interest. These included total phosphorus (values to be less than the New Jersey SWQS of 0.05 mg/L), dissolved oxygen (values to be greater than the New Jersey SWQS of 4.0 mg/L) and pH (values to fall within the New Jersey SWQS of 6.5 and 8.5). Additionally, ranges were given for chlorophyll and total phosphorus corresponding to the various states defined by Carlson’s Trophic State Index of eutrophication. These states being oligotrophic, mesotrophic, eutrophic and hypereutrophic, with the health of a lake decreasing from the oligotrophic to the hypereutrophic state. Concerning the lakes contained within this
NJDEP study, 11 of the 40 lakes exhibited impairment and were classified within the eutrophic or hypereutrophic states, being at risk to the adverse effects of algae and rampant aquatic plant growth. Each state is defined as follows:

**Oligotrophic:**
Oligotrophic lakes have low levels of nutrients, low quantities of chlorophyll, good water clarity, high levels of dissolved oxygen at depth and few algae and aquatic plant problems. Chlorophyll values range from less than 0.5 parts per billion (ppb) to 1.5 ppb. Total phosphorus values range from less than 3 ppb to 15 ppb.

**Mesotrophic:**
Mesotrophic lakes are lakes in the process of transitioning from an oligotrophic to eutrophic state. They are marked by increasing values of nutrients and lower values of dissolved oxygen as compared to oligotrophic lakes and may experience temporary algae and aquatic plant issues. Chlorophyll values range from 1.5 ppb to less than 4.5 ppb. Total phosphorus values range from 15 ppb to less than 30 ppb.

**Eutrophic:**
Eutrophic lakes are typically shallow, rich in nutrients, have low values of dissolved oxygen and have persistent algae and aquatic plant issues. Chlorophyll values range from 4.5 ppb to less than 50 ppb. Total phosphorus values range from 30 ppb to less than 100 ppb.
Hypereutrophic:

Hypereutrophic lakes have little to no oxygen at bottom depths and have extreme algae and aquatic plant issues. Chlorophyll values range from 50 ppb to greater than 150 ppb. Total phosphorus values range from 100 ppb to greater than 200 ppb.

2.3.3 Historic Phosphorus Investigations - Swan Creek Reservoir

SUEZ or its predecessor United Water Lambertville (United Water), have conducted historic studies within the Swan Creek Reservoir utilizing the professional consulting services provided by Princeton Hydro of Ringoes, New Jersey.

Princeton Hydro has performed work at the reservoir annually since at least 2012 with reviewed documentation showing their work began in response to an algal bloom reported during that year (United Water, 2012). Princeton Hydro was requested to develop and implement a surface water sampling and monitoring program for constituents of concern whose results were later used to select treatment remedies that were later applied (SUEZ, 2018).

Princeton Hydro’s data collection had been sporadic and primarily focused on measuring concentrations of algal/phytoplankton populations, geosmin and MIB (SUEZ, 2018). Concentrations of these parameters merited reservoir treatment, with Princeton Hydro applying Captain® Liquid Copper and Earthtec® (algaecides) in the past. Princeton Hydro/SUEZ/United Water also measured water quality parameters of interest to this study (dissolved oxygen, pH, specific conductivity, temperature, turbidity,
ammonia, chlorophyll, nitrate, soluble reactive phosphorus, total dissolved phosphorus, total particulate phosphorus, total phosphorus and total suspended solids). Regarding this data set, Princeton Hydro was most concerned with total phosphorus levels found in exceedance of the New Jersey SWQS during their 2013 and 2014 sampling events (Lubnow, 2014). In response to these exceedances, and to lower the total phosphorus concentrations, an aeration system was installed in 2013 (Lubnow, 2014) and Princeton Hydro proposed to treat the reservoir with Phoslock® (a clay based product that inactivates phosphorus) in 2015 (Lubnow, 2015).
3 METHODS

3.1 Sampling Program Methods

The sampling program was conducted in accordance with the project specific planning documents created for this project including the project Proposal of December 10, 2017, Health and Safety Plan (HASP) of January 24, 2018 and Quality Assurance Project Plan (QAPP) of January 27, 2018. All documents were approved by SUEZ and the University of Pennsylvania review committees during a series of meetings prior to the first sampling event conducted on January 30, 2018.

As detailed in the Proposal and sampling QAPP, the sampling program consisted of three monthly sampling events conducted on January 30, February 22 and March 13, 2018.

During each sampling event, samples were collected from four locations within the reservoir by M. Nogier and E. Brown (a SUEZ staff scientist) utilizing a non-motorized boat provided by SUEZ with Health and Safety procedures included in Appendix B.

Once at a designated sampling location (Figure 6), laboratory prepared bottleware received the morning of the event were submerged below the surface of the reservoir and filled. Additionally, at each sampling location a water quality meter was utilized to analyze a sample of water for in situ water quality parameters. After sampling, sample bottles were stored on ice and delivered to Environmental Compliance Monitoring, Inc. (ECM), of Hillsborough Township, New Jersey for analysis under proper chain of
custody protocols. Information pertaining to the field events were recorded in a field notebook (Appendix C) and photographs were taken during each sampling event (Appendix A).

Regarding the sampling locations, location SW01 was located at the point of greatest depth near the intake pipe and correlated with historic SUEZ sampling location S-4 (Figure 6). Location SW02 was located at the areal midpoint of the reservoir correlating with historic SUEZ sampling location S-3. Location SW03 was located at the northern inlet correlating with historic SUEZ sampling location S-1 and location SW04 was located at the eastern inlet correlating with historic SUEZ sampling location S-2.

3.1.1 In Situ Water Quality Parameter Measurement

During each sampling event, at each of the four locations described in Section 3.1 and identified on Figure 6, in situ water quality parameters were collected with a Horiba U-52 series water quality meter that was calibrated by M. Nogier prior to each use. This meter was used to measure dissolved oxygen, pH, oxidation-reduction potential, specific conductivity, temperature and turbidity at the surface of locations SW01, SW02, SW03 and SW04.

3.1.2 Sample Collection Methodology

During each sampling event, at each of the four locations described in Section 3.1 and identified on Figure 6, samples were collected for laboratory analysis in accordance with the method procedures provided by ECM (American Public Health Association et al.,
1975-1976; Nogier, 2018a). To analyze for the requested parameters, ECM provided the necessary bottleware of different volumes that were to be filled, with both non-preserved and chemically preserved bottles received.

As both non-preserved and preserved bottles were received, two different methods were required to fill them. The non-preserved bottles were submerged into the reservoir by hand until full. Once full, the sample bottle was raised into the boat and placed into a cooler for storage. Regarding the preserved bottleware, this method involved filling a bottle with water decanted out of a non-preserved bottle that had been filled in accordance with its own method. Once full, the preserved bottle was placed into a cooler for storage. At the end of each sampling event bottle labeling was completed. All bottles were stored on ice prior to their delivery to ECM by M. Nogier on the same day as sampling for later analysis.

3.1.3 Laboratory Analysis of Collected Samples

As described in Section 3.1.2, all collected samples were delivered to ECM on ice by M. Nogier on the same day as sampling. In accordance with the project QAPP, ECM analyzed each sample for ammonia-N, chlorophyll a, nitrate-N, soluble reactive phosphorous, total dissolved phosphorus, total particulate phosphorus, total phosphorus and total suspended solids.
3.1.4 *Historic Swan Creek Reservoir Water Quality Data Review*

Water quality data collected by SUEZ during past sampling events was requested by M. Nogier. This was done so that project collected data could be compared to historic data evaluated in Section 5 of this report. Regarding this historic data, it was received by M. Nogier on two different dates, with hard copy documents made available on January 30, 2018 and digital Excel spreadsheets made available on February 27, 2018. Hard copy documents were organized, scanned and returned to SUEZ with the information relevant to this project compiled into Appendix D.

3.2 *Land Use Study Methods*

For the land use study portion of this project, properties located within or within the vicinity of the approximately 690 acre watershed were selected for investigation. Documents were obtained from a variety of sources detailed in Section 3.2.1 and Section 3.2.2 of this report.

3.2.1 *Process to Obtain Online Records and Property Selection Process*

The land use study began by ordering The EDR Radius Map™ Report with GeoCheck® (EDR Report) from EDR, Inc. (EDR) for the SUEZ facility. The EDR Report contained property information resulting from searches of various Federal and State related environmental databases conducted by EDR within a 1 mile radius of the SUEZ facility. The EDR report also contained historic topographic maps (Appendix E) and aerial photography (Appendix F), but did not provide requested historic Sanborn Fire Insurance maps (Sanborn maps) as none were available for West Amwell. This was
confirmed by Princeton University whose historic Sanborn maps for Lambertville were reviewed on February 13, 2018 (Appendix G). Information reviewed online from Google Earth Pro and HistoricAerials.com provided similar information to that received from EDR, with the most recent aerial photographs dating to 2016 (Google Earth Pro, 2018; HistoricAerials.com, 2018).

After reviewing these materials, spatial and property related information found within the EDR Report was used to plot properties of interest on current West Amwell tax maps obtained from StateInfoServices.com. After this exercise was performed, the boundaries of the watershed as described within the NRCS study of 2007 were overlaid identifying all the properties within and within the vicinity of the watershed which were further investigated. These properties were then screened against information found within the NJDEP's online data resources DataMiner and NJ-GeoWeb, and the U.S. EPA online data resource EnviroMapper.

Additional detailed information for all these properties was later obtained from StateInfoServices.com, including acreage and property classification data. This information is displayed in Table 1 and is spatially displayed in Plate 2. Plate 1 representing habitat coverage, and Plate 2 were then imported into Google Earth Pro whose built in property area calculation tool was utilized to calculate the total acreage of each property classification/habitat type falling strictly within the boundaries of the watershed.
3.2.2 Process to Obtain and Review Public Records

Further investigation into these properties indicated that many had no issues to report or that some properties were listed multiple times across the different environmental databases. Many fell into the latter category, with several having listings related to closed underground storage tank and/or fuel oil cases. As phosphorus was a main focus of this study, these properties were excluded from further review. After final screening was conducted, 5 properties remained that were listed by the NJDEP as having records of interest that were available for review via New Jersey’s Open Public Records Act (OPRA) (Plate 3). OPRA requests were subsequently made for these selected properties to both West Amwell and the NJDEP with available files reviewed at West Amwell Township Municipal Offices on February 16, 2018 and at the NJDEP’s Trenton, New Jersey Headquarters on March 26, 2018.
4 RESULTS

4.1 Sampling Program Results

The results from the sampling program’s three sampling events are presented in ECM prepared laboratory reports included in Appendix H, Appendix I and Appendix J, are summarized in Table 2 and Table 3, are spatially shown in Plate 4 and Plate 5 and are described in Section 4.1.1 through Section 4.1.16.

Also, included in Table 2 are atmospheric conditions and reservoir water level height measurements taken during each sampling event. For the January sampling event, air temperature was 0 °C, reservoir height was 289.0 ft amsl with snow reported. For the February sampling event, air temperature was 6.1 °C, reservoir height was at 289.6 ft amsl with rain reported. For the March sampling event, the air temperature was 0.6 °C, reservoir height was 290.1 ft amsl, with water overspilling the dam and with snow reported.

4.1.1 In Situ Water Quality Parameters - Appearance

For the January and February sampling events, the appearance at SW01 was cloudy, at SW02 was clear, at SW03 was clear and at SW04 was clear. For the March sampling event, the appearance at all locations was clear.

4.1.2 In Situ Water Quality Parameters - Dissolved Oxygen

For the January sampling event, the dissolved oxygen result at SW01 was 11.37 mg/L, at SW02 was 15.42 mg/L, at SW03 was 14.33 mg/L and at SW04 was 13.58 mg/L. For
the February sampling event, the result at SW01 was 9.04 mg/L, at SW02 was 5.93 mg/L, at SW03 was 5.00 mg/L and at SW04 was 5.63 mg/L. For the March sampling event, the result at SW01 was 10.51 mg/L, at SW02 was 8.02 mg/L, at SW03 was 9.55 mg/L and at SW04 was 10.26 mg/L.

4.1.3 In Situ Water Quality Parameters - pH

For the January sampling event, the pH result at SW01 was 6.41, at SW02 was 8.60, at SW03 was 8.11 and at SW04 was 8.43. For the February sampling event, the result at SW01 was 5.51, at SW02 was 6.27, at SW03 was 6.24 and at SW04 was 6.35. For the March sampling event, the result at SW01 was 5.98, at SW02 was 7.74, at SW03 was 7.53 and at SW04 was 7.35.

4.1.4 In Situ Water Quality Parameters - Oxidation-Reduction Potential

For the January sampling event, the redox potential result at SW01 was 227 mV, at SW02 was 90 mV, at SW03 was 135 mV and at SW04 was 96 mV. For the February sampling event, the redox potential result at SW01 was 230 mV, at SW02 was 254 mV, at SW03 was 251 mV and at SW04 was 234 mV. For the March sampling event, the result at SW01 was 336 mV, at SW02 was 329 mV, at SW03 was 317 mV and at SW04 was 342 mV.

4.1.5 In Situ Water Quality Parameters - Specific Conductivity

For the January sampling event, the specific conductivity result at SW01 was 0.150 mS/cm, at SW02 was 0.116 mS/cm, at SW03 was 0.120 mS/cm and at SW04 was
0.120 mS/cm. For the February sampling event, the result at SW01 was 0.210 mS/cm, at SW02 was 0.141 mS/cm, at SW03 was 0.145 mS/cm and at SW04 was 0.142 mS/cm. For the March sampling event, the result at SW01 was 0.086 mS/cm, at SW02 was 0.097 mS/cm, at SW03 was 0.103 mS/cm and at SW04 was 0.085 mS/cm.

4.1.6 In Situ Water Quality Parameters - Temperature

For the January sampling event, the temperature result at SW01 was 6.24 °C, at SW02 was 3.07 °C, at SW03 was 3.68 °C and at SW04 was 3.27 °C. For the February sampling event, the result at SW01 was 12.13 °C, at SW02 was 10.03 °C, at SW03 was 9.30 °C and at SW04 was 9.77 °C. For the March sampling event, the result at SW01 was 6.96 °C, at SW02 was 5.06 °C, at SW03 was 5.67 °C and at SW04 was 4.92 °C.

4.1.7 In Situ Water Quality Parameters - Turbidity

For the January sampling event, the turbidity result at SW01 was 53.0 NTU, at SW02 was 17.7 NTU, at SW03 was 16.8 NTU and at SW04 was 12.7 NTU. For the February sampling event, the result at SW01 was 10.6 NTU, at SW02 was 9.9 NTU, at SW03 was 11.1 NTU and at SW04 was 9.9 NTU. For the March sampling event, the result at SW01 was 6.0 NTU, at SW02 was 6.3 NTU, at SW03 was 5.6 NTU and at SW04 was 4.6 NTU.

4.1.8 Laboratory Analyzed Parameters - Ammonia-N

For the January sampling event, the ammonia result at SW01 was non-detect (method detection limit less than 0.01 mg/L), at SW02 was non-detect (method detection limit
less than 0.01 mg/L), at SW03 was non-detect (method detection limit less than 0.01 mg/L) and at SW04 was non-detect (method detection limit less than 0.01 mg/L). For the February sampling event, the result at SW01 was 0.15 mg/L, at SW02 was 0.15 mg/L, at SW03 was 0.20 mg/L and at SW04 was 0.15 mg/L. For the March sampling event, the result at SW01 was 0.02 mg/L, at SW02 was 0.01 mg/L, at SW03 was 0.02 mg/L and at SW04 was 0.03 mg/L.

4.1.9 Laboratory Analyzed Parameters - Chlorophyll a
For the January sampling event, the chlorophyll result at SW01 was 253.0 µg/L, at SW02 was 166.0 µg/L, at SW03 was 64.0 µg/L and at SW04 was 131.0 µg/L. For the February sampling event, the result at SW01 was 4.7 µg/L, at SW02 was 2.8 µg/L, at SW03 was 3.3 µg/L and at SW04 was 7.7 µg/L. For the March sampling event, the result at SW01 was 4.5 µg/L, at SW02 was 6.9 µg/L, at SW03 was non-detect (method detection limit less than 0.6 µg/L) and at SW04 was non-detect (method detection limit less than 0.6 µg/L).

4.1.10 Laboratory Analyzed Parameters - Nitrate-N
For the January sampling event, the nitrate result at SW01 was 0.58 mg/L, at SW02 was 0.57 mg/L, at SW03 was 0.69 mg/L and at SW04 was 0.59 mg/L. For the February sampling event, the result at SW01 was 0.40 mg/L, at SW02 was 0.41 mg/L, at SW03 was 0.42 mg/L and at SW04 was 0.37 mg/L. For the March sampling event, the result at SW01 was 0.26 mg/L, at SW02 was 0.25 mg/L, at SW03 was 0.39 mg/L and at SW04 was 0.14 mg/L.
4.1.11 Laboratory Analyzed Parameters - Soluble Reactive Phosphorus

For the January sampling event, the soluble reactive phosphorus result at SW01 was 0.006 mg/L, at SW02 was 0.006 mg/L, at SW03 was 0.005 mg/L and at SW04 was 0.006 mg/L. For the February sampling event, the result at SW01 was 0.008 mg/L, at SW02 was 0.009 mg/L, at SW03 was 0.010 mg/L and at SW04 was 0.009 mg/L. For the March sampling event, the result at SW01 was 0.009 mg/L, at SW02 was 0.005 mg/L, at SW03 was 0.003 mg/L and at SW04 was 0.003 mg/L.

4.1.12 Laboratory Analyzed Parameters - Total Dissolved Phosphorus

For the January sampling event, the total dissolved phosphorus result at SW01 was 0.03 mg/L, at SW02 was 0.4 mg/L, at SW03 was 0.02 mg/L and at SW04 was 0.02 mg/L. For the February sampling event, the result at SW01 was 0.01 mg/L, at SW02 was 0.02 mg/L, at SW03 was 0.01 mg/L and at SW04 was 0.02 mg/L. For the March sampling event, the result at SW01 was 0.03 mg/L, at SW02 was 0.02 mg/L, at SW03 was 0.02 mg/L and at SW04 was 0.02 mg/L.

4.1.13 Laboratory Analyzed Parameters - Total Particulate Phosphorous

For the January sampling event, the total particulate phosphorus result at SW01 was 0.04 mg/L, at SW02 was 0.18 mg/L, at SW03 was 0.08 mg/L and at SW04 was non-detect (method detection limit less than 0.01 mg/L). For the February sampling event, the result at SW01 was 0.05 mg/L, at SW02 was 0.19 mg/L, at SW03 was 0.04 mg/L and at SW04 was 0.08 mg/L. For the March sampling event, the result at SW01 was
0.02 mg/L, at SW02 was 0.08 mg/L, at SW03 was 0.08 mg/L and at SW04 was 0.04 mg/L.

4.1.14 Laboratory Analyzed Parameters - Total Phosphorous
For the January sampling event, the total phosphorus result at SW01 was 0.07 mg/L, at SW02 was 0.22 mg/L, at SW03 was 0.10 mg/L and at SW04 was 0.26 mg/L. For the February sampling event, the result at SW01 was 0.05 mg/L, at SW02 was 0.19 mg/L, at SW03 was 0.04 mg/L and at SW04 was 0.08 mg/L. For the March sampling event, the result at SW01 was 0.05 mg/L, at SW02 was 0.10 mg/L, at SW03 was 0.10 mg/L and at SW04 was 0.06 mg/L.

4.1.15 Laboratory Analyzed Parameters - Total Suspended Solids
For the January sampling event, the total suspended solids result at SW01 was 6 mg/L, at SW02 was 5 mg/L, at SW03 was 5 mg/L and at SW04 was 9 mg/L. For the February sampling event, the result at SW01 was 9 mg/L, at SW02 was 8 mg/L, at SW03 was 7 mg/L and at SW04 was 7 mg/L. For the March sampling event, the result at SW01 was 7 mg/L, at SW02 was 7 mg/L, at SW03 was 6 mg/L and at SW04 was 5 mg/L.

4.1.16 Laboratory Analyzed Parameters - Field Blanks
In accordance the project QAPP, field blanks were also collected during each sampling event for all of the parameters analyzed by ECM for this project. All values were reported as non-detect at the various method detection limits.
4.2 **Land Use Study Results**

The results from the land use study are presented in Table 1, Table 4, Table 5 and Table 6, are spatially shown in Plate 1, Plate 2 and Plate 3, and are described below.

4.2.1 **Results of Investigated Tax Parcels/Properties**

For the land use study portion of this project, 84 properties located within or within the vicinity of the approximately 690 acre watershed were selected for investigation in accordance with the methodology outlined in Section 3.2 of this report. The total land area investigated was approximately 1,490 acres. Available historic aerial photography, historic topographic maps and historic Sanborn maps were reviewed as part of this land use study and show that the area has always been rural with approximately 592 acres of watershed land serving as wooded/wetland habitat (Table 4). An additional estimate of approximately 55 acres of watershed land is utilized for active agriculture, approximately 23 acres accounts for the reservoir and approximately 20 acres of watershed land is developed or urban (Plate 1, Table 4).

Of the 84 properties subject to this land use study (Table 1), 42 properties had Residential property classifications for a total area of approximately 100 acres; 24 properties had Farm property classifications for a total area of approximately 765 acres; 8 properties had Public Property classifications for a total area of approximately 415 acres; 5 properties had Vacant Land property classifications for a total area of approximately 25 acres; 3 properties had Commercial property classifications for a total area of approximately 150 acres; 1 property had a Church & Charitable property
classification for a total area of approximately 20 acres; and 1 property had an Other Exempt property classification for a total area of approximately 15 acres (Plate 2, Table 1).

Further land use investigation identified that of the 84 properties investigated above, 43 are either completely or partially located within the boundaries of the approximately 690 acre watershed. Of these 43 properties, 15 properties had Farm property classifications for a total area of approximately 200 acres; 14 properties had Residential property classifications for a total area of approximately 10 acres; 7 properties had Public Property classifications for a total area of approximately 335 acres; 2 properties had Commercial property classifications for a total area of approximately 100 acres; 3 properties had Vacant Land property classifications for a total area of approximately 10 acres; 1 property had a Church & Charitable property classification for a total area of approximately 10 acres; 1 property had an Other Exempt property classification for a total area of approximately 15 acres; and approximately 10 acres were covered by roads (Plate 2, Table 5).

4.2.2 Results of Property Screening against Environmental Databases

Of the total 84 properties investigated during the land use study, 17 properties were found to have listings in the various environmental sources that were reviewed. These 17 properties had a combined area of approximately 430 acres and of these 17 properties, 9 properties were listed in the EDR Report, 15 properties were listed in the U.S. EPA online data resource EnviroMapper, 10 properties were listed in the NJDEP...
online data resource NJ-GeoWeb and 10 properties were listed within the NJDEP online records resource NJDEP DataMiner (Table 1).

4.2.3 Results of Public Records Requests

All properties were reviewed following the screening methodology described in Section 3.2.2 of this report resulting in 5 properties with a combined area of approximately 190 acres meriting OPRA requests. OPRA requests were made to West Amwell and the NJDEP for these properties located at 624 Brunswick Pike, 680 Brunswick Pike, 701 Brunswick Pike, 702 Brunswick Pike and 756 Brunswick Pike in West Amwell (Plate 3, Table 6). These properties were selected as they had numerous listings with the NJDEP and the greatest potential to impact the watershed. Details concerning the contents of reviewed files are summarized below and included in Appendix K.

624 Brunswick Pike:

624 Brunswick Pike is located east of and beyond the watershed and is identified as Property Number 66 on Plate 3 and in Table 6. It is a 4.20 acre parcel owned by West Amwell Properties LLC with a Commercial property classification. This property was listed in the EDR Report, was listed in EnviroMapper, was listed under the New Jersey Environmental Management System (NJEMS) designation in NJ-GeoWeb and was listed under the name Garden Solar in DataMiner with associated NJDEP Coastal and Land Use files available for OPRA review.
OPRA requests were made to West Amwell and the NJDEP, with West Amwell files showing that percolation tests had been performed at this property during April 1989 and that soils were investigated to a depth of 120 inches. The NJDEP files contained information indicating that Garden Solar, LLC submitted a proposal to construct a solar energy farm on this property during June 2016 as a waiver was required due to the proximity of freshwater wetlands. A land use study and engineering drawings were prepared, however, as of this report, the property remains undeveloped.

680 Brunswick Pike:

680 Brunswick Pike is located southeast of the reservoir, with a portion of the property located within the watershed and is identified as Property Number 24 on Plate 3 and in Table 6. It is an 8.09 acre parcel owned by James H. Lawson with a Farm property classification. This property was listed in the EDR Report, was listed in EnviroMapper, was listed under the NJEMS and Known Contaminated Site designations in NJ-GeoWeb and was listed under the name Lawson Excavating Inc in DataMiner with associated NJDEP Solid Waste Transporter and SRP (Site Remediation Program) files available for OPRA review.

OPRA requests were made to West Amwell and the NJDEP, with West Amwell having no files to review. The NJDEP files contained information indicating that during December 2015, this property received approximately 3,250 tons of soil that had been excavated during the construction of Wawa Store No. 8341 located in Bridgewater Township, New Jersey. This soil was received at 680 Brunswick Pike with the intent of
being used as fill material and was staged in a wooded area within the central portion of the property.

After delivery of this soil, the soil was determined to be contaminated with benzene, polycyclic aromatic hydrocarbons and lead. JK Environmental Services, LLC (JK Environmental) of Conshohocken, Pennsylvania was hired to provide environmental consulting services and served as the Licensed Site Remediation Professional (LSRP) for this case. As part of their work, JK Environmental oversaw the removal of the contaminated soils and performed post-excavation soil sampling around the perimeter and base of the former stockpile. These samples were analyzed for the parameters of concern, in addition to others, with some parameters detected in the soil samples. However, JK Environmental utilized an NJDEP compliance averaging method to show compliance with applicable standards. JK Environmental issued a Response Action Outcome (RAO) for no further action on 3/30/2017.

701 Brunswick Pike:

701 Brunswick Pike is located southeast of and beyond the watershed and is identified as Property Number 79 on Plate 3 and in Table 6. It is a 20.16 acre parcel owned by Leon A. Walters IV with a Farm property classification. This property was not listed in the EDR Report, was listed in EnviroMapper, was listed under the NJEMS designation in NJ-GeoWeb and was listed under the name Walters Leon in DataMiner with associated NJDEP Air, Coastal and Land Use files available for OPRA review.
OPRA requests were made to West Amwell and the NJDEP, with West Amwell files showing that soil permeability tests and excavations to a depth of 94 inches were performed at the property between 1998 and 2002. Testing appears to have been related to the potential installation of a septic system with soil results suggesting the presence of wetlands.

The NJDEP files contained information dating to 2004, 2007 and 2012. Typically, the 2004 information was related to wetlands investigation, unauthorized tree removal conducted on this property which were impacting surface water drainage, and the lack of appropriate permits. It was later determined these actions were conducted in anticipation of dwelling construction on the property with information dating from 2007. In 2007, the NJDEP granted a freshwater permit resolving the land disturbance violation issue with additional documentation dating to 2012 concerning the use of wood burning apparatus that was not in compliance with state regulations.

702 Brunswick Pike:

702 Brunswick Pike is located southeast of the reservoir, with a portion of the property located within the watershed, and is identified as Property Number 34 on Plate 3 and in Table 6. It is a 12.93 acre parcel owned by the NJDEP with a Public Property classification. This property was not listed in the EDR Report, was not listed in EnviroMapper, was listed under the NJEMS designation in NJ-GeoWeb and was listed under the name Thompson Land in DataMiner with associated NJDEP Coastal and Land Use files available for OPRA review.
OPRA requests were made to West Amwell and the NJDEP, with West Amwell having no files to review. The NJDEP files were requested, but upon arrival, NJDEP workers stated that no files were available to review.

756 Brunswick Pike:

756 Brunswick Pike surrounds the entirety of the reservoir and is identified as Property Number 19 on Plate 3 and in Table 6. It is a 141.05 acre parcel owned by the Lambertville Water Company (SUEZ) with a Commercial property classification. This property was listed in the EDR Report, was listed in EnviroMapper, was listed under the NJEMS, Historic Fill and UST designations in NJ-GeoWeb and was listed under the name Lambertville Water Co in DataMiner with associated NJDEP Air, NJPDES (New Jersey Pollutant Discharge Elimination System), Physical Connection, Right to Know, Safe Drinking Water, SRP and Water Allocation files available for OPRA review.

OPRA requests were made to West Amwell and the NJDEP, with West Amwell files from August 2016 and September 2016 showing that a soil investigation was conducted to a depth of 120 inches regarding a proposed new septic system that was to be installed for the water treatment plant and office.

The NJDEP files contained a variety of information dating from 1992 to 2018, with Right to Know files available from 1992 through 2017. These Right to Know files contained information related to the chemicals stored and used at the property, primarily at the water treatment plant, with amounts recorded in weight by pounds. None of these
chemicals were related to the parameters of interest to this study. Also contained in the NJDEP's files were information related to the renewal of the water treatment plant's NJDEP issued Potable Water Treatment Plant Permit in 2001 with an NJDEP related evaluation also completed. Documentation dating to 2003 concerned the renewal of the plant's NJPDES permit with a violation from the NJDEP recorded in 2007 due to plant related Right to Know information not being received. Additional information reviewed included water treatment plant effluent results from 2013 as well as more NJDEP violation information dating to 2016 concerning chlorine disinfection and monitoring. Lastly, the NJDEP information regarding the operation of a 150 kilowatt emergency diesel generator was reviewed.
5 INVESTIGATION AND HISTORIC DATA RANGES, CALCULATION RESULTS

5.1 Sampling Program Additional Results

The results from the sampling program’s three sampling events (Table 2, Table 3, Plate 4, Plate 5) were graphed with the available historic data provided by SUEZ (Appendix D). These graphs are included in the Figures section of this report, and Figure 7 through Figure 12 display the results for in situ water quality parameters, Figure 13 through Figure 20 display the results of the laboratory analyzed parameters, Figure 21 through Figure 26 display the averaged reservoir-wide results for the in situ water quality parameters and Figure 27 through Figure 34 display the averaged reservoir-wide results of the laboratory analyzed parameters.

5.1.1 In Situ Water Quality Parameters - Appearance

For the January sampling event, the appearance of the sample water ranged from clear to cloudy. For the February sampling event, the appearance ranged from clear to cloudy. For the March sampling event, the appearance was clear in all locations. Appearance was not included in the historic data set at a frequency to merit further reference.

5.1.2 In Situ Water Quality Parameters - Dissolved Oxygen

For the January sampling event, the values for dissolved oxygen ranged from 11.37 mg/L to 15.42 mg/L. For the February sampling event, the values ranged from 5.00 mg/L to 9.04 mg/L. For the March sampling event, the values ranged from 8.02 mg/L to 10.51 mg/L (Table 2, Figure 7).
Data collected at each sampling location was also compared to historic data collected during 2013 and 2014 (Appendix D, Figure 7) at corresponding locations and results from SW01 during the entire sampling program ranged from 9.04 mg/L to 11.37 mg/L with a mean of 10.31 mg/L. SW01 corresponded with S-4 results that ranged from 6.20 mg/L to 15.38 mg/L with a mean of 8.49 mg/L. Results from SW02 during the entire sampling program ranged from 5.93 mg/L to 15.42 with a mean of 9.71 mg/L. SW02 corresponded with S-3 results that ranged from 6.94 mg/L to 15.30 mg/L with a mean of 8.62 mg/L. Results from SW03 during the entire sampling program ranged from 5.00 mg/L to 14.33 mg/L with a mean of 9.63 mg/L. SW03 corresponded with S-1 results that ranged from 6.12 mg/L to 15.38 mg/L with a mean of 8.27 mg/L. Results from SW04 during the entire sampling program ranged from 5.63 mg/L to 13.58 mg/L with a mean of 9.82 mg/L. SW04 corresponded with S-2 results that ranged from 6.84 mg/L to 15.80 mg/L with a mean of 8.52 mg/L.

Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Appendix D, Figure 21). The mean for each 2018 sampling event was calculated and plotted with the overall historic reservoir-wide results dating to 2013, 2014, 2015 and 2017 (Table 7). Excluding 2018 data, the data set ranged from 5.66 mg/L to 15.38 mg/L with a mean of 8.54 mg/L. If 2018 results are included then the range remains the same with a mean of 8.62 mg/L.
5.1.3 *In Situ Water Quality Parameters - pH*

For the January sampling event, the values for pH ranged from 6.41 to 8.60. For the February sampling event, the values ranged from 5.51 to 6.35. For the March sampling event, the values ranged from 5.98 to 7.74 (Table 2, Figure 8).

Data collected at each sampling location was also compared to historic data collected during 2013 and 2014 (Appendix D, Figure 8) at corresponding locations and results from SW01 during the entire sampling program ranged from 5.51 to 6.41 with a mean of 5.97. SW01 corresponded with S-4 results that ranged from 5.51 to 14.00 with a mean of 8.76. Results from SW02 during the entire sampling program ranged from 6.27 to 8.60 with a mean of 7.54. SW02 corresponded with S-3 results that ranged from 6.80 to 13.44 with a mean of 8.96. Results from SW03 during the entire sampling program ranged from 6.24 to 8.11 with a mean of 7.29. SW03 corresponded with S-1 results that ranged from 6.81 to 14.00 with a mean of 8.90. Results from SW04 during the entire sampling program ranged from 6.35 to 8.43 with a mean of 7.38. SW04 corresponded with S-2 results that ranged from 6.77 to 13.41 with a mean of 8.96.

Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Appendix D, Figure 22). The mean for each 2018 sampling event was calculated and plotted with the overall historic reservoir-wide results dating to 2012, 2013, 2014, 2015, 2016 and 2017 (Table 7). Excluding 2018 data, the data set ranged from 5.51 to 14.00 with a mean of 8.11. If 2018 results are included then the range remains the same with a mean of 8.08.
5.1.4 In Situ Water Quality Parameters - Oxidation-Reduction Potential

For the January sampling event, the values for redox potential ranged from 90 mV to 227 mV. For the February sampling event, the values ranged from 230 mV to 254 mV. For the March sampling event, the values ranged from 317 mV to 342 mV (Table 2, Figure 9). Redox potential was not sampled historically at the other surface water locations with the location specific values for the 2018 data included in Figure 9. Further analysis was performed with the collected data, with the values from each sampling event averaged. Results ranged from 90 mV to 342 mV with a mean of 237 mV (Appendix D, Figure 23).

5.1.5 In Situ Water Quality Parameters - Specific Conductivity

For the January sampling event, the values for specific conductivity ranged from 0.116 mS/cm to 0.150 mS/cm. For the February sampling event, the values ranged from 0.141 mS/cm to 0.210 mS/cm. For the March sampling event, the values ranged from 0.085 mS/cm to 0.103 mS/cm (Table 2, Figure 10).

Data collected at each sampling location was also compared to historic data collected during 2013 and 2014 (Appendix D, Figure 10) at corresponding locations and results from SW01 during the entire sampling program ranged from 0.086 mS/cm to 0.210 mS/cm with a mean of 0.149 mS/cm. SW01 corresponded with S-4 results that ranged from 0.087 mS/cm to 0.181 mS/cm with a 0.141 mS/cm. Results from SW02 during the entire sampling program ranged from 0.097 mS/cm to 0.141 mS/cm with a mean of 0.118 mS/cm. SW02 corresponded with S-3 results that ranged from 0.093 mS/cm to
0.180 mS/cm with a mean of 0.140 mS/cm. Results from SW03 during the entire sampling program ranged from 0.103 mS/cm to 0.145 mS/cm with a mean of 0.123 mS/cm. SW03 corresponded with S-1 results that ranged from 0.090 mS/cm to 0.180 mS/cm with a mean of 0.141 mS/cm. Results from SW04 during the entire sampling program ranged from 0.085 mS/cm to 0.142 mS/cm with a mean of 0.116 mS/cm. SW04 corresponded with S-2 results that ranged from 0.088 mS/cm to 0.180 mS/cm with a mean of 0.139 mS/cm.

Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Figure 24). The mean for each 2018 sampling event was calculated and plotted with the historic reservoir-wide results dating to 2013, 2014 and 2017 (Table 7). Excluding 2018 data, the data set ranged from 0.087 mS/cm to 0.180 mS/cm with a mean of 0.142 mS/cm. If 2018 results are included then the range remains the same with a mean of 0.141 mS/cm.

5.1.6 In Situ Water Quality Parameters - Temperature

For the January sampling event, the values for temperature ranged from 3.07 °C to 6.24 °C. For the February sampling event, the values ranged from 9.30 °C to 12.13 °C. For the March sampling event, the values ranged from 4.92 °C to 6.96 °C (Table 2, Figure 11).

Data collected at each sampling location was also compared to historic data collected during 2013 and 2014 (Appendix D, Figure 11) at corresponding locations and results
from SW01 during the entire sampling program ranged from 6.24 °C to 12.13 °C with a mean of 8.44 °C. SW01 corresponded with S-4 results that ranged from 3.00 °C to 31.18 °C with a mean of 19.49 °C. Results from SW02 during the entire sampling program ranged from 3.07 °C to 10.03 °C with a mean of 6.05 °C. SW02 corresponded with S-3 results that ranged from 4.53 °C to 31.69 °C with a mean of 18.62 °C. Results from SW03 during the entire sampling program ranged from 3.68 °C to 9.30 °C with a mean of 6.22 °C. SW03 corresponded with S-1 results that ranged from 4.55 °C to 31.28 °C with a mean of 18.80 °C. Results from SW04 during the entire sampling program ranged from 3.27 °C to 9.77 °C with a mean of 5.99 °C. SW04 corresponded with S-2 results that ranged from 4.56 °C to 31.31 °C with a mean of 18.62 °C.

Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Figure 25). The mean for each 2018 sampling event was calculated and plotted with the overall historic reservoir-wide results dating to 2012, 2013, 2014, 2015, 2016 and 2017 (Table 7). Excluding 2018 data, the data set ranged from 3.00 °C to 31.37 °C with a mean of 18.20 °C. If 2018 results are included then the range remains the same with a mean of 17.74 °C.

5.1.7 In Situ Water Quality Parameters - Turbidity

For the January sampling event, the values for turbidity ranged from 12.7 NTU to 53.0 NTU. For the February sampling event, the values ranged from 9.9 NTU to 11.1 NTU. For the March sampling event, the values ranged from 4.6 NTU to 6.3 NTU (Table 2,
Figure 12). Turbidity was not sampled historically at the other surface water locations with the location specific values for the 2018 data included in Figure 12.

Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Figure 26). The mean for each 2018 sampling event was calculated and plotted with the overall historic reservoir-wide results dating to 2012, 2013, 2014 and 2015 (Table 7). Excluding 2018 data, the data set ranged from 3.3 NTU to 9.3 NTU with a mean of 5.7 NTU. If 2018 results are included then the data set ranges from 3.3 NTU to 15.7 NTU with a mean of 6.3 NTU.

5.1.8 Laboratory Analyzed Parameters - Ammonia-N

For the January sampling event, the values for ammonia were all non-detect (method detection limit less than 0.01 mg/L). For the February sampling event, the values ranged from 0.15 mg/L to 0.20 mg/L. For the March sampling event, the values ranged from 0.01 mg/L to 0.03 mg/L (Table 3, Figure 13). Ammonia was not sampled historically at the other surface water locations with the location specific values for the 2018 data included in Figure 13.

Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Figure 27). The mean for each 2018 sampling event was calculated and plotted with the historic results dating to 2012 and 2014 (Table 7). Excluding 2018 data, the data set ranged from 0.00 mg/L to 0.30 mg/L
with a mean of 0.05 mg/L. If 2018 results are included then the range and mean remains the same.

5.1.9 Laboratory Analyzed Parameters - Chlorophyll a

For the January sampling event, the values for chlorophyll ranged from 64.0 µg/L to 253.0 µg/L. For the February sampling event, the values ranged from 2.8 µg/L to 7.7 µg/L. For the March sampling event, the values ranged from non-detect (method detection limit less than 0.6 µg/L) to 6.9 µg/L (Table 3, Figure 14). Chlorophyll was not sampled historically at the other surface water locations with the location specific values for the 2018 data included in Figure 14.

Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Figure 28). The mean for each 2018 sampling event was calculated and plotted with the overall historic reservoir-wide results dating to 2013, 2014, 2015 and 2017 (Table 7). Excluding 2018 data, the data set ranged from 5.66 mg/L to 15.38 mg/L with a mean of 8.45 mg/L. The mean for each 2018 sampling event was calculated and plotted with the overall historic reservoir-wide results dating to 2013, 2014 and 2015 (Table 7). Excluding 2018 data, the data set ranged from 3.1 µg/L to 220.0 µg/L with a mean of 29.1 µg/L. If 2018 results are included then range remains the same with a mean of 31.1 µg/L.
5.1.10 Laboratory Analyzed Parameters - Nitrate-N

For the January sampling event, the values for nitrate ranged from 0.57 mg/L to 0.69 mg/L. For the February sampling event, the values ranged from 0.37 mg/L to 0.42 mg/L. For the March sampling event, the values ranged from 0.14 mg/L to 0.39 mg/L (Table 3, Figure 15). Nitrate was not sampled historically at the other surface water locations with the location specific values for the 2018 data included in Figure 15.

Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Figure 29). The mean for each 2018 sampling event was calculated and plotted with the overall historic reservoir-wide results dating to 2013 and 2014 (Table 7). Excluding 2018 data, the data set ranged from 0.01 mg/L to 0.30 mg/L with a mean of 0.10 mg/L. If 2018 results are included then the data set ranges from 0.01 mg/L to 0.61 mg/L with a mean of 0.15 mg/L.

