

**SCHEDULE 2**  
**WATER AND WASTEWATER OPERATION**  
**AND MAINTENANCE STANDARDS**

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**2.1 GENERAL PROVISIONS**

The Operator shall perform the Services in a professional, efficient and economical manner and in accordance with the terms and provisions set forth in the Management Services Agreement, this Schedule 2 and in compliance with all federal, State and local laws, regulations and requirements. The Operator shall provide, at its sole cost and expense, all labor, materials, machinery, vehicles, equipment, office equipment (copiers, typewriters, facsimile machines, computer systems, etc.), fuel, power, chemicals, supplies, materials, spare parts, expendables, consumables, testing and laboratory analysis, and all else necessary therefore or incidental thereto for the operation, maintenance, management and repair of the Systems by the Operator. The Operator shall, at all times, keep the Systems in good repair and working order. The Operator shall provide uninterrupted Services and provide Services twenty-four (24) hours per day, seven (7) days per week. Operational decision making shall always be based on the following overall objectives:

- Protection of health and welfare of the public;
- Protection of the health and safety of the operating staff;
- Preservation of the long-term capability of the water supply, water treatment, distribution, storage and wastewater collection systems;
- Protection of the environment;
- Protection of public and private property from flooding;
- Protection and preservation of the System(s); and
- Maximization of operational efficiency and minimization of operational costs

**2.2 OPERATIONS AND MAINTENANCE**

On and after the Commencement Date and through the Term of the Management Services Agreement, the Operator shall operate, manage, maintain and repair the Water and Wastewater Systems in accordance with all permits and regulatory requirements and all other terms and provisions of this Agreement. However, the Operator shall be allowed a transition period of up to six months to manage, operate, maintain and repair the Water and Wastewater Systems in accordance with the Operators' Operation and Maintenance Plan (O & M Plan) described in Section 2.5 of this Schedule.

The Operator shall maintain the Systems in good working order and repair and in a neat and orderly condition (regular cleanup of litter and debris as frequently as required and on a daily basis). The Operator shall maintain the aesthetic quality of the facilities as originally constructed and subsequently modified, with due allowance for reasonable wear and tear and depreciation. The Operator shall perform all predictive, preventive and corrective maintenance procedures in accordance with applicable federal, State and local laws, regulations and requirements, and generally accepted or recommended industry maintenance practices, procedures and standards for municipal water and wastewater and stormwater collection systems, but in no event less frequently and

comprehensively than that recommended or specified in manufacturers' warranties. The Operator shall maintain on behalf of the City all manufacturers' warranties on new equipment purchased pursuant to the Management Services Agreement, and shall cooperate in good faith with all reasonable requests and assist the City, at the Operator's sole cost and expense, in enforcing existing equipment warranties and guaranties relative to components of the Systems.

The subsequent sections set forth requirements and current operation and maintenance practices and requirements for the major Water System and Wastewater Collection System components. The total cost of the services outlined in this Schedule 2 are included in the Fixed Management Fee. Although the following paragraphs are intended to address the major activities required, they are not, however, intended to include all specific activities that are necessary for meeting the performance requirements set forth in the Management Services Agreement, Schedules, and the O&M Plan and in no way do they limit the generality of the Services under the Management Services Agreement. Further, it is the intent of the parties that Capital Improvements are to be financed and implemented by the City (unless otherwise indicated in this Agreement) and that all operation, management, maintenance and repair of the Systems is to be performed by Operator, including the costs related to such in accordance with this Agreement.

## **2.2.1 General**

### **Maintenance Management Program**

The Operator shall develop, implement and maintain a comprehensive computer-based maintenance management program that develops readily available historical data, including an inventory of spare parts and provisions for enforcing existing equipment warranties and guarantees and maintaining all warranties on new equipment purchased after the Commencement Date. The Operator shall implement such a maintenance management program to include preventative, predictive, and corrective maintenance for all components of the Water System and Wastewater System, including but not limited to:

- Buildings and structures
- Electrical systems and instrumentation
- Mechanical equipment
- Vehicles and other related Rolling Stock
- Laboratory, monitoring and sampling equipment
- Heating, ventilation, and air conditioning
- Communication equipment (i e , telephones, facsimiles, etc)
- Computer systems (software and hardware)
- Chemical feed systems
- Pumping systems
- Each treatment process component
- Water mains and valves
- Fire hydrants
- Auxiliary power facilities

- SCADA facilities
- Sewers and manholes
- Storm grates and drainage facilities
- Filtering facilities
- Back wash facilities
- Wells and Wellhouses
- Other facilities and systems contained within the Systems
- Other specialized tools and equipment

The Operator shall perform maintenance of the Water System and Wastewater System to preserve long-term reliability and conservation. Maintenance shall be performed in accordance with the terms and provisions of the Management Services Agreement, the O&M Plan, routine maintenance schedule, manufacturers' recommendations, federal, State and local requirements, and industry standards. The Operator shall maintain documentation of all maintenance activities