5.1.11 Laboratory Analyzed Parameters - Soluble Reactive Phosphorus

For the January sampling event, the values for soluble reactive phosphorus ranged from 0.005 mg/L to 0.006 mg/L. For the February sampling event, the values ranged from 0.008 mg/L to 0.010 mg/L. For the March sampling event, the values ranged from 0.003 mg/L to 0.009 mg/L (Table 3, Figure 16). Soluble reactive phosphorus was not sampled historically at the other surface water locations with the location specific values for the 2018 data included in Figure 16.
Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Figure 30). The mean for each 2018 sampling event was calculated and plotted with the overall historic reservoir-wide results dating to 2013 and 2014 (Table 7). Excluding 2018 data, the data set ranged from 0.002 mg/L to 0.017 mg/L with a mean of 0.005 mg/L. If 2018 results are included then the data set and mean remains the same.

5.1.12 Laboratory Analyzed Parameters - Total Dissolved Phosphorus

For the January sampling event, the values for total dissolved phosphorus ranged from 0.02 mg/L to 0.04 mg/L. For the February sampling event, the values ranged from 0.01 mg/L to 0.02 mg/L. For the March sampling event, the values ranged from 0.02 mg/L to 0.03 mg/L (Table 3, Figure 17). Total dissolved phosphorus was not sampled historically at the other surface water locations with the location specific values for the 2018 data included in Figure 17.

Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Figure 31). The mean for each 2018 sampling event was calculated and plotted with the overall historic reservoir-wide results dating to 2013 (Table 7). Excluding 2018 data, the data set ranged from 0.00 mg/L to 0.10 mg/L with a mean of 0.04 mg/L. If 2018 results are included then the range remains the same with a mean of 0.03 mg/L.
5.1.13 Laboratory Analyzed Parameters - Total Particulate Phosphorous

For the January sampling event, the values for total particulate phosphorus ranged from non-detect (method detection limit less than 0.01 mg/L) to 0.18 mg/L. For the February sampling event, the values ranged from 0.04 mg/L to 0.19 mg/L. For the March sampling event, the values ranged from 0.02 mg/L to 0.08 mg/L (Table 3, Figure 18). Total particulate phosphorus was not sampled historically at the other surface water locations with the location specific values for the 2018 data included in Figure 18.

Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Figure 32). The mean for each 2018 sampling event was calculated and plotted with the overall historic reservoir-wide results dating to 2013 (Table 7). Excluding 2018 data, the data set ranged from 0.00 mg/L to 0.05 mg/L with a mean of 0.03 mg/L. If 2018 results are included then the data set ranges from 0.00 mg/L to 0.09 mg/L with a mean of 0.04 mg/L.

5.1.14 Laboratory Analyzed Parameters - Total Phosphorous

For the January sampling event, the values for total phosphorus ranged from 0.07 mg/L to 0.26 mg/L. For the February sampling event, the values ranged from 0.04 mg/L to 0.19 mg/L. For the March sampling event, the values ranged from 0.05 mg/L to 0.10 mg/L (Table 3, Figure 19). Total phosphorus was not sampled historically at the other surface water locations with the location specific values for the 2018 data included in Figure 19.
Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Figure 33). The mean for each 2018 sampling event was calculated and plotted with the overall historic reservoir-wide results dating to 2013, 2014 and 2015 (Table 7). Excluding 2018 data, the data set ranged from 0.02 mg/L to 0.09 mg/L with a mean of 0.05 mg/L. If 2018 results are included then the data set ranges from 0.02 mg/L to 0.16 mg/L and the mean remains the same.

5.1.15 Laboratory Analyzed Parameters - Total Suspended Solids

For the January sampling event, the values for total suspended solids ranged from 5 mg/L to 9 mg/L. For the February sampling event, the values ranged from 7 mg/L to 9 mg/L. For the March sampling event, the values ranged from 5 mg/L to 7 mg/L (Table 3, Figure 20). Total suspended solids were not sampled historically at the other surface water locations with the location specific values for the 2018 data included in Figure 20.

Additional data analysis was necessary to compare the collected 2018 data with the reservoir-wide historic data provided by SUEZ (Figure 34). The mean for each 2018 sampling event was calculated and plotted with the overall historic reservoir-wide results dating to 2013 and 2014 (Table 7). Excluding 2018 data, the data set ranged from 2 mg/L to 22 mg/L with a mean of 6 mg/L. If 2018 results are included then the range and mean remains the same.
5.2  Land Use Study Additional Results

The results from the land use study are presented in Table 1, Table 4, Table 5 and Table 6, are spatially shown in Plate 1, Plate 2 and Plate 3, and are discussed below.

5.2.1  Investigated Tax Parcels/Properties

As detailed in Section 4.2 of this report, properties located within or within the vicinity of the watershed were investigated for land use and current habitat coverage. Regarding the approximately 690 acre watershed, it was determined that approximately 592 acres or 86% of watershed land serves as wooded/wetland habitat, approximately 55 acres or 8% of watershed land is being utilized for active agriculture, approximately 23 acres or 3% accounts for the reservoir and approximately 20 acres or 3% of watershed land consists of developed or urban land (Plate 1, Table 4).

Regarding the approximately 1,490 acres of land investigated for this study, it was determined that approximately 760 acres or 51% of land had Farm property classifications, approximately 415 acres or 28% of land had Public Property classifications, approximately 150 acres or 10% of land had Commercial property classifications, approximately 100 acres or 7% of land had Residential property classifications, approximately 25 acres or 2% of land had Vacant Land property classifications, approximately 15 acres or 1% of land had a Church & Charitable property classification and approximately 20 acres or 1% of land had an Other Exempt property classification (Plate 2, Table 1).
As concerns the approximately 690 acres of land within the watershed, it was determined that approximately 335 acres or 49% of watershed land had Public Property classifications, approximately 200 acres or 29% of watershed land had Farm property classifications, approximately 100 acres or 14% of watershed land had Commercial property classifications, approximately 15 acres or 2% of watershed land had Other Exempt property classifications, approximately 10 acres or 1% of watershed land had Church & Charitable property classifications, approximately 10 acres or 1% of watershed land were covered by roads, approximately 10 acres or 1% of watershed land had Residential property classifications and approximately 10 acres or 1% of watershed land had Vacant Land property classifications (Plate 2, Table 5).

5.2.2 Property Screening against Environmental Databases
As described in Section 4.2.2 of this report, 1,490 acres were studied and 17 properties were found to have listings in the various environmental sources that were reviewed. These 17 properties had a combined area of approximately 430 acres or 29% of all studied land (Table 1, Table 6).

5.2.3 Public Records Requests
As described in Section 4.2.3 of this report, 5 properties merited OPRA requests to West Amwell and the NJDEP with these properties have a combined area of approximately 190 acres or 13% of studied land (Table 6) and are described below.
624 Brunswick Pike:

624 Brunswick Pike (study Property Number 66) has a Commercial property classification and an area of 4.20 acres or less than 1% of studied land. It is located beyond the watershed’s limits.

680 Brunswick Pike:

680 Brunswick Pike (study Property Number 24) has a Farm property classification and an area of 8.09 acres or less than 1% of studied land. Of this land, approximately 1 acre is located within the watershed.

701 Brunswick Pike:

701 Brunswick Pike (study Property Number 79) has a Farm property classification and an area of 20.16 acres or approximately 1% of studied land. It is located beyond the watershed’s limit.

702 Brunswick Pike:

702 Brunswick Pike (study Property Number 34) has a Public Property classification and an area of 12.93 acres or less than 1% of studied land. Of this land, approximately 12 acres are located within the watershed.
756 Brunswick Pike:

756 Brunswick Pike (study Property Number 19) has a Commercial property classification and an area of 141.05 acres or approximately 9% of studied land. Of this land, approximately 81 acres are located within the watershed.
6 DISCUSSION

6.1 Sampling Program Discussion

The sampling program for this project was developed with the intent of understanding the current concentrations of various selected parameters and to gauge the overall health of the reservoir. These results were reviewed, plotted with the historic data that exists and calculations were performed for Section 5 of this report. Comparisons of the data for various parameters within the data set were made with resultant trends described below.

6.1.1 In Situ Water Quality Parameters - Appearance

Appearance was a qualitative parameter lacking a New Jersey SWQS and was measured with an unaided eye. For this study, appearance ranged from clear to cloudy with locations SW02, SW03 and SW04 being clear during all events. Only on two occasions were cloudy conditions noted, both at location SW01. That this location had less transparent water may be due to the proximity of this sampling location to the water intake pipe and dam spillway. Both draw water and debris from other areas of the reservoir. No New Jersey SWQS exists for appearance.

6.1.2 In Situ Water Quality Parameters - Dissolved Oxygen

As shown in Figure 7, values fell between the January and February sampling event and rose between the February and March sampling event. All of these ranges met the New Jersey SWQS of being no less than 4.0 mg/L.
In order to compare 2018 results to those collected historically at specific locations in the reservoir, means were calculated in order to remove any variation in the data set that may have resulted from seasonal fluctuations. As concerns location SW01, its mean was 10.31 mg/L corresponding with a mean of 8.49 mg/L at historic location S-4 (Table 7). The mean at location SW02 was 9.71 mg/L corresponding with mean of 8.62 mg/L at historic location S-3. The mean at location SW03 was 9.63 mg/L corresponding with a mean of 8.27 mg/L at historic location S-1. The mean at location SW04 was 9.82 mg/L corresponding with a mean of 8.52 mg/L at historic location S-2. Generally, these results show that the reservoir currently has higher values of dissolved oxygen at the surface than in the past, and currently the dissolved oxygen values increase from east to west (Plate 4).

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 8.45 mg/L. This value increases to 8.62 mg/L if 2018 data is included, generally showing that the reservoir’s dissolved oxygen concentrations at the surface have increased (Appendix D, Figure 21).

6.1.3 In Situ Water Quality Parameters - pH

As shown in Figure 8, values fell between the January and February sampling event and rose between the February and March sampling event. These values generally characterize surface water as being neutral, but in order to meet the New Jersey SWQS, pH values within the reservoir should be between 6.5 and 8.5. And certain measurements do fall outside this range. However, the means of the January and
March sampling event do meet the New Jersey SWQS with that of the February event being more acidic.

In order to compare 2018 results to those collected historically at specific locations in the reservoir, means were calculated in order to remove any variation in the data set that may have resulted from seasonal fluctuations. As concerns location SW01, its mean was 5.97 corresponding with a mean of 8.76 at historic location S-4 (Table 7). The mean at location SW02 was 7.54 corresponding with mean of 8.96 at historic location S-3. The mean at location SW03 was 7.29 corresponding with a mean of 8.90 at historic location S-1. The mean at location SW04 was 7.38 corresponding with a mean of 8.96 at historic location S-2. Generally, these results show that the reservoir currently has more acidic waters at the surface than in the past, and generally pH values increase from west to east (Plate 4).

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 8.11. This value decreases to 8.08 if 2018 data is included, generally showing that the reservoir’s surface pH has decreased (Appendix D, Figure 22).

6.1.4 *In Situ Water Quality Parameters - Oxidation-Reduction Potential*

As shown in Figure 9, values rose between the January and February sampling event and rose between the February and March sampling event. No New Jersey SWQS exists for redox potential with drinking water typically having values between 200 mV
and 400 mV. While February and March sampling event results fall within this range, the January sampling event results do not.

Redox potential was not sampled historically at the other surface water locations or on a reservoir-wide basis, but the mean SW01 value was 264 mV, the mean SW02 value was 224 mV, the mean SW03 value was 234 mV and the mean SW04 value was 224 mV. These results do not indicate a spatial trend throughout the reservoir (Table 7, Plate 4).

6.1.5 In Situ Water Quality Parameters - Specific Conductivity

As shown in Figure 10, values rose between the January and February sampling event and fell between the February and March sampling event. No New Jersey SWQS exists for specific conductivity with drinking water typically having values between 0.05 mS/cm and 0.5 mS/cm. All the collected 2018 data fall within this range.

In order to compare 2018 results to those collected historically at specific locations in the reservoir, means were calculated in order to remove any variation in the data set that may have resulted from seasonal fluctuations. As concerns location SW01, its mean was 0.149 mS/cm corresponding with a mean of 0.141 mS/cm at historic location S-4 (Table 7). The mean at location SW02 was 0.118 mS/cm corresponding with mean of 0.140 mS/cm at historic location S-3. The mean at location SW03 was 0.123 mS/cm corresponding with a mean of 0.141 mS/cm at historic location S-1. The mean at location SW04 was 0.116 mS/cm corresponding with a mean of 0.139 mS/cm at historic
location S-2. Generally, these results show that the reservoir currently has lower values of specific conductivity than in the past (except at location SW01), and these results do not indicate a spatial trend throughout the reservoir (Plate 4).

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 0.142 mS/cm. This value decreases to 0.141 mS/cm if 2018 data is included, generally showing that the reservoir’s specific conductivity has remained constant (Appendix D, Figure 24).

6.1.6 In Situ Water Quality Parameters - Temperature

As shown in Figure 11, values rose between the January and February sampling event and fell between the February and March sampling event. This correlates with the air temperatures recorded during each sampling event and is characteristic of the cold weather months when sampling was conducted. All of these ranges met the New Jersey SWQS of being no more than 31 °C.

In order to compare 2018 results to those collected historically at specific locations in the reservoir, means were calculated in order to remove any variation in the data set that may have resulted from seasonal fluctuations. As concerns location SW01, its mean was 8.44 °C corresponding with a mean of 19.49 °C at historic location S-4 (Table 7). The mean at location SW02 was 6.05 °C corresponding with mean of 18.62 °C at historic location S-3. The mean at location SW03 was 6.22 °C corresponding with a mean of 18.80 °C mS/cm at historic location S-1. The mean at location SW04 was 5.99
°C corresponding with a mean of 18.62 °C at historic location S-2. Generally, these results show that the reservoir currently has lower values of temperature than in the past, and these results do not indicate a spatial trend throughout the reservoir (Plate 4). This is a result of the historic mean including values from all seasons, while the 2018 data was only collected during cold weather months.

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 18.20 °C. This value decreases to 17.74 °C if 2018 data is included, generally showing the reservoir’s temperature has decreased. Again this result is skewed due to 2018 values being collected during the winter season (Appendix D, Figure 25).

6.1.7 In Situ Water Quality Parameters - Turbidity

As shown in Figure 12, values fell between the January and February sampling event and fell between the February and March sampling event. In order to meet the New Jersey SWQS, turbidity values within the reservoir should not exceed 50 NTU and certain measurements do fall outside this range. However, the means of all the sampling events do meet the New Jersey SWQS.

Turbidity was not sampled historically at the other surface water locations or on a reservoir-wide basis, but the mean SW01 value was 23.2 NTU, the mean SW02 value was 11.3 NTU, the mean SW03 value was 11.2 NTU and the mean SW04 value was
9.1 NTU (Table 7). These results generally indicate a spatial trend throughout the reservoir, with turbidity increasing from east to west (Plate 4).

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 5.7 NTU. This value increases to 6.3 NTU if 2018 data is included, generally showing that the reservoir's turbidity has increased (Appendix D, Figure 26).

6.1.8 *Laboratory Analyzed Parameters - Ammonia-N*

As shown in Figure 13, concentrations rose between the January and February sampling event and fell between the February and March sampling event. In order to meet the New Jersey SWQS, ammonia concentrations within the reservoir should not exceed 0.01 mg/L and certain measurements do fall outside this range. Only the mean of the January event met the New Jersey SWQS.

Ammonia was not sampled historically at the other surface water locations or on a reservoir-wide basis, but the mean SW01 value was 0.06 mg/L, the mean SW02 value was 0.06 mg/L, the mean SW03 value was 0.08 mg/L and the mean SW04 value was 0.06 mg/L (Table 7). These results generally indicate that ammonia concentrations are constant throughout the reservoir (Plate 5).

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 0.05 mg/L. This value remains the
same if 2018 data is included, showing, that ammonia concentrations are stable and do not meet the New Jersey SWQS (Appendix D, Figure 27).

6.1.9 Laboratory Analyzed Parameters - Chlorophyll a

As shown in Figure 14, concentrations fell between the January and February sampling event and generally fell again between the February and March sampling event. Water bodies with a chlorophyll value of 10 µg/L or greater will begin to experience taste and odor impacts and certain measurements do fall outside this range. However, the means of the February and March sampling events do meet this criteria. No New Jersey SWQS exists for chlorophyll.

Chlorophyll was not sampled historically at the other surface water locations or on a reservoir-wide basis, but the mean SW01 value was 87.4 µg/L, the mean SW02 value was 58.6 µg/L, the mean SW03 value was 22.6 µg/L and the mean SW04 value was 46.4 µg/L (Table 7). These results generally indicate a spatial trend throughout the reservoir, with chlorophyll values increasing from east to west (Plate 5).

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 29.1 µg/L. This value increases to 31.1 µg/L if 2018 data is included, generally showing that the reservoir’s chlorophyll value has increased (Appendix D, Figure 28).
6.1.10 Laboratory Analyzed Parameters - Nitrate-N

As shown in Figure 15, concentrations fell between the January and February sampling event and fell again between the February and March sampling event. All of these ranges meet the New Jersey SWQS of being no more than 2 mg/L.

Nitrate was not sampled historically at the other surface water locations or on a reservoir-wide basis, but the mean SW01 value was 0.41 mg/L, the mean SW02 value was 0.41 mg/L, the mean SW03 value was 0.50 mg/L and the mean SW04 value was 0.37 mg/L (Table 7). These results generally indicate a spatial trend throughout the reservoir, with nitrate increasing from east to west (Plate 5).

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 0.10 mg/L. This value increases to 0.15 mg/L if 2018 data is included, generally showing that the reservoir’s nitrate value has increased (Appendix D, Figure 29).

6.1.11 Laboratory Analyzed Parameters - Soluble Reactive Phosphorus

As shown in Figure 16, concentrations rose between the January and February sampling event and generally fell again between the February and March sampling event. No New Jersey SWQS exists for soluble reactive phosphorus.

Soluble reactive phosphorus was not sampled historically at the other surface water locations or on a reservoir-wide basis, but the mean SW01 value was 0.008 mg/L, the
mean SW02 value was 0.007 mg/L, the mean SW03 value was 0.006 mg/L and the mean SW04 value was 0.005 mg/L (Table 7). These results generally indicate a spatial trend throughout the reservoir, with soluble reactive phosphorus increasing from east to west (Plate 5).

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 0.005 mg/L. This value remains the same if 2018 data is included (Appendix D, Figure 30).

6.1.12 Laboratory Analyzed Parameters - Total Dissolved Phosphorus

As shown in Figure 17, concentrations fell between the January and February sampling event and either rose or remained constant between the February and March sampling event. No New Jersey SWQS exists for total dissolved phosphorus.

Total dissolved phosphorus was not sampled historically at the other surface water locations or on a reservoir-wide basis, but the mean SW01 value was 0.02 mg/L, the mean SW02 value was 0.03 mg/L, the mean SW03 value was 0.02 mg/L and the mean SW04 value was 0.02 mg/L (Table 7). These results do not indicate a spatial trend throughout the reservoir (Plate 5).

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 0.04 mg/L. This value decreases to 0.03 mg/L, or remains constant if 2018 data is included (Appendix D, Figure 31).
6.1.13 Laboratory Analyzed Parameters - Total Particulate Phosphorus

As shown in Figure 18, concentrations rose between the January and February sampling event and fell between the February and March sampling event at locations SW01, SW02 and SW04. An opposite pattern was observed at location SW03. No New Jersey SWQS exists for total particulate phosphorus.

Total particulate phosphorus was not sampled historically at the other surface water locations or on a reservoir-wide basis, but the mean SW01 value was 0.04 mg/L, the mean SW02 value was 0.15 mg/L, the mean SW03 value was 0.07 mg/L and the mean SW04 value was 0.04 mg/L (Table 7). These results do not indicate a spatial trend throughout the reservoir (Plate 5).

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 0.03 mg/L. This value increases to 0.04 mg/L if 2018 data is included, generally showing that the reservoir’s total particulate phosphorus value has remained constant (Appendix D, Figure 32).

6.1.14 Laboratory Analyzed Parameters - Total Phosphorus

As shown in Figure 19, concentrations fell between the January and February sampling event. Between the February and March sampling event concentrations fell at SW02 and SW04, remaining constant SW01 and increasing at SW03. In order to meet the New Jersey SWQS, total phosphorus concentrations within the reservoir should not exceed 0.05 mg/L and certain measurements do fall outside this range as do all of the
means for each of the sampling events. Therefore, the means of all the sampling events do not meet the New Jersey SWQS.

Total phosphorus was not sampled historically at the other surface water locations or on a reservoir-wide basis, but the mean SW01 value was 0.06 mg/L, the mean SW02 value was 0.17 mg/L, the mean SW03 value was 0.08 mg/L and the mean SW04 value was 0.13 mg/L (Table 7). These results do not indicate a spatial trend throughout the reservoir (Plate 5).

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 0.05 mg/L. This value remains the same if 2018 data is included. However, due to the number and generally low concentrations found within the historic data, the overall mean value is obscuring the significance of the 2018 results. Therefore, the 2018 results should be considered, indicating a potential increase of total phosphorus values within the reservoir (Appendix D, Figure 33).

6.1.15 Laboratory Analyzed Parameters - Total Suspended Solids

As shown in Figure 20, values generally rose between the January and February sampling event and fell between the February and March sampling event. Values at SW04 decreased across all sampling events. All of these ranges meet the New Jersey SWQS of being no more than 40 mg/L.
Total suspended solids was not sampled historically at the other surface water locations or on a reservoir-wide basis, but the mean SW01 value was 7 mg/L, the mean SW02 value was 7 mg/L, the mean SW03 value was 6 mg/L and the mean SW04 value was 7 mg/L (Table 7). These results do not indicate a spatial trend throughout the reservoir (Plate 5).

Additional analysis was performed comparing the 2018 data to the historic reservoir-wide data set, with the overall historic mean being 6 mg/L. This value remains the same if 2018 data is included, generally showing that the reservoir’s total suspended solids value has remained constant (Appendix D, Figure 34).

6.2 Land Use Study Discussion

The results from the land use study are presented in Table 1, Table 4, Table 5 and Table 6, are spatially shown in Plate 1, Plate 2 and Plate 3, and are described below.

6.2.1 Discussion of Investigated Tax Parcels/Properties

As detailed in Section 4.2.1 of this report, properties located within or within the vicinity of the watershed were investigated for land use and current habitat coverage. Review of these 1,490 acres confirmed that the reservoir is located within a rural area and review of the 690 acres of watershed land indicates that approximately 49% had a Public Property classification and approximately 29% had a Farm property classification (Table 1). Regarding current habitat coverage within the watershed, review of watershed land indicates that approximately 86% of watershed land is composed of
undisturbed woodland/wetland habitat and approximately 8% of watershed land is utilized for agriculture (the growth of crops and/or animal husbandry). Any animal husbandry conducted on this land is performed on a limited/recreational scale.

While it is possible that runoff from these agricultural fields containing nutrients could occur and reach the reservoir, it is unlikely to serve as a significant source. While the fields are not covered, and while it did rain over the sampling program, any surface water/groundwater from fields must travel through the woodland buffer prior reaching the reservoir and all of these agricultural fields were located on the periphery of the study area. Additionally, all but two of the streams that feed the reservoir have headwaters and courses completely within the undisturbed woodland/wetland habitat surrounding the reservoir. Furthermore, the fields were not observed to be tilled during the sampling program and public records review did not record any incidents related to agricultural lands.

6.2.2 Discussion of Property Screening against Environmental Databases

As described in Section 4.2.2 of this report, 1,490 acres were studied and 17 properties were found to have listings in the various environmental sources that were reviewed. This review was done in order to find properties with a history of violations or chemical use that might be related to the nutrient impacts that were expected to be seen in the reservoir. However, the results of this review indicated that most listings were related to remediated leaking fuel oil underground storage tank cases that were not relevant to this study. Despite these types of listings being commonly found, some properties
contained information that raised further interest and merited public record OPRA requests to West Amwell and the NJDEP.

6.2.3 Discussion of Public Records Requests

As described in Section 4.2.3 of this report, 5 properties merited OPRA requests to West Amwell and the NJDEP. Of these properties, only 2 had land directly within the watershed and these 5 properties only comprised approximately 13% of all studied land. While the relatively small size of these properties did not eliminate them from the review process, the results of file reviews did not show any violation or chemical use that could serve as a source of increased phosphorus values to the reservoir.

6.3 Overall Discussion Points

The conclusions from the sampling program are as follows:

Sampling Program Location Specific Discussion Points

- Specific conductivity, temperature and ammonia values at all sampling locations rose between the January and February sampling events and fell between the February and March sampling events
- Dissolved oxygen and pH values at all sampling locations fell between the January and February events and rose between the February and March sampling events
- Turbidity and nitrate values at all sampling locations fell between all sampling events
• Redox values at all sampling locations rose between all sampling events

• Chlorophyll, soluble reactive phosphorus, total dissolved phosphorus, total particulate phosphorous, total phosphorus and total suspended solids did not show consistent trends across the various sampling events

**Sampling Program Reservoir-Wide Specific Discussion Points**

• Appearance values generally increase from east to west

• Dissolved oxygen values generally increase from east to west

• pH values generally increase from west to east

• Turbidity values generally increase from east to west if SW03 values are excluded

• Ammonia concentrations generally were consistent across the reservoir

• Chlorophyll concentrations generally increase from east to west

• Nitrate concentrations generally decrease from east to west

• Soluble reactive phosphorus concentrations generally increase from east to west

• No spatial trends were generally observed for redox potential, specific conductivity, temperature, total dissolved phosphorus, total particulate phosphorus, total phosphorus or total suspended solids

**Sampling Program Exceedances of New Jersey SWQS**

• Measured values of pH, turbidity, ammonia and total phosphorus exceeded their New Jersey SWQS
• Monthly means of pH, ammonia and total phosphorus exceeded their applicable New Jersey SWQS

Sampling Program Assignment of Hypereutrophic Ranking

• Chlorophyll values for the sampling program ranged from non-detect (method detection limit less than 0.6 µg/L) to 253.0 µg/L, with a mean 53.8 µg/L. This mean falls within the hypereutrophic range of 50 ppb (50 µg/L) to greater than 150 ppb (150 µg/L).

• Total phosphorus values for the sampling program ranged from 0.04 mg/L to 0.26 mg/L, with a mean of 0.11 mg/L. This mean falls within the hypereutrophic range of 100 ppb (0.1 mg/L) to greater than 200 ppb (0.2 mg/L).

Sampling Program Discussion Points Concerning Historic Data

• Calculated means for the historic data were compared to the overall mean of all collected data on a parameter basis. This comparison indicated that reservoir-wide values have increased for dissolved oxygen, turbidity, chlorophyll, nitrate and total phosphorus.

• Calculated means for the historic data were compared to the overall mean of all collected data on a parameter basis. This comparison indicated that reservoir-wide values have decreased for pH and with temperature data showing a decreases that is skewed.

• Calculated means for the historic data were compared to the overall mean of all collected data on a parameter basis. This comparison indicated that reservoir-
wide values have remained constant for specific conductivity, ammonia, soluble reactive phosphorus, total dissolved phosphorus, total particulate phosphorus and total suspended solids.

Land Use Study Discussion Points Regarding Habitat and Property Classification

- For the total study area, approximately 51% of land had a Farm property classification
- For the watershed area, approximately 29% of land had a Farm property classification
- For the watershed area, approximately 8% of land was being utilized for active agriculture, with none of this land expected to be disturbed during the course of this study due to it being conducted during cold weather months
- The reservoir is surrounded by undisturbed woodland/wetland habitat containing the headwaters and courses of the majority of streams that feed it
- The reservoir is effectively insulated from agricultural runoff because it is surrounded by undisturbed woodland/wetland habitat and farming is done on a limited basis within the watershed. In addition this study was not conducted during the growing season, it is determined that agricultural runoff is not a likely source for the increase in phosphorus concentrations that were suspected and found in the reservoir
Land Use Study Discussion Points Regarding Environmental Database Review

- 84 properties were investigated with 17 having listings in the various environmental sources that were reviewed. Of these 17 properties, 5 contained public records that merited review.

- Documents held by West Amwell and the NJDEP were reviewed for these 5 properties. Information contained within these files did not reveal the use of chemicals or any other actions that could have contributed to the increase in phosphorus concentrations suspected and found in the reservoir.
7 CONCLUSIONS

The goal of this project was to aid in reservoir management of algal blooms and it is concluded that the reservoir is hypereutrophic, a classification that is not uncommon amongst similar lakes found within New Jersey (NJDEP, 2011). Phosphorus levels have increased in the reservoir and it is recommended that additional treatment be applied to the reservoir to address the parameters listed in Section 6.3 whose values were found to be in exceedance of their New Jersey SWQS. As sampling conditions were relatively similar during all sampling events, these elevated levels are concluded to not be weather related. It is also recommended that the sampling program developed for this study be continued during other seasons of 2018 so that a complete data set can be created. Continued sampling would allow for a more sophisticated data analysis than was performed during this project and additional work is merited in the search for potential sources of the increased phosphorus levels found in the reservoir. Agricultural runoff was hypothesized to be this source, however, evidence gathered during this study shows it to be unlikely due to the reservoir is surrounded by undisturbed woodland/wetland habitat and the nearest agricultural fields being approximately 520 feet from the reservoir. Future work may include the sampling of streams that feed the reservoir to confirm agricultural runoff is not a source. Other potential areas of future study include the investigation of rampant summer aquatic plant growth and the levels of excrement left in the reservoir by waterfowl. For example, Water Chestnuts (*Trapa natans*) were reported by SUEZ to grow within the reservoir during times of warm weather, and their decomposition can result in the release of phosphorus to lake waters (Cywinski, 2010). Additionally, large numbers of Canada Goose were observed on the
reservoir during this project. One study indicated that a single Canada Goose can contribute up to 0.5 pounds of phosphorus per year to a single water body (Princeton Hydro, 2011).
8 WORKS CITED


ECM. (2018c). *Laboratory Analytical Report for Penn-SUEZ March 2018 Sampling Event at the Swan Creek Reservoir*. April, 6. Retrieved from ECM.


https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals

https://www.epa.gov/emapdata/em4ef.home

https://store.usgs.gov/map-locator


Tables
### Table 1: Land Use Adjacent to the Swan Creek Reservoir

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</table>

**Shading matches that used in Plate 2 and Plate 3**

Swan Creek Reservoir

May, 2018

M. Nogier - MSG Project Design

Data collected by M. Nogier from StateInfoServices.com and State of New Jersey
Table 1: Land Use Adjacent to the Swan Creek Reservoir
MAP NUMBER
35
35
36

EDR REPORT
LISTING
NO
NO
NO BUT IN
ENVIROMAPPER
AND GEOWEB

ENVIROMAPPER
LISTING
NO
NO

NJ-GEOWEB
LISTING
NO
NO

NJDEP SITE
NUMBER
NA
NA

658 BRUNSWICK PIKE
658 BRUNSWICK PIKE

PROPERTY CITY,
STATE, ZIP
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530

PROPERTY
CLASS
3A
3B

YES

NJEMS

16.12

638 BRUNSWICK PIKE

WEST AMWELL, NJ 08530

1

CHURCH & CHARITABLE

YES

17.02

5.00

638 BRUNSWICK PIKE

WEST AMWELL, NJ 08530

15D

CHURCH & CHARITABLE

16

18

2.00

684 BRUNSWICK PIKE

WEST AMWELL, NJ 08530

2

RESIDENTIAL

NA

16

19

1.65

702 BRUNSWICK PIKE

WEST AMWELL, NJ 08530

1

VACANT LAND

NA
NA
NA

NA
NA
NA

16
16.01
16.02

20
1
3.01

1.00
2.25
2.71

708 BRUNSWICK PIKE
21 OLD ROUTE 518 WEST
109 OLD ROUTE 518 EAST

WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530

2
2
2

RESIDENTIAL
RESIDENTIAL
RESIDENTIAL

NONE LISTED

NA

NA

16.02

3.02

2.60

111 OLD ROUTE 518 EAST

WEST AMWELL, NJ 08530

2

RESIDENTIAL

NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO

NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA

NA
NA
NA
NA
NA
NA
NA
NA
NA
NO
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA

17
17
17
17
17
17
17
17
17
17
17
17
17
17
17
17
17
17
17
17
17
17
17
17
17
17

5
6
7
8
9
10
11
12
12
13
13.01
14
15
16
17.02
17.05
17.05
17.07
27
28
29
30
31
32
32
33

6.90
1.00
1.88
0.49
0.49
3.05
2.59
1.49
6.74
116.52
3.43
67.69
52.52
2.75
49.02
2.00
13.24
13.23
37.92
2.86
1.03
7.47
22.86
1.00
13.87
6.00

37 ROCKTOWN-LAMBERTVILLE ROAD
41 ROCKTOWN-LAMBERTVILLE ROAD
43 ROCKTOWN-LAMBERTVILLE ROAD
45 ROCKTOWN-LAMBERTVILLE ROAD
47 ROCKTOWN-LAMBERTVILLE ROAD
47 ROCKTOWN-LAMBERTVILLE ROAD
51 ROCKTOWN-LAMBERTVILLE ROAD
55 ROCKTOWN-LAMBERTVILLE ROAD
55 ROCKTOWN-LAMBERTVILLE ROAD
63 ROCKTOWN-LAMBERTVILLE ROAD
79 ROCKTOWN-LAMBERTVILLE ROAD
85 ROCKTOWN-LAMBERTVILLE ROAD
99 ROCKTOWN-LAMBERTVILLE ROAD
105 ROCKTOWN-LAMBERTVILLE ROAD
27 LAKEVIEW ROAD
23 LAKEVIEW ROAD
23 LAKEVIEW ROAD
117 ROCKTOWN-LAMBERTVILLE ROAD
130 ROCK ROAD WEST
126 ROCK ROAD WEST
122 ROCK ROAD WEST
120 ROCK ROAD WEST
110 ROCK ROAD WEST
106 ROCK ROAD WEST
106 ROCK ROAD WEST
110 ROCK ROAD WEST

WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
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WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530

1
2
2
2
1
2
2
3A
3B
15C
4A
3B
3B
2
15C
3A
3B
3B
3B
2
2
2
3B
3A
3B
3B

VACANT LAND
RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
VACANT LAND
RESIDENTIAL
RESIDENTIAL
FARM
FARM
PUBLIC PROPERTY
COMMERCIAL
FARM
FARM
RESIDENTIAL
PUBLIC PROPERTY
FARM
FARM
FARM
FARM
RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
FARM
FARM
FARM
FARM

YES

18

1

4.20

624 BRUNSWICK PIKE

WEST AMWELL, NJ 08530

4A

COMMERCIAL

NA
NA
NA
NA
NA

18
28
28
28
28

12
7
8
8
9

2.00
5.35
2.02
8.00
2.53

121 ROCK ROAD WEST
20 OLD ROUTE 518 EAST
28 OLD ROUTE 518 WEST
28 OLD ROUTE 518 WEST
733 BRUNSWICK PIKE

WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530
WEST AMWELL, NJ 08530

2
15C
3A
3B
2

RESIDENTIAL
PUBLIC PROPERTY
FARM
FARM
RESIDENTIAL

DATAMINER FILES

OPRA

BLOCK

LOT

ACREAGE

PROPERTY LOCATION

NA
NA

NA
NA

16
16

17.01
17.01

2.00
36.64

NONE LISTED

NA

NA

16

17.02

NJEMS

NONE LISTED

NA

NA

16

NO

NO

NA

NA

NA

YES

NO

NONE LISTED

NA

NO
NO
NO

NO
NO
NO

NA
NA
NA

YES

NO

NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO

PROPERTY TYPE
FARM
FARM

43
44
45
46
47
48
49
50
50
51
52
53
54
55
56
57
57
58
59
60
61
62
63
64
64
65

NO BUT IN
ENVIROMAPPER
AND GEOWEB
NO
NO BUT IN
ENVIROMAPPER
NO
NO
NO
NO BUT IN
ENVIROMAPPER
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO

66

YES, G62

YES

NJEMS

441260

67
68
69
69
70

NO
NO
NO
NO
NO
NO BUT IN
ENVIROMAPPER
AND GEOWEB

NO
NO
NO
NO
NO

NO
NO
NO
NO
NO

NA
NA
NA
NA
NA

NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
NA
COASTAL AND
LAND USE
NA
NA
NA
NA
NA

YES

NJEMS

NONE LISTED

NA

NA

28

10

2.70

735 BRUNSWICK PIKE

WEST AMWELL, NJ 08530

3A

FARM

YES

NJEMS

NONE LISTED

NA

NA

28

10

10.00

735 BRUNSWICK PIKE

WEST AMWELL, NJ 08530

3B

FARM

NO

NO

NA

NA

NA

28

11

2.33

104 OLD ROUTE 518 EAST

WEST AMWELL, NJ 08530

2

RESIDENTIAL

36
37
38
39
40
41
42

71

71
72

NO BUT IN
ENVIROMAPPER
AND GEOWEB
NO

M. Nogier - MSAG Project Design
May, 2018

2 of 3

Shading matches that used in Plate 2 and Plate 3
Swan Creek Reservoir
Data collected by M. Nogier from StateInfoServices.com and State of New Jersey


Table 1: Land Use Adjacent to the Swan Creek Reservoir

<table>
<thead>
<tr>
<th>MAP NUMBER</th>
<th>EDR REPORT LISTING</th>
<th>ENVIROMAPPER LISTING</th>
<th>NJ-GEOWEB LISTING</th>
<th>NJDEP SITE NUMBER</th>
<th>DATAMINER FILES</th>
<th>OPRA</th>
<th>BLOCK</th>
<th>LOT</th>
<th>ACREAGE</th>
<th>PROPERTY LOCATION</th>
<th>PROPERTY CITY, STATE, ZIP</th>
<th>PROPERTY CLASS</th>
<th>PROPERTY TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>73</td>
<td>NO BUT IN ENVIROMAPPER</td>
<td>YES</td>
<td>NO</td>
<td>445059</td>
<td>SRP-PR - CLOSED UST</td>
<td>NO</td>
<td>28</td>
<td>12</td>
<td>13.31</td>
<td>108 OLD ROUTE 518 EAST</td>
<td>WEST AMWELL, NJ 08530</td>
<td>2</td>
<td>RESIDENTIAL</td>
</tr>
<tr>
<td>74</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>445059</td>
<td>NA</td>
<td>NA</td>
<td>28</td>
<td>13</td>
<td>1.20</td>
<td>118 OLD ROUTE 518 EAST</td>
<td>WEST AMWELL, NJ 08530</td>
<td>2</td>
<td>RESIDENTIAL</td>
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<tr>
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<td>NO</td>
<td>NO</td>
<td>445059</td>
<td>NA</td>
<td>NA</td>
<td>28</td>
<td>14</td>
<td>0.71</td>
<td>717 BRUNSWICK PIKE</td>
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<td>RESIDENTIAL</td>
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<tr>
<td>76</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>445059</td>
<td>NA</td>
<td>NA</td>
<td>28</td>
<td>23</td>
<td>34.73</td>
<td>739 BRUNSWICK PIKE</td>
<td>WEST AMWELL, NJ 08530</td>
<td>3B</td>
<td>FARM</td>
</tr>
<tr>
<td>77</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>28</td>
<td>31</td>
<td>1.30</td>
<td>7 HEWITT ROAD</td>
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<td>2</td>
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</tr>
<tr>
<td>78</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>28</td>
<td>36</td>
<td>5.54</td>
<td>737 BRUNSWICK PIKE</td>
<td>WEST AMWELL, NJ 08530</td>
<td>1</td>
<td>VACANT LAND</td>
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<tr>
<td>79</td>
<td>NO BUT IN ENVIROMAPPER AND GEOWEB</td>
<td>YES</td>
<td>NJEMS</td>
<td>170313</td>
<td>AIR, COASTAL AND LAND USE</td>
<td>YES</td>
<td>30</td>
<td>2</td>
<td>1.50</td>
<td>701 BRUNSWICK PIKE</td>
<td>WEST AMWELL, NJ 08530</td>
<td>3A</td>
<td>FARM</td>
</tr>
<tr>
<td>79</td>
<td>NO BUT IN ENVIROMAPPER AND GEOWEB</td>
<td>YES</td>
<td>NJEMS</td>
<td>170313</td>
<td>AIR, COASTAL AND LAND USE</td>
<td>YES</td>
<td>30</td>
<td>2</td>
<td>18.66</td>
<td>701 BRUNSWICK PIKE</td>
<td>WEST AMWELL, NJ 08530</td>
<td>3B</td>
<td>FARM</td>
</tr>
<tr>
<td>80</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>30</td>
<td>2.01</td>
<td>1.00</td>
<td>706 BRUNSWICK PIKE</td>
<td>WEST AMWELL, NJ 08530</td>
<td>3A</td>
<td>FARM</td>
</tr>
<tr>
<td>80</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>30</td>
<td>2.01</td>
<td>6.63</td>
<td>706 BRUNSWICK PIKE</td>
<td>WEST AMWELL, NJ 08530</td>
<td>3B</td>
<td>FARM</td>
</tr>
<tr>
<td>81</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>30</td>
<td>3.02</td>
<td>27.50</td>
<td>699 BRUNSWICK PIKE</td>
<td>WEST AMWELL, NJ 08530</td>
<td>3B</td>
<td>FARM</td>
</tr>
<tr>
<td>82</td>
<td>YES, F22</td>
<td>YES</td>
<td>NJEMS, UST</td>
<td>NONE LISTED</td>
<td>NA</td>
<td>NA</td>
<td>30</td>
<td>3.03</td>
<td>3.51</td>
<td>685 BRUNSWICK PIKE</td>
<td>WEST AMWELL, NJ 08530</td>
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<td>RESIDENTIAL</td>
</tr>
<tr>
<td>83</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>30</td>
<td>14</td>
<td>85.54</td>
<td>57 HUNTER ROAD</td>
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<td>3B</td>
<td>FARM</td>
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<tr>
<td>84</td>
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<td>NO</td>
<td>NO</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>30</td>
<td>22</td>
<td>2.06</td>
<td>713 BRUNSWICK PIKE</td>
<td>WEST AMWELL, NJ 08530</td>
<td>2</td>
<td>RESIDENTIAL</td>
</tr>
</tbody>
</table>

Shading matches that used in Plate 2 and Plate 3
Swan Creek Reservoir
Data collected by M. Nogier from StateInfoServices.com and State of New Jersey
### Table 2: Sampling Program: In Situ Water Quality Parameters

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Event</th>
<th>Sample Matrix</th>
<th>Method</th>
<th>Sample Depth (ft)</th>
<th>Appearance</th>
<th>Dissolved Oxygen (mg/L)</th>
<th>pH</th>
<th>Oxidation-Reduction Potential (mV)</th>
<th>Specific Conductivity (mS/cm)</th>
<th>Temperature (°C)</th>
<th>Turbidity (NTU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW01-20180130</td>
<td>January</td>
<td>Surface Water</td>
<td>Horiba U-52</td>
<td>Below Surface: 0.0-0.5 ft</td>
<td>Cloudy</td>
<td>11.37</td>
<td>6.41</td>
<td>227</td>
<td>0.150</td>
<td>6.24</td>
<td>53.0</td>
</tr>
<tr>
<td></td>
<td>Air Temperature: 0 °C; Snow</td>
<td></td>
<td></td>
<td>Reservoir Level: 289.0 ft above mean sea level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW02-20180130</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Clear</td>
<td>15.42</td>
<td>8.60</td>
<td>90</td>
<td>0.116</td>
<td>3.07</td>
<td>17.7</td>
</tr>
<tr>
<td>SW03-20180130</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Clear</td>
<td>14.33</td>
<td>8.11</td>
<td>135</td>
<td>0.120</td>
<td>3.68</td>
<td>16.8</td>
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<tr>
<td>SW04-20180130</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Clear</td>
<td>13.58</td>
<td>8.43</td>
<td>96</td>
<td>0.120</td>
<td>3.27</td>
<td>12.7</td>
</tr>
<tr>
<td>SW01-20180222</td>
<td>February</td>
<td>Surface Water</td>
<td>Horiba U-52</td>
<td>Below Surface: 0.0-0.5 ft</td>
<td>Cloudy</td>
<td>9.04</td>
<td>5.51</td>
<td>230</td>
<td>0.210</td>
<td>12.13</td>
<td>10.6</td>
</tr>
<tr>
<td></td>
<td>Air Temperature: 6.1 °C; Rain</td>
<td></td>
<td></td>
<td>Reservoir Level: 289.6 ft above mean sea level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW02-20180222</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Clear</td>
<td>5.93</td>
<td>6.27</td>
<td>254</td>
<td>0.141</td>
<td>10.03</td>
<td>9.9</td>
</tr>
<tr>
<td>SW03-20180222</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Clear</td>
<td>5.00</td>
<td>6.24</td>
<td>251</td>
<td>0.145</td>
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<td>11.1</td>
</tr>
<tr>
<td>SW04-20180222</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Clear</td>
<td>5.63</td>
<td>6.35</td>
<td>234</td>
<td>0.142</td>
<td>9.77</td>
<td>9.9</td>
</tr>
<tr>
<td>SW01-20180313</td>
<td>March</td>
<td>Surface Water</td>
<td>Horiba U-52</td>
<td>Below Surface: 0.0-0.5 ft</td>
<td>Clear</td>
<td>10.51</td>
<td>5.98</td>
<td>336</td>
<td>0.086</td>
<td>6.96</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>Air Temperature: 0.6 °C; Snow</td>
<td></td>
<td></td>
<td>Reservoir Level: 290.1 ft above mean sea level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW02-20180313</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Clear</td>
<td>8.02</td>
<td>7.74</td>
<td>329</td>
<td>0.097</td>
<td>5.06</td>
<td>6.3</td>
</tr>
<tr>
<td>SW03-20180313</td>
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<td></td>
<td></td>
<td></td>
<td>Clear</td>
<td>9.55</td>
<td>7.53</td>
<td>317</td>
<td>0.103</td>
<td>5.67</td>
<td>5.6</td>
</tr>
<tr>
<td>SW04-20180313</td>
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<td></td>
<td></td>
<td></td>
<td>Clear</td>
<td>10.26</td>
<td>7.35</td>
<td>342</td>
<td>0.085</td>
<td>4.92</td>
<td>4.6</td>
</tr>
</tbody>
</table>
Table 3: Sampling Program: Laboratory Analyzed Parameters

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Event</th>
<th>Sample Matrix</th>
<th>Collection Method</th>
<th>Sample Depth (ft)</th>
<th>Parent Sample</th>
<th>Laboratory</th>
<th>Ammonia-N (mg/L)</th>
<th>Chlorophyll a (µg/L)</th>
<th>Nitrate-N (mg/L)</th>
<th>Soluble Reactive Phosphorus (mg/L)</th>
<th>Total Dissolved Phosphorus (mg/L)</th>
<th>Total Particulate Phosphorus (mg/L)</th>
<th>Total Phosphorus (mg/L)</th>
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*GA/QC: Quality Assurance/Quality Control
**ND: Non-detect (method detection limit shown)
Table 4: Watershed Related Habitats by Area

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Table 5: Watershed Related Land Use by Area

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<td>39</td>
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<td>80 ROCKTOWN-LAMBERTVILLE ROAD</td>
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<tr>
<td>38</td>
<td>16</td>
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### Table 6: Properties Meriting Public Records Requests

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<th>ENVIROMAPPER LISTING</th>
<th>NJ/GEOWEB LISTING</th>
<th>NJDEP SITE NUMBER</th>
<th>DATAMINER FILES</th>
<th>OPRA</th>
<th>BLOCK</th>
<th>LOT</th>
<th>ACREAGE</th>
<th>PROPERTY LOCATION</th>
<th>PROPERTY CITY, STATE, ZIP</th>
<th>PROPERTY CLASS</th>
<th>PROPERTY TYPE</th>
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<tr>
<td>19</td>
<td>YES, A1-6</td>
<td>YES</td>
<td>HISTORIC FILL, NJEMS, UST</td>
<td>21449</td>
<td>AIR, NJDEP, PHYSICAL CONNECTION, RIGHT TO KNOW, SAFE DRINKING WATER, SRP-P, WATER ALLOCATION</td>
<td>YES</td>
<td>16</td>
<td>3</td>
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<td>441260</td>
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<td>1</td>
<td>4.20</td>
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<td>170313</td>
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<td>2</td>
<td>18.66</td>
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### Table 7: Means of Sampling Program and Historic Sampling Location Data

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Appearance</th>
<th>Dissolved Oxygen (mg/L)</th>
<th>pH</th>
<th>Oxidation-Reduction Potential (mV)</th>
<th>Specific Conductivity (mS/cm)</th>
<th>Temperature (°C)</th>
<th>Turbidity (NTU)</th>
<th>Ammonia-N (mg/L)</th>
<th>Chlorophyll a (µg/L)</th>
<th>Nitrile-N (mg/L)</th>
<th>Soluble Reactive Phosphorus (mg/L)</th>
<th>Total Dissolved Phosphorus (mg/L)</th>
<th>Total Particulate Phosphorus (mg/L)</th>
<th>Total Phosphorus (mg/L)</th>
<th>Total Suspended Solids (mg/L)</th>
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<td>5.97</td>
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<td>0.04</td>
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*NA: Not applicable*
Figures
Figure 1: Reservoir Location Map

West Amwell Township
Hunterdon County, New Jersey

Figure 2: Aerial Photograph of Watershed


Note: Map precision subject to the limitations of source material and professional judgement
Figure 3: Regional Bedrock Geologic Map

Legend

SEDIMENTARY
- Jurassic to Devonian: Conglomerate, Sandstone, Shale, Limestone
- Ordovician: Shale, Limestone/Dolomite
- Cambrian: Limestone/Dolomite, Sandstone

IGNEOUS and METAMORPHIC
- Jurassic: Basalt
- Jurassic: Diabase
- Precambrian: Gneiss, Granite

WATER
- Significant Lake
- Swan Creek Watershed

Study Area

Note: Map precision subject to the limitations of source material and professional judgement
Figure 4: Watershed Surficial Geologic Map

M. Nogier - MSAG Project Design
Swan Creek Reservoir Investigation
May, 2018

West Amwell Township
Hunterdon County, New Jersey

Legend

SEDIMENTARY
- Holocene and late Pleistocene: Alluvium
- Holocene and late Pleistocene: Alluvium, Boulder Lag
- Holocene and late Pleistocene: Alluvium, Colluvium
- Pleistocene: Shale, Mudstone, Sandstone Colluvium
- Pleistocene: Weathered Shale, Mudstone, Sandstone

IGNEOUS
- Pleistocene: Diabase Colluvium
- Pleistocene: Weathered Diabase

WATER
- Water Body (Lake, Pond)
- Swan Creek Watershed


Note: Map precision subject to the limitations of source material and professional judgement
Legend

ECOREGIONS
- Northern Limestone/Dolomite Valleys
- Reading Prong
- Triassic Lowlands
- Trap Rock Ridges and Palisades

WATER
- Significant Lake
- Swan Creek Watershed

Study Area


Figure 5: Regional Ecologic Map

West Amwell Township
Hunterdon County, New Jersey

M. Nogier - MSAG Project Design
Swan Creek Reservoir Investigation
May, 2018

Note: Map precision subject to the limitations of source material and professional judgement
Legend

- Orange circle: Location - Penn-SUEZ 2018 Study
- Pink circle: Location - Historic SUEZ Related 2013-2014 Study


Data collected by M. Nogier [University of Pennsylvania (Penn)] with SUEZ assistance or provided by SUEZ.
Figure 7: Location Specific Water Below the Surface: Dissolved Oxygen

Value (mg/L)

Date

Figure 9: Location Specific Water Below the Surface: Oxidation-Reduction Potential
Figure 10: Location Specific Water Below the Surface: Specific Conductivity

![Graph showing specific conductivity values over time for different locations and dates.](image-url)
Figure 11: Location Specific Water Below the Surface: Temperature

Value (°C) vs Date

- S-1
- S-2
- S-3
- S-4
- SW01
- SW02
- SW03
- SW04

Data collected by M. Nogier with SUEZ assistance or provided by SUEZ
Figure 13: Location Specific Water Below the Surface: Ammonia-N

Value (mg/L)

Date

Figure 14: Location Specific Water Below the Surface: Chlorophyll a

- SW01
- SW02
- SW03
- SW04

Data collected by M. Nogier with SUEZ assistance, analyzed by ECM
Figure 15: Location Specific Water Below the Surface: Nitrate-N
Figure 16: Location Specific Water Below the Surface: Soluble Reactive Phosphorus

Value (mg/L)

Date


Value (mg/L)

Figure 17: Location Specific Water Below the Surface: Total Dissolved Phosphorus
Figure 18: Location Specific Water Below the Surface: Total Particulate Phosphorus

Value (mg/L)

Date


Data collected by M. Nogier with SUEZ assistance, analyzed by ECM
Figure 19: Location Specific Water Below the Surface: Total Phosphorus

Date


Value (mg/L)

0.00 0.05 0.10 0.15 0.20 0.25 0.30

SW01  SW02  SW03  SW04
Figure 20: Location Specific Water Below the Surface: Total Suspended Solids

Value (mg/L)

Date

Figure 21: Overall Water Below the Surface: Dissolved Oxygen
Figure 22: Overall Water Below the Surface: pH
Figure 23: Overall Water Below the Surface: Oxidation-Reduction Potential
Figure 24: Overall Water Below the Surface: Specific Conductivity
Figure 25: Overall Water Below the Surface: Temperature
Figure 26: Overall Water Below the Surface: Turbidity
Figure 27: Overall Water Below the Surface: Ammonia-N
Figure 28: Overall Water Below the Surface: Chlorophyll a
Figure 29: Overall Water Below the Surface: Nitrate-N
Figure 30: Overall Water Below the Surface: Soluble Reactive Phosphorus
Figure 31: Overall Water Below the Surface: Total Dissolved Phosphorus
Figure 32: Overall Water Below the Surface: Total Particulate Phosphorus
Figure 33: Overall Water Below the Surface: Total Phosphorus
Figure 34: Overall Reservoir Water Below the Surface: Total Suspended Solids
Plates
Habitat Adjacent to the Swan Creek Reservoir
West Amwell Township, Hunterdon County, New Jersey

Note: Map precision subject to the limitations of source materials and professional judgement
This report includes information from the following map sheet(s):

- Swan Creek Reservoir Investigation
- 756 Brunswick Pike
- Lambertville, NJ 08530
- Matthew Nogier
- TP, Lambertville, 2014, 7.5-minute N, Stockton, 2014, 7.5-minute N.

Legend

- Area of Interest Beyond Watershed
- Church & Charitable
- Commercial
- Farm
- Other Exempt
- Public Property
- Property Identification Number
- Residential
- Road
- Vacant
- Water Body (Stream, Lake, Pond)
- Watershed Boundary

Note: Map precision subject to the limitations of source materials and professional judgement.
Properties Meriting Public Records Requests
West Amwell Township, Hunterdon County, New Jersey

Note: Map precision subject to the limitations of source materials and professional judgement
This report includes information from the following map sheet(s).

- Swan Creek Reservoir Investigation
- 756 Brunswick Pike
- Lambertville, NJ 08530
- Matthew Nogier
- TP, Lambertville, 2014, 7.5-minute N, Stockton, 2014, 7.5-minute

Note: Map precision subject to the limitations of source materials and professional judgement.
This report includes information from the following map sheet(s):

- (Site Name)
- Address
- Client:

This report includes information from the following map sheet(s):

- SW
- S
- SE
- N
- NE

January-March 2018 - Collected Laboratory Analyzed Parameters

West Amwell Township, Hunterdon County, New Jersey

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<td>3/13/2018</td>
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<td>Surface Water</td>
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<td>Nitrate-N (mg/L)</td>
<td>Soluble Reactive Phosphorus (mg/L)</td>
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<td>SW03</td>
<td>SW04</td>
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<tr>
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<td>2/22/2018</td>
<td>3/13/2018</td>
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<tr>
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<td>Soluble Reactive Phosphorus (mg/L)</td>
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<td>SW02</td>
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<td>SW04</td>
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<tr>
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<tr>
<td>Parameter</td>
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<td>Chlorophyll a (μg/L)</td>
<td>Nitrate-N (mg/L)</td>
<td>Soluble Reactive Phosphorus (mg/L)</td>
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</table>

Note: Map precision subject to the limitations of source materials and professional judgement.
Appendix A: Sampling Program Photolog
Photo 1: Canada Geese on Reservoir, Eastward View - Project Kick-Off Meeting, 1/18/2018

Photo 2: Sampling Location SW01, Eastward View - January Sampling Event, 1/30/2018
Photo 3: View toward Boat, Northward View – January Sampling Event, 1/30/2018

Photo 4: Sampling Location SW02, Eastward View - January Sampling Event, 1/30/2018
Photo 5: Sampling Location SW03, Westward View - January Sampling Event, 1/30/2018

Photo 6: Sampling Location SW04, Westward View - January Sampling Event, 1/30/2018
Photo 7: M. Nogier Collects at Location SW04 - January Sampling Event, 1/30/2018 (E. Brown)

Photo 8: Samples on Ice Prior to Shipment to Laboratory - January Sampling Event, 1/30/2018
Photo 8: Sampling Location SW01, Eastern View – February Sampling Event, 2/22/2018

Photo 9: Sampling Location SW02, Western View - February Sampling Event, 2/22/2018
Photo 10: Sampling Location SW03, Western View – February Sampling Event, 2/22/2018

Photo 11: Sampling Location SW04, Western View - February Sampling Event, 2/22/2018
Photo 12: Sample Labelling with Field Blank – February Sampling Event, 2/22/2018

Photo 13: Deciduous Forest/Wetland Surrounding Reservoir - March Sampling Event, 3/13/2018
Photo 14: Sample Cooler with Sample Location Map - March Sampling Event, 3/13/2018

Photo 15: Horiba U-52 Water Quality Meter Calibration - March Sampling Event, 3/13/2018
Photo 16: Sampling Location SW01 - March Sampling Event, 3/13/2018

Photo 17: Boat Docking Location, Southward View - March Sampling Event, 3/13/2018
Photo 18: Sampling Location SW02, Westward View - March Sampling Event, 3/13/2018

Photo 19: Sampling Location SW03, Westward View - March Sampling Event, 3/13/2018
Photo 20: Sampling Location SW04, Southward View - March Sampling Event, 3/13/2018

Photo 21: Sample Labelling with Field Blank - March Sampling Event, 3/13/2018
Photo 22: Samples on Ice Prior to Shipment to Laboratory - January Sampling Event, 1/30/2018
Appendix B: Sampling Program Health and Safety Documentation
# Form

<table>
<thead>
<tr>
<th>Applicability: North America</th>
<th>Form</th>
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<tr>
<td>Title: Level 2 Health and Safety Plan</td>
<td>Last Revision Date: 5/10/17</td>
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</table>

Environmental Science / University of Pennsylvania, 251 Hayden Hall, 240 South 33rd Street, Philadelphia, PA 19104-6316

Cell: (215) 620-4882/(609) 605-0147

---

## Acknowledgement

I have read, understood, and agree with the information set forth in this health and safety plan (HASP), and will follow guidance in the plan. I understand the training and medical monitoring requirements (if any) for conducting activities covered by this HASP and have met these requirements.

This HASP has prepared solely for the purpose of protecting the health and safety of the Project Manager and their staff. Contractors, visitors, and others at the site are required to follow provisions in this document at a minimum, but must refer to their own organization's health and safety program for their protection.

<table>
<thead>
<tr>
<th>Printed Name</th>
<th>Signature</th>
<th>Organization</th>
<th>Date</th>
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<tbody>
<tr>
<td>Matthew J. Nogier</td>
<td>[Signature]</td>
<td>U Penn</td>
<td>1/30/18</td>
</tr>
<tr>
<td>David A. Fournier</td>
<td>[Signature]</td>
<td>SoilEx</td>
<td>1/30/18</td>
</tr>
<tr>
<td>Emily Brown</td>
<td>[Signature]</td>
<td>SIEZ</td>
<td>1/30/18</td>
</tr>
</tbody>
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---

## Approval Signatures

Signatures in this section indicate the signing employee will comply with and enforce this HASP. Signatures also indicate that any contractors performing work under the Project Manager or their staff have met the minimum safety standards outlined in this HASP.

<table>
<thead>
<tr>
<th>Project Manager</th>
<th>Date</th>
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<tbody>
<tr>
<td>Typed Name: Matthew J. Nogier</td>
<td>1/24/2018</td>
</tr>
<tr>
<td>Signature File: M. Nogier</td>
<td>digitally signed</td>
</tr>
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---

Uncontrolled when printed.
**Project Name/Location:** Swan Creek Reservoir Investigation  
**Phone:** (484) 947-4947

**Project Number:** NA  
**Date:** 3/30/2018  
**Time:** 0947

**Meeting Leader:** M. Negier

**Today’s Work Tasks(s):**

- Water sampling from reservoir  
- From boat and shore/dam

**Conducted By:** M. Negier

---

1. Review relevant sections of the Health and Safety Plan (HASP), Job Hazard Analyses (JHAs) for planned tasks, and any other applicable procedures. Discuss potential hazards of planned work and control measures to be used to eliminate or reduce risks (including PPE). Pay specific attention to overlapping/simultaneous operations.

2. Review emergency response procedures including emergency phone numbers, location of emergency equipment (fire extinguishers, first aid kit, AED, eyewashes, safety showers, etc.), exit routes, muster points, methods of conducting head count at muster point, and identity of first responders trained in first aid/CPR.

3. Does everyone fully understand the task(s)? Are there any changes that need to be assessed? Use SNAP cards to assess risks associated with changed or unplanned tasks.

4. Remind the team that everyone on the job site is empowered to stop work if something is unsafe or if there are any questions or concerns regarding safety.

**What tools and equipment are required for today’s tasks?** Have they been inspected and are they in good condition?

- Flat bottom boat rated with con, SUEZ von, laboratory beakerware, thinker O-2 analyzer, quality nets, sampler cooler, hand tools, life jackets, camera/mobile phone. Yes.

**What training/qualifications/experience is necessary for today’s assigned tasks?**

- Approved SUEZ at meeting minimum safety requirements. SUEZ signs from HASP document, meeting requirements without objection.

**List any new or Short Service personnel on site today:**

- NA

**Discuss any recent incidents, near misses, field inspection findings, or other safety observations (or observations from similar tasks performed at other sites):**

- Discussion of cold stress, slips, trips, falls, working out work.
### Additional Safety Meeting Topics (check those discussed)

- ✔️ What client safety rules or procedures are applicable to today’s activities?
- ✔️ How will you communicate with others on site? How will you communicate with the PIC and PM?
- ✔️ What are the potential impacts of planned activities to visitors, nearby workers, or the public?
- ✔️ Who do you contact if you have questions or before deviating from written procedures?
- ✔️ What happens and who do you contact if there is an injury or other emergency? If working at an active facility, how will you be alerted of an emergency and what will you do?
- ✔️ Where is nearest medical facility and how would we get an injured employee there? If medical help is more than five minutes away, is at least one person on site trained in first aid/CPR? How do you contact them?
- ☐ Do you have any medical condition or allergy that the project team needs to be aware of? Write this down and keep it in your pocket for reference in the event of an emergency.
- ☐ Are any work permits required?
- ☐ Has anything unexpected or out-of-the-ordinary occurred on this job recently to share?
- ☐ Is there anything different about today’s operations as compared to yesterday or previous days?
- ✔️ What is the worst that could happen if something goes wrong today?
- ☐ What activities occurring today could result in hand injuries? Is everyone aware that the use of fixed open-blade knives is not permitted?
- ✔️ What natural hazards are present (including plants, animals, and insects)?
- ✔️ What areas of the site have slip/trip/fall hazards? Can these be avoided? Are everyone’s work boots in good shape?
- ✔️ Other items: **SUEZ HAVE orientation, working over water.**

### Meeting Attendees (including employees, contractors, and visitors)

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
<th>Sign-In*</th>
<th>Sign-Out**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emily Brown</td>
<td>SUEZ</td>
<td>Emily Brown</td>
<td>Emily Brown</td>
</tr>
<tr>
<td>David R. Armstrong</td>
<td>SUEZ</td>
<td>David R. Armstrong</td>
<td>David R. Armstrong</td>
</tr>
<tr>
<td>Emily Brown</td>
<td>SUEZ</td>
<td>Emily Brown</td>
<td>Emily Brown</td>
</tr>
</tbody>
</table>

* Signature/initials in this space verify that the employee is fit for performing work.

** Signature/initials in this space verify that the employee was uninjured during the workday.

Uncontrolled when printed. Controlled version available on Minerva.

With permissions from Environmental Resources Management, Inc.
Step 1: IDENTIFY THE HAZARDS

☐ Work involves suspended loads & overhead hazards (Life Saving Rule #1)?
☐ Work involves moving vehicles or moving equipment - Trucks or heavy equipment, working in traffic, conveyors, rotating shafts or parts (Life Saving Rule #2)?
☐ Work involves working at a height where a fall could occur over 4 feet (Life Saving Rule #3)?
☐ Work involves an excavation (Life Saving Rule #4)?
☐ Work involves a Confined Space or other potential atmospheric hazard (Life Saving Rule #5)?
☐ Work involves Hot Work - Equipment that produces a spark or open flame; welding, cutting (Life Saving Rule #6)?
☐ Work involves stored energy - Electrical, tension, air hydraulic, gas, steam, water pressure, gravity (Life Saving Rule #7)?
☐ Work involves the potential use of a cell phone while driving (Life Saving Rule #8)? No communication device use allowed while driving, unless in hands-free mode.
☐ Alcohol/Drugs - No alcohol or drug use allowed in the workplace (Life Saving Rule #9).
☐ Work involves one or more vehicles which could turn or need to back up (Life Saving Rule #10)?

Other Potential Hazards:
☐ Housekeeping / Jobsite Conditions
☐ Ergonomic
☐ Hazardous Chemical & Materials
☐ Hand or Power Tools or Equipment
☐ Contact with Objects or Equipment
☐ Environmental Factors - Severe weather, extreme hot/cold, wind, potential of lightning.

Step 3: IDENTIFY HAZARD CONTROLS and PERFORM PRE-JOB CHECK

Suspended Loads & Overhead Hazards
Rule #1: Do not walk or stand under a suspended load.
☐ Overhead hazards evaluated and safe measures put in place
☐ Area under load delineated and restricted by personnel

Moving Vehicles or Moving Equipment
Rule #2: Stay out of the path of moving equipment.
☐ Proper traffic control measures in place
☐ Controls in place around all mobile equipment
☐ Guards in place around all moving equipment

Working at Heights
Rule #3: Clip on and tie-off your harness when working at height.
☐ Fall protection systems planned where appropriate
☐ Fall protection equipment identified and inspected
☐ Guardrail system in place where appropriate

Excavations
Rule #4: Only enter a trench if appropriate protection against collapse is in place.
☐ Excavation Permit in place
☐ Protective System used in excavations greater than 5 feet

Confined Spaces & other Potential Atmos. Hazards
Rule #5: The atmosphere must be tested safe before entering a confined space and monitored as you work.
☐ Space properly classified
☐ Confined Space Permit in place
☐ Entry procedures in place and understood by all
☐ Entrant, Attendant, Entry Supervisor utilized if required
☐ Calibrated Combustible Gas Meter to be used

Hot Work
Rule #6: Do not perform hot work until the fire or explosion risks have been eliminated.
☐ Hot Work Permit in place as required
☐ Work area inspected for fire hazards
☐ Suitable fire extinguisher and Fire Watch in place

Stored Energy
Rule #7: Verify that there is no live energy before starting work.
☐ Written Energy Control Procedure(s) reviewed
☐ Type and magnitude of energy sources identified
☐ Only Authorized employees performing work
☐ Lockout/Tagout Permits in place
☐ ALL energy brought to zero and locked out before start

Cell Phone Use While Driving
Rule #8: Do not handle your phone or other communication devices when driving.
☐ Cell phones are unauthorized while driving, unless in hands-free mode

Alcohol/Drug Use
Rule #9: No working/driving under the influence of alcohol/drugs.
☐ Alcohol and Drug use not allowed in the workplace

Vehicle Turning or Reversing
Rule #10: When turning or reversing a vehicle, signal, slow down and check that nobody is in your path.
☐ All reversing alarms working
☐ Spotters to be used when a vehicle is turning or reversing

Housekeeping/Jobsite Conditions
☐ Work area clearly delineated and footing reviewed with crew
☐ Clutter/debris kept minimal and picked up

Ergonomics
☐ Personnel understand proper lifting techniques
☐ Mechanical lifting devises identified for heavy loads
☐ Work breaks defined to prevent overexertion
☐ All 2-person lifting & moving tasks identified and reviewed

Hazardous Chemicals & Materials
☐ Proper chemicals & materials identified for job
☐ SDSs reviewed with crew and available
☐ Portable eyewash available if needed

Hand and Power Tools/Equipment
☐ Proper tools identified for the job
☐ Tools & equipment in good condition
☐ Ground fault protection in place
☐ Pinch points identified
☐ All machine guards in place

Contact with Objects or Equipment
☐ All potential contact with objects or equipment identified

Environmental Conditions & Weather
☐ Forecast of severe weather reviewed
☐ Outside temperature reviewed against duration of job
☐ Jobsite noise levels known or estimated
☐ Jobsite dust levels known or estimated

Personal Protective Equipment (PPE)
☐ Written PPE Hazard Assessment reviewed for task
☐ Required PPE to be used
☐ Need for goggles or face shield evaluated
☐ Footwear reviewed for good tread
☐ Standard work gloves or specialty gloves to be used
☐ Need for respiratory protection evaluated
☐ Need for hearing protection evaluated

People: Attitudes and Behavior
☐ Job scope understood by all
☐ If working alone, scope is understood and limited

Other Controls: ___________________________

Verification of Understanding
I understand the scope of this task and am able to safely perform the task without increasing the risk of injury to myself or others.

Name: ___________________________ 1/3/18 2/20/18
Name: ___________________________ 11/3/18 2/23/18
Name: ___________________________ 11/3/18 2/23/18

Name: ___________________________ 11/3/18 2/23/18

Name: ___________________________ 11/3/18 2/23/18

Other: ___________________________
STEP 2: DETERMINE LEVEL OF RISK
(Before & after controls are put in place)

Probability and Severity of Injury

<table>
<thead>
<tr>
<th>Probability</th>
<th>Severe</th>
<th>Possible</th>
<th>Remote</th>
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<tbody>
<tr>
<td>Catastrophic (3)</td>
<td>9</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Serious (2)</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Minor (1)</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Risk Prior to Additional Controls: 
[ ]
List Additional Controls Needed:

[ ]

Risk After Controls Established: 
[ ]

Actions Required:
1-3 Proceed with caution
4-6 Conduct thorough safety assessment before beginning and throughout task
>6 Transfer or terminate task

PROBABILITY Guideline
△ Remote – Incident unlikely to occur
AA Possible – Incident may occur
AAA Probable – Incident likely to occur

SEVERITY Guideline
△ Minor – Potential to result in incident requiring first aid.
AA Serious – Potential to result in Recordable Incident (e.g. requiring medical treatment beyond first aid, restrictions in work or motion, days away from work for recovery, or loss of consciousness).
AAA Catastrophic – Potential to result in Multiple Injuries or Fatality.

STEP 4: POST TASK DEBRIEF

☐ Post Job Clean-up Complete
☐ All Permits Closed Out
☐ Energy Control
☐ Confined Space
☐ Hot Work
☐ Excavation
☐ Other: 
☐ Other: 

Opportunities for future improvement:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Safe Work Plan close-out signatures

Crew Leader: ________________________________
Supervisor: ________________________________
Operations Manager: _________________________

Date Safe Work Plan Closed: ____________

Emergency Information
In case of injury, potential injury, or environmental release on this job:
1. Seek immediate medical attention,
2. Immediately call SUEZ 24-Hr Incident Reporting Service at (888) 853-7284.

Local Emergency Numbers:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

This task is a:
☐ Routine Task (performed at least once/wk)
☐ Non-Routine Task

The most junior person on the crew has been employed with United Water for:
☐ Less than 90 days
☐ Between 90 and 1 Year
☐ Between 1 and 2 Years
☐ Between 2 and 5 Years
☐ Greater than 5 Years

Names of all persons employed less than 1 year:
Name: ____________________________
Name: ____________________________
Name: ____________________________

Lead Person Signature: ____________________________
# SUEZ WATER NEW JERSEY - LAMBERTVILLE

Contractor EH&S Orientation Training Sign-In Sheet

Date of Orientation: 1/30/18  
Time of Orientation: 9 AM  
Name of Person Administering Orientation: Maria F. Freitas

<table>
<thead>
<tr>
<th>Print Name</th>
<th>Signature</th>
<th>Name of Contractor Firm</th>
<th>Address of Contractor’s Firm</th>
<th>Photo I.D. Verified (Y/N)</th>
<th>TCPA EHS Contractor (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Matthew J. Nagler</td>
<td>Matthew J. Nagler</td>
<td>University of Pennsylvania</td>
<td>Y</td>
<td>Y</td>
</tr>
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<td>10</td>
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</tbody>
</table>

Issued: 1/30  
Revised: 10/17
Appendix C: Sampling Program Field Notes
0903: M. Negie of Penn on-site at office trailer to meet with D. Feeney at SVEZ for Swan Creek Reservoir
Surface water sampling for various types of phosphorus.

0947: M. Negie attends SVEZ Health & Safety orientation/video. M. Negie gives site specific Penn Health & Safety meeting. SVEZ & Penn documents signed.

E. Maruszewski of SVEZ to assist M. Negie in sampling effort.

1004: M. Negie organizes and labels bottles/water collected from lab this morning.

1047: M. Negie calibrates Horiba U-52 received from Pine Environmental. Calibrated with provided Standard solution of pH 4.0.
Calibration reading = 3.99.

1105: M. Negie, E. Maruszewski drives SVEZ van from office trailer to reservoir. Purchase Hydro on-site & one to apply on algae/fowl (believe) to reservoir,ateur.

6 acres near dam. Speak with final plan. Negie agrees to delay until after SW01 samples collected. Walk to location SW01.

1120: Collect sample [SW01 - 20180130] from SW01 location at edge of dam near water intake pipe. Sample collected from below surface. Collect Horiba readings. Surface water relatively dirty with scum/bird feathers. Snowing.

1130: E. Maruszewski in boat with life jackets & paddles. Snowing.

1145: M. Negie & E. Maruszewski on boat in life jackets, return flat bottom boat that is winched on road trailer adjacent to shore, at north end of dam. Snowing.

1300: Row to location SW03 at the end of lake. Snowing.

1329: Arrive at location SW03, collect sample [SW03 - 20180130], collect Horiba readings. Water appears clear. Snowing.

1350: Row to location SW04 at south inlet. Snowing.

1300: Arrive at location SW04. Area is relatively shallow, rocks protruding, ice covers short line of inlet, not going into that area.

1315: Row to location SWD2 in middle of lake. Snowing hard.

1325: Collect (SWD-20180230), collect horizon readings. Water appears clear, snowing.

1335: Row to beach (current location; pull beard ashore, unload gear to SUEZ van; stopped snowing.

1350: Drive to SUEZ office trailer. Arrange, unload to office trailer.

1425: Collect field blank (FB-20180230)

1440: Finish labeling bottles, perform sample inventory, collect gear, check equipment, complete chain of custody for samples. Rewind paper clips at Rezucor, historic documents for stamping from D. Foremer.

1515: M. Nogier off-site to deliver samples to lab for analysis.

6930: M. Nogier & E. Macuszek: to meet D. Foumiere, E. Macuszek: to meet D. Cypriote. Drive SUEZ & Swan Creek Reservoir. Water sampling for various types of phosphorus; lake is noticeably higher than January visit; at 259.6 ft amsl, near spillway height.

1608: M. Nogier labels & organizes sample bottles received from lab this morning with sample names.

1616: M. Nogier calibrates Rezucor U-52 with provided Standard Solution of pH = 4.0; successful.

1625: Conduct Health & Safety Meeting.

1640: E. Macuszek: drive SUEZ van with M. Nogier from office trailer to edge of reservoir. Collect water samples from storage tank. Beat is already in the water along north end of dam:

1642: M. Nogier & E. Macuszek: go to edge of dam; collect (SWD-20180230) from below the surface. Collect horizon readings. Surface water contains visible organics.

1643: M. Nogier & E. Macuszek: van ETA: jack up sensor.
1137: Arrive at location SW03, collect from below surface.

1149: Arrive at location SW04, collect from below surface.

1201: Arrive at location SW02, collect from below surface.

1220: Arrive at launch location, check boat, undock boat, put life jackets away.

1230: Arrive at office, undock van.

1240: Collect Field Blank, collect equipment, complete chain of custody.

1250: Perform sample inventory, prepare catalog.

1330: M. Najjar off site to deliver samples to lab for analysis.

0941: M. Najjar and E. Brown arrive at office trailer to meet E. Brown (Maruszek et al) of SUEZ for Swank Creek Reservoir Surface Sampling. Sample four types of phosphorus. Labs are noticeably high. Last time, at 2700 ft above mean sea level, spilling over at spillway.

1005: M. Najjar labels and organizes empty bottles removed from lab this morning.

1020: Conduct Health & Safety Meeting.

1023: M. Najjar calibrates Honda U-S200 with provided Ammonium solution at pH 4.0.

1030: M. Najjar drives personal vehicle with E. Brown from office trailer to edge of reservoir. Collect life jackets from storage shed. Boat is already in water at dam near north and south dam.

1036: M. Najjar and E. Brown go to the edge of the dam and collect sample from below the surface.
10:41: M. Negri and E. Brown don lifejackets, load row boat, at boat house. Row to location SW05 at far end of lake.

11:18: Arrive at location SW05. Collect [SW05-20180313] and Horiba readings. Row to location SW04 at the inlet.

11:24: Arrive at location SW04. Collect [SW04-20180313]. Collect Horiba readings. Row to location SW02 in the middle of the lake.

11:42: Arrive at location SW02. Collect [SW02-20180313] and Horiba readings. Row a boat launch location by dam.


12:05: Arrive at SVEZ office, unload vehicle.

12:05: Collect field blank [FB-20180313]

12:26: Perform sample inventory, prepare code.

12:50: M. Negri and E. Brown deliver samples to lab for analysis.

M. Negri 3/13/18
Appendix D: Collected and Historic Analytical Data
### Appendix D - Collected and Historic Analytical Data

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Staff Depth</th>
<th>Depth</th>
<th>Sample Location</th>
<th>Lab Analyzed Parameters</th>
<th>In-Situ Water Quality Parameters</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Dissolved Phosphorus (mg/L)</td>
<td>Total Particulate Phosphorus (mg/L)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Suspended Phosphorus (mg/L)</td>
<td>Total Nitrate (mg/L)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Conductivity (μS/cm)</td>
<td>Total Chlorine (mg/L)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Temperature (°C)</td>
<td>Total Dissolved Oxygen (mg/L)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total pH</td>
<td>Specific Conductivity Reduction (μS/cm)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Turbidity (NTU)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Source</td>
<td></td>
</tr>
</tbody>
</table>

#### Water Quality Parameters
- **Conductivity**: Total dissolved conductivity, measured in μS/cm.
- **Temperature**: Ambient water temperature, measured in °C.
- **pH**: Water pH level.
- **Specific Conductivity Reduction**: Reduction in specific conductivity, measured in μS/cm.
- **Turbidity**: Water turbidity, measured in NTU.

### Lab Analyzed Parameters
- **Total Dissolved Phosphorus**: Measured in mg/L.
- **Total Particulate Phosphorus**: Measured in mg/L.
- **Total Suspended Phosphorus**: Measured in mg/L.
- **Total Nitrate**: Measured in mg/L.
- **Total Conductivity**: Measured in μS/cm.
- **Total Chlorine**: Measured in mg/L.
- **Total Temperature**: Measured in °C.
- **Total Dissolved Oxygen**: Measured in mg/L.
- **Total pH**: Measured.
- **Specific Conductivity Reduction**: Calculated.
- **Turbidity**: Measured in NTU.

#### Source

---

**Note:** Data collected by M. Nogar with SUEZ assistance, provided by SUEZ, or analyzed by ECMI.

---

**Reference:**
- **Swan Creek Reservoir**: Source of data.

---

**Table:**
- **Date**: Data collection date.
- **Location**: Reservoir location.
- **Staff Depth**: Measurement depth.
- **Depth**: Water depth.
- **Sample Location**: Specific sample location.
- **Lab Analyzed Parameters**: Measured parameters.
- **In-Situ Water Quality Parameters**: Parameters measured in situ.
- **Source**: Data source.

---

**Legend:**
- **(mg/L)**: Measurement unit.
- **(μS/cm)**: Measurement unit.
- **(NTU)**: Measurement unit.

---

**Appendix D:** Detailed analysis of collected and historic data from Swan Creek Reservoir.

---

**Data Collection:**
- **Methodology**: Standardized water quality measurement techniques.
- **Accuracy**: ±0.1%.

---

**Analysis:**
- **Trends observed**: Analysis of seasonal and temporal variations.
- **Impact assessment**: Evaluation of environmental and human health impacts.

---

**Conclusion:**
- **Recommendations**: Based on the collected data.
- **Future work**: Areas for further research.

---

**Acknowledgment:**
- **Contributors**: Acknowledgment of all contributors to the project.

---

**References:**
- **Water Quality Standards**: Relevant legal and regulatory frameworks.
- **Environmental Impact Assessment**: Published reports and studies.

---

**Appendix D:**
- **Sections**: Lab analysis, in-situ measurements, and data interpretation.
- **Tables**: Detailed numerical data.
- **Graphs**: Visual representation of data trends.

---

**Table Columns:**
- **Date**: Data collection date.
- **Location**: Reservoir location.
- **Staff Depth**: Measurement depth.
- **Depth**: Water depth.
- **Sample Location**: Specific sample location.
- **Lab Analyzed Parameters**: Measured parameters.
- **In-Situ Water Quality Parameters**: Parameters measured in situ.
- **Source**: Data source.

---

**For Data:**
- **Format**: Standard Excel or CSV.
- **Units**: Consistent measurement units.
- **Accuracy**: ±0.1%.

---

**Software:**
- **Microsoft Excel**: Data manipulation.
- **Grapher**: Data visualization.

---

**Additional Information:**
- **Contact Information**: For further inquiries.
- **Data accessibility**: Access details for data sets.
## Appendix D - Collected and Historic Analytical Data

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Staff Depth (ft)</th>
<th>Depth</th>
<th>Sample Location</th>
<th>Staff Depth (ft)</th>
<th>Sample Location</th>
<th>Lab Analyzed Parameters</th>
<th>In-Situ Water Quality Parameters</th>
<th>Source</th>
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<tr>
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<td>Ammonia-N (µg/L)</td>
<td>In Situ pH</td>
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<td>Chloride (mg/L)</td>
<td>pH</td>
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Swan Creek Reservoir
## Appendix D - Collected and Historic Analytical Data

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### Data collected by M. Nogier with SUEZ assistance, provided by SUEZ, or analyzed by ECM
Appendix E: EDR Historical Topo Map Report
Swan Creek Reservoir Investigation
756 Brunswick Pike
Lambertville, NJ 08530

Inquiry Number: 5156312.4
January 11, 2018
EDR Historical Topo Map Report

Site Name: Swan Creek Reservoir Investig  
756 Brunswick Pike  
Lambertville, NJ 08530  
EDR Inquiry # 5156312.4

Client Name: Matthew Nogier  
47 Lambert Ln, Apt 8, Lambertville, NJ 08530  
Contact: Matthew Nogier

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Matthew Nogier were identified for the years listed below. EDR’s Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:  Coordinates:

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<th>P.O.#</th>
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<th>Swan Creek Reservoir Invest.</th>
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<tr>
<td></td>
<td>Longitude:</td>
<td>-74.918887 -74° 55' 8&quot; West</td>
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Maps Provided:

- 2014
- 1995
- 1973
- 1968, 1970
- 1953, 1954
- 1943
- 1907
- 1906

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**Topo Sheet Key**

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### 2014 Source Sheets

- **Lambertville**
  - 2014
  - 7.5-minute, 24000
- **Stockton**
  - 2014
  - 7.5-minute, 24000

### 1995 Source Sheets

- **Lambertville**
  - 1995
  - 7.5-minute, 24000
  - Aerial Photo Revised 1995

### 1973 Source Sheets

- **Lambertville**
  - 1973
  - 7.5-minute, 24000
  - Aerial Photo Revised 1942

### 1968, 1970 Source Sheets

- **Lambertville**
  - 1968
  - 7.5-minute, 24000
  - Aerial Photo Revised 1968
- **Stockton**
  - 1970
  - 7.5-minute, 24000
  - Aerial Photo Revised 1970
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

**1953, 1954 Source Sheets**

- Lambertville
  - 1953
  - 7.5-minute, 24000
  - Aerial Photo Revised 1942
- Stockton
  - 1954
  - 7.5-minute, 24000
  - Aerial Photo Revised 1942

**1943 Source Sheets**

- Stockton
  - 1943
  - 7.5-minute, 31680
- Lambertville
  - 1943
  - 7.5-minute, 31680

**1907 Source Sheets**

- Trenton
  - 1907
  - 30-minute, 125000

**1906 Source Sheets**

- Lambertville
  - 1906
  - 15-minute, 62500
**Topo Sheet Key**

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

**1894 Source Sheets**

![Map Image]

Lambertville
1894
15-minute, 62500

**1891 Source Sheets**

![Map Image]

Lambertville
1891
15-minute, 62500

**1890 Source Sheets**

![Map Image]

Lambertville
1890
15-minute, 62500
This report includes information from the following map sheet(s).

- TP, Lambertville, 2014, 7.5-minute
- N, Stockton, 2014, 7.5-minute

**SITE NAME:** Swan Creek Reservoir Investigation  
**ADDRESS:** 756 Brunswick Pike  
Lambertville, NJ 08530  
**CLIENT:** Matthew Nogier
This report includes information from the following map sheet(s).

SITE NAME: Swan Creek Reservoir Investigation
ADDRESS: 756 Brunswick Pike
          Lambertville, NJ 08530
CLIENT: Matthew Nogier
This report includes information from the following map sheet(s).

TP, Lambertville, 1973, 7.5-minute

SITE NAME: Swan Creek Reservoir Investigation
ADDRESS: 756 Brunswick Pike
Lambertville, NJ 08530
CLIENT: Matthew Nogier
This report includes information from the following map sheet(s).

- TP, Lambertville, 1968, 7.5-minute
- N, Stockton, 1970, 7.5-minute

SITE NAME: Swan Creek Reservoir Investigation
ADDRESS: 756 Brunswick Pike
Lambertville, NJ 08530
CLIENT: Matthew Nogier
This report includes information from the following map sheet(s).

TP, Lambertville, 1953, 7.5-minute
N, Stockton, 1954, 7.5-minute

SITE NAME: Swan Creek Reservoir Investigation
ADDRESS: 756 Brunswick Pike
Lambertville, NJ 08530
CLIENT: Matthew Nogier
This report includes information from the following map sheet(s).

TP, Lambertville, 1943, 7.5-minute
N, Stockton, 1943, 7.5-minute

SITE NAME: Swan Creek Reservoir Investigation
ADDRESS: 756 Brunswick Pike
Lambertville, NJ 08530
CLIENT: Matthew Nogier
This report includes information from the following map sheet(s).

SITE NAME: Swan Creek Reservoir Investigation
ADDRESS: 756 Brunswick Pike, Lambertville, NJ 08530
CLIENT: Matthew Nogier
This report includes information from the following map sheet(s).

SITE NAME: Swan Creek Reservoir Investigation
ADDRESS: 756 Brunswick Pike
Lambertville, NJ 08530
CLIENT: Matthew Nogier
This report includes information from the following map sheet(s).

SITE NAME: Swan Creek Reservoir Investigation
ADDRESS: 756 Brunswick Pike
          Lambertville, NJ 08530
OWNER: Matthew Nogier
This report includes information from the following map sheet(s).

SITE NAME: Swan Creek Reservoir Investigation
ADDRESS: 756 Brunswick Pike
Lambertville, NJ 08530
CLIENT: Matthew Nogier
This report includes information from the following map sheet(s).

SITE NAME: Swan Creek Reservoir Investigation
ADDRESS: 756 Brunswick Pike
Lambertville, NJ 08530
CLIENT: Matthew Nogier
Appendix F: EDR Aerial Photo Decade Package
Swan Creek Reservoir Investigation
756 Brunswick Pike
Lambertville, NJ 08530

Inquiry Number: 5156312.9
January 11, 2018
Additionally, the information provided in this Report is not to be construed as legal advice.

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Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

**Search Results:**

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Appendix G: Historic Sanborn Fire Insurance Maps
February 19, 2018

David Fournier  
Operations Manager  
SUEZ  
756 Brunswick Pike  
Lambertville, NJ 08530

Dear Mr. Fournier:

Analysis of the Swan Creek Reservoir samples received January 30, 2018 has been completed. The results are presented in the attached tables. An invoice is attached.

If you have any questions pertaining to the analysis, please feel free to contact me.

Very truly yours,

ENVIRONMENTAL COMPLIANCE MONITORING, INC.

Thomas Grenci  
Laboratory Manager  

#2194/5021  

Cc: Matthew Nogier  
Accounts Payable
## REPORT OF ANALYSIS

**COMPANY**  Penn-SUEZ  
**ADDRESS**  756 Brunswick Pike  
**CITY**  Lambertville  
**STATE**  NJ  
**ZIP**  08530  
**JOB #**  2194  
**LOT #**  5021  
**REPORT DATE**  02/19/18  
**TO ATTN. OF**  David Fournier  
**SAMPLE DATE**  01/30/18  

**CLIENT SAMPLE ID**  Swan Creek Reservoir- SW01-20180130  
**SAMPLE #**  49966  

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<th>Analysis Date/Time</th>
<th>Dilution Factor</th>
<th>MDL (mg/L)</th>
<th>Result (mg/L)</th>
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</table>

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ENVIRONMENTAL COMPLIANCE MONITORING, INC.  

ECM
# REPORT OF ANALYSIS

<table>
<thead>
<tr>
<th>Test Parameter</th>
<th>Method #</th>
<th>Analysis Date/Time</th>
<th>Dilution Factor</th>
<th>MDL (mg/L)</th>
<th>Result (mg/L)</th>
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ENVIRONMENTAL COMPLIANCE MONITORING, INC.  

ECM
### Report of Analysis

**COMPANY**  Penn-SUEZ  |  **REPORT DATE**  02/19/18  
**ADDRESS**  756 Brunswick Pike  |  **JOB #**  2194  
**CITY**  Lambertville  |  **LOT #**  5021  
**STATE**  NJ  |  **INVOICE #**  218340  
**ZIP**  08530  |  **SAMPLE DATE**  01/30/18  
**PO #**  Verbal  |  **LAB CERTIFICATION #**  18630  

**CLIENT SAMPLE ID**  Swan Creek Reservoir- SW03-20180130  
**SAMPLE #**  49968

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<td>By Calculation</td>
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---

**ENVIRONMENTAL COMPLIANCE MONITORING, INC.**
# REPORT OF ANALYSIS

**COMPANY**  Penn-SUEZ  
**ADDRESS**  756 Brunswick Pike  
**CITY**  Lambertville  
**STATE**  NJ  
**ZIP**  08530  
**TO ATTN. OF**  David Fournier  
**SAMPLE DATE**  01/30/18  
**LAB CERTIFICATION #**  18630  

**CLIENT SAMPLE ID**  Swan Creek Reservoir- SW04-20180130  
**SAMPLE #**  49969  

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<td>Nitrate-N</td>
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<td>01/31/18; 1137</td>
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**ENVIRONMENTAL COMPLIANCE MONITORING, INC.**  

*ECM*
# REPORT OF ANALYSIS

**COMPANY** Penn-SUEZ  
**REPORT DATE** 02/19/18  
**ADDRESS** 756 Brunswick Pike  
**JOB #** 2194  
**CITY** Lambertville  
**STATE** NJ  
**ZIP** 08530  
**TO** ATTN. OF David Fournier  
**SAMPLE DATE** 01/30/18  
**LAB CERTIFICATION #** 18630  

**CLIENT SAMPLE ID** Swan Creek Reservoir- FB-20180130  
**SAMPLE #** 49970

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**ENVIRONMENTAL COMPLIANCE MONITORING, INC.**
**QA Report - Duplicate and Matrix Spike Recovery**

**ANALYTE:  Total Phosphate-P**

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<tr>
<th>MATRIX SPIKE</th>
<th>Lab Sample #</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>QC Limit</th>
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<tbody>
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<th>Lab Sample #</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>RPD</th>
<th>QC Limit</th>
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<tbody>
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**ANALYTE: Total Dissolved Phosphate-P**

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<th>Spike Addition</th>
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<th>% Recovery</th>
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<th>Spike Result</th>
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<th>QC Limit</th>
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**ANALYTE: Soluble Reactive Phosphate-P**

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<th>Spike Result</th>
<th>% Recovery</th>
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<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
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<th>QC Limit</th>
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**ANALYTE: Dissolved Hydrolysable Phosphate-P**

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<th>Spike Result</th>
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<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
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<th>QC Limit</th>
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<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
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<th>Spike Addition</th>
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**ANALYTE: Chlorophyll-a**

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**MATRIX SPIKE**

<table>
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<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>49966</td>
<td>&lt;0.01</td>
<td>0.040</td>
<td>0.036</td>
<td>91</td>
<td>40-160</td>
</tr>
</tbody>
</table>

**MATRIX SPIKE DUPLICATE**

<table>
<thead>
<tr>
<th>Lab Sample #</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>RPD</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>49966</td>
<td>&lt;0.01</td>
<td>0.040</td>
<td>0.036</td>
<td>91</td>
<td>0</td>
<td>± 30</td>
</tr>
</tbody>
</table>

**ANALYTE: Total Suspended Solids**

**MATRIX DUPLICATE**

<table>
<thead>
<tr>
<th>Lab Sample #</th>
<th>Result</th>
<th>Duplicate</th>
<th>RPD</th>
<th>QC Limit</th>
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</thead>
<tbody>
<tr>
<td>49983</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>± 18</td>
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</tbody>
</table>
# CHAIN OF CUSTODY RECORD

<table>
<thead>
<tr>
<th>PROJECT NO.</th>
<th>PROJECT NAME</th>
<th>SAMPLERS NAME</th>
<th>STATION LOCATION</th>
<th>NO. OF CONTAINERS</th>
<th>SULFURIC ACID</th>
<th>NITRIC ACID</th>
<th>HYDROCHLORIC ACID</th>
<th>NO PRESERVATIVE</th>
<th>PH FOR NITRATE/NITRITE ANALYSIS</th>
<th>PH</th>
<th>NO</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Penn-SUEZ</td>
<td>Matthew Negier</td>
<td>SW01 - 20180130</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/30/18</td>
<td>Swan Creek Reservoir Investigation</td>
<td>11:20</td>
<td>GEAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/30/18</td>
<td></td>
<td></td>
<td>SW02 - 20180130</td>
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<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td>2</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>FB - 20180130</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Cooler Temp:** 1.4°C

**pH <2**

**pH >10**

**Comments:** See attached table for sample analyses.

Standard TAT.

**Relinquished By:** (Signature) Matthew J. Negier

**Date/Time:** 1/30/18 15:45

**Received By:** (Signature)

**Date/Time:** 1/30/18 15:45

**Relinquished By:** (Signature)

**Date/Time:**

**Received By:** (Signature)

**Date/Time:**

**Relinquished By:** (Signature)

**Date/Time:**

**Received By:** (Signature)

**Date/Time:**

**NOTE:** The Chain of Custody Form is used to ensure and document compliance with sampling and laboratory protocol for regulatory programs. All information should be completed on the form to ensure samples are analyzed correctly. Unless specified on the Chain of Custody Form, ECM cannot presume regulatory compliance criteria.
**SAMPLE RECEIVING CHECKLIST**

**Client/Site:** Penn-Suez - Swan Creek Reservoir Investigation

<table>
<thead>
<tr>
<th>1. Delivered by</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>○ Client</td>
<td>□ Lab personnel</td>
<td>□ Parcel service</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Sample taken by lab personnel?</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes</td>
<td>□ No (if no, skip to 3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Preserved in field? [ ] Yes [ ] No
- Stored on ice? [ ] Yes [ ] No

**Date/time last sample placed in cooler:**

<table>
<thead>
<tr>
<th>3. Packaging</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>○ Cooler</td>
<td>□ Other/none</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Custody Seals [ ] Present [ ] Absent
- Ice [ ] Present [ ] Absent
- Temperature (water samples only) **14°C @ 1000**

<table>
<thead>
<tr>
<th>4. Documentation</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes</td>
<td>□ No</td>
<td>○ N/A</td>
<td></td>
</tr>
</tbody>
</table>

- Airbill Present? [ ] Yes [ ] No
- Chain of Custody [ ] Received [ ] Prepared by Lab

<table>
<thead>
<tr>
<th>5. Sample containers</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes</td>
<td>□ No*</td>
<td>○ N/A</td>
<td></td>
</tr>
</tbody>
</table>

- Appropriate for specified analysis? [ ] Yes [ ] No*
- Intact? [ ] Yes [ ] No*
- Labeled, and labels legible? [ ] Yes [ ] No*
- Labels agree with COC? [ ] Yes [ ] No*

<table>
<thead>
<tr>
<th>6. Preservation (water samples only)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes</td>
<td>□ No*</td>
<td>○ N/A</td>
<td></td>
</tr>
</tbody>
</table>

- Metals (Hardness, etc.) pH < 2, HNO₃ [ ] Yes [ ] No*
- Cyanides pH > 12, NaOH [ ] Yes [ ] No*
- COD, TPO₄, TKN, NH₃ pH < 2, H₂SO₄ [ ] Yes [ ] No*
- TPH, O&G pH < 2, HCL [ ] Yes [ ] No*
- Were preservatives added at lab? [ ] Yes [ ] No

Responses marked "*" require detailed explanation; identify specific examples, what was wrong, and what was done.

Responses marked "N/A" indicate a non-standard condition which may affect the quality of results (nonconformance).

**Comments:**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

**Note:** The Sample Receiving Checklist is used to ensure and document compliance with sampling and laboratory protocol for regulatory programs. Samples collected and analyzed for non-regulatory programs should be evaluated as applicable. Unless specified on the chain of custody form, ECM cannot presume regulatory compliance criteria.
<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>DESCRIPTION</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Samples analyzed for Chlorophyll a, Ammonia-N, Nitrate-N, Soluble Reactive Phosphate-P, Dissolved Hydrolysable-P, Total Dissolved Phosphate-P, Total Phosphate-P, Total Suspended Solids, Dissolved Organic Phosphate-P and Total Particulate Phosphate-P @ $ 266.00/sample</td>
<td>$1,330.00</td>
</tr>
</tbody>
</table>

TOTAL INVOICE $1,330.00

COPY 1
Appendix I: ECM Final Laboratory Report - February 2018 Sampling Event
March 16, 2018

David Fournier
Operations Manager
SUEZ
756 Brunswick Pike
Lambertville, NJ 08530

Dear Mr. Fournier:

Analysis of the Swan Creek Reservoir samples received February 22, 2018 has been completed. The results are presented in the attached tables. An invoice is attached.

If you have any questions pertaining to the analysis, please feel free to contact me.

Very truly yours,

ENVIRONMENTAL COMPLIANCE MONITORING, INC.

Thomas Grenci
Laboratory Manager

#2194/5044

Cc: Matthew Nogier

Accounts Payable
**REPORT OF ANALYSIS**

**COMPANY** Penn-SUEZ  
**REPORT DATE** 03/16/18  
**ADDRESS** 756 Brunswick Pike  
**JOB #** 2194  
**STATE** NJ  
**LOT #** 5044  
**CITY** Lambertville  
**ZIP** 08530  
**TO ATTN. OF** David Fournier  
**SAMPLE DATE** 02/22/18  
**LAB CERTIFICATION #** 18630  

**CLIENT SAMPLE ID** Swan Creek Reservoir- SW01-20180222  
**SAMPLE #** 50036  

<table>
<thead>
<tr>
<th>Test Parameter</th>
<th>Method # *</th>
<th>Analysis Date/Time</th>
<th>Dilution Factor</th>
<th>MDL (mg/L)</th>
<th>Result (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorophyll a (mg/M³)</td>
<td>10200H 1&amp;2</td>
<td>02/22/18; 1855</td>
<td>2</td>
<td>0.6</td>
<td>4.7</td>
</tr>
<tr>
<td>Ammonia-N</td>
<td>4500-NH₂B&amp;D</td>
<td>03/12/18; 1500</td>
<td>1</td>
<td>0.01</td>
<td>0.15</td>
</tr>
<tr>
<td>Nitrate-N</td>
<td>352.1</td>
<td>02/22/18; 1730</td>
<td>1</td>
<td>0.02</td>
<td>0.40</td>
</tr>
<tr>
<td>Soluble Reactive Phosphorus</td>
<td>4500-P E</td>
<td>02/23/18; 1213</td>
<td>1</td>
<td>0.002</td>
<td>0.008</td>
</tr>
<tr>
<td>Total Dissolved Phosphorus</td>
<td>4500-P E &amp;</td>
<td>03/16/18; 0900</td>
<td>1</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>4500-P B-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>4500-P B-5 &amp;</td>
<td>03/05/18; 1044</td>
<td>1</td>
<td>0.01</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>4500-P E</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>2540 D</td>
<td>02/26/18; 1610</td>
<td>1</td>
<td>3</td>
<td>9</td>
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<tr>
<td>Dissolved Hydrolysable Phosphorus</td>
<td>4500-P B-2 &amp;</td>
<td>03/06/18; 1319</td>
<td>1</td>
<td>0.004</td>
<td>0.005</td>
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<tr>
<td></td>
<td>4500-P E</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Dissolved Organic Phosphorus</td>
<td>By Calculation</td>
<td></td>
<td>-</td>
<td>-</td>
<td>ND &lt;0.01</td>
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<tr>
<td>Total Particulate Phosphorus</td>
<td>By Calculation</td>
<td></td>
<td>-</td>
<td>-</td>
<td>0.05</td>
</tr>
</tbody>
</table>

ND – Non-detectable  
N/E – Not Established, based on 5cm cell for SRP  

ENVIRONMENTAL COMPLIANCE MONITORING, INC.  

ECM
# REPORT OF ANALYSIS

**COMPANY** Penn-SUEZ  
**ADDRESS** 756 Brunswick Pike  
**CITY** Lambertville **STATE** NJ **ZIP** 08530  
**TO ATTN. OF** David Fournier  
**SAMPLE DATE** 02/22/18  
**LAB CERTIFICATION #** 18630

**CLIENT SAMPLE ID** Swan Creek Reservoir- SW02-20180222  
**ECM, Inc. SAMPLE #** 50037

<table>
<thead>
<tr>
<th>Test Parameter</th>
<th>Method # *</th>
<th>Analysis Date/Time</th>
<th>Dilution Factor</th>
<th>MDL (mg/L)</th>
<th>Result (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorophyll a (mg/m³)</td>
<td>10200H 1&amp;2</td>
<td>02/22/18; 1855</td>
<td>2</td>
<td>0.6</td>
<td>2.8</td>
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<tr>
<td>Ammonia-N</td>
<td>4500-NH₃ B&amp;D</td>
<td>03/12/18; 1500</td>
<td>1</td>
<td>0.01</td>
<td>0.15</td>
</tr>
<tr>
<td>Nitrate-N</td>
<td>352.1</td>
<td>02/22/18; 1730</td>
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<td>0.02</td>
<td>0.41</td>
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<tr>
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<td>02/23/18; 1213</td>
<td>1</td>
<td>0.002</td>
<td>0.009</td>
</tr>
<tr>
<td>Total Dissolved Phosphorus</td>
<td>4500-P E &amp; 4500-P B-5</td>
<td>03/16/18; 0900</td>
<td>1</td>
<td>0.01</td>
<td>0.02</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>4500-P B-5 &amp; 4500-P E</td>
<td>03/05/18; 1044</td>
<td>1</td>
<td>0.01</td>
<td>0.19</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>2540 D</td>
<td>02/26/18; 1610</td>
<td>1</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Dissolved Hydrolysable Phosphorus</td>
<td>4500-P B-2 &amp; 4500-P E</td>
<td>03/06/18; 1319</td>
<td>1</td>
<td>0.004</td>
<td>0.017</td>
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<td>Dissolved Organic Phosphorus</td>
<td>By Calculation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>ND &lt;0.01</td>
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<tr>
<td>Total Particulate Phosphorus</td>
<td>By Calculation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.19</td>
</tr>
</tbody>
</table>

ND – Non-detectable  
N/E – Not Established, based on 5cm cell for SRP

ENVIRONMENTAL COMPLIANCE MONITORING, INC.  
___________________________  
ECM
## REPORT OF ANALYSIS

### CLIENT SAMPLE ID
Swan Creek Reservoir - SW03-20180222

<table>
<thead>
<tr>
<th>Test Parameter</th>
<th>Method # *</th>
<th>Analysis Date/Time</th>
<th>Dilution Factor</th>
<th>MDL (mg/L)</th>
<th>Result (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorophyll a (mg/M³)</td>
<td>10200H 1&amp;2</td>
<td>02/22/18; 1855</td>
<td>2</td>
<td>0.6</td>
<td>3.3</td>
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<tr>
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<td>4500-NH₃ B&amp;D</td>
<td>03/12/18; 1500</td>
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<td>0.01</td>
<td>0.20</td>
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<td>Nitrate-N</td>
<td>352.1</td>
<td>02/22/18; 1730</td>
<td>1</td>
<td>0.02</td>
<td>0.42</td>
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<tr>
<td>Soluble Reactive Phosphorus</td>
<td>4500-P E</td>
<td>02/23/18; 1213</td>
<td>1</td>
<td>0.002</td>
<td>0.010</td>
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<tr>
<td>Total Dissolved Phosphorus</td>
<td>4500-P E &amp;</td>
<td>03/16/18; 0900</td>
<td>1</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>4500-P B-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>4500-P B-5 &amp;</td>
<td>03/05/18; 1044</td>
<td>1</td>
<td>0.01</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>4500-P E</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>2540 D</td>
<td>02/26/18; 1610</td>
<td>1</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Dissolved Hydrolysable Phosphorus</td>
<td>4500-P B-2 &amp;</td>
<td>03/06/18; 1319</td>
<td>1</td>
<td>0.004</td>
<td>0.016</td>
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<tr>
<td></td>
<td>4500-P E</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Dissolved Organic Phosphorus</td>
<td>By Calculation</td>
<td></td>
<td>-</td>
<td>-</td>
<td>ND &lt;0.01</td>
</tr>
<tr>
<td>Total Particulate Phosphorus</td>
<td>By Calculation</td>
<td></td>
<td>-</td>
<td>-</td>
<td>0.04</td>
</tr>
</tbody>
</table>

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ENVIRONMENTAL COMPLIANCE MONITORING, INC. ________________________________________________________________________________

ECM
<table>
<thead>
<tr>
<th>Test Parameter</th>
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<tr>
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<td>10200H 1&amp;2</td>
<td>02/22/18; 1855</td>
<td>2</td>
<td>0.6</td>
<td>7.7</td>
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<tr>
<td>Ammonia-N</td>
<td>4500-NH₃ B&amp;D</td>
<td>03/12/18; 1500</td>
<td>1</td>
<td>0.01</td>
<td>0.15</td>
</tr>
<tr>
<td>Nitrate-N</td>
<td>352.1</td>
<td>02/22/18; 1730</td>
<td>1</td>
<td>0.02</td>
<td>0.37</td>
</tr>
<tr>
<td>Soluble Reactive Phosphorus</td>
<td>4500-P E</td>
<td>02/23/18; 1213</td>
<td>1</td>
<td>0.002</td>
<td>0.009</td>
</tr>
<tr>
<td>Total Dissolved Phosphorus</td>
<td>4500-P E &amp;</td>
<td>03/16/18; 0900</td>
<td>1</td>
<td>0.01</td>
<td>0.02</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>4500-P B-5 &amp;</td>
<td>03/05/18; 1044</td>
<td>1</td>
<td>0.01</td>
<td>0.08</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>2540 D</td>
<td>02/26/18; 1610</td>
<td>1</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Dissolved Hydrolysable Phosphorus</td>
<td>4500-P B-2 &amp;</td>
<td>03/06/18; 1319</td>
<td>1</td>
<td>0.004</td>
<td>0.024</td>
</tr>
<tr>
<td>Dissolved Organic Phosphorus</td>
<td>By Calculation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>ND &lt;0.01</td>
</tr>
<tr>
<td>Total Particulate Phosphorus</td>
<td>By Calculation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.08</td>
</tr>
</tbody>
</table>

ND – Non-detectable
N/E – Not Established, based on 5cm cell for SRP
### REPORT OF ANALYSIS

**COMPANY**  Penn-SUEZ  
**ADDRESS**  756 Brunswick Pike  
**CITY**  Lambertville  
**STATE**  NJ  
**ZIP**  08530  
**TO ATTN. OF**  David Fournier  
**SAMPLE DATE**  02/22/18  
**LAB CERTIFICATION #**  18630

**CLIENT SAMPLE ID**  Swan Creek Reservoir- FB-20180222  
**ECM, Inc. SAMPLE #**  50040

<table>
<thead>
<tr>
<th>Test Parameter</th>
<th>Method # *</th>
<th>Analysis Date/Time</th>
<th>Dilution Factor</th>
<th>MDL (mg/L)</th>
<th>Result (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorophyll a (mg/M³)</td>
<td>10200H 1&amp;2</td>
<td>02/22/18; 1855</td>
<td>1</td>
<td>0.3</td>
<td>ND &lt;0.3</td>
</tr>
<tr>
<td>Ammonia-N</td>
<td>4500-NH₃ B&amp;D</td>
<td>03/12/18; 1500</td>
<td>1</td>
<td>0.01</td>
<td>ND &lt;0.01</td>
</tr>
<tr>
<td>Nitrate-N</td>
<td>352.1</td>
<td>02/22/18; 1730</td>
<td>1</td>
<td>0.02</td>
<td>ND &lt;0.02</td>
</tr>
<tr>
<td>Soluble Reactive Phosphorus</td>
<td>4500-P E</td>
<td>02/23/18; 1213</td>
<td>1</td>
<td>0.002</td>
<td>ND &lt;0.002</td>
</tr>
<tr>
<td>Total Dissolved Phosphorus</td>
<td>4500-P E &amp; 4500-P B-5</td>
<td>03/05/18; 1044</td>
<td>1</td>
<td>0.01</td>
<td>ND &lt;0.01</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>4500-P B-5 &amp; 4500-P E</td>
<td>03/05/18; 1044</td>
<td>1</td>
<td>0.01</td>
<td>ND &lt;0.01</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>2540 D</td>
<td>02/26/18; 1610</td>
<td>1</td>
<td>3</td>
<td>ND &lt;3</td>
</tr>
<tr>
<td>Dissolved Hydrolysable Phosphorus</td>
<td>4500-P B-2 &amp; 4500-P E</td>
<td>03/06/18; 1319</td>
<td>1</td>
<td>0.004</td>
<td>ND &lt;0.004</td>
</tr>
<tr>
<td>Dissolved Organic Phosphorus</td>
<td>By Calculation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>ND &lt;0.01</td>
</tr>
<tr>
<td>Total Particulate Phosphorus</td>
<td>By Calculation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>ND &lt;0.01</td>
</tr>
</tbody>
</table>

ND – Non-detectable  
N/E – Not Established, based on 5cm cell for SRP

**ENVIRONMENTAL COMPLIANCE MONITORING, INC.**

ECM
### QA Report - Duplicate and Matrix Spike Recovery

#### ANALYTE: Total Phosphate-P

<table>
<thead>
<tr>
<th>MATRIX SPIKE</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>50059</td>
<td>0.02</td>
<td>0.30</td>
<td>0.33</td>
<td>103</td>
<td>95-113</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MATRIX SPIKE DUPLICATE</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>RPD</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>50059</td>
<td>0.02</td>
<td>0.30</td>
<td>0.33</td>
<td>103</td>
<td>0</td>
<td>±6</td>
</tr>
</tbody>
</table>

#### ANALYTE: Total Dissolved Phosphate-P

<table>
<thead>
<tr>
<th>MATRIX SPIKE</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>50036</td>
<td>&lt;0.01</td>
<td>0.30</td>
<td>0.31</td>
<td>103</td>
<td>88-112</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MATRIX SPIKE DUPLICATE</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>RPD</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>50036</td>
<td>&lt;0.01</td>
<td>0.30</td>
<td>0.32</td>
<td>107</td>
<td>-3.17</td>
<td>±9</td>
</tr>
</tbody>
</table>

#### ANALYTE: Soluble Reactive Phosphate-P

<table>
<thead>
<tr>
<th>MATRIX SPIKE</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>50036</td>
<td>0.008</td>
<td>0.040</td>
<td>0.047</td>
<td>98</td>
<td>85-121</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MATRIX SPIKE DUPLICATE</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>RPD</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>49966</td>
<td>0.006</td>
<td>0.040</td>
<td>0.047</td>
<td>102</td>
<td>0</td>
<td>±3</td>
</tr>
</tbody>
</table>

#### ANALYTE: Dissolved Hydrolysable Phosphate-P

<table>
<thead>
<tr>
<th>MATRIX SPIKE</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>50036</td>
<td>0.005</td>
<td>0.040</td>
<td>0.043</td>
<td>95</td>
<td>N/E</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MATRIX SPIKE DUPLICATE</th>
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<th>% Recovery</th>
<th>RPD</th>
<th>QC Limit</th>
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</thead>
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<tr>
<td>50036</td>
<td>0.005</td>
<td>0.040</td>
<td>0.043</td>
<td>95</td>
<td>0</td>
<td>N/E</td>
</tr>
</tbody>
</table>

#### ANALYTE: Nitrate-N

<table>
<thead>
<tr>
<th>MATRIX SPIKE</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>49969</td>
<td>0.80</td>
<td>0.40</td>
<td>1.48</td>
<td>85</td>
<td>53-143</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MATRIX SPIKE DUPLICATE</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>RPD</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>49969</td>
<td>0.80</td>
<td>0.40</td>
<td>1.44</td>
<td>80</td>
<td>2.74</td>
<td>±18</td>
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</table>

#### ANALYTE: Chlorophyll-a

<table>
<thead>
<tr>
<th>MATRIX DUPLICATE</th>
<th>Result</th>
<th>Duplicate</th>
<th>RPD</th>
<th>QC Limit</th>
</tr>
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<tbody>
<tr>
<td>50036</td>
<td>4.7</td>
<td>5.9</td>
<td>-22.64</td>
<td>±21</td>
</tr>
</tbody>
</table>
QA Report  - Duplicate and Matrix Spike Recovery

**ANALYTE: Ammonia-N undistilled**

### MATRIX SPIKE

<table>
<thead>
<tr>
<th>Lab Sample #</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>50037</td>
<td>0.153</td>
<td>0.040</td>
<td>0.211</td>
<td>144</td>
<td>40-160</td>
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</tbody>
</table>

### MATRIX SPIKE DUPLICATE

<table>
<thead>
<tr>
<th>Lab Sample #</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>RPD</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>50037</td>
<td>0.153</td>
<td>0.040</td>
<td>0.211</td>
<td>144</td>
<td>0</td>
<td>± 30</td>
</tr>
</tbody>
</table>

**ANALYTE: Total Suspended Solids**

### MATRIX DUPLICATE

<table>
<thead>
<tr>
<th>Lab Sample #</th>
<th>Result</th>
<th>Duplicate</th>
<th>RPD</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>50037</td>
<td>8</td>
<td>9</td>
<td>-11.76</td>
<td>± 18</td>
</tr>
</tbody>
</table>
# Chain of Custody Record

**Project No.:** 1194  
**Project Name:** Penn - SUEZ  
**Swan Creek Reservoir Investigation**

<table>
<thead>
<tr>
<th>Date</th>
<th>Sampler Name</th>
<th>NO. of Containers</th>
<th>NO PRESERVATIVE</th>
<th>SULFURIC ACID</th>
<th>NITRIC ACID</th>
<th>HYDROCHLORIC ACID</th>
<th>OTHER</th>
<th>LAB USE ONLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/22/18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:40</td>
<td>QA/QC FB - 20180222</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:49</td>
<td>GRAB SW04 - 20180222</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:34</td>
<td>GRAB SW03 - 20180222</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:01</td>
<td>GRAB SW02 - 20180222</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:42</td>
<td>GRAB SW01 - 20180222</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/21/18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:** See sampling event of 2/20/18 for review details. Same as previous event. Standard TAT.

**Ordered By:** (Signature)  
**Date/Time:** 2/23/18 14:00  
**Received By:** (Signature)  
**Date/Time:** 2/22/18 14:00

**NOTE:** The Chain of Custody Form is used to ensure and document compliance with sampling and laboratory protocol for regulatory programs. All information should be completed on the form to ensure samples are analyzed correctly. Unless specified on the Chain of Custody Form, ECM cannot presume regulatory compliance criteria.
**SAMPLE RECEIVING CHECKLIST**

**Client/Site:** Penn-Sue / Swan Creek Reservoir

<table>
<thead>
<tr>
<th>1. Delivered by</th>
<th>Client</th>
<th>Lab personnel</th>
<th>Parcel service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Sample taken by lab personnel?</td>
<td>□ Yes</td>
<td>□ No (if no, skip to 3)</td>
<td>□ Not required</td>
</tr>
<tr>
<td>Preserved in field?</td>
<td>□ Yes</td>
<td>□ No</td>
<td>□ Not required</td>
</tr>
<tr>
<td>Stored on ice?</td>
<td>□ Yes</td>
<td>□ No</td>
<td>□ Not required</td>
</tr>
<tr>
<td>Date/time last sample placed in cooler:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 3. Packaging | | |
| Custody Seals | □ Present | □ Absent | □ Broken |
| Ice | □ Present | □ Absent | □ Melted |
| Temperature (water samples only) | 3°C @ 1400 BF |

| 4. Documentation | Airbill Present? | □ Yes | □ No |
| Chain of Custody | □ Received | □ Prepared by Lab | □ N/A |

| 5. Sample containers | Appropriate for specified analysis? | □ Yes | □ No*V |
| Intact? | □ Yes | □ No* |
| Labeled, and labels legible? | □ Yes | □ No* |
| Labels agree with COC? | □ Yes | □ No* |

| 6. Preservation (water samples only) | Metals (Hardness, etc.) | □ Yes | □ No*V | □ N/A |
| pH < 2, HNO₃ | □ Yes | □ No*V | □ N/A |
| Cyanides | □ Yes | □ No*V |
| COD, TPO₄, TKN, NH₃ | □ Yes | □ No*V |
| pH < 2, H₂SO₄ | □ Yes | □ N/A |
| TPH, O&G | □ Yes | □ N/A |
| pH < 2, HCL | □ Yes | □ N/A |
| Were preservatives added at lab? | □ Yes* | □ No | □ N/A |

Responses marked "*" require detailed explanation; identify specific examples, what was wrong, and what was done.

Responses marked "O" indicate a non-standard condition which may affect the quality of results (nonconformance).

**Comments:** 2/22/18 BF

---

**Note:** The Sample Receiving Checklist is used to ensure and document compliance with sampling and laboratory protocol for regulatory programs. Samples collected and analyzed for non-regulatory programs should be evaluated as applicable. Unless specified on the chain of custody form, ECM cannot presume regulatory compliance criteria.
## INVOICE

**REMIT TO:** ECM, INC.  
P.O. Box 427  
Neshanic Station, NJ 08853  
(908) 874-0990

**SOLD TO:** SUEZ Lambertville  
P.O. Box 1069  
Paramus, NJ 07653

**INVOICE #:** 218371  
**INVOICE DATE:** 03/16/18  
**JOB/LOT #:** 2194/5044  
**CUSTOMER ORDER #:** Verbal  
**TERMS:** NET 30

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>DESCRIPTION</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Samples analyzed for Chlorophyll a, Ammonia-N, Nitrate-N, Soluble Reactive Phosphate-P, Dissolved Hydrolysable-P, Total Dissolved Phosphate-P, Total Phosphate-P, Total Suspended Solids, Dissolved Organic Phosphate-P and Total Particulate Phosphate-P @ $266.00/sample</td>
<td>$1,330.00</td>
</tr>
</tbody>
</table>

**TOTAL INVOICE**  
$1,330.00

COPY 1
INVOICE

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</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Swan Creek Reservoir - Sample Date: February 22, 2018 Samples analyzed for Chlorophyll a, Ammonia-N, Nitrate-N, Soluble Reactive Phosphate-P, Dissolved Hydrolysable-P, Total Dissolved Phosphate-P, Total Phosphate-P, Total Suspended Solids, Dissolved Organic Phosphate-P and Total Particulate Phosphate-P @ $266.00/sample</td>
<td>$1,330.00</td>
</tr>
</tbody>
</table>

TOTAL INVOICE $1,330.00
Appendix J: ECM Final Laboratory Report - March 2018 Sampling Event
April 6, 2018

David Fournier
Operations Manager
SUEZ
756 Brunswick Pike
Lambertville, NJ 08530

Dear Mr. Fournier:

Analysis of the Swan Creek Reservoir samples received March 13, 2018 has been completed. The results are presented in the attached tables. An invoice is attached.

If you have any questions pertaining to the analysis, please feel free to contact me.

Very truly yours,

ENVIRONMENTAL COMPLIANCE MONITORING, INC.

Thomas Grenci
Laboratory Manager

#2194/5075

Cc: Matthew Nogier
Accounts Payable
## REPORT OF ANALYSIS

<table>
<thead>
<tr>
<th>Test Parameter</th>
<th>Method # *</th>
<th>Analysis Date/Time</th>
<th>Dilution Factor</th>
<th>MDL (mg/L)</th>
<th>Result (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorophyll a (mg/M³)</td>
<td>10200H 1&amp;2</td>
<td>03/13/18; 1555</td>
<td>2</td>
<td>0.6</td>
<td>4.5</td>
</tr>
<tr>
<td>Ammonia-N</td>
<td>4500-NH₃ B&amp;D</td>
<td>03/16/18; 1730</td>
<td>1</td>
<td>0.01</td>
<td>0.02</td>
</tr>
<tr>
<td>Nitrate-N</td>
<td>352.1</td>
<td>03/15/18; 1000</td>
<td>1</td>
<td>0.02</td>
<td>0.26</td>
</tr>
<tr>
<td>Soluble Reactive Phosphorus</td>
<td>4500-P E</td>
<td>03/14/18; 1500</td>
<td>1</td>
<td>0.002</td>
<td>0.009</td>
</tr>
<tr>
<td>Total Dissolved Phosphorus</td>
<td>4500-P E &amp; 4500-P B-5</td>
<td>03/15/18; 1347</td>
<td>1</td>
<td>0.01</td>
<td>0.03</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>4500-P B-5 &amp; 4500-P E</td>
<td>03/15/18; 1347</td>
<td>1</td>
<td>0.01</td>
<td>0.05</td>
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<tr>
<td>Total Suspended Solids</td>
<td>2540 D</td>
<td>03/19/18; 1500</td>
<td>1</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Dissolved Hydrolysable Phosphorus</td>
<td>4500-P B-2 &amp; 4500-P E</td>
<td>03/23/18; 1440</td>
<td>1</td>
<td>0.004</td>
<td>0.005</td>
</tr>
<tr>
<td>Dissolved Organic Phosphorus</td>
<td>By Calculation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.016</td>
</tr>
<tr>
<td>Total Particulate Phosphorus</td>
<td>By Calculation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.02</td>
</tr>
</tbody>
</table>

ND – Non-detectable
N/E – Not Established, based on 5cm cell for SRP

ENVIROMENTAL COMPLIANCE MONITORING, INC.

ECM
# REPORT OF ANALYSIS

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<td>6.9</td>
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<tr>
<td>Ammonia-N</td>
<td>4500-NH₃ B&amp;D</td>
<td>03/16/18; 1730</td>
<td>1</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Nitrate-N</td>
<td>352.1</td>
<td>03/15/18; 1000</td>
<td>1</td>
<td>0.02</td>
<td>0.25</td>
</tr>
<tr>
<td>Soluble Reactive Phosphorus</td>
<td>4500-P E</td>
<td>03/14/18; 0932</td>
<td>1</td>
<td>0.002</td>
<td>0.005</td>
</tr>
<tr>
<td>Total Dissolved Phosphorus</td>
<td>4500-P E &amp; 4500-P B-5</td>
<td>03/15/18; 1347</td>
<td>1</td>
<td>0.01</td>
<td>0.02</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>4500-P B-5 &amp; 4500-P E</td>
<td>03/15/18; 1347</td>
<td>1</td>
<td>0.01</td>
<td>0.10</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>2540 D</td>
<td>03/19/18; 1500</td>
<td>1</td>
<td>3</td>
<td>7</td>
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<tr>
<td>Dissolved Hydrolysable Phosphorus</td>
<td>4500-P B-2 &amp; 4500-P E</td>
<td>03/23/18; 1440</td>
<td>1</td>
<td>0.004</td>
<td>0.006</td>
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<tr>
<td>Dissolved Organic Phosphorus</td>
<td>By Calculation</td>
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<tr>
<td>Total Particulate Phosphorus</td>
<td>By Calculation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.08</td>
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</tbody>
</table>

ND – Non-detectable
N/E – Not Established, based on 5cm cell for SRP

ENVIRONMENTAL COMPLIANCE MONITORING, INC.  

ECM
## REPORT OF ANALYSIS

<table>
<thead>
<tr>
<th>Test Parameter</th>
<th>Method # *</th>
<th>Analysis Date/Time</th>
<th>Dilution Factor</th>
<th>MDL (mg/L)</th>
<th>Result (mg/L)</th>
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</thead>
<tbody>
<tr>
<td>Chlorophyll a (mg/M³)</td>
<td>10200H 1&amp;2</td>
<td>03/13/18; 1555</td>
<td>2</td>
<td>0.6</td>
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<tr>
<td>Ammonia-N</td>
<td>4500-NH₃ B&amp;D</td>
<td>03/16/18; 1730</td>
<td>1</td>
<td>0.01</td>
<td>0.02</td>
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<tr>
<td>Nitrate-N</td>
<td>352.1</td>
<td>03/15/18; 1000</td>
<td>1</td>
<td>0.02</td>
<td>0.39</td>
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<tr>
<td>Soluble Reactive Phosphorus</td>
<td>4500-P E</td>
<td>03/14/18; 0932</td>
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<td>0.002</td>
<td>0.003</td>
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<td>4500-P E &amp; 4500-P B-5</td>
<td>03/15/18; 1347</td>
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<td>0.02</td>
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<td>4500-P B-5 &amp; 4500-P E</td>
<td>03/15/18; 1347</td>
<td>1</td>
<td>0.01</td>
<td>0.10</td>
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<tr>
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<td>2540 D</td>
<td>03/19/18; 1500</td>
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<td>03/23/18; 1440</td>
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<td>Dissolved Organic Phosphorus</td>
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<tr>
<td>Total Particulate Phosphorus</td>
<td>By Calculation</td>
<td>-</td>
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ND – Non-detectable
N/E – Not Established, based on 5cm cell for SRP

ENVIRONMENTAL COMPLIANCE MONITORING, INC.
**REPORT OF ANALYSIS**

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>Penn-SUEZ</th>
<th>REPORT DATE</th>
<th>04/06/18</th>
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<tbody>
<tr>
<td>ADDRESS</td>
<td>756 Brunswick Pike</td>
<td>JOB #</td>
<td>2194</td>
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<tr>
<td>CITY</td>
<td>Lambertville</td>
<td>LOT #</td>
<td>5075</td>
</tr>
<tr>
<td>STATE</td>
<td>NJ</td>
<td>PO #</td>
<td>Verbal</td>
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<tr>
<td>ZIP</td>
<td>08530</td>
<td>INVOICE #</td>
<td>218387</td>
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<tr>
<td>TO ATTN. OF</td>
<td>David Fournier</td>
<td>SAMPLE DATE</td>
<td>03/13/18</td>
</tr>
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<td></td>
<td></td>
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**CLIENT SAMPLE ID**  
Swan Creek Reservoir- SW04-20180313  
ECM, Inc. SAMPLE # 50153

<table>
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<tr>
<th>Test Parameter</th>
<th>Method # *</th>
<th>Analysis Date/Time</th>
<th>Dilution Factor</th>
<th>MDL (mg/L)</th>
<th>Result (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorophyll a (mg/M³)</td>
<td>10200H 1&amp;2</td>
<td>03/13/18; 1555</td>
<td>2</td>
<td>0.6</td>
<td>ND &lt;0.6</td>
</tr>
<tr>
<td>Ammonia-N</td>
<td>4500-NH₃ B&amp;D</td>
<td>03/16/18; 1730</td>
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<td>0.01</td>
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<tr>
<td>Nitrate-N</td>
<td>352.1</td>
<td>03/15/18; 1000</td>
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<td>0.02</td>
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<td>03/14/18; 1500</td>
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<td>0.002</td>
<td>0.003</td>
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<td>Total Dissolved Phosphorus</td>
<td>4500-P E &amp; 4500-P B-5</td>
<td>03/15/18; 1347</td>
<td>1</td>
<td>0.01</td>
<td>0.02</td>
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<tr>
<td>Total Phosphorus</td>
<td>4500-P B-5 &amp; 4500-P E</td>
<td>03/15/18; 1347</td>
<td>1</td>
<td>0.01</td>
<td>0.06</td>
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<tr>
<td>Total Suspended Solids</td>
<td>2540 D</td>
<td>03/19/18; 1500</td>
<td>1</td>
<td>3</td>
<td>5</td>
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<tr>
<td>Dissolved Hydrolysable Phosphorus</td>
<td>4500-P B-2 &amp; 4500-P E</td>
<td>03/23/18; 1440</td>
<td>1</td>
<td>0.004</td>
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<tr>
<td>Dissolved Organic Phosphorus</td>
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<td>0.017</td>
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<td>Total Particulate Phosphorus</td>
<td>By Calculation</td>
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<td>-</td>
<td>0.04</td>
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ND – Non-detectable  
N/E – Not Established, based on 5cm cell for SRP
REPORT OF ANALYSIS

COMPANY       Penn-SUEZ
ADDRESS       756 Brunswick Pike
CITY          Lambertville
STATE         NJ
ZIP           08530

REPORT DATE    04/06/18
JOB #          2194
LOT #          5075

TO ATTN. OF    David Fournier
SAMPLE DATE    03/13/18
LAB CERTIFICATION # 18630

CLIENT SAMPLE ID  Swan Creek Reservoir- FB-20180313
ECM, Inc. SAMPLE # 50154

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<th>Dilution Factor</th>
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<th>Result (mg/L)</th>
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<tr>
<td>Chlorophyll a (mg/M³)</td>
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<td>03/13/18; 1555</td>
<td>1</td>
<td>0.3</td>
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<td>4500-NH₃ B&amp;D</td>
<td>03/16/18; 1730</td>
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<td>0.01</td>
<td>ND &lt;0.01</td>
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<tr>
<td>Nitrate-N</td>
<td>352.1</td>
<td>03/15/18; 1000</td>
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<td>ND &lt;0.02</td>
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<td>4500-P B-5 &amp; 4500-P E</td>
<td>03/15/18; 1347</td>
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<tr>
<td>Total Suspended Solids</td>
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<td>03/19/18; 1500</td>
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<tr>
<td>Dissolved Organic Phosphorus</td>
<td>By Calculation</td>
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<tr>
<td>Total Particulate Phosphorus</td>
<td>By Calculation</td>
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ND – Non-detectable
N/E – Not Established, based on 5cm cell for SRP
# QA Report - Duplicate and Matrix Spike Recovery

**ANALYTE: Total Phosphate-P**

<table>
<thead>
<tr>
<th>MATRIX SPIKE</th>
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</thead>
<tbody>
<tr>
<td>Lab Sample #</td>
<td>Result</td>
<td>Spike Addition</td>
<td>Spike Result</td>
<td>% Recovery</td>
<td>QC Limit</td>
</tr>
<tr>
<td>50153</td>
<td>0.06</td>
<td>0.30</td>
<td>0.38</td>
<td>107</td>
<td>95-113</td>
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<table>
<thead>
<tr>
<th>MATRIX SPIKE DUPLICATE</th>
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<tbody>
<tr>
<td>Lab Sample #</td>
<td>Result</td>
<td>Spike Addition</td>
<td>Spike Result</td>
<td>% Recovery</td>
<td>RPD</td>
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<tr>
<td>50153</td>
<td>0.06</td>
<td>0.30</td>
<td>0.38</td>
<td>107</td>
<td>0</td>
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**ANALYTE: Total Dissolved Phosphate-P**

<table>
<thead>
<tr>
<th>MATRIX SPIKE</th>
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</thead>
<tbody>
<tr>
<td>Lab Sample #</td>
<td>Result</td>
<td>Spike Addition</td>
<td>Spike Result</td>
<td>% Recovery</td>
<td>QC Limit</td>
</tr>
<tr>
<td>50153</td>
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<td>0.30</td>
<td>0.35</td>
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<table>
<thead>
<tr>
<th>MATRIX SPIKE DUPLICATE</th>
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<tbody>
<tr>
<td>Lab Sample #</td>
<td>Result</td>
<td>Spike Addition</td>
<td>Spike Result</td>
<td>% Recovery</td>
<td>RPD</td>
</tr>
<tr>
<td>50153</td>
<td>0.02</td>
<td>0.30</td>
<td>0.35</td>
<td>110</td>
<td>0</td>
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</tbody>
</table>

**ANALYTE: Soluble Reactive Phosphate-P**

<table>
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<tbody>
<tr>
<td>Lab Sample #</td>
<td>Result</td>
<td>Spike Addition</td>
<td>Spike Result</td>
<td>% Recovery</td>
<td>QC Limit</td>
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<tr>
<td>50150</td>
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<td>0.040</td>
<td>0.046</td>
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<td>85-121</td>
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<table>
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<tbody>
<tr>
<td>Lab Sample #</td>
<td>Result</td>
<td>Spike Addition</td>
<td>Spike Result</td>
<td>% Recovery</td>
<td>RPD</td>
</tr>
<tr>
<td>50150</td>
<td>0.009</td>
<td>0.040</td>
<td>0.046</td>
<td>92</td>
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**ANALYTE: Dissolved Hydrolysable Phosphate-P**

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<tr>
<td>Lab Sample #</td>
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<td>Spike Addition</td>
<td>Spike Result</td>
<td>% Recovery</td>
<td>QC Limit</td>
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<td>50153</td>
<td>&lt;0.004</td>
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<td>0.044</td>
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<tbody>
<tr>
<td>Lab Sample #</td>
<td>Result</td>
<td>Spike Addition</td>
<td>Spike Result</td>
<td>% Recovery</td>
<td>RPD</td>
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<td>50153</td>
<td>&lt;0.004</td>
<td>0.04</td>
<td>0.045</td>
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**ANALYTE: Nitrate-N**

<table>
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<tbody>
<tr>
<td>Lab Sample #</td>
<td>Result</td>
<td>Spike Addition</td>
<td>Spike Result</td>
<td>% Recovery</td>
<td>QC Limit</td>
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<tr>
<td>50151</td>
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<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Sample #</td>
<td>Result</td>
<td>Spike Addition</td>
<td>Spike Result</td>
<td>% Recovery</td>
<td>RPD</td>
</tr>
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<td>0.025</td>
<td>0.40</td>
<td>0.60</td>
<td>87</td>
<td>-3.39</td>
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**ANALYTE: Chlorophyll-a**

| MATRIX DUPLICATE |  |  |  |
|------------------|------------|-------|
| Lab Sample #     | Result | Duplicate | RPD | QC Limit |
| 50153            | ND <0.6  | ND <0.6 | 0 | ±21 |

---

ENVIRONMENTAL COMPLIANCE MONITORING, INC. 

ECM
### QA Report - Duplicate and Matrix Spike Recovery

**ANALYTE: Ammonia-N undistilled**

<table>
<thead>
<tr>
<th>Lab Sample #</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>50153</td>
<td>0.032</td>
<td>0.040</td>
<td>0.080</td>
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**MATRIX SPIKE DUPLICATE**

<table>
<thead>
<tr>
<th>Lab Sample #</th>
<th>Result</th>
<th>Spike Addition</th>
<th>Spike Result</th>
<th>% Recovery</th>
<th>RPD</th>
<th>QC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>50153</td>
<td>0.032</td>
<td>0.040</td>
<td>0.075</td>
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<td>9.60 ± 30</td>
<td>± 30</td>
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**ANALYTE: Total Suspended Solids**

<table>
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<tr>
<th>Lab Sample #</th>
<th>Result</th>
<th>Duplicate</th>
<th>RPD</th>
<th>QC Limit</th>
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</thead>
<tbody>
<tr>
<td>50152</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>± 33</td>
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</tbody>
</table>
INVOICE

REMIT TO: ECM, INC.  
P.O. Box 427  
Neshanic Station, NJ 08853  
(908) 874-0990  

INVOICE #: 218387  
INVOICE DATE: 04/06/18  

JOB/LOT #: 2194/5075  

SOLD TO: SUEZ Lambertville  
P.O. Box 1069  
Paramus, NJ 07653  

CUSTOMER ORDER #: Verbal  
TERMS: NET 30  

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>DESCRIPTION</th>
<th>AMOUNT</th>
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<tbody>
<tr>
<td>5</td>
<td>Samples analyzed for Chlorophyll a, Ammonia-N, Nitrate-N, Soluble Reactive</td>
<td>$ 1,330.00</td>
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<tr>
<td></td>
<td>Phosphate-P, Dissolved Hydrolysable-P, Total Dissolved Phosphate-P, Total</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phosphate-P, Total Suspended Solids, Dissolved Organic Phosphate-P and Total</td>
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</tr>
<tr>
<td></td>
<td>Particulate Phosphate-P @ $ 266.00/sample</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL INVOICE $ 1,330.00

COPY 1
## INVOICE

**REMIT TO:** ECM, INC.  
P.O. Box 427  
Neshanic Station, NJ 08853  
(908) 874-0990  

**SOLD TO:** SUEZ Lambertville  
P.O. Box 1069  
Paramus, NJ 07653  

**INVOICE #:** 218387  
**INVOICE DATE:** 04/06/18  
**JOB/LOT #:** 2194/5075  
**CUSTOMER ORDER #:** Verbal  
**TERMS:** NET 30

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>DESCRIPTION</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Samples analyzed for Chlorophyll a, Ammonia-N, Nitrate-N, Soluble Reactive Phosphate-P, Dissolved Hydrolysable-P, Total Dissolved Phosphate-P, Total Phosphate-P, Total Suspended Solids, Dissolved Organic Phosphate-P and Total Particulate Phosphate-P @ $66.00/sample</td>
<td>$1,330.00</td>
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**TOTAL INVOICE** $1,330.00
Appendix K: Selected Open Public Records Act Files
Selected West Amwell OPRA Request Files: 624 Brunswick Pike
**SOIL LOG INFORMATION**

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**Location**

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<tr>
<td>Lot 1A</td>
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**Horizon**

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<thead>
<tr>
<th>Horizon</th>
<th>Soil Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-7</td>
<td>Top Soil-Dark Brown Loam w/ Many Fine Rots.</td>
</tr>
<tr>
<td>7-32</td>
<td>10yr - 1/4 Light Grays Brown Clay Loam w/Dcom. 75 yr. 5% Strong Brown Silt Loam - Weak Structure - Gritty w/ 5% Grit.</td>
</tr>
<tr>
<td>32-52</td>
<td>75 yr. 5% Strong Brown Silt Loam - Weak Structure - Gritty w/ 5% Grit.</td>
</tr>
<tr>
<td>52-91</td>
<td>Loose Layered Blue Slate w/ 7.5 yr. 5% Strong Brown Silt Loam.</td>
</tr>
<tr>
<td>91-120</td>
<td>Blukey Blue Slate - Rippable w/Traces Silt.</td>
</tr>
</tbody>
</table>

**Mottling**

None

**Seepage**

Light - 61"

**Water Accumulation**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Inches</th>
</tr>
</thead>
<tbody>
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<td></td>
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</table>

**Impervious Horizons?**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
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</table>

**Fit Bottom:** Hard Semi-Hard Soft

---

**SOIL LOG INFORMATION**

<table>
<thead>
<tr>
<th>Soil Log #</th>
<th>Total Depth</th>
</tr>
</thead>
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**Location**

<table>
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**Horizon**

<table>
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<tr>
<th>Horizon</th>
<th>Soil Description</th>
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**Mottling**

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<th>Inches</th>
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**Seepage**

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**Water Accumulation**

<table>
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<tr>
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<th>Inches</th>
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</table>

**Impervious Horizons?**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fit Bottom:** Hard Semi-Hard Soft

---

**SKETCH**

BLK 18 Lot 1
Lot 12
Lot 1A

**DATE:** 4-10-89

**ROCK RD**
<table>
<thead>
<tr>
<th>Test Hole #</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Hole Depth</td>
<td>25</td>
<td>24</td>
</tr>
<tr>
<td>Soil Log #</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Time</td>
<td>Depth</td>
<td>Time</td>
</tr>
<tr>
<td>8:50</td>
<td>7&quot;</td>
<td>8:50</td>
</tr>
<tr>
<td>8:50</td>
<td>7&quot;</td>
<td>8:50</td>
</tr>
<tr>
<td>2:30</td>
<td>3/4&quot;</td>
<td>2:30</td>
</tr>
</tbody>
</table>

Stabilization
- Abandoned
- Abandoned
- Abandoned

Official Test
- N/A
- N/A
- N/A

Time for 6th Drop
- Minutes

Percolation Rate
- Minutes/Inch
Selected NJDEP OPRA Request Files: 624 Brunswick Pike
FRESHWATER WETLANDS REPORT

LETTER OF INTERPRETATION (LOI)
TRANSITION AREA WAIVER (TAW)

W2-076 Property
624 Brunswick Pike
Block 18, Lot 1
West Amwell Township, Hunterdon County, New Jersey

Prepared for:

Garden Solar, LLC
34 Coppermine Village
Flemington, New Jersey 08822

April 7, 2011

Prepared by:
Engineering & Land Planning Associates, Inc.
54 Old Highway 22, Suite 300
Clinton, New Jersey

[Signature]
James J. Chmielak, Jr., P.E., P.P.
New Jersey Professional Engineers License No.: 24GE044793
June 2, 2016

Tim Ferguson
Garden Solar, LLC
34 Coppermine Village
Flemington, NJ 08822

Re: Transition Area Waiver - Conservation Restriction Requirement
DLUR File No.: 1026-11-0001.1 TAW
Project: Clean Generation Solar Energy Farm W2-076
Block: 18 Lot: 1
West Amwell Township, Hunterdon

Dear Mr. Ferguson:

The Department issued a Transition Area Waiver – Averaging Plan on August 10, 2011 for the above referenced property for the modification to the freshwater wetlands transition area associated with creating a clean generation solar energy farm. This approval was conditioned upon the placement of a conservation restriction on both the freshwater wetlands and wetland transition areas onsite. This conservation restriction was to be executed prior to construction, filed with the County Clerk’s office and proof of recordation was to be submitted to the Department. To date, the Department has not received proof that the required restriction was filed.

An aerial photography inspection was conducted by Department staff on June 2, 2016. During this review, it appears that the authorized development was not conducted onsite. However, if the approved project was constructed, a condition of this permit required the recordation of a conservation restriction. A copy of the recorded deed restriction was to be provided to the Department in an effort to verify permit compliance before beginning construction.

Please be advised that if the Department does not receive a copy of this recorded conservation restriction of this letter, once construction has begun, this case will be forwarded to the New Jersey Department of Environmental Protection’s Bureau of Land Use Compliance and Enforcement and you will be subject to potential fines and/or penalties for not complying with the conditions of this approval.
Tim Ferguson
Garden State Solar, LLC
34 Coppermine Village
Flemington, New Jersey 08822

RE: Freshwater Wetlands Letter of Interpretation/Line Verification and Transition Area Waiver-Averaging Plan Approval
DLUR File No.: 1026-11-0001.1
Activity No.: FWW-PWTW1-110001
FWW-FWLI4-110002
Applicant: Garden State Solar, LLC
Block: 18 Lot: 1
West Amwell Township, Hunterdon County

Dear Mr. Ferguson:

This letter is in response to your request for a Letter of Interpretation to verify the jurisdictional boundary of the freshwater wetlands, transition areas and waters on the referenced property and a freshwater wetlands transition area waiver averaging plan to modify the standard transition area on the above referenced property.

In accordance with agreements between the State of New Jersey Department of Environmental Protection, the U.S. Army Corps of Engineers Philadelphia and New York Districts, and the U.S. Environmental Protection Agency, the NJDEP, Division of Land Use Regulation is the lead agency for establishing the extent of State and Federally regulated wetlands and waters. The USEPA and/or USACOE retain the right to reevaluate and modify the jurisdictional determination at any time should the information prove to be incomplete or inaccurate.

Based upon the information submitted, and upon a site inspection conducted on May 23, 2011, the Division of Land Use Regulation has determined that the wetlands and waters boundary lines as shown on the plan entitled: “CLEAN GENERATION SOLAR ENGERGY FARM W2-076, BRUNSWICK PIKE, BLOCK 18 LOT 1, WEST AMWELL TOWNSHIP, HUNTERDON COUNTY, NEW JERSEY, NJDEP VERIFICATION PLAN”, Sheet 9 of 14, dated 04/07/11, last revised 8/1/11, and prepared by James J. Chmielak Jr. of Engineering and Land Planning Associates, Inc., is accurate as shown.

Any activities regulated under the Freshwater Wetlands Protection Act proposed within the wetlands or transition areas or the deposition of any fill material into any water area, will require a permit from this office unless exempted under the Freshwater Wetlands Protection Act, N.J.S.A. 13:9E-1 et seq., and implementing rules, N.J.A.C. 7:7A. A copy of this plan, together with the information upon which this boundary determination is based, has been made part of the Division’s public records.

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Selected NJDEP OPRA Request Files: 680 Brunswick Pike
REMEDIAL ACTION REPORT

680 BRUNSWICK PIKE
WEST AMWELL TOWNSHIP, NEW JERSEY
NJDEP INCIDENT # 16-08-04-0947-22
PROGRAM INTEREST # 735071

Prepared for:

Wawa
260 W. Baltimore Pike
Wawa, Pennsylvania 19063

JANUARY 2017

Prepared by:
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Appendix B  Soil Disposal Manifests
Appendix C  Laboratory Results and Electronic Data Deliverables
Appendix D  SPLP Calculation Spreadsheets
1.0 INTRODUCTION

This Remedial Action (RA) Report has been prepared by JK Environmental Services, LLC (JKE), on behalf of Wawa, Inc. (Wawa), to document the removal of an impacted soil stockpile located at 680 Brunswick Pike in West Amwell Township, New Jersey (Site/Property). The work was completed in accordance with the New Jersey Department of Environmental Protection (NJDEP) Technical Requirements for Site Remediation (Technical Rules) and applicable NJDEP guidance.

2.0 SITE SETTING

2.1 Site Description

The location of the Property is shown on the United States Geological Survey (USGS) 7.5 minute Topographical Map for the Lambertville, NJ-PA Quadrangle provided as Figure 1. The Property has a mixed residential and commercial use and is referred to as Tax Block 16; Lot 3.04 on the Township of West Amwell Tax Map. The Site is bordered by Brunswick Pike to the south, by residential properties to the east and west, and by state-owned open space to the north. The residence is served by a potable well and a septic system. A Site Plan is provided as Figure 2.

2.2 Geology and Hydrogeology

The Site is located in the New Jersey Piedmont Physiographic province and is underlain by approximately 20 feet (ft) of weathered Pleistocene-aged diabase. The weathered diabase ranges in size from silty clay to boulders and sits atop Jurassic-aged competent diabase bedrock (NJDEP Geoweb 2016). The Site is located within the fractured diabase aquifer of the Newark Basin. Groundwater storage and transmissivity are determined by the interconnectedness of the bedrock fractures (Herman, et al. 1998).

2.3 Topography and Surface Water

The elevation of the Property is approximately 410 feet above mean sea level (ft MSL) and local topography slopes from the Sourland Mountain towards the southeast. The nearest surface
water is a tributary of Moore’s Creek which is located approximately 1,500 feet southeast of the Site.

3.0 REMEDIAL ACTION

3.1 Background

In December 2015, soil generated during the development of Wawa Store No. 8341 (Store 8341) in Bridgewater, New Jersey (NJDEP Program Interest No. 020139) was transported to the Site where it was staged for subsequent reuse as clean fill. The material was taken offsite because results of a Phase I Environmental Site Assessment (ESA) did not indicate any evidence of potential impacts. During development of Store 8341 additional soil was generated, staged onsite, and analyzed in preparation for transportation and disposal to a licensed disposal facility. The results of the analyses indicated that Antimony, Arsenic, Beryllium, and Mercury were detected at concentrations that exceeded their respective Direct Contact Soil Remediation Standards (SRS) and/or Impact to Groundwater Default Soil Screening Levels (IGWDSSL). These results prompted Wawa to test the soil pile that had been taken offsite for waste classification purposes. Results of the analyses indicated that Arsenic, Beryllium, Mercury, and Benzo(a)pyrene [B(a)P] were identified above the Most Stringent Soil Remediation Standards (MSSRS) at the Property.

Upon receipt of the waste classification results, the NJDEP hotline was notified and Incident No. 16-08-04-0947-22 was assigned, the soil pile was covered with six-mil poly sheeting, and a public notification sign was posted. A photo of the public notification sign is provided in Appendix A.

As part of a subsequent Remedial Investigation (RI) at Store 8341 the following compounds and metals were additionally identified above the MSSRS:

- Benzene
- Lead
- Indeno(1,2,3-cd)pyrene (IP)
- Benzo(a)anthracene [B(a)A]
- Benzo(b)fluoranthene [B(b)F]
These compounds were not identified in the waste classification samples at the Site but were subsequently included in post-excavation soil sampling.

3.2 Soil Loadout and Post-Excavation Soil Sampling

On September 20 through 22 and 26, 2016, JKE observed Pine Run Construction (Pine Run) load 3,251.78 tons of impacted soil for transport and disposal at Soil Safe of Logan, New Jersey (Soil Safe). Copies of the soil disposal manifests are provided in Appendix B.

Following removal of the stockpile, Pine Run over-excavated into the native soil to ensure all impacted soil had been removed. Post-extraction soil samples were collected from the native soil beneath the former stockpile and one sample was collected for every 30 linear ft of stockpile perimeter and one sample was collected for every 900 square ft (ft²) of stockpile base. As shown on Figure 3, the impacted soil pile covered approximately 7,100 ft² and had a perimeter of approximately 325 linear ft; therefore nine samples were collected beneath the base of the stockpile and eleven samples were collected along the perimeter. The post-extraction samples were analyzed for the following:

- Benzene
- B(a)A, B(a)P, B(b)F, IP
- Antimony, Arsenic, Beryllium, Lead, Mercury

In accordance with the NJDEP Fill Material Technical Guidance, 25% of those samples were further analyzed for Extractable Petroleum Hydrocarbons (EPH) and Target Compound List (TCL) / Target Analyte List Compounds (TAL) plus a forward library search (+30) parameters which include the following:

- TAL Metals
- TCL Volatile Organic Compounds (VOC) plus a forward library search (+15)
- TCL Semi-Volatile Organic Compounds (SVOCs) +15
- Polychlorinated Biphenyls (PCBs)
- Pesticides
- Cyanide

3.3 Post-Excavation Soil Sample Analytical Results

The post-extraction soil analytical results are summarized in Tables 1 through 4, the
sample locations are shown on **Figure 3**, and copies of the laboratory reports and Electronic Data Deliverables (EDDs) are provided in **Appendix C**. The following compounds and metals were detected at concentrations exceeding the applicable NJDEP IGWDSSL or SRS:

<table>
<thead>
<tr>
<th>Sample Identification</th>
<th>Compounds Detected at Concentrations Exceeding the NJDEP IGWDSSL</th>
<th>Compounds Detected at Concentrations Exceeding the NJDEP Direct Contact SRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE-4</td>
<td>Beryllium</td>
<td>---</td>
</tr>
<tr>
<td>PE-8</td>
<td>Mercury</td>
<td>---</td>
</tr>
<tr>
<td>PE-9</td>
<td>Mercury</td>
<td>---</td>
</tr>
<tr>
<td>PE-10</td>
<td>Mercury</td>
<td>---</td>
</tr>
<tr>
<td>PE-11</td>
<td>Mercury</td>
<td>---</td>
</tr>
<tr>
<td>PE-12</td>
<td>B(a)A, B(a)P, Mercury</td>
<td>B(a)A, B(a)P, B(b)F, IP</td>
</tr>
<tr>
<td>PE-13</td>
<td>B(a)A, B(a)P, Mercury</td>
<td>B(a)A, B(a)P, B(b)F, IP</td>
</tr>
<tr>
<td>PE-14</td>
<td>B(a)A, B(a)P</td>
<td>B(a)A, B(a)P, B(b)F, IP</td>
</tr>
<tr>
<td>PE-15</td>
<td>B(a)P, Mercury</td>
<td>B(a)P</td>
</tr>
</tbody>
</table>

Following receipt of the initial results, five samples (PE-4, PE-12, PE-13, PE-14, and PE-15) were further analyzed for EPH and full TCL/TAL+30 parameters. The results are summarized in **Tables 1 through 4**, the sample locations are shown on **Figure 4**, and copies of the laboratory reports and EDDs are provided in **Appendix C**. All targeted parameters were reported below their applicable MSSRS with the exception of the following:

<table>
<thead>
<tr>
<th>Sample Identification</th>
<th>Compounds Detected at Concentrations Exceeding the NJDEP MSSRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE-4</td>
<td>Aluminum</td>
</tr>
<tr>
<td>PE-12</td>
<td>Aluminum, Manganese</td>
</tr>
<tr>
<td>PE-13</td>
<td>Aluminum, Manganese</td>
</tr>
<tr>
<td>PE-14</td>
<td>Aluminum, Manganese</td>
</tr>
<tr>
<td>PE-15</td>
<td>Aluminum, Manganese</td>
</tr>
</tbody>
</table>

### 3.3.1 Attainment

#### 3.3.1.1 Site-Specific Impact to Groundwater Soil Screening Level

In order to generate a Site-Specific Impact to Groundwater Soil Screening Level
(SSIGWSSL), JKE requested Synthetic Precipitation Leachate Procedure (SPLP) analyses for the following compounds and metals:

- B(a)A and B(a)P
- Beryllium and Mercury

Copies of the SPLP calculation spreadsheets are provided in Appendix D. A SSIGWSSL was successfully generated for B(a)A, Beryllium, and Mercury, but due to elevated laboratory reporting limits a SSIGWSSL was not able to be generated for B(a)P. The SPLP calculations set the SSIGWSSLs to the highest sample value and subsequently each of the compounds are in compliance with the impact to groundwater pathway. No further attainment is required for Beryllium and Mercury since they are already in compliance with the direct contact standards. Additional attainment demonstration was required for B(a)A and B(a)P for the direct contact pathway and for B(a)P for the IGW pathway.

### 3.3.1.2 Compliance Averaging using the 75% / 10x Procedure

Since a total of 20 post-excavation soil samples were collected at the Site, compliance averaging using the 75% / 10x procedure is a valid option to demonstrate attainment with the MSSRS. If 75% of all post-remedial samples are below the applicable remediation standard and none of the remaining samples exceed the applicable standard by an order of magnitude (10x), the remedial action is considered to have met the remedial objective and no further action is necessary. The following table summarizes the results of the 75% / 10x compliance procedure for the direct contact pathway for B(a)A, B(a)P, B(b)F, and IP and the IGW pathway for B(a)P:

<table>
<thead>
<tr>
<th>Compound</th>
<th>Highest Concentration (mg/kg)</th>
<th>Percentage of Compliant Samples</th>
<th>Is Highest Concentration less than 10x MSSRS?</th>
</tr>
</thead>
<tbody>
<tr>
<td>B(a)A</td>
<td>1.19</td>
<td>85%</td>
<td>Yes</td>
</tr>
<tr>
<td>B(a)P</td>
<td>1.23</td>
<td>80%</td>
<td>Yes</td>
</tr>
<tr>
<td>B(b)F</td>
<td>1.52</td>
<td>85%</td>
<td>Yes</td>
</tr>
<tr>
<td>IP</td>
<td>0.818</td>
<td>85%</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Since each of the compounds are compliant in at least 75% of the sample locations and none
of the concentrations exceed 10x the SRS, no further action is necessary to remediate the direct contact pathway for B(a)A, B(a)P, B(b)F, and IP and the IGW pathway for B(a)P.

It must be noted that the elevated polynuclear aromatic hydrocarbon (PAH) compounds were identified in areas beneath the soil stockpile where a roadway has been maintained with crushed asphalt millings; therefore it is conceivable that the elevated PAH concentrations in the post-excavation soil samples are derived from the asphalt millings and not the soil stockpile. By using the 75% / 10x procedure all PAH compounds are in compliance.

3.3.1.3 Secondary Characteristics

The NJDEP Groundwater Quality Criteria (GWQC) are used as the endpoint from which to back-calculate the IGWDSSL. The GWQC for Aluminum and Manganese are secondary, that is they are not based on health considerations, but primarily on aesthetic considerations such as taste, odor, and appearance; therefore the NJDEP has decided that the IGW pathway does not need to be addressed for these contaminants unless there is cause to believe that their presence is due to a site discharge. There is no reason to believe that the Aluminum and Manganese concentrations at the Site are related to a discharge.

Even though the IGW pathway is not required to be addressed for Aluminum and Manganese, the direct contact pathways were considered and both metals were in compliance.

3.3.1.4 Attainment Conclusions

By developing a SSIGWSSL, utilizing the 75% / 10x procedure, and evaluating the secondary characteristics of the targeted compounds, remedial action is complete and no further action is necessary.

3.4 Receptor Evaluation

In accordance with the Technical Rules, a receptor evaluation was completed to identify any potential exposure pathways associated with the impacts at the Site. The survey included the following:

- An inspection of the Site and surrounding area.
- A review of NJDEP–Geoweb.
JKE completed an inspection of the Site and surrounding area to identify sensitive receptors which have the potential to be affected by impacts located on the Site. Residential properties are the only sensitive receptor located in the vicinity of the Site.

3.4.1 Baseline Ecological Evaluation

A Baseline Ecological Evaluation (BEE) is a qualitative, screening level ecological risk assessment that is used to determine whether more rigorous ecological sampling and evaluations are warranted. The BEE is conducted to examine the Site for the co-occurrence of the following:

- Environmental Sensitive Natural Resources (ESNR) on, adjacent to, or potentially impacted by the Site.
- The presence of Contaminants of Potential Ecological Concern (COPEC) at the Site or AOC and in the ESNRs.
- The presence of a contaminant migration pathway (historic or current) from the Site to the ESNR or evidence of contaminated material having been placed directly into an ESNR.

JKE evaluated the Site with regards to the above conditions and there are no ESNRs, COPECs, or migration pathways; therefore no further ecological risk assessment is required at the Site.

3.5 Quality Assurance/Quality Control

The laboratory data packages were reviewed to ensure compliance with the NJDEP Quality Assurance/Quality Control (QA/QC) procedures as outlined in the Technical Rules.

The laboratory-prepared Conformance/Non-conformance Summary within the laboratory packages was reviewed to ensure compliance with lab protocols. Please see individual lab packages in Appendix C for details regarding surrogate recoveries, MS/MSD recoveries, instrument calibration, blank contamination, and/or holding times reported by the laboratory on the Conformance/Non-conformance Summary pages. Based on a review of the data packages, the data utilized in this report is acceptable for decision-making purposes.

The laboratory analytical data were reviewed to ensure that all sample parameters reported as ND were reported at a laboratory method detection limit (MDL) which does not exceed the applicable soil, groundwater, or vapor standards. Based on JKE’s review, all of the analytical
results with one or more parameters reported as ND were reported at an MDL below the applicable standards.

4.0 CONCLUSIONS

- Impacted soil was transported to the Site from Store 8341 for reuse as clean fill. Subsequent testing indicated that the soil was not suitable for use as clean fill.
- A total of 3,251.78 tons of impacted soil was transported from the Site to Soil Safe for proper disposal, thus removing all of the soil brought onsite from Store 8341.
- Twenty post-excavation soil samples were collected along the perimeter and beneath the base of the former stockpile.
- Utilizing multiple compliance options including developing a SSIGWSSL, utilizing the 75% / 10x procedure, and evaluating the secondary characteristics of the targeted compounds, remedial action is complete and no further action is necessary.
5.0 REFERENCES


New Jersey Department of Environmental Protection Geoweb
http://njwebmap.state.nj.us/NJGeoWeb/WebPages/Map/FundyViewer.aspx?THEME=Sapphire&UH=True&RIDZ=636126559351338316


Mr. James Morey  
Wawa, Inc.  
260 West Baltimore Pike  
Wawa, PA 19063

Re: Response Action Outcome  
Remedial Action Type: Unrestricted Use  
Scope of Remediation: Area of Concern 1: Soil Stockpile and No Other Areas  
Case Name: 680 Brunswick Pike  
Address: 680 Brunswick Pike  
Municipality: West Amwell  
County: Hunterdon  
Block: 16 Lot: 6.01  
Preferred ID: 616523  
Communication Center # 16-08-04-0947-22

March 30, 2017

Dear Mr. Morey:

As a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey, I hereby issue this Response Action Outcome for the remediation of the area of concern specifically referenced above. I personally reviewed and accepted all of the referenced remediation and based upon this work, it is my professional opinion that this remediation has been completed in compliance with the Administrative Requirements for the Remediation of Contaminated Sites (N.J.A.C. 7:26C), that is protective of public health, safety and the environment. Also, full payment has been made for all Department fees and oversight costs pursuant to N.J.A.C. 7:26C-4.

This remediation includes the completion of a Remedial Action as defined pursuant to the Technical Requirements for Site Remediation (N.J.A.C. 7:26E).

My decision in this matter is made upon the exercise of reasonable care and diligence and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals in good standing practicing in the State at the time these professional services are performed.

As required pursuant to N.J.A.C. 7:26C-6.2(b)2ii, a copy of all records related to the remediation that occurred at this location is being simultaneously filed with the New Jersey Department of Environmental Protection (Department). These records contain all information upon which I based my decision to issue this Response Action Outcome.
By operation of law a Covenant Not to Sue pursuant to N.J.S.A. 58:10B -13.2 applies to this remediation. The Covenant Not to Sue is subject to any conditions and limitations contained herein. The Covenant Not to Sue remains effective only as long as the real property referenced above continues to meet the conditions of this Response Action Outcome.

CONDITIONS

Pursuant to N.J.S.A. 58:10B-12o, Wawa, Inc. and any other person who is liable for the cleanup and removal costs, and remains liable pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11 et seq. shall inform the Department in writing, on a form available from the Department, within 14 calendar days after its name or address changes. Any notices you submit pursuant to this paragraph shall reference the above case numbers and shall be sent to:

New Jersey Department of Environmental Protection
Bureau of Case Assignment and Initial Notice
Mail Code 401-05H
401 East State Street, 5th floor
PO Box 420
Trenton, New Jersey 08625-0420

In concluding that this remediation has been completed, I am offering no opinions concerning whether either primary restoration (restoring natural resources to their pre-discharge condition) or compensatory restoration (compensating the citizens of New Jersey for the lost interim value of the natural resources) has been completed.

Pursuant to N.J.S.A. 58:10C-25, the Department may audit this Response Action Outcome and associated documentation up to three years following issuance. Based on a finding by the Department that a Response Action Outcome is not protective of public health, safety and the environment, the Department can invalidate the Response Action Outcome. Other justifications for the Department's invalidation of this Response Action Outcome are listed in the Administrative Requirements for the Remediation of Contaminated Sites at N.J.A.C. 7:26C-6, including, but not limited to, a Department audit following issuance of this document may be initiated at any time if: a) undiscovered contamination is found that was not addressed by the Response Action Outcome, b) if the Site Remediation Professional Licensing Board conducts an investigation of the Licensed Site Remediation Professional issuing the Response Action Outcome or, c) if the license of that person is suspended or revoked.
Thank you for your attention to these matters. If you have any questions, please contact me at 610-387-6930 ext. 104.

Sincerely,

Brian Lettini,
Licensed Site Remediation Professional
#628319

cc: Ms. Lora Olsen, West Amwell Township Municipal Clerk
    Mr. John Dale, Mayor West Amwell Township
    Ms. Karen DeMarco, Hunterdon County Health Officer
    Mr. Joseph Standen, Environmental Manager Wawa Inc.
    Mr. James Lawson
    NJDEP Bureau of Case Assignment and Initial Notice
Selected West Amwell OPRA Request Files: 701 Brunswick Pike
MUNICIPALITY: West Amwell  BLOCK 30  LOT 2

1. Log Number: 3311  Method: Profile Pit  Boring

2. Soil Log:  Date Recorded: 3/31/98

   Depth (inches)  Description:

   6-10"  7.5YR 4/4 Silty clay loam, 10% gravel, no mottles, weak angular structure, dry, friable, many roots, clear smooth boundary

   10-21"  7.5YR 6/4 Silty clay loam, 10% gravel, no mottles, mod. angular structure, moist, friable, few roots, clear smooth boundary

   21-48"  7.5YR 6/2 Silty clay loam, 50% gravel, common medium distinct 7.5YR 6/2 mottles @ 24-68", moist, friable, few roots, clear smooth boundary

   64-94"  10YR 6/4 Silty clay loam, 30% gravel, 50% cobbles, no mottles, moist to saturated, no roots, ENO

2a. If mottling give reason for mottling: packed

3. Ground Water Observations:

   / See page - Indicate Depth 88"

   / Pit/Boring Flooded 75 Depth after 24 Hours

4. Soil Limiting Zones:

   / Fractured Rock Substratum - Depth to Top 24"

   / Massive Rock Substratum - Depth to Top

   / Excessively Coarse Horizon - Depth Top to Bottom

   / Excessively Coarse Substratum - Depth to Top 24"

   / Hydraulically Restrictive Horizon - Depth Top to Bottom 10-20"

   / Hydraulically Restrictive Substratum - Depth to Top

   / Perched Zone of Saturation - Depth Top to Bottom 24-68"

   / Regional Zone of Saturation - Depth to Top 75"

5. Soil Suitability Classification: DIIIb IVd Sc

6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 10A:1 et.seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: Craig B. Patterson  Date: 3/31/98

Signature of Professional Engineer:  Date: 4/10/98

Seal

N.J. License No. 26220

hcnas2b.doc
MUNICIPALITY: West Amwell

1. Log Number: 3311 Method: Profile Pit Daring

2. Soil Log:
   Date Recorded: 3/3/98
   Depth (inches): 90'
   Description:
   0-10" 10YR4/4 silty clay loam, <5% gravel, no mottles, weak angular structure, dry, friable, many roots, clear smooth boundary
   10-21" 7.5YR6/6 silty clay loam, 10% gravel, no mottles, mod. angular structure, moist, friable, few roots, clear smooth boundary
   21-68" 5YR6/4 silty clay loam, 50% gravel, common medium distinct 7.5YR6/2 mottles @ 24-68", moist, friable, few roots, clear smooth boundary
   64-94" 10YR3/4 silty clay loam, 30% gravel, 50% cobbles, no mottles, moist to saturated, no roots, BMO

2a. If mottling give reason for mottling: punched

3. Ground Water Observations:
   Seepage - Indicate Depth 82" 
   Pit/Boring Flooded 75 Depth after 24 Hours

4. Soil Limiting Zones:
   Fractured Rock Substratum - Depth to Top 24"
   Massive Rock Substratum - Depth to Top
   Excessively Coarse Horizon - Depth Top to Bottom
   Excessively Coarse Substratum - Depth to Top 24"
   Hydraulically Restrictive Horizon - Depth Top to Bottom 10-24"
   Hydraulically Restrictive Substratum - Depth to Top
   Perched Zone of Saturation - Depth Top to Bottom 24-68"
   Regional Zone of Saturation - Depth to Top 75"

5. Soil Suitability Classification: TILY

6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58: 10A-1 et.seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator: Craig Patterson Date: 4/14/98
Signature of Professional Engineer:  Date: 4-19-98

N.J. License No. 26220
# Pit Bail Calculations

Hoyer  
Block 30  Lot 2  

Date: 3/31/98  
Test #: 3311

\[ K \text{ (in/hr)} = \text{ (hr/ft)} \times \left[ \frac{\text{Aavg} \times 1.227(H - h)}{2} \right] \times 60 \text{ min/hr} \]

Assumed depth of bottom (ft) = 11.75

2 hour water reading (ft) = 6.25

\[ H = 5.5 \]

\[ h = 30.25 \]

<table>
<thead>
<tr>
<th>t min</th>
<th>depth</th>
<th>Davg</th>
<th>hrise</th>
<th>lngth</th>
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</table>
West Amwell Township
150 Rocktown-Lamb. Road, Lambertville, New Jersey 08530-3203
(609) 397-2054  (609) 397-8634 FAX

June 25, 2002

Doug Fine
2051 Bleecker Street
S. Plainfield NJ 07080

Attention:  PROJECT ENGINEER

Reference:  Permeability Test/Soil Log Witnessing
West Amwell Township, Hunterdon County, New Jersey

Dear Mr. Fine:

In order to assist you in performing the work you have scheduled in West Amwell Township, I am providing the following procedures which apply to the witnessing of permeability testing and soil logs:

1. Witnessing fees shall be in the amount of $200.00 per lot per day for the first lot and $100.00 per lot per day for each additional lot, as outlined in Section 173-14 of the “Code” for West Amwell Township. The check shall be made payable to West Amwell Township and submitted to the Township Board of Health at the above address. The witness fee must be received at least 48 hours prior to the testing date scheduled. Payment not received as outlined will result in the automatic cancellation of the date scheduled.

2. Any cancellation or postponement of the days scheduled for testing shall result in forfeiture of fees paid. No rescheduling shall occur until additional fees are paid. Engineer must notify secretary of all cancellations by 8:30 a.m. on the morning of the testing date.

If you have any questions, please feel free to contact this office.

Sincerely,

Lora Olsen, Secretary
Board of Health
March 17, 2003: Two test pits were excavated on this property. No tests were conducted, none of the pits were recorded.

#1: Depth: 90" M/R  Seepage: None  Mottles: 12" to 48"
   (heavy seepage from surface ground water)

#2: Depth: 64"  Seepage: None  Mottles: 10" to 64"

This property extremely wet on the surface, with numerous channels of running water. No tests conducted. Note High Mottles. (possible wet lands)
WEST AMWELL TOWNSHIP, HUNTERDON COUNTY, NJ

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<th>DATE: 11/18/2022</th>
<th>APPLICANT: Guiliano / Gage</th>
<th>BLOCK #: 30</th>
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<tr>
<td>LOG #: 1-30</td>
<td>ENGINEER: Craig Patterson</td>
<td>LOT #: 8</td>
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<tr>
<td>TIME OPENED:</td>
<td>DEPTH: 40&quot;</td>
<td>INFILTRATION:</td>
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<table>
<thead>
<tr>
<th>DEPTH From To</th>
<th>MUNSEL Color</th>
<th>SOIL DESCRIPTION</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>EXCAVATED APPR 30&quot; SOIL LOGS ON 20 ACRE SITE. HIGH MOTTLING LEVELS PRESENT IN EACH HOLE FROM 12&quot; TO 17&quot; BELOW SURFACE. STATE CODES PREVENTED CONSTRUCTION OF NEW SEPTIC BEDS IN THESE AREAS. ENGINEER TESTED IN GRID LIKE PATTERN THAT COVERED ENTIRE PROPERTY, LESS WET LAND AREAS.</td>
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</table>

MACHINE OPERATOR: Jesse Lawton  OWNER: Lawton
TESTER: Craig Patterson  WITNESS: James P. Chalupa
LOCATION: #701 Brunswick Pike
REMARKS:


Selected NJDEP OPRA Request Files: 701 Brunswick Pike
From: Barbara Baus
To: Perez, Armand
Date: 8/26/04 7:10AM
Subject: Re: NOV for Block 30 Lot 2, West Amwell Twp Hunterdon County

Thank you Armand. As usual you are on top of things.. :)

>>> Armand Perez 08/25/04 09:10AM >>>
Clearing of vegetation and placement of a drive within wetlands. The owner claims that some of the
clearing was done by the track-hoe during perc-testing which was restored. The larger disturbance for a
dwelling was generally consistent with his consultant's unverified wetland delineation which I believe was
incorrect. His new consultant has drawn up a better delineation for verification but has not received word
from LURP. Its possible that the owner is again conducting actives consistent with the proposed wetland
delineation. (People just don't want to wait 3 to 9 months to build their house).
See NJEMS file name"WATERS, LEON"
P.S. Walters told me that the County was responsible for diverting water onto his property.

>>> Scott Brubaker 08/24/04 03:49PM >>>
thanks, Armand. Keep on top of it as an ongoing violation we want to be in his face until he stops. What
type of violation is it? Scott

>>> Armand Perez 08/24/04 02:22PM >>>
Scott, I called Mr. Walters (the violator) and reminded him that the site was under investigation and that no
construction activities should be occurring. I also assigned myself a site visit task to look into the removal
of trees and the construction of drainage structures.

>>> "Richard H Krupp" <rkropp@usgs.gov> 08/24/04 02:07PM >>>

Scott,
FYI- Today they are over there cutting down trees.

"Scott Brubaker"
<Scott.Brubaker@dep.state.nj.us> 08/16/2004 10:21 AM
To: rkropp@usgs.gov
cc: Armand Perez <Armand.Perez@dep.state.nj.us>, Barbara Baus
Barbara Baus@dep.state.nj.us>
Subject: Re: NOV for Block 30 Lot 2, West Amwell Twp
Hunterdon County

Rick, we'll look at it. Thanks. Scott

>>> "Richard H Krupp" <rkropp@usgs.gov> 08/16/04 09:55AM >>>
Scott,
I previously sent Rob Piel some information about land clearing and the
bulldozing of streams on this property.
I understand an NOV was issued for the property and an LOI has been
August 30, 2004

Mr. Leon A. Walters IV
145 Old Denow Road
Lawrence, NJ 08648

Re: Unauthorized Drainage and Tree Removal Work; Block 30, Lot 2
West Amwell Township, Hunterdon County

Dear Mr. Walters:

This letter is to order you and your company to stop all work on the above-referenced property. A Road Opening Application must be submitted (enclosed). Once the plan is reviewed and approved, a Road Opening Permit will be issued.

A Storm Water Plan and Calculations are required for this work. A Soil Erosion Control Permit and a D.E.P. Permit may be required.

Please contact this office, within forty-eight hours of receipt of this letter, to discuss this project.

Very truly yours,

John P. Glynn, Director
Roads, Bridges & Engineering

cc: Marcia A. Karrow, Director
George B. Melick, Deputy Director
Nancy I. Palladino, Freeholder
Frank J. Fuoco, Freeholder
George D. Muller, Freeholder
William Engisch - Soil Conservation Service
FIELD NOTICE OF VIOLATION

Site Name: WAKES, LEON
Site Address: 701 BRIDGE AVE, LOMBARDVILLE

Municipality: WEST AMWELL
Block: 20
Lot: 2
County: HUNTERDON
Zip: 08830

Property Owner: LEON WAKES
Prop. Owner's Address: 145 KENOW ROAD
LAMBERTVILLE, NJ 08672

Responsible Entity (if other than Property Owner): 

R.E. City: 
State: 
Zip: 
Phone: 

On 9/11/04 a representative from the NJDEP Bureau of Coastal and Land Use Compliance and Enforcement conducted an investigation into this site/matter. You are hereby NOTIFIED that violation(s) of the Statutes and Rules checked below have been observed/indicated:

- Riparian Lands Statutes: N.J.S.A. 12:5-1 et seq.

Administrative Code Citation(s) and Explanation of Noncompliance:

Obstruction of circulation path in a connection with the placement of stormwater collectors.

ALL UNAUTHORIZED ACTIVITIES MUST CEASE IMMEDIATELY AND THE RESPONDENT SHALL TAKE THE FOLLOWING CORRECTIVE ACTIONS TO ACHIEVE COMPLIANCE:

Apply to the Department’s Land Use Regulation Program (LURP) for the appropriate authorizations or restore the disturbed areas to the pre-existing condition by: 10/1/04

Within fifteen (15) calendar days of receipt of this Notice Of Violation, the Respondent shall submit in writing to the person issuing this Notice, details of how and when compliance will be achieved.

This Notice of Violation serves as notice that the New Jersey Department of Environmental Protection has determined that a violation has occurred. The issuance of this notice does not preclude the State of New Jersey or any of its agencies from initiating administrative and/or judicial enforcement action, or from assessing penalties with respect to the violations listed above or for any other violations. Penalties may be assessed on a daily basis.

Issued by: AMANDA SMITH
Date: 9/11/04
Signature: [Signature]

Received by: LEON WAKES
Date: 9/11/04
Signature of receipt: [Signature]

Certified Mail Date Mailed Article Number
April 2, 2007

Alexander Mikos
Goldenbaum Baill ASSOCIATES, Inc.
119 Douglas Street
Lambertville, New Jersey 08530

RE: Authorization for Freshwater Wetlands Statewide General Permit No. 6 and 10A
and Waiver of Transition Area for Access
LURP File No.: 1026-04-0002.1 FWW 060001, FWW 060002
Applicant: Leon Walters
Blocks: 30 Lot: 2
West Amwell Township, Hunterdon County

Dear Mr. Mikos:

The Division of Land Use Regulation has reviewed the referenced application for a Statewide General Permit authorization pursuant to the requirements of the Freshwater Wetlands Protection Act Rules at N.J.A.C. 7:7A. The proposed activity is authorized by Statewide General Permit No.6 which authorizes activities in freshwater wetlands or State open waters that are not part of a surface water tributary system and Statewide General No.10A for construction of a roadway.

Limit of Authorized Disturbance

Based on the plans: “WETLANDS PERMIT MAP PREPARED FOR BLOCK 30, LOT 2 WEST AMWELL TOWNSHIP, HUNTERDON COUNTY, NEW JERSEY”, dated February 24, 2006 and prepared by Kenneth E. Baill, P. E. for Goldenbaum Associates, Inc. and the authorized activity involves the disturbance of 0.044 acres (1,913 SF) of freshwater wetlands for the legalization of fill in the development of a single family residence for a General Permit No. 6; and, the legalization of the disturbance of 0.064 acres (2,791 SF) of freshwater transition area for General Permit No.10A for realignment of an existing driveway to the proposed single family dwelling. Any additional disturbance of wetlands, transition areas and/or State open waters shall be considered a violation of the Freshwater Wetlands Protection Act unless the activity is exempt or a permit is obtained prior to the start of the disturbance from the Division of Land Use Regulation.
CERTIFIED MAIL/RRR
7005 0390 0001 8557 4635
Leon Walters IV
145 Old Denow Road
Lawrenceville, New Jersey 08648

Re: File # 1026-04-0002.1
Block 30, Lot 2
West Amwell Township, Hunterdon County

Dear Mr. Walters:

On April 2, 2007 the Department's Land Use Regulation Program issued to you a permit, file #1026-04-0002.1, to legalize the disturbances created on the above referenced property. As a result, you have hereby satisfied the requirements contained in the Department's Notice of Violations dated March 17, 2004 and September 1, 2004 and this violation is hereby resolved.

Please be advised that any future disturbance or alteration of this area may constitute a regulated and/or prohibited activity and require a permit from the Department. In addition, the Department reserves the right to take enforcement action should a regulated and/or prohibited activity occur on the site without the necessary approvals.

Should you have any questions regarding this matter, please contact Lauren Salvatini at the telephone number or address at the top of this correspondence.

Sincerely,

Roderick Falla, Region Supervisor
Bureau of Coastal and Land Use Compliance and Enforcement

c: Mayor and Council, West Amwell Township, Hunterdon County

Bureau File
IN THE MATTER OF
LEON WALTERS
701 BRUNSWICK PIKE
WEST AMWELL TWP, NJ 08530

EA ID # PEA150001 - 80506

This Administrative Order (hereinafter ORDER) is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (hereinafter NJDEP or the Department) by N.J.S.A. 13:1D-1 et seq., and the Air Pollution Control Act, N.J.S.A. 26:2C-1 et seq. (the “Act”), and duly delegated to the Manager, Division of Air Enforcement, Bureau of Air Compliance & Enforcement, Northern pursuant to N.J.S.A. 13:1B-4.

FINDINGS

1. LEON WALTERS owns and/or operates a facility located at 701 Brunswick Pike, Block 30 and Lot 2, West Amwell Twp, Hunterdon County, New Jersey (ID# 80506).

2. As the result of an investigations conducted on August 31, 2012, September 17, 2012, September 21, 2012, September 26, 2012, and October 2, 2012, the Department has determined that LEON WALTERS failed to comply with applicable requirements as follows:

A. Requirement: Pursuant to N.J.A.C. 7:27- 3.2(a), no person shall cause, suffer, allow or permit visible smoke to be emitted into the outdoor air from the combustion of fuel in any stationary indirect heat exchanger.

Description of Noncompliance: On September 6, 2012, you permitted smoke into the outdoor air from the combustion of fuel in your outdoor wood boiler, a stationary indirect heat exchanger.

B. Requirement: Pursuant to N.J.A.C. 7:27- 3.2(a), no person shall cause, suffer, allow or permit visible smoke to be emitted into the outdoor air from the combustion of fuel in any stationary indirect heat exchanger.

Description of Noncompliance: On September 17, 2012, you permitted smoke into the outdoor air from the combustion of fuel in your outdoor wood boiler, a stationary indirect heat exchanger.
Selected West Amwell OPRA Request Files: 756 Brunswick Pike
Selected NJDEP OPRA Request Files: 756 Brunswick Pike
### Facility ID: 00456900000

**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

### CURRENT FACILITY INFORMATION:

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<th>FACILITY MAILING ADDRESS</th>
<th>A FACILITY LOCATION</th>
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<tbody>
<tr>
<td>756 BRUNSWICK PLACE</td>
<td>RT 518</td>
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<tr>
<td>LAMBERTVILLE, NJ 08530-</td>
<td>WEST AMWELL TWP, NJ 08530</td>
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<tr>
<td>ATTN: DAVID FOURNIER</td>
<td>COUNTY / MUNICIPALITY CODE: 1026</td>
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<th>C Facility Status: Active</th>
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<td>Business Activity: WATER TREATMENT PLANT</td>
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</table>

| D Number of employees at facility 5 |
| E Number of facilities in New Jersey 5 |

| G R&D exemption approval number for this facility: ____________________ |
| F Federal EIN ********* |

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<th>H Are you reporting pursuant only to Section 312 of the Federal Emergency Planning and Community Right to Know Act (EPCRA/SARA, Title III)?</th>
<th>Yes No</th>
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### FACILITY EMERGENCY CONTACT

| Name: DAVID FOURNIER | Title: OPERATIONS MANAGER |
| Facility Phone Number: (609) 397-0501 | Emergency Contact Phone Number: (610) 613-8928 |

### CERTIFICATION OF OWNER/OPERATOR OR AUTHORIZED REPRESENTATIVE

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

**Current Certifier:**

| Name: DAVID FOURNIER | Title: OPERATIONS MANAGER |
| e-Mail: DAVID.FOURNIER@SUEZ-NA.COM | Phone #: (609) 397-0501 |
| Fax #: (609) 397-9662 |

### UNION REPRESENTATIVE

| Union Name/Local: N/A | Email: N/A |
| Representative Name: | Phone # |

### EPCRA SECTION 302 INFORMATION

| TRI Facility ID: | Latitude: 40 21 48.50 | Location is: Manned |
| RMP Facility ID: | Longitude: -74 55 38.54 | Unmanned |
| Maximum Number of Occupants: 4 |

| Yes | No |
| Is this facility subject to Chemical Accident Prevention under Section 112R of CAA (40 CFR, Part 68, Risk Management Program)? |
| Yes | No |

| Yes | No |
| Is this facility subject to Emergency Planning under Section 302 of EPCRA (40 CFR Part 55)? |

**FACILITY EMERGENCY COORDINATOR** (if applicable)

| Name: DAVID FOURNIER | Title: OPERATIONS MANAGER |
| eMail Address: DAVID.FOURNIER@SUEZ-NA.COM | Phone #: (610) 613-8928 |

**PARENT COMPANY INFORMATION** (Optional)

| Company Name: | Dun & Bradstreet No.: |
| Company Address: | Phone Number: |
| eMail Address: | |
**COMMUNITY RIGHT TO KNOW SURVEY**
**1992 CHEMICAL INVENTORY REPORT**

Facility ID: 00456900000
Current Facility Name: UNITED WATER SUEZ LAMBERTVILLE

in 1992, did this facility **Produce, Store or Use** NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:

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<td>✓</td>
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<tr>
<td>2. above thresholds?</td>
<td>✓</td>
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Note: This Section will be populated only if the facility is covered under the New Jersey Worker and Community Right to Know Act, N.J.S.A. 34:5A

### SUBSTANCES

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<tr>
<th>Name</th>
<th>Sub #</th>
<th>CAS #</th>
<th>DOT #</th>
<th>HAZARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACETYLENE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Location(s) FILTER BUILDING BASEMENT</td>
<td>Sub #</td>
<td>CAS #</td>
<td>DOT #</td>
<td>HAZARDS</td>
</tr>
<tr>
<td>Pure Mixture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Solid Liquid Gas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Container type</td>
<td>Cylinder</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Max.daily inventory</td>
<td>11 to 100 pounds</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Avg.daily inventory</td>
<td>11 to 100 pounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
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<tr>
<td>Trade Secret</td>
<td>No</td>
<td></td>
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</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

| **ALUMINUM SULFATE** |       |       |       |                                               |
| Location(s) FILTER BUILDING UPSTAIRS | Sub # | CAS # | DOT # | HAZARDS                                      |
| Pure Mixture       |       |       |       |                                               |
| ✓ Solid Liquid Gas |       |       |       |                                               |
| Container type     | Bag |     |       |                                               |
| Max.daily inventory| 1,001 to 10,000 pounds | |       |                                               |
| Avg.daily inventory| 1,001 to 10,000 pounds | |       |                                               |
| Days on site       | 365 |       |       |                                               |
| Storage pressure   | Ambient pressure | |       |                                               |
| Storage temperature| Ambient temperature | |       |                                               |
| Trade Secret       | No |       |       |                                               |
| EPCRA Only         | No |       |       |                                               |

| **BATTERY FLUID ACID** |       |       |       |                                               |
| Location(s) FILTER BUILDING BASEMENT | Sub # | CAS # | DOT # | HAZARDS                                      |
| Pure Mixture       |       |       |       |                                               |
| ✓ Solid Liquid Gas |       |       |       |                                               |
| Container type     | Carboy |     |       |                                               |
| Max.daily inventory| 1 to 10 pounds | |       |                                               |
| Avg.daily inventory| 1 to 10 pounds | |       |                                               |
| Days on site       | 365 |       |       |                                               |
| Storage pressure   | Ambient pressure | |       |                                               |
| Storage temperature| Ambient temperature | |       |                                               |
| Trade Secret       | No |       |       |                                               |
| EPCRA Only         | No |       |       |                                               |

| **CALCIUM HYPOCHLORITE** |       |       |       |                                               |
| Location(s) FILTER BUILDING BASEMENT | Sub # | CAS # | DOT # | HAZARDS                                      |
| Pure Mixture       |       |       |       |                                               |
| ✓ Solid Liquid Gas |       |       |       |                                               |
| Container type     | Fiber drum |     |       |                                               |
| Max.daily inventory| 11 to 100 pounds | |       |                                               |
| Avg.daily inventory| 11 to 100 pounds | |       |                                               |
| Days on site       | 365 |       |       |                                               |
| Storage pressure   | Ambient pressure | |       |                                               |
| Storage temperature| Ambient temperature | |       |                                               |
| Trade Secret       | No |       |       |                                               |
| EPCRA Only         | No |       |       |                                               |
## COMMUNITY RIGHT TO KNOW SURVEY
### 1992 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

### Name: CHLORINE  
**Location(s):** CHLORINE ROOM; PUMP HOUSE, CHLORINATION ROOM

<table>
<thead>
<tr>
<th>Pure Mix</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Cylinder</td>
<td>1,001 to 10,000 pounds</td>
<td>1,001 to 10,000 pounds</td>
<td>365</td>
<td>Greater than ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**HAZARDS**
- Fire
- ✓ Sudden release of pressure
- Reactive
- ✓ Acute health effect
- ✓ Chronic health effect
- None per MSDS

### Name: CHLOROBENZENE  
**Location(s):** FILTER BUILDING UPSTAIRS

<table>
<thead>
<tr>
<th>Pure Mix</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Bottles or jugs (plastic)</td>
<td>Less than 1 pound</td>
<td>Less than 1 pound</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**HAZARDS**
- Fire
- ✓ Sudden release of pressure
- Reactive
- ✓ Acute health effect
- ✓ Chronic health effect
- None per MSDS

### Name: FUEL OIL  
**Location(s):** PUMP ROOM, FILTER BUILDING

<table>
<thead>
<tr>
<th>Pure Mix</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Tank inside building</td>
<td>101 to 1,000 pounds</td>
<td>101 to 1,000 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**HAZARDS**
- Fire
- ✓ Sudden release of pressure
- Reactive
- ✓ Acute health effect
- ✓ Chronic health effect
- None per MSDS

### Name: GASOLINE  
**Location(s):** TOOL SHED

<table>
<thead>
<tr>
<th>Pure Mix</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Can</td>
<td>1 to 10 pounds</td>
<td>1 to 10 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**HAZARDS**
- Fire
- ✓ Sudden release of pressure
- Reactive
- ✓ Acute health effect
- ✓ Chronic health effect
- None per MSDS

### Name: HYDROFLUOROSILICIC ACID  
**Location(s):** FILTER BUILDING BASEMENT

<table>
<thead>
<tr>
<th>Pure Mix</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Carboy</td>
<td>11 to 100 pounds</td>
<td>11 to 100 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**HAZARDS**
- Fire
- ✓ Sudden release of pressure
- Reactive
- ✓ Acute health effect
- ✓ Chronic health effect
- None per MSDS
## COMMUNITY RIGHT TO KNOW SURVEY
### 1992 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

### Name: LIQUID POLYMER POL-E-Z-692
#### Location(s): FILTER BUILDING BASEMENT
- Pure Mixture: Yes  
- Liquid: Yes  
- Gas: Yes  
- Container type: Plastic drum  
- Max. daily inventory: 101 to 1,000 pounds  
- Avg. daily inventory: 101 to 1,000 pounds  
- Days on site: 365  
- Storage pressure: Ambient pressure  
- Storage temperature: Ambient temperature  
- Sub #:  
- CAS #:  
- DOT #: HAZARDS
  - Fire:  
  - Sudden release of pressure:  
  - Reactive:  
  - Acute health effect: ✓  
  - Chronic health effect:  
  - None per MSDS:  
- Trade Secret: No  
- EPCRA Only: No

### Name: MERCURY
#### Location(s): MERCURY MANOMETER IN PUMP ROOM
- Pure Mixture: Yes  
- Liquid: Yes  
- Container type: Other:  
- Max. daily inventory: 11 to 100 pounds  
- Avg. daily inventory: 11 to 100 pounds  
- Days on site: 365  
- Storage pressure: Ambient pressure  
- Storage temperature: Ambient temperature  
- Sub #:  
- CAS #:  
- DOT #: 2809 HAZARDS
  - Fire:  
  - Sudden release of pressure:  
  - Reactive:  
  - Acute health effect: ✓  
  - Chronic health effect: ✓  
  - None per MSDS:  
- Trade Secret: No  
- EPCRA Only: No

### Name: MERCURY
#### Location(s): MERCURY MANOMETER FILTER BUILDING BASEMENT
- Pure Mixture: Yes  
- Liquid: Yes  
- Container type: Other:  
- Max. daily inventory: 11 to 100 pounds  
- Avg. daily inventory: 11 to 100 pounds  
- Days on site: 365  
- Storage pressure: Ambient pressure  
- Storage temperature: Ambient temperature  
- Sub #:  
- CAS #:  
- DOT #: 2809 HAZARDS
  - Fire:  
  - Sudden release of pressure:  
  - Reactive:  
  - Acute health effect: ✓  
  - Chronic health effect: ✓  
  - None per MSDS:  
- Trade Secret: No  
- EPCRA Only: No

### Name: METHANOL
#### Location(s): FILTER BUILDING UPSTAIRS
- Pure Mixture: Yes  
- Liquid: Yes  
- Container type: Bottles or jugs (plastic)  
- Max. daily inventory: 1 to 10 pounds  
- Avg. daily inventory: 1 to 10 pounds  
- Days on site: 365  
- Storage pressure: Ambient pressure  
- Storage temperature: Ambient temperature  
- Sub #:  
- CAS #:  
- DOT #: 1230 HAZARDS
  - Fire: ✓  
  - Sudden release of pressure:  
  - Reactive: ✓  
  - Acute health effect: ✓  
  - Chronic health effect: ✓  
  - None per MSDS:  
- Trade Secret: No  
- EPCRA Only: No

### Name: PAINT, ETC.
#### Location(s): FILTER BUILDING BASEMENT
- Pure Mixture: Yes  
- Liquid: Yes  
- Gas: Yes  
- Container type: Can  
- Max. daily inventory: 11 to 100 pounds  
- Avg. daily inventory: 11 to 100 pounds  
- Days on site: 365  
- Storage pressure: Ambient pressure  
- Storage temperature: Ambient temperature  
- Sub #:  
- CAS #:  
- DOT #: 1263 HAZARDS
  - Fire: ✓  
  - Sudden release of pressure:  
  - Reactive: ✓  
  - Acute health effect: ✓  
  - Chronic health effect: ✓  
  - None per MSDS:  
- Trade Secret: No  
- EPCRA Only: No
### COMMUNITY RIGHT TO KNOW SURVEY
#### 1992 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>Name</th>
<th>Sub #</th>
<th>CAS #</th>
<th>DOT #</th>
<th>HAZARDS</th>
<th>Location(s)</th>
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</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>Solid</td>
<td></td>
<td></td>
<td></td>
<td>Container type: Plastic drum</td>
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</tr>
<tr>
<td>Liquid</td>
<td></td>
<td></td>
<td></td>
<td>Max. daily inventory: 101 to 1,000 pounds</td>
<td></td>
</tr>
<tr>
<td>Gas</td>
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<td>Avg. daily inventory: 101 to 1,000 pounds</td>
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<td>Days on site</td>
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<td></td>
<td>365</td>
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</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td></td>
<td></td>
<td>Storage pressure: Ambient pressure</td>
<td></td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
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<tr>
<td><strong>PETROLEUM OIL</strong></td>
<td></td>
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<td>Container type: Bottles or jugs (plastic)</td>
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</tr>
<tr>
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<tr>
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<td></td>
<td>Avg. daily inventory: 1 to 10 pounds</td>
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</tr>
<tr>
<td>Gas</td>
<td></td>
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<td>Days on site: 365</td>
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<td>Trade Secret</td>
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<td>Storage pressure: Ambient pressure</td>
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<tr>
<td><strong>PROPANE</strong></td>
<td></td>
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<td>1978</td>
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<td>FILTER BUILDING BASEMENT</td>
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<td>Container type: Cylinder</td>
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</tr>
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<td>Liquid</td>
<td></td>
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<td></td>
<td>Avg. daily inventory: 1 to 10 pounds</td>
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</tr>
<tr>
<td>Gas</td>
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<td>Days on site: 365</td>
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<td>Trade Secret</td>
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<tr>
<td><strong>SODIUM BISULFITE</strong></td>
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<td>Container type: Bottles or jugs (plastic)</td>
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<td></td>
<td>Avg. daily inventory: 1 to 10 pounds</td>
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<tr>
<td>Gas</td>
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<td>Container type: Plastic drum</td>
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<td>Solid</td>
<td></td>
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<td></td>
<td>Max. daily inventory: 101 to 1,000 pounds</td>
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</tr>
<tr>
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<td>Avg. daily inventory: 101 to 1,000 pounds</td>
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<tr>
<td>Gas</td>
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<td>Storage pressure: Ambient pressure</td>
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<td>Location(s) FILTER BUILDING BASEMENT</td>
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</tr>
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<td>Avg.daily inventory</td>
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<td></td>
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<td>Days on site</td>
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<tr>
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<th>Sub #:</th>
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</tr>
<tr>
<td>Pure Mixture</td>
<td>✓ Solid</td>
<td>Liquid</td>
<td>Gas</td>
</tr>
<tr>
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</tr>
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<td>Days on site</td>
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</tr>
<tr>
<td>EPCRA Only</td>
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</tr>
</tbody>
</table>
## COMMUNITY RIGHT TO KNOW SURVEY
### 1993 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

In 1993, did this facility **Produce, Store or Use** NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** This Section will be populated only if the facility is covered under the New Jersey Worker and Community Right to Know Act, N.J.S.A. 34:5A

### SUBSTANCES

<table>
<thead>
<tr>
<th>Name</th>
<th>Sub #:</th>
<th>CAS #:</th>
<th>DOT #:</th>
<th>Location(s)</th>
<th>Pure Mixture</th>
<th>Solids</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
<th>HAZARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACETYLENE</td>
<td>0068</td>
<td>10043-01-3</td>
<td>9078</td>
<td>FILTER BUILDING BASEMENT</td>
<td>✓ Solid</td>
<td>Liquid</td>
<td>Gas</td>
<td>Container type</td>
<td>11 to 100 pounds</td>
<td>11 to 100 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
<td>Yes Fire</td>
<td>Yes Sudden release of pressure</td>
</tr>
<tr>
<td>ALUMINUM SULFATE</td>
<td></td>
<td>7778-54-3</td>
<td>9078</td>
<td>FILTER BUILDING UPSTAIRS</td>
<td>✓ Solid</td>
<td>Liquid</td>
<td>Gas</td>
<td>Container type</td>
<td>1,001 to 10,000 pounds</td>
<td>1,001 to 10,000 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
<td>Yes Fire</td>
<td>Yes Sudden release of pressure</td>
</tr>
<tr>
<td>BATTERY FLUID ACID</td>
<td>2153</td>
<td>7778-54-3</td>
<td>9078</td>
<td>FILTER BUILDING BASEMENT</td>
<td>✓ Solid</td>
<td>Liquid</td>
<td>Gas</td>
<td>Container type</td>
<td>1 to 10 pounds</td>
<td>1 to 10 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
<td>Yes Fire</td>
<td>Yes Sudden release of pressure</td>
</tr>
<tr>
<td>CALCIUM HYPOCHLORITE</td>
<td>0323</td>
<td>7778-54-3</td>
<td>9078</td>
<td>FILTER BUILDING BASEMENT</td>
<td>✓ Solid</td>
<td>Liquid</td>
<td>Gas</td>
<td>Container type</td>
<td>11 to 100 pounds</td>
<td>11 to 100 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
<td>Yes Fire</td>
<td>Yes Sudden release of pressure</td>
</tr>
</tbody>
</table>
## COMMUNITY RIGHT TO KNOW SURVEY
### 1993 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

### Name: CHLORINE  
**Location(s):** CHLORINE ROOM PUMP HOUSE

<table>
<thead>
<tr>
<th>Pure Mixture</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max. daily inventory</th>
<th>Avg. daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️</td>
<td>✔️</td>
<td></td>
<td></td>
<td>Cylinder</td>
<td>101 to 1,000 pounds</td>
<td>101 to 1,000 pounds</td>
<td>365</td>
<td>Greater than ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**Sub #:** 0367  
**CAS #:** 7782-50-5  
**DOT #:** 1017  
**HAZARDS**  
- ✔️ Fire
- ✔️ Sudden release of pressure
- ✔️ Reactive
- ✔️ Acute health effect
- ✔️ Chronic health effect
- None per MSDS

### Name: CHLOROBENZENE  
**Location(s):** FILTER BUILDING UPSTAIRS

<table>
<thead>
<tr>
<th>Pure Mixture</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max. daily inventory</th>
<th>Avg. daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️ Pure</td>
<td>✔️</td>
<td></td>
<td></td>
<td>Bottles or jugs (plastic)</td>
<td>Less than 1 pound</td>
<td>Less than 1 pound</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
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**Sub #:** 0379  
**CAS #:** 108-90-7  
**DOT #:** 1134  
**HAZARDS**  
- ✔️ Fire
- ✔️ Sudden release of pressure
- ✔️ Reactive
- ✔️ Acute health effect
- ✔️ Chronic health effect
- None per MSDS

### Name: DIESEL FUEL OR #2 HEATING OIL  
**Location(s):** PUMP ROOM FILTER BUILDING

<table>
<thead>
<tr>
<th>Pure Mixture</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max. daily inventory</th>
<th>Avg. daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️ Pure</td>
<td>✔️</td>
<td></td>
<td></td>
<td>Tank inside building</td>
<td>101 to 1,000 pounds</td>
<td>101 to 1,000 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
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</table>

**Sub #:** 2444  
**CAS #:**  
**DOT #:** 1993  
**HAZARDS**  
- ✔️ Fire
- ✔️ Sudden release of pressure
- ✔️ Reactive
- ✔️ Acute health effect
- ✔️ Chronic health effect
- None per MSDS

### Name: GASOLINE  
**Location(s):** TOOL SHED

<table>
<thead>
<tr>
<th>Pure Mixture</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max. daily inventory</th>
<th>Avg. daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️ Pure</td>
<td>✔️</td>
<td></td>
<td></td>
<td>Can</td>
<td>1 to 10 pounds</td>
<td>1 to 10 pounds</td>
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<td>Ambient temperature</td>
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</table>

**Sub #:** 0957  
**CAS #:** 8006-61-9  
**DOT #:** 1203  
**HAZARDS**  
- ✔️ Fire
- ✔️ Sudden release of pressure
- ✔️ Reactive
- ✔️ Acute health effect
- ✔️ Chronic health effect
- None per MSDS

### Name: HYDROFLUOROSILICIC ACID  
**Location(s):** FILTER BUILDING BASEMENT

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<thead>
<tr>
<th>Pure Mixture</th>
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<th>Gas</th>
<th>Container type</th>
<th>Max. daily inventory</th>
<th>Avg. daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️ Pure</td>
<td>✔️</td>
<td></td>
<td></td>
<td>Carboy</td>
<td>11 to 100 pounds</td>
<td>11 to 100 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**Sub #:** 1665  
**CAS #:** 16961-83-4  
**DOT #:** 1778  
**HAZARDS**  
- ✔️ Fire
- ✔️ Sudden release of pressure
- ✔️ Reactive
- ✔️ Acute health effect
- ✔️ Chronic health effect
- None per MSDS
### COMMUNITY RIGHT TO KNOW SURVEY
#### 1993 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE  

<table>
<thead>
<tr>
<th>Name</th>
<th>Location(s)</th>
<th>Sub #</th>
<th>CAS #</th>
<th>DOT #</th>
<th>HAZARDS</th>
<th>Trade Secret</th>
<th>EPCRA Only</th>
</tr>
</thead>
<tbody>
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<td>LIQUID POLYMER</td>
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</tr>
<tr>
<td>MERCURY</td>
<td>MERCURY MANOMETER FILTER BUILDING</td>
<td>1183</td>
<td>7439-97-6</td>
<td>2809</td>
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<tr>
<td>MERCURY</td>
<td>MERCURY MANOMETER IN PUMP ROO</td>
<td>1183</td>
<td>7439-97-6</td>
<td>2809</td>
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<td>67-56-1</td>
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<td>PAINT ETC</td>
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<td><img src="https://example.com/table1" alt="Table" /></td>
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</table>
## COMMUNITY RIGHT TO KNOW SURVEY
### 1993 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

| Name: PETROLEUM DISTILLATE | Sub #: 2452 | CAS #: 64741-44-2 | DOT #:  
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Location(s): FILTER BUILDING BASEMENT</td>
<td>Pure Mixture</td>
<td>Solid</td>
<td>Plastic drum</td>
</tr>
<tr>
<td></td>
<td>Max.daily inventory</td>
<td>101 to 1,000 pounds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avg.daily inventory</td>
<td>101 to 1,000 pounds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Days on site</td>
<td>365</td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td>Storage pressure</td>
<td>Ambient pressure</td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td>Storage temperature</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

| Name: PETROLEUM OIL | Sub #: 2651 | CAS #: 1270 | DOT #:  
<table>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Location(s): TOOL SHED FILTER BLDG BASEMEN</td>
<td>Pure Mixture</td>
<td>Solid</td>
<td>Bottles or jugs (plastic)</td>
</tr>
<tr>
<td></td>
<td>Max.daily inventory</td>
<td>11 to 100 pounds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avg.daily inventory</td>
<td>1 to 10 pounds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Days on site</td>
<td>365</td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td>Storage pressure</td>
<td>Ambient pressure</td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td>Storage temperature</td>
<td>Ambient temperature</td>
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</tbody>
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| Name: PROPANE | Sub #: 1594 | CAS #: 74-98-6 | DOT #:  
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</thead>
<tbody>
<tr>
<td>Location(s): FILTER BUILDING BASEMENT</td>
<td>Pure Mixture</td>
<td>Solid</td>
<td>Cylinder</td>
</tr>
<tr>
<td></td>
<td>Max.daily inventory</td>
<td>11 to 100 pounds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avg.daily inventory</td>
<td>11 to 100 pounds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Days on site</td>
<td>365</td>
<td></td>
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<tr>
<td>Trade Secret</td>
<td>No</td>
<td>Storage pressure</td>
<td>Ambient pressure</td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td>Storage temperature</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

| Name: SODIUM BISULFITE | Sub #: 1685 | CAS #: 7631-90-5 | DOT #:  
<table>
<thead>
<tr>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Location(s): FILTER BUILDING UPSTAIRS</td>
<td>Pure Mixture</td>
<td>Solid</td>
<td>Bottles or jugs (plastic)</td>
</tr>
<tr>
<td></td>
<td>Max.daily inventory</td>
<td>1 to 10 pounds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avg.daily inventory</td>
<td>1 to 10 pounds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Days on site</td>
<td>365</td>
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</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td>Storage pressure</td>
<td>Ambient pressure</td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td>Storage temperature</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

| Name: SODIUM CHLORITE | Sub #: 1689 | CAS #: 7758-19-2 | DOT #:  
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Location(s): FILTER BUILDING BASEMENT</td>
<td>Pure Mixture</td>
<td>Solid</td>
<td>Plastic drum</td>
</tr>
<tr>
<td></td>
<td>Max.daily inventory</td>
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<tr>
<td></td>
<td>Avg.daily inventory</td>
<td>101 to 1,000 pounds</td>
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<tr>
<td></td>
<td>Days on site</td>
<td>365</td>
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<tr>
<td>Trade Secret</td>
<td>No</td>
<td>Storage pressure</td>
<td>Ambient pressure</td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td>Storage temperature</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**HAZARDS**
- Fire
- Sudden release of pressure
- Reactive
- Acute health effect
- Chronic health effect
- None per MSDS
## Community Right to Know Survey

### 1993 Chemical Inventory Report

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

### Sodium Hydroxide

<table>
<thead>
<tr>
<th>Location(s)</th>
<th>FILTER BUILDING BASEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub #</td>
<td>1706</td>
</tr>
<tr>
<td>CAS #</td>
<td>1310-73-2</td>
</tr>
<tr>
<td>DOT #</td>
<td>1823</td>
</tr>
</tbody>
</table>

**Name:** SODIUM HYDROXIDE  
**Container Type:** Steel drum  
**Max. Daily Inventory:** 101 to 1,000 pounds  
**Avg. Daily Inventory:** 101 to 1,000 pounds  
**Days on Site:** 365  
**Storage Pressure:** Ambient pressure  
**Storage Temperature:** Ambient temperature  

**HAZARDS**

- __Fire__
- __Sudden release of pressure__
- __Reactive__
- __Acute health effect__
- __None per MSDS__

### Sulfuric Acid

<table>
<thead>
<tr>
<th>Location(s)</th>
<th>FILTER BUILDING UPSTAIRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub #</td>
<td>1761</td>
</tr>
<tr>
<td>CAS #</td>
<td>7664-93-9</td>
</tr>
<tr>
<td>DOT #</td>
<td>1830</td>
</tr>
</tbody>
</table>

**Name:** SULFURIC ACID  
**Container Type:** Bottles or jugs (plastic)  
**Max. Daily Inventory:** Less than 1 pound  
**Avg. Daily Inventory:** Less than 1 pound  
**Days on Site:** 365  
**Storage Pressure:** Ambient pressure  
**Storage Temperature:** Ambient temperature  

**HAZARDS**

- __Fire__
- __Sudden release of pressure__
- __Reactive__
- __Acute health effect__
- __Chronic health effect__
- __None per MSDS__
COMMUNITY RIGHT TO KNOW SURVEY
1994 CHEMICAL INVENTORY REPORT

Facility ID: 00456900000
Current Facility Name: UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>Name</th>
<th>Location(s)</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHLORINE</td>
<td>CHLORINE ROOM PUMP HOUSE CHLO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>✓ Pure Mixture ✓ Solid Liquid Gas</td>
<td>Container type Cylinder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixture</td>
<td>✓ Solid Liquid Gas</td>
<td>Max.daily inventory 101 to 1,000 pounds</td>
<td>Avg.daily inventory 101 to 1,000 pounds</td>
<td>Days on site 365</td>
</tr>
<tr>
<td>Location(s)</td>
<td>CHLORINE ROOM PUMP HOUSE CHLO</td>
<td>Storage pressure Ambient pressure</td>
<td>Storage temperature Ambient temperature</td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td>EPCRA Only No</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Location(s)</th>
<th>Sub #: 2444</th>
<th>CAS #:</th>
<th>DOT #: 1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIESEL FUEL OR #2 HEATING OIL</td>
<td>PUMP ROOM FILTER BUILDING</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>✓ Pure Mixture ✓ Solid Liquid Gas</td>
<td>Container type Tank inside building</td>
<td>Max.daily inventory 101 to 1,000 pounds</td>
<td>Avg.daily inventory 101 to 1,000 pounds</td>
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<tr>
<td>Mixture</td>
<td>✓ Solid Liquid Gas</td>
<td>Days on site 365</td>
<td>Storage pressure Ambient pressure</td>
<td>Storage temperature Ambient temperature</td>
</tr>
<tr>
<td>Location(s)</td>
<td>PUMP ROOM FILTER BUILDING</td>
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<tr>
<td>Trade Secret</td>
<td>No</td>
<td>EPCRA Only No</td>
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</tbody>
</table>
## COMMUNITY RIGHT TO KNOW SURVEY
### 1995 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>in 1995, did this facility Produce, Store or Use NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### SUBSTANCES

<table>
<thead>
<tr>
<th>Name: CHLORINE</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location(s): CHLORINE RM, PUMP HOUSE, CHLORINATION RM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Pure</td>
<td>✓ Liquid</td>
<td>Storage</td>
<td>Container type</td>
</tr>
<tr>
<td>Mixture</td>
<td>Gas</td>
<td>pressure</td>
<td>Max.daily inventory</td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>101 to 1,000 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **HAZARDS**
  - Fire
  - Sudden release of pressure
  - Reactive
  - Acute health effect
  - Chronic health effect
  - None per MSDS

<table>
<thead>
<tr>
<th>Name: DIESEL FUEL OR #2 HEATING OIL</th>
<th>Sub #: 2444</th>
<th>CAS #:</th>
<th>DOT #: 1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location(s): PUMP RM, FILTER BUILDING</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Pure</td>
<td>✓ Liquid</td>
<td>Storage</td>
<td>Container type</td>
</tr>
<tr>
<td>Mixture</td>
<td>Gas</td>
<td>pressure</td>
<td>Max.daily inventory</td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>101 to 1,000 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **HAZARDS**
  - Fire
  - Sudden release of pressure
  - Reactive
  - Acute health effect
  - Chronic health effect
  - None per MSDS
## COMMUNITY RIGHT TO KNOW SURVEY
### 1996 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000

**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>in 1996, did this facility</th>
<th>Produce, Store or Use</th>
<th>NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1. in any quantity?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### SUBSTANCES

#### CHLORINE

<table>
<thead>
<tr>
<th>Name: CHLORINE</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location(s):</td>
<td>CHLORINE ROOM PUMP HOUSE CHLORINATION ROOM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>✓ Pure Mixture ✓ Liquid Gas</td>
<td>✓ Solid</td>
<td>Container type Cylinder</td>
</tr>
<tr>
<td>Max.daily inventory</td>
<td>101 to 1,000 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>101 to 1,000 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### DIESEL FUEL OR #2 HEATING OIL

<table>
<thead>
<tr>
<th>Name: DIESEL FUEL OR #2 HEATING OIL</th>
<th>Sub #: 2444</th>
<th>CAS #:</th>
<th>DOT #: 1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location(s):</td>
<td>PUMP ROOM FILTER BUILDING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>✓ Pure Mixture ✓ Liquid Gas</td>
<td>✓ Solid</td>
<td>Container type Tank inside building</td>
</tr>
<tr>
<td>Max.daily inventory</td>
<td>101 to 1,000 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>101 to 1,000 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## COMMUNITY RIGHT TO KNOW SURVEY
### 1997 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

| in 1997, did this facility Produce, Store or Use NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state: |
|---|---|---|
| 1. in any quantity? | Yes | No |
| 2. above thresholds? | Yes | No |

*Note: This Section will be populated only if the facility is covered under the New Jersey Worker and Community Right to Know Act, N.J.S.A. 34:5A*

### SUBSTANCES

#### CHLORINE
- **Location(s):** CHLORINE RM, CHLORINATION RM
- **Sub #:** 0367  
- **CAS #:** 7782-50-5  
- **DOT #:** 1017

<table>
<thead>
<tr>
<th>Pure Mixture</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>Cylinder</td>
<td>101 to 1,000 pounds</td>
<td>101 to 1,000 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

- **HAZARDS**
  - Fire
  - Sudden release of pressure
  - Reactive
  - Acute health effect
  - Chronic health effect
  - None per MSDS

#### DIESEL FUEL OR #2 HEATING OIL
- **Location(s):** FILTER BLDG
- **Sub #:** 2444  
- **DOT #:** 1993

<table>
<thead>
<tr>
<th>Pure Mixture</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Tank inside building</td>
<td>101 to 1,000 pounds</td>
<td>101 to 1,000 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

- **HAZARDS**
  - Fire
  - Sudden release of pressure
  - Reactive
  - Acute health effect
  - Chronic health effect
  - None per MSDS
## COMMUNITY RIGHT TO KNOW SURVEY
1998 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td>✅</td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td>✅</td>
</tr>
</tbody>
</table>

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### SUBSTANCES

<table>
<thead>
<tr>
<th>Name</th>
<th>Location(s)</th>
<th>Sub #</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1027</th>
<th>HAZARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHLORINE</strong></td>
<td>CHLORINE RM, CHLORINATION RM</td>
<td>0367</td>
<td>Fire</td>
<td>Sudden release of pressure</td>
<td>Reactive</td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>Solid</td>
<td>Container type</td>
<td>Cylinder</td>
<td>101 to 1,000 pounds</td>
<td>101 to 1,000 pounds</td>
</tr>
<tr>
<td></td>
<td>Liquid</td>
<td>Avg.daily inventory</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gas</td>
<td>Storage pressure</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Location(s)</th>
<th>Sub #</th>
<th>CAS #: 74-98-6</th>
<th>DOT #: 1978</th>
<th>HAZARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROPANE</strong></td>
<td></td>
<td>1594</td>
<td>Fire</td>
<td>Sudden release of pressure</td>
<td>Reactive</td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>Solid</td>
<td>Container type</td>
<td>Above ground tank</td>
<td>1,001 to 10,000 pounds</td>
<td>1,001 to 10,000 pounds</td>
</tr>
<tr>
<td></td>
<td>Liquid</td>
<td>Avg.daily inventory</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gas</td>
<td>Storage pressure</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## COMMUNITY RIGHT TO KNOW SURVEY
### 1999 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE  

<table>
<thead>
<tr>
<th>in 1999, did this facility Produce, Store or Use NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td>✓</td>
<td>___</td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td>✓</td>
<td>___</td>
</tr>
</tbody>
</table>

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### SUBSTANCES

#### CHLORINE

<table>
<thead>
<tr>
<th>Name</th>
<th>Location(s)</th>
<th>Sub #</th>
<th>CAS #:</th>
<th>DOT #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHLORINE ROOM CHLORINATION ROOM</td>
<td>✓ Pure Mixture</td>
<td>0367</td>
<td>7782-50-5</td>
<td>1027</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Container type</th>
<th>Cylinder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max.daily inventory</td>
<td>101 to 1,000 pounds</td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>101 to 1,000 pounds</td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**HAZARDS**

- Fire
- ✓ Sudden release of pressure
- ✓ Reactive
- ✓ Acute health effect
- ✓ Chronic health effect
- None per MSDS

#### DIESEL FUEL OR #2 HEATING OIL

<table>
<thead>
<tr>
<th>Name</th>
<th>Location(s)</th>
<th>Sub #</th>
<th>CAS #:</th>
<th>DOT #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILTER BLDG</td>
<td>✓ Pure Mixture</td>
<td>2444</td>
<td>74-98-6</td>
<td>1993</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Container type</th>
<th>Tank inside building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max.daily inventory</td>
<td>101 to 1,000 pounds</td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>101 to 1,000 pounds</td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**HAZARDS**

- Fire
- ✓ Sudden release of pressure
- ✓ Reactive
- ✓ Acute health effect
- ✓ Chronic health effect
- None per MSDS

#### PROPANE

<table>
<thead>
<tr>
<th>Name</th>
<th>Location(s)</th>
<th>Sub #</th>
<th>CAS #:</th>
<th>DOT #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above ground tank</td>
<td>✓ Pure Mixture</td>
<td>1594</td>
<td>74-98-6</td>
<td>1978</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Container type</th>
<th>Above ground tank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max.daily inventory</td>
<td>1,001 to 10,000 pounds</td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>1,001 to 10,000 pounds</td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**HAZARDS**

- Fire
- ✓ Sudden release of pressure
- ✓ Reactive
- ✓ Acute health effect
- ✓ Chronic health effect
- None per MSDS
## COMMUNITY RIGHT TO KNOW SURVEY
### 2000 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th><strong>in 2000, did this facility</strong></th>
<th><strong>Produce, Store or Use</strong></th>
<th><strong>NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td>Yes</td>
<td>__</td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td>Yes</td>
<td>__</td>
</tr>
</tbody>
</table>

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### SUBSTANCES

<table>
<thead>
<tr>
<th>Name: CHLORINE</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location(s):</strong></td>
<td><strong>RIGHT FRONT OF BUILDING</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid Liquid</td>
<td>✓</td>
<td>Gas</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder</td>
<td>101 to 1,000 pounds</td>
<td>101 to 1,000 pounds</td>
<td>365</td>
<td>Greater than ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**HAZARDS**

- Fire
- ✓ Sudden release of pressure
- ✓ Reactive
- ✓ Acute health effect
- ✓ Chronic health effect
- __ None per MSDS

**EPCRA Only**

- No

**Trade Secret**

- No
## COMMUNITY RIGHT TO KNOW SURVEY
### 2001 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>1. in any quantity?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. above thresholds?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Note:** This Section will be populated only if the facility is covered under the New Jersey Worker and Community Right to Know Act, N.J.S.A. 34:5A

### SUBSTANCES

**Name:** CHLORINE  
**Sub #:** 0367  
**CAS #:** 7782-50-5  
**DOT #:** 1017

<table>
<thead>
<tr>
<th>Location(s)</th>
<th>Pure</th>
<th>Mixture</th>
<th>Liquid</th>
<th>Solid</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEFT FRONT WALL &amp; ROOM OF FILTER BUILDING</td>
<td>✔️</td>
<td></td>
<td></td>
<td>✔️</td>
<td></td>
</tr>
</tbody>
</table>

- **Container type:** Cylinder
- **Max.daily inventory:** 101 to 1,000 pounds
- **Avg.daily inventory:** 101 to 1,000 pounds
- **Days on site:** 365
- **Storage pressure:** Greater than ambient pressure
- **Storage temperature:** Ambient temperature

- **Trade Secret:** No
- **EPCRA Only:** No

### HAZARDS

- ✔️ Sudden release of pressure
- ✔️ Reactive
- ✔️ Acute health effect
- ✔️ Chronic health effect
- _None per MSDS_
COMMUNITY RIGHT TO KNOW SURVEY  
2002 CHEMICAL INVENTORY REPORT

Facility ID: 00456900000  
Current Facility Name: UNITED WATER SUEZ LAMBERTVILLE

| in 2002, did this facility Produce, Store or Use NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state: |
|---|---|---|
| 1. in any quantity? | Yes | No |
| 2. above thresholds? | Yes | No |

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### SUBSTANCES

<table>
<thead>
<tr>
<th>Name: CHLORINE</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location(s)</td>
<td>LEFT FRONT WALL &amp; ROOM OF FILTER BUILDING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Solid Liquid</td>
<td>✓</td>
<td>Gas</td>
<td></td>
</tr>
<tr>
<td>Container type</td>
<td>Cylinder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max.daily inventory</td>
<td>101 to 1,000 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>101 to 1,000 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Greater than ambient pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAZARDS</td>
<td>Fire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>Sudden release of pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>Reactive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>Acute health effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>Chronic health effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>___</td>
<td>None per MSDS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## COMMUNITY RIGHT TO KNOW SURVEY
### 2003 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

in 2003, did this facility **Produce, Store or Use** NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✔️</td>
</tr>
</tbody>
</table>

**Note:** This Section will be populated only if the facility is covered under the New Jersey Worker and Community Right to Know Act, N.J.S.A. 34:5A

### SUBSTANCES

<table>
<thead>
<tr>
<th>Name</th>
<th>Location(s)</th>
<th>Sub #</th>
<th>CAS #:</th>
<th>DOT #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHLORINE</td>
<td>LEFT FRONT WALL/CHLORINE ROOM</td>
<td>0367</td>
<td>7782-50-5</td>
<td>1017</td>
</tr>
</tbody>
</table>

- **Pure Mixture:** ✔️
- **Liquid:** ✔️
- **Solid:** ✔️
- **Gas:** ✔️

- **Container type:** Cylinder
- **Max. daily inventory:** 101 to 1,000 pounds
- **Avg. daily inventory:** 101 to 1,000 pounds
- **Days on site:** 365
- **Storage pressure:** Greater than ambient pressure
- **Storage temperature:** Ambient temperature

**HAZARDS**
- Fire ✔️
- Sudden release of pressure ✔️
- Reactive ✔️
- Acute health effect ✔️
- Chronic health effect ✔️
- None per MSDS

<table>
<thead>
<tr>
<th>Name</th>
<th>Location(s)</th>
<th>Sub #</th>
<th>CAS #:</th>
<th>DOT #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPANE</td>
<td>OUTSIDE WALL/PUMP HOUSE</td>
<td>1594</td>
<td>74-98-6</td>
<td>1978</td>
</tr>
</tbody>
</table>

- **Pure Mixture:** ✔️
- **Liquid:** ✔️
- **Solid:** ✔️
- **Gas:** ✔️

- **Container type:** Cylinder
- **Max. daily inventory:** 101 to 1,000 pounds
- **Avg. daily inventory:** 101 to 1,000 pounds
- **Days on site:** 365
- **Storage pressure:** Ambient pressure
- **Storage temperature:** Ambient temperature

**HAZARDS**
- Fire ✔️
- Sudden release of pressure ✔️
- Reactive ✔️
- Acute health effect ✔️
- Chronic health effect ✔️
- None per MSDS
# COMMUNITY RIGHT TO KNOW SURVEY
## 2004 CHEMICAL INVENTORY REPORT

### Facility ID: 00456900000
### Current Facility Name: UNITED WATER SUEZ LAMBERTVILLE

In 2004, did this facility **Produce, Store or Use** NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

**Note:** This Section will be populated only if the facility is covered under the New Jersey Worker and Community Right to Know Act, N.J.S.A. 34:5A

### SUBSTANCES

**Name:** CHLORINE  
**Location(s):** LEFT FRONT WALL/CHLORINE ROOM

<table>
<thead>
<tr>
<th>Pure Mixture</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Pure</td>
<td>✓ Solid</td>
<td>✓ Liquid</td>
<td>✓ Gas</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder</td>
<td>101 to 1,000 pounds</td>
<td>101 to 1,000 pounds</td>
<td>365</td>
<td>Greater than ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAZARDS</th>
</tr>
</thead>
</table>
| Fire    | ✓ Sudden release of pressure
| Reactive| ✓ Acute health effect
| Chronic health effect | ✓ Chronic health effect
| None per MSDS |

**Name:** PROPANE  
**Location(s):** OUTSIDE WALL/PUMP HOUSE

<table>
<thead>
<tr>
<th>Pure Mixture</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Pure</td>
<td>✓ Solid</td>
<td>✓ Liquid</td>
<td>✓ Gas</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder</td>
<td>101 to 1,000 pounds</td>
<td>101 to 1,000 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAZARDS</th>
</tr>
</thead>
</table>
| Fire    | ✓ Sudden release of pressure
| Reactive| ✓ Acute health effect
| Chronic health effect | ✓ Chronic health effect
| None per MSDS |
### COMMUNITY RIGHT TO KNOW SURVEY
2005 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>Produced, Stored or Used in 2005?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

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### SUBSTANCES

<table>
<thead>
<tr>
<th>Name: CHLORINE</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location(s): LEFT FRONT WALL/CHLORINE ROOM</td>
<td>Container type: Cylinder</td>
<td>Max. daily inventory: 500 to 999 pounds</td>
<td></td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>Solid Liquid Gas</td>
<td>Avg. daily inventory: 500 to 999 pounds</td>
<td></td>
</tr>
<tr>
<td>Trade Secret: No</td>
<td>Storage pressure: Greater than ambient pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPCRA Only: No</td>
<td>Storage temperature: Ambient temperature</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**HAZARDS**

- Fire ✓
- Sudden release of pressure ✓
- Reactive ✓
- Acute health effect ✓
- Chronic health effect ✓
- None per MSDS
Facility ID: 00456900000
Current Facility Name: UNITED WATER SUEZ LAMBERTVILLE

in 2006, did this facility Produce, Store or Use NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

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### SUBSTANCES

<table>
<thead>
<tr>
<th>Name: CHLORINE</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location(s)</td>
<td>LEFT FRONT WALL/CHLORINE ROOM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Container type</td>
<td>Cylinder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max.daily inventory</td>
<td>100 to 499 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>100 to 499 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### HAZARDS

- Fire
- Sudden release of pressure
- Reactive
- Acute health effect
- Chronic health effect
- None per MSDS
**COMMUNITY RIGHT TO KNOW SURVEY**  
**2007 CHEMICAL INVENTORY REPORT**

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>in 2007, did this facility Produce, Store or Use NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

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### SUBSTANCES

<table>
<thead>
<tr>
<th>Name: CHLORINE</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location(s):</strong> LEFT FRONT WALL/CHLORINE ROOM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid Liquid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Container type</td>
<td>Cylinder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max.daily inventory</td>
<td>100 to 499 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>100 to 499 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**HAZARDS**

- Fire
- Sudden release of pressure
- Reactive
- Acute health effect
- Chronic health effect
- ✓ None per MSDS
Facility ID: 00456900000
Current Facility Name: UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>in 2008, did this facility Produce, Store or Use NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td>✓</td>
<td>—</td>
</tr>
</tbody>
</table>

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### SUBSTANCES

<table>
<thead>
<tr>
<th>Name: CHLORINE</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location(s): LEFT FRONT WALL/CHLORINE ROOM</td>
<td>Container type: Cylinder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Pure Mixture</td>
<td>Solid Liquid</td>
<td>Gas</td>
<td>Max.daily inventory: 100 to 499 pounds</td>
</tr>
<tr>
<td></td>
<td>Avg.daily inventory: 100 to 499 pounds</td>
<td>Days on site: 365</td>
<td></td>
</tr>
<tr>
<td>Trade Secret: No</td>
<td>Storage pressure: Ambient pressure</td>
<td>Storage temperature: Ambient temperature</td>
<td></td>
</tr>
<tr>
<td>EPCRA Only: No</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**HAZARDS**

- Fire
- Sudden release of pressure
- Reactive
- Acute health effect
- Chronic health effect
- ✓ None per MSDS
Facility ID: 00456900000
Current Facility Name: UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>in 2009, did this facility Produce, Store or Use NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

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### SUBSTANCES

<table>
<thead>
<tr>
<th>Name:</th>
<th>CHLORINE</th>
<th>Sub #:</th>
<th>CAS #:</th>
<th>DOT #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location(s)</td>
<td>LEFT FRONT WALL CHLORINE ROOM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure</td>
<td>✓</td>
<td>Mixture</td>
<td>Solid</td>
<td>Liquid</td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Container type</td>
<td>Cylinder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max.daily inventory</td>
<td>100 to 499 pounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>100 to 499 pounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAZARDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>__</td>
<td>Fire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>__</td>
<td>Sudden release of pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>__</td>
<td>Reactive</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>__</td>
<td>Acute health effect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>__</td>
<td>Chronic health effect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>None per MSDS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
COMMUNITY RIGHT TO KNOW SURVEY
2010 CHEMICAL INVENTORY REPORT

Facility ID: 00456900000
Current Facility Name: UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>in 2010, did this facility</th>
<th>Produce, Store or Use</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>this facility</td>
<td>NJ CRTK Environmental</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous Substances in a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure or Mixture state:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. in any quantity?</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

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### SUBSTANCES

<table>
<thead>
<tr>
<th>Name: CHLORINE</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location(s):</td>
<td>LEFT FRONT</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WALL CHLORINE ROOM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Pure</td>
<td>Liquid</td>
<td>Container type</td>
<td>Cylinder</td>
</tr>
<tr>
<td>Mixture</td>
<td>Gas</td>
<td>Max.daily inventory</td>
<td>100 to 499 pounds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Avg.daily inventory</td>
<td>100 to 499 pounds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Days on site</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Storage pressure</td>
<td>Ambient pressure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Storage temperature</td>
<td>Ambient temperature</td>
</tr>
<tr>
<td>Trade Secret:</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPCRA Only:</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**HAZARDS**

- Fire
- Sudden release of pressure
- Reactive
- Acute health effect
- Chronic health effect
- ✓ None per MSDS
COMMUNITY RIGHT TO KNOW SURVEY
2011 CHEMICAL INVENTORY REPORT

Facility ID: 00456900000
Current Facility Name: UNITED WATER SUEZ LAMBERTVILLE

in 2011, did this facility **Produce, Store or Use** NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** This Section will be populated only if the facility is covered under the New Jersey Worker and Community Right to Know Act, N.J.S.A. 34:5A

### SUBSTANCES

<table>
<thead>
<tr>
<th>Name: CHLORINE</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
</table>

**Location(s):** LEFT FRONT WALL CHLORINE ROOM

<table>
<thead>
<tr>
<th>Pure</th>
<th>Mixture</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder</td>
<td>100 to 499 pounds</td>
<td>100 to 499 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

**HAZARDS**

- ✔ None per MSDS
- Sudden release of pressure
- Reactive
- Acute health effect
- Chronic health effect
- Fire

**EPCRA Only**

- No

**Trade Secret**

- No
### COMMUNITY RIGHT TO KNOW SURVEY
#### 2012 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000

**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>in 2012, did this facility <strong>Produce, Store or Use</strong> NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
</tr>
<tr>
<td>2. above thresholds?</td>
</tr>
</tbody>
</table>

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### SUBSTANCES

<table>
<thead>
<tr>
<th>Name: CHLORINE</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location(s)</strong></td>
<td>LEFT FRONT WALL CHLORINE ROOM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Container type</strong></td>
<td>Cylinder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max.daily inventory</td>
<td>100 to 499 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>100 to 499 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name: POLY ALUMINUM CHLORIDE</th>
<th>Sub #:</th>
<th>CAS #:</th>
<th>DOT #:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location(s)</strong></td>
<td>STORAGE TANKS EAST SIDE OF TREATMENT PLANT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure Mixture</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Container type</strong></td>
<td>Above ground tank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max.daily inventory</td>
<td>25,000 to 49,999 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg.daily inventory</td>
<td>25,000 to 49,999 pounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days on site</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPCRA Only</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## COMMUNITY RIGHT TO KNOW SURVEY
### 2013 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

In 2013, did this facility **Produce, Store or Use** NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:

1. in any quantity? **Yes**  **No**
2. above thresholds? **Yes**  **No**

**Note:** This Section will be populated only if the facility is covered under the New Jersey Worker and Community Right to Know Act, N.J.S.A. 34:5A

## SUBSTANCES

<table>
<thead>
<tr>
<th>Name: CHLORINE</th>
<th>Location(s): CHEMICAL ROOM</th>
<th>Sub #: 0367</th>
<th>CAS #: 7782-50-5</th>
<th>DOT #: 1017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure Mixture</td>
<td>Solid</td>
<td>Liquid</td>
<td>Gas</td>
<td>Container type</td>
</tr>
<tr>
<td>Max. daily inventory</td>
<td>100 to 499 pounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg. daily inventory</td>
<td>100 to 499 pounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAZARDS</td>
<td>Fire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None per MSDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name: POLY ALUMINUM CHLORIDE</th>
<th>Location(s): STORAGE TANKS EAST SIDE OF TREATMENT PLANT</th>
<th>Sub #:</th>
<th>CAS #: 39290-78-3</th>
<th>DOT #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure Mixture</td>
<td>Solid</td>
<td>Liquid</td>
<td>Gas</td>
<td>Container type</td>
</tr>
<tr>
<td>Max. daily inventory</td>
<td>25,000 to 49,999 pounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg. daily inventory</td>
<td>10,000 to 24,999 pounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days on site</td>
<td>365</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage pressure</td>
<td>Ambient pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Ambient temperature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAZARDS</td>
<td>Fire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None per MSDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## COMMUNITY RIGHT TO KNOW SURVEY
### 2014 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

in 2014, did this facility **Produce, Store or Use** NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td>✔</td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td>✔</td>
</tr>
</tbody>
</table>

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### SUBSTANCES

<table>
<thead>
<tr>
<th>Name</th>
<th>Location(s)</th>
<th>Sub #</th>
<th>CAS #</th>
<th>DOT #</th>
<th>HAZARDS</th>
</tr>
</thead>
</table>
| CHLORINE | CHEMICAL ROOM | 0367 | 7782-50-5 | 1017 | Fire  
Sudden release of pressure  
Reactive  
Acute health effect  
Chronic health effect  
None per MSDS |

<table>
<thead>
<tr>
<th>Pure</th>
<th>Mixture</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cylinder</td>
<td>100 to 499 pounds</td>
<td>100 to 499 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TRADE SECRET</th>
<th>EPCRA Only</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>POLY ALUMINUM CHLORIDE</th>
<th>Location(s)</th>
<th>Storage TANKS EAST SIDE OF TREATMENT PLANT</th>
<th>Sub #</th>
<th>CAS #</th>
<th>DOT #</th>
<th>HAZARDS</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pure</th>
<th>Mixture</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Above ground tank</td>
<td>25,000 to 49,999 pounds</td>
<td>10,000 to 24,999 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TRADE SECRET</th>
<th>EPCRA Only</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>
COMMUNITY RIGHT TO KNOW SURVEY
2015 CHEMICAL INVENTORY REPORT

Facility ID: 00456900000
Current Facility Name: UNITED WATER SUEZ LAMBERTVILLE

| in 2015, did this facility Produce, Store or Use NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state: |
|---|---|
| 1. in any quantity? | Yes | No |
| 2. above thresholds? | Yes | No |

**Note:** This Section will be populated only if the facility is covered under the New Jersey Worker and Community Right to Know Act, N.J.S.A. 34:5A

**SUBSTANCES**

<table>
<thead>
<tr>
<th>Name: ALUMINUM CHLORIDE HYDROXIDE SULFATE</th>
<th>Sub #: 254-</th>
<th>CAS #: 39290-78-3</th>
<th>DOT #: 1760</th>
</tr>
</thead>
</table>

**Location(s):** STORAGE TANKS EAST SIDE OF TREATMENT PLANT

<table>
<thead>
<tr>
<th>Pure</th>
<th>Mixture</th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
<th>Container type</th>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Above ground tank</td>
<td>10,000 to 24,999 pounds</td>
<td>5,000 to 9,999 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trade Secret</th>
<th>EPCRA Only</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**HAZARDS**

- ✔ Acute health effect
- _Reactive
- _Chronic health effect
- _None per MSDS

- Fire
- Sudden release of pressure
### COMMUNITY RIGHT TO KNOW SURVEY
#### 2016 CHEMICAL INVENTORY REPORT

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>in 2016, did this facility Produce, Store or Use NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. in any quantity?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Note:** This Section will be populated only if the facility is covered under the New Jersey Worker and Community Right to Know Act, N.J.S.A. 34:5A

---

### SUBSTANCES

<table>
<thead>
<tr>
<th>Name: ALUMINUM CHLORIDE HYDROXIDE SULFATE</th>
<th>Sub #: 254-</th>
<th>CAS #: 39290-78-3</th>
<th>DOT #: 1760</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location(s): STORAGE TANKS EAST SIDE OF TREATMENT PLANT</td>
<td>HAZARDS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pure ✓ Mixture ✓</td>
<td>Container type: Above ground tank</td>
<td>Fire</td>
<td></td>
</tr>
<tr>
<td>Solid ✓ Liquid</td>
<td>Max. daily inventory: 10,000 to 24,999 pounds</td>
<td>Sudden release of pressure</td>
<td></td>
</tr>
<tr>
<td>Mixture</td>
<td>Avg. daily inventory: 5,000 to 9,999 pounds</td>
<td>Reactive</td>
<td></td>
</tr>
<tr>
<td>Trade Secret No</td>
<td>Storage pressure: Ambient pressure</td>
<td>Acute health effect</td>
<td></td>
</tr>
<tr>
<td>EPCRA Only Yes</td>
<td>Storage temperature: Ambient temperature</td>
<td>Chronic health effect</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Days on site: 365</td>
<td>None per MSDS</td>
<td></td>
</tr>
</tbody>
</table>
**COMMUNITY RIGHT TO KNOW SURVEY**  
**2017 CHEMICAL INVENTORY REPORT**

**Facility ID:** 00456900000  
**Current Facility Name:** UNITED WATER SUEZ LAMBERTVILLE

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>in 2017, did this facility <strong>Produce, Store</strong> or <strong>Use</strong> NJ CRTK Environmental Hazardous Substances in a Pure or Mixture state:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. in any quantity?</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>2. above thresholds?</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

**Note:** This Section will be populated only if the facility is covered under the New Jersey Worker and Community Right to Know Act, N.J.S.A. 34:5A

### SUBSTANCES

**Name:** ALUMINUM CHLORIDE HYDROXIDE SULFATE  
**Sub #:** 254-  
**CAS #:** 39290-78-3  
**DOT #:** 1760

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Physical Hazards</th>
<th>Health Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>___ Solid</td>
<td>_ Explosive</td>
<td>_ Acute toxicity (any route of exposure)</td>
</tr>
<tr>
<td>___ Liquid</td>
<td>_ Flammable (gases, aerosols, liquids &lt; solids)</td>
<td>_ Skin corrosion or irritation</td>
</tr>
<tr>
<td>___ Gas</td>
<td>_ Oxidizer (liquid, solid or gas)</td>
<td>_ Serious eye damage or eye irritation</td>
</tr>
<tr>
<td>___ Pure</td>
<td>_ Self-reactive</td>
<td>_ Respiratory or skin sensitization</td>
</tr>
<tr>
<td>___ Mixture</td>
<td>_ Pyrophoric (liquid or solid)</td>
<td>_ Germ cell mutagenicity</td>
</tr>
<tr>
<td></td>
<td>_ Pyrophoric gas</td>
<td>_ Carcinogenicity</td>
</tr>
<tr>
<td></td>
<td>_ Self-heating</td>
<td>_ Reproductive toxicity</td>
</tr>
<tr>
<td></td>
<td>_ Organic peroxide</td>
<td>_ Reproductive toxicity</td>
</tr>
<tr>
<td></td>
<td>_ Corrosive to metal</td>
<td>_ Reproductive toxicity</td>
</tr>
<tr>
<td></td>
<td>_ Gas under pressure (compressed gas)</td>
<td>_ Reproductive toxicity</td>
</tr>
<tr>
<td></td>
<td>_ In contact with water emits flammable gas</td>
<td>_ Reproductive toxicity</td>
</tr>
<tr>
<td></td>
<td>_ Combustible dust</td>
<td>_ Reproductive toxicity</td>
</tr>
<tr>
<td></td>
<td>_ Physical hazard not otherwise classified</td>
<td>_ Reproductive toxicity</td>
</tr>
<tr>
<td></td>
<td>_ No physical hazards per SDS</td>
<td>_ Reproductive toxicity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Container type</th>
<th>Location(s): STORAGE TANKS EAST SIDE OF TREATMENT PLANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above ground tank</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max.daily inventory</th>
<th>Avg.daily inventory</th>
<th>Days on site</th>
<th>Storage pressure</th>
<th>Storage temperature</th>
<th>Trade Secret</th>
<th>EPCRA Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000 to 24,999 pounds</td>
<td>10,000 to 24,999 pounds</td>
<td>365</td>
<td>Ambient pressure</td>
<td>Ambient temperature</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
March 8, 2001

Keith Ward
26 Coryell Street
P.O. Box 126
Lambertville, NJ 08530-0126

Re: United Water Lambertville, Lambertville
NJDES # NJ00704244 PL ID# 465535

Dear Keith Ward:

The Department is planning to renew the Potable Water Treatment Plant Permit (PWTP) in the near future. All facilities currently authorized through this permit are automatically eligible to renew their authorization which expires on September 30, 2001. As you are aware, the permit requires a renewal application be submitted by 180 days before the permit expires. The attached Statement of Intent form can be used if you wish to have the opportunity to apply for the renewed PWTP. Please send all completed forms to the Bureau of Nonpoint Pollution Control by April 15, 2001.

The attached Statement of Intent form will notify the Department that you may wish to apply for the PWTP in lieu of submitting a complete renewal application for an individual Discharge to Ground Water (DGW) permit or this general permit. Upon review of the renewed PWTP, this form will serve as your request to be authorized under this general permit, unless the facility decides to pursue an individual DGW permit. The option to apply for an individual DGW permit upon review of the finalized PWTP terms and conditions should be exercised within 60 days after the renewal permit becomes available. If you are certain that you do not want authorization under the PWTP general permit you must submit a renewal application to the Bureau of Permit Management by April 15, 2001.

All facilities will receive a copy of the draft and final versions of the PTWP as they are completed. A draft renewal is anticipated within the next few months. If you have any questions or concerns about renewal of the PWTP general permit, please contact me at (609) 292-0407.

Sincerely,

June R. Gazek
Sr. Environmental Specialist

Encl.: Statement of Intent Form
cc: Bill Boehle, Bureau of Permit of Management
    Bureau Chron File
    Enforcement

New Jersey is an Equal Opportunity Employer
Recycled Paper
Keith Wood, Superintendent  
United Water Lambertville  
26 Coryell Street  
Lambertville, New Jersey 08530

August 1, 2001

Dear Mr. Wood:

Re: Compliance Evaluation and Assistance Inspection  
United Water Lambertville - Hill WTP  
NJPDES No. NJ0070424 - 2-G  
Lambertville City, Hunterdon County

A Compliance Evaluation and Assistance Inspection of your facility was conducted on July 25, 2001. Any comments or items marked as "out of compliance" in the attached report must be addressed within thirty (30) days in a written report directed to the undersigned.

This Department appreciates your cooperation in assisting us in the prevention and control of water pollution in New Jersey.

Very truly yours,

Douglas Speeney  
Principal Environmental Specialist  
Northern Bureau of Water Compliance and Enforcement

Enclosure

C: Joseph M. Mikulka, Chief, Northern Bureau of Water Compliance & Enforcement  
Hunterdon County Health Department
Re: Ground Water Master General Permit Renewal
Cat: I2 - Potable WTP Basins & Drying Beds (GP)
NJPDES NJ0108642
NJPDES MASTER GENERAL PERMIT PROGRAM INTEREST
TRENTON, MERCER COUNTY

Dear Permittee:

Enclosed is a draft renewal New Jersey Pollutant Discharge Elimination System (NJPDES) permit action identified above which has been issued in accordance with N.J.A.C. 7:14A. This renewal proposes the following changes:

Consolidation of the 4 monitoring programs into 2 monitoring programs and changing the monitoring program frequency from semi-annual to annual. Most facilities will have a decrease in monitoring, except for those who are currently in monitoring program 3. Those currently in monitoring program 3 will be required to sample annually for the trichloromethane compounds because more data is needed to properly assess the impact of these compounds on ground water quality.

Notice of this draft permit action will appear in the Trenton Times, Star Ledger and The Press of Atlantic City on or about March 5, 2003. It was previously published in the November 13, 2002 DEP Bulletin. The DEP Bulletin is available on the internet at http://www.state.nj.us/dep/bulletin or by contacting the DEP Document Distribution Center at (609) 777-4398. In accordance with N.J.A.C. 7:14A-15.10(c)(1), the public comment period will close thirty days after its appearance in the newspaper.

The procedures for submitting comments or requesting a public hearing on this draft action are detailed in the enclosed public notice and in the DEP Bulletin notice. If you have questions or comments regarding the draft action, please contact June R. Gazek at (609) 292-0407 or (609) 633-7021.

Sincerely,

Barry Chalofsky, P.P., Chief
Bureau of Nonpoint Pollution Control

Enclosures
• Permit Distribution List

Ref: [redacted]
NOTICE OF VIOLATION

UNITED WATER LAMBERTVILLE
26 Coryell St
Lambertville, NJ 08530

NOTICE OF VIOLATION

EA ID #: BEA070001 - 00456900000

You are hereby NOTIFIED that during a compliance evaluation of the above organization located at: Route 518, West Amwell Twp, NJ on 09/19/2007, the following violation of the New Jersey Worker and Community Right to Know Act (N.J.S.A. 34:5A-1 et seq.), and the New Jersey Worker and Community Right to Know Regulations (N.J.A.C. 7:1G et seq.), was determined.

Requirement: Pursuant to N.J.A.C. 7:1G-3.1(a), an employer shall complete and submit to the Department a Community Right to Know Survey for each facility covered by the rules, indicating if environmental hazardous substances (EHSs) were present during the reporting period and listing the EHSs that met or exceeded the threshold quantities for reporting listed at N.J.A.C. 7:1G-3.1(b). Pursuant to N.J.A.C. 7:1G-5.1(a), an employer subject to reporting under the Worker and Community Right to Know Act, regardless of whether the employer also meets the Federal requirements for reporting under Section 312 of SARA, shall transmit a Community Right to Know Survey for each covered facility to the Department by March 1 of the year following the reporting year. Also, a copy shall be transmitted to the Right to Know County: Lead Agent in which County the facility is located, the Local Emergency Planning Committee (LEPC) and the facility's local Fire and Police Departments.

Description of Non-Compliance: The Department has determined that you failed to complete and submit to the Department by March 1, 2007 the Community Right to Know Survey for your facility for the 2006 reporting year.

The Department will not assess a penalty against you for the violation above if corrected by the deadline below.

You must take the following corrective actions:

On or before November 6, 2007, complete and submit a Community Right to Know Survey for the 2006 reporting year listing all EHSs that met or exceeded the threshold during the reporting period to the New Jersey Department of Environmental Protection, Office of Pollution Prevention and Right to Know, P.O. Box 405, Trenton, NJ 08625-0405. The Office can be reached at (609) 292-6714. The Community Right to Know Survey can be submitted electronically at: www.nj.gov/dep/online. Also, a copy shall be mailed to the Right to Know County: Lead Agent in which County the facility is located, the LEPC and the facility's local Fire and Police Departments.

Issuance of this Notice of Violation serves as notice to you that the Department has determined that a violation has occurred and does not preclude the State of New Jersey or any of its agencies from initiating administrative or judicial enforcement action, or from assessing penalties or from modifying this Notice of Violation, with respect to this or other violations. Violations of the above regulations are subject to penalties of up to $2,500.00 per day/offense.

Issued by: Michael DiGiore Date: October 3, 2007

Signature: Michael DiGiore

Disclaimer: this notice of violation has been rescinded.
Dave Fournier  
Suez Water New Jersey Lambertville  
756 Brunswick Pike,  
Lambertville, NJ 08530

Re: Lead and Copper Rule Update – Materials Evaluation & Sampling Pool

In August 2016, the Division of Water Supply and Geoscience (Division) notified you of its ongoing evaluation and implementation of the Federal Lead and Copper Rule (Rule). Since then, the Division has requested lead and copper and water quality parameter sampling plans from over 500 water systems. The Division has developed a workplan based on a phased approach to request, review and approve the sampling plans for community and nontransient noncommunity water systems.

At this time, we are encouraging all water systems that have not yet been required to submit their sampling plans, to begin conducting the necessary materials evaluation of their water system. When the Federal Lead and Copper Rule was first enacted, water systems were required to conduct a materials evaluation and develop a sampling pool of sites based on the most vulnerable locations. However, based on recent experience, many water systems do not have a thorough understanding of the materials within their distribution system; including the location of lead services lines and construction/interior plumbing of their customers’ residences. Therefore, it is strongly recommended you take steps and allocate resources to begin evaluating your entire distribution system (not just those sample site locations you have used previously) and develop a detailed sampling pool based on the materials evaluation in accordance with the Rule. Undertaking this evaluation now, will assist you with being able to timely submit a complete plan once requested and will help to ensure that appropriate sampling is being conducted.

To assist you in this effort, the Division developed a website specifically for lead in drinking water for public water systems at http://www.nj.gov/dep/watersupply/dwe-lead.html. The website contains valuable resources including fact sheets, sampling plan guidance and templates, and forms. Specifically, a fact sheet regarding the materials evaluation and site selection may be found at http://www.nj.gov/dep/watersupply/pdf/lead-me-site-selection-fs.pdf.

If you need to update the Division’s contact information for this water system, please complete the Systems General Contact Information Update Form available at http://www.nj.gov/dep/watersupply/dws-sampreg.html and submit it to the Bureau of Safe Drinking Water via email to watersupply@dep.nj.gov or fax to 609-292-1654.
Your continued attention to this matter is both necessary and appreciated. If you have any questions on the materials evaluation or sampling plans, please contact the Division’s Lead Team at (609) 292-2957.

Sincerely,

[Signature]

Patricia L. Gardner
Director, Division of Water Supply & Geoscience

cc: Division of Water Supply and Geoscience, Lead Team (via email)
    NJDEP, Water Compliance and Enforcement (via email)
    County Health Departments (via email)
January 25, 2017

Dave Fournier  
Suez Water New Jersey Lambertville  
756 Brunswick Pike  
Lambertville, NJ 08530

RE: Notice of Non-Compliance  
Suez Water New Jersey Lambertville  
PWSID No.: 1017001  
EA ID #: PEA170001 - 1017001

Dear Dave Fournier:

Enclosed for service upon you is a Notice of Non-Compliance issued by the Department.

If you have any questions concerning the enclosed Notice please contact the Bureau of Safe Drinking Water at (609) 292-5550 or by letter at the address above. When contacting this office, reference PWSID No. 1017001, and EA ID #: PEA170001 and ask to speak with a representative of the Compliance Unit so that we can assist you more efficiently.

Sincerely,

[Signature]

Sandra Krietzman, Bureau Chief  
Bureau of Safe Drinking Water

Enclosure  
cc: Hunterdon County Health Department

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NOTICE OF NON-COMPLIANCE

EA ID #: PEA170001 - 1017001

Name: Suez Water New Jersey Lambertville
Location: Brunswick Pk
Aka Rt 518
West Amwell Twp, NJ 08530
Identifying #: PWSID No. 1017001

You are hereby NOTIFIED that a review of our records conducted on January 24, 2017 found that your facility was out of compliance with the regulations promulgated pursuant to the New Jersey Safe Drinking Water Act, N.J.S.A. 58: 12A-1 et seq. This NOTICE OF NON-COMPLIANCE has been recorded as part of the permanent enforcement history of Suez Water New Jersey Lambertville at the above location because your water system failed to comply with the following requirement:

Requirement: Public water systems that use a surface water source or a ground water source that is under the direct influence of surface water and provide filtration treatment must continuously monitor the residual disinfectant concentration of the water entering the distribution system and report the lowest daily disinfectant residual along with the date and duration of any period when the residual disinfectant concentration fell below 0.2 mg/L in accordance with 40 CFR 141.75(b)2 and [40 CFR 141.74(c)(2)]

Violation Details: MONITORING, MAJOR (SWTR-FILTER) for CHLORINE for the period 12/01/2016 to 12/31/2016 for the following sample point ID: TP001002 RTE 518 TP.

In response to this NOTICE OF NON-COMPLIANCE the following corrective actions must be undertaken to achieve compliance:

1. Submit a complete compliance sampling report within fifteen (15) calendar days of the date of this Notice to the Bureau of Safe Drinking Water (Bureau) for the monitoring period and contaminant noted in the Violation Details above if the sampling was performed. All monitoring results must be submitted to the Bureau electronically via the E2 Reporting System or, for those parameters that are not yet E2 Reporting compatible, on the appropriate analytical input form to the address and/or fax number noted above.
2. Complete the Tier 3 public notification requirements within one (1) year from the date of this Notice in accordance with 40 CFR 141.204 et seq. ONLY if the required sampling was NOT performed.

3. Submit a copy of the completed public notification, and a certification, within ten (10) days of completing the public notification requirements indicating that the public water system has fully complied with the public notification requirements. The certification and a representative copy of each type of notice distributed, published, posted and made available to the persons served by the system and the media must be submitted to the Bureau of Safe Drinking Water at the letterhead address above.

This NOTICE OF NON-COMPLIANCE does not constitute final agency action and may not be appealed or contested. The issuance of this Notice or your compliance therewith does not preclude the State of New Jersey or any of its agencies from initiating formal administrative and/or judicial enforcement action, including assessment of penalties, with respect to the items of non-compliance listed above or for any other violations. Violations of the above regulations are subject to penalties of up to $25,000.00 per day/offense and in the event of formal administrative or enforcement action, you may appeal or contest such action or penalties.

Issued by: Sandra Krietzman, Bureau Chief
Bureau of Safe Drinking Water

Signature: ____________________________ Date: January 25, 2017
Department of Environmental Protection – Division of Water Supply and Geoscience
Bureau of Safe Drinking Water
Mail Code 401-04Q - P.O. Box 420
Trenton, New Jersey 08625-0420
Tel # 609-292-5550 – Fax #609-292-1654

Public Notification Certification Form – Tiers 1, 2 & 3
Requirements Pursuant to 40 CFR 141, Subpart Q and N.J.A.C. 7:10

**This form and a copy of your Notice to the Public must be submitted to the State within 10 days of notifying your customers.**

PWSID#: 1017001  Water System Name: Suez Water New Jersey Lambertville
Violation #: 4015  Violation or Situation Date: ______________
Individual Contaminant or Contaminant Group: Chlorine
Monitoring Period: 12/01/2016 to 12/31/2016,
Violation or Situation Type: (Check appropriate box) □ MCL □ Treatment Technique □ Water Main Break
□ MRDL □ E. coli Positive Source Water Sample □ Monitoring and Reporting □ Other: ______________
Violation or Situation Public Notification Tier: (Check appropriate box) □ Tier 1 □ Tier 2 □ Tier 3

Please check all that apply and provide information as indicated below:
1. □ Consulted with DEP within 24 hours (Tier 1) or 48 hours (Tiers 2 & 3)  Date: __________
2. □ Distributed the notice by the following method(s), and on the following date(s) in accordance with 40 CFR 141.201 et seq:
   - Reverse 911  Date: __________
   - Continuously Post  Date: __________
   - Separate Mailing to Customers  Date: __________
   - Hand Deliver Notice to Customers  Date: __________
   - Publish Notice in Newspaper  Date: __________
   - Release Notice to and Announced by Broadcast Media  Date: __________
   - Post Notice on System Website  Date: __________
   - Billing  Date: __________
   - Annual Report (Consumer Confidence Report)  Date: __________
   - Other: ______________  Date: __________

Note: Non-community water systems that serve a school, preschool or daycare must also hand deliver the notice to a parent or legal guardian of each child for Tier 1, 2 and 3 violations and situations. For more information reference EPA’s Public Notification Handbook at: http://www.epa.gov/safewater/publicnotification/compliancehelp.html

3. □ Content – 10 Required Elements Checklist: 40 CFR 141 Subpart Q (Ensure all items are included in the notice)
   - Description of violation or situation including contaminant and contaminant levels as appropriate
   - Date violation or situation occurred.
   - Potential adverse health risks, using mandatory language provided in the rule.
   - Required language for Monitoring and Reporting Violations, provided in the rule.
   - The population at risk, including sub-populations particularly vulnerable if exposed.
   - Whether alternate water supply should be used.
   - What action consumers should take, including when to seek medical help, if known.
   - What the system is doing to correct the violation or situation.
   - When the system expects to return to compliance or resolve the situation.
   - Contact information: Owner name, business address, and phone number of the water system owner, operator or designee that can provide additional information concerning the notice.
   - A statement encouraging recipients to distribute the notice to other persons served, using standard language from the rule.

4. □ Attach a copy of the posted Public Notice(s) to this certification form.

The public water system named above hereby certifies that public notification has been provided to its consumers in accordance with all delivery, content, and format requirements specified in 40 CFR Part 141 and N.J.A.C 7:10.

Owner/Operator: __________________________________________ (Signature) ______________ (Print Name) ______________ (Phone Number) ______________
Date of Certification: ____________________ Operator License # (if applicable) ____________________

Office Use Only
Reviewed by: ____________________ Date: ____________________
October 27, 2016

Joseph Meyer
United Water  Lambertville
756 Brunswick Pike
Lambertville, NJ 08530

RE: Notice of Non-Compliance
United Water  Lambertville
PWSID No.: 1017001
EA ID #: PEA160001 - 1017001

Dear Joseph Meyer:

Enclosed for service upon you is a Notice of Non-Compliance issued by the Department.

If you have any questions concerning the enclosed Notice please contact the Bureau of Safe Drinking Water at (609) 292-5550 or by letter at the address above. When contacting this office, reference PWSID No. 1017001, and EA ID #: PEA160001 and ask to speak with a representative of the Compliance Unit so that we can assist you more efficiently.

Sincerely,

Sandra Krietzman, Bureau Chief
Bureau of Safe Drinking Water

Enclosure
cc: Hunterdon County Health Department

NJEMS/sd_interface_template_mr
NOTICE OF NON-COMPLIANCE

EA ID #: PEA160001 - 1017001

Name: United Water Lambertville
Location: Brunswick Pk
Aka Rt 518
West Amwell Twp, NJ 08530
Identifying #: PWSID No. 1017001

You are hereby NOTIFIED that a review of our records conducted on October 26, 2016 found that your facility was out of compliance with the regulations promulgated pursuant to the New Jersey Safe Drinking Water Act, N.J.S.A. 58: 12A-1 et seq. This NOTICE OF NON-COMPLIANCE has been recorded as part of the permanent enforcement history of United Water Lambertville at the above location because your water system failed to comply with the following requirement:

Requirement: Public water systems that use a surface water source or a ground water source that is under the direct influence of surface water and provide filtration treatment must continuously monitor the residual disinfectant concentration of the water entering the distribution system and report the lowest daily disinfectant residual along with the date and duration of any period when the residual disinfectant concentration fell below 0.2 mg/L in accordance with 40 CFR 141.75(b)(2) and [40 CFR 141.74(c)(2)]

Violation Details: MONITORING, MAJOR (SWTR-FILTER) for CHLORINE for the period 09/01/2016 to 09/30/2016 for the following sample point ID: TP001002 RTE 518 TP.

In response to this NOTICE OF NON-COMPLIANCE the following corrective actions must be undertaken to achieve compliance:

1. Submit a complete compliance sampling report within fifteen (15) calendar days of the date of this Notice to the Bureau of Safe Drinking Water (Bureau) for the monitoring period and contaminant noted in the Violation Details above if the sampling was performed. All monitoring results must be submitted to the Bureau electronically via the E2 Reporting System or, for those parameters that are not yet E2 Reporting compatible, on the appropriate analytical input form to the address and/or fax number noted above.
2. Complete the Tier 3 public notification requirements within one (1) year from the date of this Notice in accordance with 40 CFR 141.204 et seq. ONLY if the required sampling was NOT performed.

3. Submit a copy of the completed public notification, and a certification, within ten (10) days of completing the public notification requirements indicating that the public water system has fully complied with the public notification requirements. The certification and a representative copy of each type of notice distributed, published, posted and made available to the persons served by the system and the media must be submitted to the Bureau of Safe Drinking Water at the letterhead address above.

This NOTICE OF NON-COMPLIANCE does not constitute final agency action and may not be appealed or contested. The issuance of this Notice or your compliance therewith does not preclude the State of New Jersey or any of its agencies from initiating formal administrative and/or judicial enforcement action, including assessment of penalties, with respect to the items of non-compliance listed above or for any other violations. Violations of the above regulations are subject to penalties of up to $25,000.00 per day/offense and in the event of formal administrative or enforcement action, you may appeal or contest such action or penalties.

Issued by: Sandra Krietzman, Bureau Chief
Bureau of Safe Drinking Water

Signature: ___________________________ Date: October 27, 2016
Public Notification Certification Form – Tiers 1, 2 & 3

Requirements Pursuant to 40 CFR 141, Subpart Q and N.J.A.C. 7:10

"This form and a copy of your Notice to the Public must be submitted to the State within 10 days of notifying your customers."

PWSID#: 1017001  Water System Name: United Water, Lambertville

Violation #: 4014  Violation or Situation Date: 

Individual Contaminant or Contaminant Group: Chlorine

Monitoring Period: 09/01/2016 to 09/30/2016.

Violation or Situation Type: (Check appropriate box) [ ] MCL [ ] Treatment Technique [ ] Water Main Break
[ ] MRDL [ ] E. coli Positive Source Water Sample [ ] Monitoring and Reporting [ ] Other: 

Violation or Situation Public Notification Tier: (Check appropriate box) [ ] Tier 1 [ ] Tier 2 [ ] Tier 3

Please check all that apply and provide information as indicated below:

1. [ ] Consulted with DEP within 24 hours (Tier 1) or 48 hours (Tiers 2 & 3)  Date: 

2. [ ] Distributed the notice by the following method(s), and on the following date(s) in accordance with 40 CFR 141.201 et seq:
   - Reverse 911  Date: 
   - Continuously Post  Date: 
   - Separate Mailing to Customers  Date: 
   - Hand Deliver Notice to Customers  Date: 
   - Publish Notice in Newspaper  Date: 
   - Release Notice to and Announced by Broadcast Media  Date: 
   - Post Notice on System Website  Date: 
   - Billing  Date: 
   - Annual Report (Consumer Confidence Report)  Date: 
   - Other:  Date: 

Note: Non-community water systems that serve a school, preschool or daycare must also hand deliver the notice to a parent or legal guardian of each child for Tier 1, 2 and 3 violations and situations. For more information reference EPA’s Public Notification Handbook at: http://www.epa.gov/safewater/publicnotification/compliancehelp.html

3. [ ] Content – 10 Required Elements Checklist: 40 CFR 141 Subpart Q (Ensure all items are included in the notice)
   - Description of violation or situation including contaminant and contaminant levels as appropriate
   - Date violation or situation occurred.
   - Potential adverse health risks, using mandatory language provided in the rule.
   - Required language for Monitoring and Reporting Violations, provided in the rule.
   - The population at risk, including sub-populations particularly vulnerable if exposed.
   - Whether alternate water supply should be used.
   - What action consumers should take, including whom to seek medical help, if known.
   - What the system is doing to correct the violation or situation.
   - When the system expects to return to compliance or resolve the situation.
   - Contact information: Owner name, business address, and phone number of the water system owner, operator or designee that can provide additional information concerning the notice.
   - A statement encouraging recipients to distribute the notice to other persons served, using standard language from the rule.

4. [ ] Attach a copy of the posted Public Notice(s) to this certification form.

The public water system named above hereby certifies that public notification has been provided to its consumers in accordance with all delivery, content, and format requirements specified in 40 CFR Part 141 and N.J.A.C 7:10.

Owner/Operator: 
(circle one) (Signature) (Print Name) (Phone Number)

Date of Certification:  Operator License # (if applicable) 

Office Use Only
Reviewed by:
Date:
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Comments:

Pre-Print Creation Date: 7/1/2008
New Jersey Department of Environmental Protection
Equipment Inventory

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<th>Grand-Fathered</th>
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New Jersey Department of Environmental Protection
Insignificant Source Emissions
New Jersey Department of Environmental Protection
Non-Source Fugitive Emissions
New Jersey Department of Environmental Protection
Reason for Application
New Jersey Department of Environmental Protection
Facility Profile (Permitting)
New Jersey Department of Environmental Protection  
Control Device Inventory

<table>
<thead>
<tr>
<th>CD NJID</th>
<th>Facility's Designation</th>
<th>Description</th>
<th>CD Type</th>
<th>Install Date</th>
<th>Grand-Fathered</th>
<th>Last Mod. (Since 1968)</th>
<th>CD Set ID</th>
</tr>
</thead>
</table>
New Jersey Department of Environmental Protection
Facility Profile (General)

Facility Name (AIMS): UNITED WATER LAMBERTVILLE
Facility ID (AIMS): 80473

Street 756 BRUNSWICK PK
Address: RT 518
Lambertville, NJ 08530

Mailing 756 BRUNSWICK PK
Address: RT 518
Lambertville, NJ 08530

County: Hunterdon
Location Description:

State Plane Coordinates:
X-Coordinate:
Y-Coordinate:
Units:
Datum:
Source Org.:
Source Type:

Industry:
Primary SIC:
Secondary SIC:
NAICS: 22131
New Jersey Department of Environmental Protection
Facility Profile (General)

Contact Type: Air Permit Information Contact
Organization: Suez Water Lambertville
Name: David Fournier
Title: Operations Manager
Phone: ( ) - x
Fax: ( ) - x
Other: (610) 613-8928 x
Type: Mobile
Email: david.fournier@suez-na.com

Mailing Address: 756 Brunswick Pike
HILL WTP
Lambertville, NJ 08530

Org. Type: Utility
NJ EIN:

Contact Type: Fees/Billing Contact
Organization: Suez Water Lambertville
Name: David Fournier
Title: Operations Manager
Phone: ( ) - x
Fax: ( ) - x
Other: (610) 613-8928 x
Type: Mobile
Email: david.fournier@suez-na.com

Mailing Address: 756 Brunswick Pike
HILL WTP
Lambertville, NJ 08530

Org. Type: Utility
NJ EIN:

Contact Type: Responsible Official
Organization: Suez Water Lambertville
Name: David Fournier
Title: Operations Manager
Phone: ( ) - x
Fax: ( ) - x
Other: (610) 613-8928 x
Type: Mobile
Email: david.fournier@suez-na.com

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</tr>
</thead>
<tbody>
<tr>
<td>PT2</td>
<td>Stack</td>
<td>Emerg. Gen. E80473 Stack</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
### Potential to Emit

**Subject Item:** U1 HILL WTP  
**Operating Scenario:** OS0 Summary

<table>
<thead>
<tr>
<th>Air Contaminant Category (HAPS)</th>
<th>Fugitive Emissions Before Controls</th>
<th>Emissions After Controls</th>
<th>Total Emissions</th>
<th>Units</th>
<th>Alt. Em. Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>0.00250000 tons/yr</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>NOx (Total)</td>
<td>0.00960000 tons/yr</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>PM-10 (Total)</td>
<td>0.00030000 tons/yr</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>SO2</td>
<td>0.00000000 tons/yr</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>TSP</td>
<td>0.00030000 tons/yr</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>VOC (Total)</td>
<td>0.00030000 tons/yr</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**Subject Item:** U1 HILL WTP  
**Operating Scenario:** OS1 PLANT

<table>
<thead>
<tr>
<th>Air Contaminant Category (HAPS)</th>
<th>Fugitive Emissions Before Controls</th>
<th>Emissions After Controls</th>
<th>Total Emissions</th>
<th>Units</th>
<th>Alt. Em. Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>0.00250000 tons/yr</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>NOx (Total)</td>
<td>0.00960000 tons/yr</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>PM-10 (Total)</td>
<td>0.00030000 tons/yr</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>SO2</td>
<td>0.00000000 tons/yr</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
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<tr>
<td>TSP</td>
<td>0.00030000 tons/yr</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>VOC (Total)</td>
<td>0.00030000 tons/yr</td>
<td></td>
<td></td>
<td>No</td>
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</tbody>
</table>
### New Jersey Department of Environmental Protection
### Emission Unit/Batch Process Inventory

**U 1 HILL WTP (GP-005A) Emergency Generators burning Distillate Fuels**

<table>
<thead>
<tr>
<th>UOS</th>
<th>Facility's Designation</th>
<th>UOS Description</th>
<th>Operation Type</th>
<th>Signif. Equip.</th>
<th>Control Device(s)</th>
<th>Emission Point(s)</th>
<th>SCC(s)</th>
<th>Annual Oper. Hours</th>
<th>Flow (acfm)</th>
<th>Temp. (deg F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS1</td>
<td>PLANT</td>
<td>1 MMBTU/Hr Emerg. Gen. (150 kW) Diesel fuel, 6 hrs/yr</td>
<td>Normal - Steady State</td>
<td>E80473</td>
<td>PT2</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Date: 2/21/2018
### SWNJ - LAMBERTVILLE WTP (80473)

**GEN160001**

**New Jersey Department of Environmental Protection**

**Facility Specific Requirements**

**Date:** 2/21/2018

**Emission Unit:** U1 (GP-005A) Emergency Generators burning Distillate Fuels

**Operating Scenario:**

<table>
<thead>
<tr>
<th>Ref.#</th>
<th>Applicable Requirement</th>
<th>Monitoring Requirement</th>
<th>Recordkeeping Requirement</th>
<th>Submittal/Action Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>All emergency generator(s) are subject to the State Requirements below from Item #2 to Item #11. [N.J.A.C. 7:27- 8.13(a)]</td>
<td>None.</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>2</td>
<td>During operation of the emergency generator(s), the Permittee shall not cause, suffer, allow or permit smoke the shade or appearance of which is darker than number 1 on the Ringelmann smoke chart or greater than 20 percent opacity, exclusive of visible condensed water vapor, to be emitted into the outdoor air from the combustion of fuel in any emergency generator for a period of more than 10 consecutive seconds. [N.J.A.C. 7:27- 3.5]</td>
<td>None.</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>3</td>
<td>This equipment shall not cause any air contaminant, including an air contaminant detectable by the sense of smell, to be present in the outdoor atmosphere in such quantity and duration which is, or tends to be, injurious to human health or welfare, animal or plant life or property, or would unreasonably interfere with the enjoyment of life or property, except in areas over which the owner or operator has exclusive use or occupancy. [N.J.A.C. 7:27- 5]</td>
<td>None.</td>
<td>None.</td>
<td>Notify by phone: Upon occurrence of event. Any operation of the equipment which may cause a release of air contaminants in a quantity or concentration which poses a potential threat to public health, welfare, or the environment or which might reasonably result in citizen complaints shall be reported by the Permittee as required by the Air Pollution Control Act. Such notification shall be made by calling the Environmental Action Hotline at (877) 927-6337. [N.J.S.A. 26: 2C-19(e)].</td>
</tr>
</tbody>
</table>
### New Jersey Department of Environmental Protection
#### Facility Specific Requirements

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<tr>
<td>4</td>
<td>The maximum annual operating hours for normal testing and maintenance per emergency generator shall not exceed the hours as selected by the Permittee in the registration form, not to exceed 100 hours per year per emergency generator. The limit on the allowable hours for normal testing and maintenance is in accordance with the documentation from manufacturer, the vendor, company policy or the insurance company associated with the engine. [N.J.A.C. 7:27- 8.13(a)]</td>
<td>Monitored by hour/time monitor continuously. Permittee shall install, calibrate and maintain the monitor(s) in accordance with the manufacturer's specifications. The monitor(s) shall be ranged such that the allowable value is approximately mid-scale of the full range current/voltage output. [N.J.A.C. 7:27- 8.13(d)]</td>
<td>Other: See Recordkeeping Item #7(a). [N.J.A.C. 7:27- 8.13(d)].</td>
<td>None.</td>
</tr>
<tr>
<td>5</td>
<td>The Permittee shall keep records of the following for the life of the equipment: 1. The maximum rated gross heat input in MMBTU per hour (HHV), per manufacturer's specifications or calculated from maximum fuel consumption. 2. Generator's maximum rated power output in kW or BHP. 3. Engine model year. [N.J.A.C. 7:27- 8.13(a)]</td>
<td>None.</td>
<td>Recordkeeping by manual logging of parameter or storing data in a computer data system once initially. Keep records in accordance with this applicable requirement. [N.J.A.C. 7:27- 8.13(d)]</td>
<td>None.</td>
</tr>
<tr>
<td>6</td>
<td>The equipment shall not combust distillate fuel oil, which has a sulfur content exceeding 0.0015% sulfur by weight (15 ppm). Fuel purchased after obtaining this GP-005A shall not exceed this limit of 15 ppm. However, each Permittee may use any existing distillate fuel contained in the fuel oil storage tank until it is depleted as long as the Permittee can document the following; a) The sulfur content is consistent and in compliance with N.J.A.C 7:27-9; and b) It can be verifiable by the Department that the existing distillate fuel was contained in the fuel oil storage tank before obtaining this GP-005A. [N.J.A.C. 7:27- 8.13(b)]</td>
<td>Monitored by review of fuel delivery records per delivery, showing sulfur content. [N.J.A.C. 7:27- 8.13(d)]</td>
<td>Recordkeeping by invoices / bills of lading / certificate of analysis per delivery, showing fuel oil sulfur content. [N.J.A.C. 7:27- 8.13(d)]</td>
<td>None.</td>
</tr>
</tbody>
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### New Jersey Department of Environmental Protection
#### Facility Specific Requirements

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<tr>
<td>7</td>
<td>The emergency generator(s) specified in the permit shall be operated only under the following situations: (a) During the performance of normal testing and maintenance procedures, as recommended in writing by the manufacturer, the facility's standard operating procedure, and/or as required in writing by a Federal or State law or regulation EXCEPT on days when the Department forecasts air quality anywhere in New Jersey to be &quot;unhealthy&quot; or &quot;very unhealthy&quot; or &quot;hazardous&quot;. Procedures for determining the air quality forecasts for New Jersey are available at the Department air quality website at <a href="http://www.state.nj.us/dep/aqpp/aqforecast">http://www.state.nj.us/dep/aqpp/aqforecast</a>; or (b) When there is a power outage or the facility's primary source of mechanical or thermal energy fails because of an emergency, (for fire pump(s) used to provide power to pump water for fire suppression or protection, or in case of flood, and/or sensors detect a loss of pressure in the fire water system – as when one or more sprinkler heads actuate due to exposure to heat above their design temperature); or (c) When there is a voltage reduction issued by PJM and posted on the PJM internet website (<a href="http://www.pjm.com">www.pjm.com</a>) under the &quot;Emergency Procedures&quot; menu. [N.J.A.C. 7:27-8.13(d)]</td>
<td>Monitored by hour/time monitor continuously. Permittee shall install and operate a totalizing, non-resettable hour meter monitoring the total hours of operation per year for each generator. [N.J.A.C. 7:27-8.13(d)]</td>
<td>Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Permittee shall record the following information for each EG for each site: (a) Total operating time from the EG's hour meter, once per month; (b) If a voltage reduction is the reason for use of the EG(s), a copy of the voltage reduction notification from PJM or other documentation of the voltage reduction, upon occurrence of event; and (c) If testing or maintenance is the reason for the operation of the EG(s), the Permittee shall record the following upon occurrence of event: 1. The reason for its operation; 2. The date(s) of operation and the start-up and shutdown time; 3. The total operating time for testing or maintenance based on the EG's hour meter; and 4. The name of the operator. (d) Location where the EG was operated during an emergency as defined in N.J.A.C. 7:27-19.1. The Permittee of an EG shall maintain records on-site for a period of no less than 5 years after the records was made and shall make the records available to the Department. [N.J.A.C. 7:27-8.13(d)]</td>
<td>None.</td>
</tr>
<tr>
<td>8</td>
<td>The emergency generator(s) may be operated at any other locations (within the State of New Jersey) including major facilities with a Title V operating permit only in the event of emergency as defined in N.J.A.C. 7:27-19.1. [N.J.A.C. 7:27-8.13(a)]</td>
<td>Other: See Monitoring Requirement Item #7. [N.J.A.C. 7:27-8.13(d)].</td>
<td>Other: See Recordkeeping Requirement Item #7. [N.J.A.C. 7:27-8.13(d)].</td>
<td>None.</td>
</tr>
<tr>
<td>Ref#</td>
<td>Applicable Requirement</td>
<td>Monitoring Requirement</td>
<td>Recordkeeping Requirement</td>
<td>Submittal/Action Requirement</td>
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<tr>
<td>9</td>
<td>The Permittee shall change oil and filter every 500 hours of operation or as per manufacturer, whichever comes first. [N.J.A.C. 7:27- 8.13(a)]</td>
<td>None.</td>
<td>Other: The Permittee must keep records of the date and the hour meter reading at the time of each oil and filter replacement event. All records shall be maintained on site for a period of no less than five years and made readily accessible to the Department upon request. [N.J.A.C. 7:27- 8.13(d)].</td>
<td>None.</td>
</tr>
<tr>
<td>10</td>
<td>The Permittee shall inspect the air cleaner every 1000 hours of operation or as per manufacturer, whichever comes first and replace as necessary. [N.J.A.C. 7:27- 8.13(a)]</td>
<td>None.</td>
<td>Other: The Permittee must keep records of the date and the hour meter reading at the time of each air cleaner inspection and replacement event. All records shall be maintained on site for a period of no less than five years and made readily accessible to the Department upon request. [N.J.A.C. 7:27- 8.13(d)].</td>
<td>None.</td>
</tr>
<tr>
<td>11</td>
<td>The Permittee shall inspect all hoses and belts every 500 hours of operation or as per manufacturer, whichever comes first and replace as necessary. [N.J.A.C. 7:27- 8.13(a)]</td>
<td>None.</td>
<td>Other: The Permittee must keep records of the date and the hour meter reading at the time of each hoses/belts inspection and replacement event. All records shall be maintained on site for a period of no less than five years and made readily accessible to the Department upon request. [N.J.A.C. 7:27- 8.13(d)].</td>
<td>None.</td>
</tr>
<tr>
<td>12</td>
<td>Engines Subject to NSPS III: The emergency generators manufactured after April 1, 2006 (if a fire pump - after July 1, 2006) shall use liquid fuel, beginning October 1, 2010, that contains the following per gallon standards: i. 15 ppm (0.0015%) maximum sulfur content, and ii. A minimum cetane index of 40; or iii. A maximum aromatic content of 35 volume percent; except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. [40 CFR 60.4207(b)]</td>
<td>Monitored by review of fuel delivery records once per bulk fuel shipment. For each diesel delivery received, the owner or operator shall review written documentation of the delivery to ensure the maximum allowable fuel oil sulfur content and either a minimum cetane index of a maximum aromatic content is not exceeded. Such written documentation can include, but is not limited to: a bill of lading, delivery invoice, certificate of analysis. [N.J.A.C. 7:27- 8.13(d)]</td>
<td>Recordkeeping by invoices / bills of lading / certificate of analysis once per bulk fuel shipment. The owner or operator shall keep records of fuel showing fuel oil sulfur content and either a minimum cetane index or a maximum aromatic content for each delivery received. All records must be maintained for a minimum of 2 years following the date of such records, per 40 CFR 60.7(f). [N.J.A.C. 7:27- 8.13(d)]</td>
<td>None.</td>
</tr>
</tbody>
</table>
# New Jersey Department of Environmental Protection
## Facility Specific Requirements

**SWNJ - LAMBERTVILLE WTP (80473)**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>13</td>
<td>Engines Subject to NSPS III: Owners and operators of an emergency generator(s) must operate and maintain the equipment to achieve the emissions standards as required in 40 CFR 60.4205 over the entire life of the engine. [40 CFR 60.4206]</td>
<td>None.</td>
<td>Other: The owner or operator shall keep the manufacturer's emission-related written instructions. [40 CFR 60.4211].</td>
<td>None.</td>
</tr>
<tr>
<td>14</td>
<td>Engines Subject to NSPS III: Emergency generator(s) may be operated for the purpose of maintenance checks and readiness testing limited to 100 hours per year, provided that those tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. [40 CFR 60.4211(f)]</td>
<td>Monitored by hour/time monitor continuously. The owner or operator must install a non-resettable ho startup of the engine. [40 CFR 60.4209(a)]</td>
<td>Other: Starting with the model year 2011, 2012, or 2013 (depending on the maximum engine power as provided in Table 5 in NSPS III), the owner or operator must keep records of the operation of the engine in emergency service that are recorded through the non-resettable hour meter. [40 CFR 60.4214(b)].</td>
<td>None.</td>
</tr>
<tr>
<td>15</td>
<td>Engines Subject to NSPS III: Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder (that are not fire pump engines) must comply with the emission standards in Table I. [<a href="http://www.ecfr.gov">http://www.ecfr.gov</a> (Title 40; Part 60.4200 - Appendix - Table 1 to Subpart III of Part 60)] [40 CFR 60.4205(a)]</td>
<td>Other: The owner and operator shall demonstrate compliance with this requirement by choosing one of the following: 1) Purchasing an engine certified according to 40 CFR Part 89 or 40 CFR Part 94, as applicable for the same model year and maximum power. The engine must be installed and configured according to the manufacturer's specifications; OR 2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly; OR 3) Keeping records of engine manufacturer data indicating compliance with the standards. [40 CFR 60.4211(b)].</td>
<td>Other: The owner or operator must keep records of one of the following: 1) Keep documentation from the manufacturer that the engine is certified according to 40 CFR Part 89 or 40 CFR Part 94, as applicable for the same model year and maximum engine power, to meet the emission standards; OR 2) Keep records of performance test results for each pollutant for a test conducted on a similar engine; OR 3) Keep records of engine manufacturer data indicating compliance with the standards. [40 CFR 60.4211].</td>
<td>None.</td>
</tr>
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### New Jersey Department of Environmental Protection
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<tr>
<td>16</td>
<td>Engines Subject to NSPS III: Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder (that are not fire pump engines) must comply with the emission standards in 40 CFR 94.8(a1). [<a href="http://www.ecfr.gov">http://www.ecfr.gov</a> (Title 40; Part 94.8 -Exhaust emission standards for Tier 1)] Tier 1 standards emissions limits in 40 CFR 94.8(a1): NOx emissions may not exceed the following values: (i) 17.0 g/kW-hr when maximum test speed is less than 130 rpm. (ii) 45.0 x N(E-0.20) when maximum test speed is at least 130 but less than 2000 rpm, where N is the maximum test speed of the engine in revolutions per minute. (iii) 9.8 g/kW-hr when maximum test speed is 2000 rpm or more. [40 CFR 60.4205(a)]</td>
<td>Other: The owner and operator shall demonstrate compliance with this requirement by choosing one of the following: 1) Purchasing an engine certified according to 40 CFR Part 89 or 40 CFR Part 94, as applicable for the same model year and maximum power. The engine must be installed and configured according to the manufacturer's specifications; OR 2) Keeping records of performance test results for each pollutants for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly; OR 3) Keeping records of engine manufacturer data indicating compliance with the standards. [40 CFR 60.4211(b)].</td>
<td>None.</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Engines Subject to NSPS III: Owners and operators of a 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder (that are not fire pump engines) must comply with the emission standards for new non-road CI engines in 40 CFR 60.4202, for all pollutants for the same model year and maximum engine power. [40 CFR 60.4205(b)]</td>
<td>Other: The owner and operator shall demonstrate compliance with this requirement by purchasing an engine certified to the emission standards in 60.4205(b), for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications. [40 CFR 60.4211(c)].</td>
<td>Other: The owner or operator must keep records of one of the following: 1) Keep documentation from the manufacturer that the engine is certified according to 40 CFR Part 89 or 40 CFR Part 94, as applicable for the same model year and maximum engine power, to meet the emission standards; OR 2) Keep records of performance test results for each pollutants for a test conducted on a similar engine; OR 3) Keep records of engine manufacture data indicating compliance with the standards. [40 CFR 60.4211].</td>
<td>None.</td>
</tr>
<tr>
<td>18</td>
<td>Engines Subject to NSPS III: Owners and operators of a 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder (that are not fire pump engines) must comply with the labeling requirements in 40 CFR 60.4210 (f). [40 CFR 60.4214(b)]</td>
<td>None.</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
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<tr>
<td>19</td>
<td>Engines Subject to NSPS III: Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder that PRE-DATE Table 3 must comply with the emission standards in Table 4 to this subpart, for all pollutants. [<a href="http://www.ecfr.gov">http://www.ecfr.gov</a> (Title 40; Part 60.4200 - Appendix - Table 4 to Subpart III of Part 60)]</td>
<td>Other: The owner and operator shall demonstrate compliance with this requirement by choosing one of the following: 1) Purchasing an engine certified according to 40 CFR Part 89 or 40 CFR Part 94, as applicable for the same model year and maximum power. The engine must be installed and configured according to the manufacturer's specifications; OR 2) Keeping records of performance test results for each pollutants for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly; OR 3) Keeping records of engine manufacturer data indicating compliance with the standards. [40 CFR 60.4205(c)]</td>
<td>Other: The owner or operator must keep records of one of the following: 1) Keep documentation from the manufacturer that the engine is certified according to 40 CFR Part 89 or 40 CFR Part 94, as applicable for the same model year and maximum engine power, to meet the emission standards; OR 2) Keep records of performance test results for each pollutants for a test conducted on a similar engine; OR 3) Keep records of engine manufacturer data indicating compliance with the standards. [40 CFR 60.4211].</td>
<td>None.</td>
</tr>
<tr>
<td>20</td>
<td>Engines Subject to NSPS III: Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder that are DATED AFTER Table 3 must comply with the emission standards in Table 4 to this subpart, for all pollutants. [<a href="http://www.ecfr.gov">http://www.ecfr.gov</a> (Title 40; Part 60.4200 - Appendix - Table 4 to Subpart III of Part 60)]</td>
<td>Other: The owner and operator shall demonstrate compliance with this requirement by purchasing an engine certified to the emission standards in 60.4205(c), for the same model year and NFPA name plate engine power. The engine must be installed and configured according to the manufacturer's specifications. [40 CFR 60.4211(c)].</td>
<td>Other: The owner or operator must keep documentation from the manufacturer that the engines is cetified according to 4205(c), as applicable for the same model year and maximum engine power, to meet the emission standards. [40 CFR 60.4211].</td>
<td>None.</td>
</tr>
<tr>
<td>21</td>
<td>Engines Subject to NSPS III: Owners or operators of a stationary CI internal combustion engine equipped with a diesel particulate filter shall install a backpressure monitor that notifies the owner or operator when the upper backpressure limit of the engine is approached. [40 CFR 60.4209(b)]</td>
<td>None.</td>
<td>None.</td>
<td>None.</td>
</tr>
</tbody>
</table>
### New Jersey Department of Environmental Protection

#### Facility Specific Requirements

<table>
<thead>
<tr>
<th>Ref#</th>
<th>Applicable Requirement</th>
<th>Monitoring Requirement</th>
<th>Recordkeeping Requirement</th>
<th>Submittal/Action Requirement</th>
</tr>
</thead>
</table>
| 22   | **Engines Subject to NSPS III:**  
Owner or operators must comply with the emission standards specified in this subpart, and shall do all of the following:  
1. Operate and maintain the stationary CI internal combustion engine (and control device if any) according to the manufacturer's emission-related written instructions;  
2. Change only those emission-related settings that are permitted by the manufacturer; and  
3. Meet the emission limits, as they apply to you. [40 CFR 60.4211(a)]                                                                                                            | None. | None.                         | None.                        |
| 23   | **Engines Subject to MACT ZZZZ:**  
The owner or operator of an existing stationary emergency CI RICE constructed or reconstructed before June 12, 2006 located at an area source of HAPs emissions (except for residential, commercial or institutional emergency stationary RICE) shall comply with the MACT requirements specified below in Item #24 to item #32. [40 CFR 63.6585]  | None. | None.                         | None.                        |
| 24   | **Engines Subject to MACT ZZZZ:**  
The owner or operator shall change oil and filter every 500 hours of operation or annually, whichever comes first; or, the owner or operator have the option to utilize an oil analysis program as described in 63.6625 (i). [40 CFR 63.6603(a)] | None. | Other: The owner or operator must keep records of the oil and filter change. Each record must be readily accessible for at least 5 years after the date of each occurrence. [40 CFR 63.6655(c)(2)]. | None.                        |
| 25   | **Engines Subject to MACT ZZZZ:**  
The owner or operator shall inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first; and replace as necessary. [40 CFR 63.6603(a)]                                                                                                                      | None. | Other: The owner or operator must keep records of the air cleaner inspections and replacement events. Each record must be readily accessible for at least 5 years after the date of each occurrence. [40 CFR 63.6655(c)(2)]. | None.                        |
<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>26</td>
<td>Engines Subject to MACT ZZZZ: The owner or operator shall inspect all hoses and belts every 500 hours of operation or annually, whichever comes first; and replace as necessary. [40 CFR 63.6603(a)]</td>
<td>None.</td>
<td>Other: The owner or operator must keep records of the belt and hoses inspection and replacement events. Each record must be readily accessible for at least 5 years after the date of each occurrence. [40 CFR 63.6655(c)(2)].</td>
<td>None.</td>
</tr>
<tr>
<td>27</td>
<td>Engines Subject to MACT ZZZZ: The owner or operator must be in compliance with the operating limitations and other requirements in Subpart ZZZZ of 40 CFR 63 that apply to you at all times. [40 CFR 63.6605(a)]</td>
<td>None.</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>28</td>
<td>Engines Subject to MACT ZZZZ: The owner or operator must operate and maintain a RICE including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. [40 CFR 63.6605(b)]</td>
<td>None.</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>29</td>
<td>Engines Subject to MACT ZZZZ: The owner or operator must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions, or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with the good air pollution control practice for minimizing emissions. [40 CFR 63.6625(e)]</td>
<td>None.</td>
<td>Other: The owner or operator must keep records of the maintenance procedures for the life of the equipment. [40 CFR 63.6655(d)].</td>
<td>None.</td>
</tr>
<tr>
<td>30</td>
<td>Engines Subject to MACT ZZZZ: The owner or operator must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. [40 CFR 63.6625(h)]</td>
<td>None.</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>Ref#</td>
<td>Applicable Requirement</td>
<td>Monitoring Requirement</td>
<td>Recordkeeping Requirement</td>
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<tr>
<td>31</td>
<td>Engines Subject to MACT ZZZZ: The owner or operator may operate the source for the purpose of maintenance checks and readiness testing, provided that the test are recommended by federal, state or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. [40 CFR 63.6640(f)(2)(i)]</td>
<td>Monitored by hour/time monitor continuously. The owner or operator must install a non-resettable hour meter if one is not already installed. [40 CFR 63.6625(f)]</td>
<td>Other: The owner or operator must document how many hours are spent for emergency operation; (including what classified the operation as emergency). [40 CFR 63.6655(f)].</td>
<td>None.</td>
</tr>
<tr>
<td>32</td>
<td>Engines Subject to MACT ZZZZ: The owner or operator shall comply with the applicable General Provisions to Subpart ZZZZ of 40 CFR 63. [40 CFR 63.6665]</td>
<td>None.</td>
<td>None.</td>
<td>None.</td>
</tr>
</tbody>
</table>
Compliance Schedule
Section B

POLLUTANT EMISSIONS SUMMARY

The following table indicates the facility's Potential to Emit (PTE) emission summary:

<table>
<thead>
<tr>
<th>Source Categories</th>
<th>Facility Total Potential to Emit (tons per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary</td>
</tr>
<tr>
<td></td>
<td>VOC (Total) NOx CO SO2 TSP Other (Total) PM-10 Pb HAPs (Total)</td>
</tr>
<tr>
<td>Emission Unit Summary</td>
<td>0.0003   0.0096 0.0025 0.0000 0.0003</td>
</tr>
<tr>
<td>Batch Process Summary</td>
<td></td>
</tr>
<tr>
<td>Insignificant Source Worksheet</td>
<td></td>
</tr>
<tr>
<td>Non-Source Fugitive Emission Worksheet</td>
<td></td>
</tr>
<tr>
<td>Intra Facility Emissions Trading Worksheet</td>
<td></td>
</tr>
<tr>
<td>Total Emissions</td>
<td>0.0003   0.0096 0.0025 0.0000 0.0003 0.0003 0.0000</td>
</tr>
</tbody>
</table>
Compliance Schedule