#### **Analytical Services**

The Operator shall perform testing, sampling and any other analytical procedures to demonstrate compliance with the Management Services Agreement, applicable regulatory requirements, and permit provisions. The Operator shall perform all applicable testing related to process control and water and wastewater monitoring in conformance with regulatory requirements. The Operator will be responsible and liable for conducting all necessary analyses whether the analyses are conducted at the on-site laboratory, at an off site laboratory operated by the Operator, or through a subcontracted service. Any subcontracted laboratory must be appropriately certified to perform the required analyses and be subject to approval by the City. The Operator shall prepare the data received from the testing laboratory for all applicable regulations, permits monitoring, and operating reports and shall forward the results from the laboratory to the appropriate State and regulatory agencies.

#### **Administrative Consent Orders**

The Operator shall be responsible for operation, management, maintenance and repair of the Systems in compliance with all permits and Administrative Consent Orders (ACOs), to the extent required in this Agreement

#### **Equipment and Chemicals**

The Operator shall keep all Equipment in good operating conditions and maintain adequate equipment in inventory in order to facilitate the repair and replacement of used or useful equipment, if necessary, in a timely fashion so as not to disrupt the operation of the Systems. Such equipment shall be of a quality and durability equal to or greater than the equipment being used and sufficient for its effective and cost-effective utilization, in inventory, or required herein to be secured as of the Commencement Date; and shall meet the specification provided for in the O&M Plan

The Operator shall operate all used or useful equipment, including equipment placed in service, and perform all tests and testing as may be required or recommended pursuant to applicable warranties, commercial or industrial standards and federal, State, and local laws, regulations and permits. The Operator shall enforce all warranties or agreements related to existing equipment, materials and services that are in effect at the Commencement Date. The Operator will be responsible to ensure extension of Warranties or Agreements, as appropriate. The Operator must assume various contracts for supplies and/or services, under the same terms and conditions, entered into by the City for the first Contract Year or, if earlier, the expiration of said contracts. The Operator shall be responsible for promptly notifying the City in the event of any major equipment failure.

All equipment, with the exception of Rolling Stock, and chemicals provided by the City on and after the Commencement Date, including any equipment and chemicals on order the Operator or the City for the System, shall be deemed to be owned by the City and shall remain a part of the Systems upon termination or expiration of the Management Services Agreement. All such equipment including rolling stock shall be in good operating condition, as adjusted for normal wear and tear.

Equipment and chemicals provided or to be provided by the Operator pursuant to the provisions of the Management Services Agreement shall be restricted to the Operator's use as necessary in performance of its obligations under the Management Services Agreement.

All water treatment chemicals used at the Water Systems shall be in accordance with AWWA standards and must be NSF approved for potable water treatment. Each chemical load delivered shall be tested for product quality and records maintained.

#### **Vehicle Maintenance**

The Operator shall operate, maintain (including insurance) and store the vehicles included in Schedule 10 of the Management Services Agreement, and/or any additional equipment provided by the Operator, as part of the Services. All maintenance on the vehicles shall be performed in accordance with the O&M Plan, manufacturer warranties, and standard industry practice. If the Operator wishes to reduce the existing inventory of vehicles, the Operator shall request the same from the City for review and approval. Schedule 10 shall be updated accordingly as a result of an approved sale.

#### **Buildings and Grounds Services**

The Operator shall perform Services to maintain the current condition of the Water and Wastewater Systems throughout the term of the Management Services Agreement. The facilities and facilities structures shall be maintained at a level adequate for the efficient, long-term reliability and preservation of the capital investment. The Operator shall at a minimum perform the following activities relevant to the equipment, buildings and grounds:

- Wash all windows twice per year or more frequently on an as-needed basis.

- Paint all facilities a minimum of once every 10 years.
- Repair all roof leaks within 10 days of discovery.
- Implement regularly scheduled pest control measures.
- Repair all plumbing leaks and failures immediately
- Damp mop all floors twice per week or more frequently on an as needed basis with a cleaning solution appropriate for use in such facilities. All spills are to be immediately cleaned.
- Strip all floors and apply new floor finish on a periodic basis.
- Apply floor finish to the extent necessary to maintain appearance and safety standards.
- Wash down wall tiles and clean all other walls every sixth Billing Month commencing with the first Billing Month of the Management Services Agreement.
- Apply paint as necessary and appropriate, but at a minimum every 5 years all paint surfaces will be repainted. Routinely perform touch-up painting and repairs of structures, building and piping (including hydrants), both interior and exterior.
- Clean offices and restrooms Monday through Friday
- Provide daily collection services for solid waste and other disposable items generated by the City Water and Wastewater Systems during performance of Services. A central location(s) shall be provided for storage. All solid waste shall be disposed on a minimum weekly basis.
- Shovel all sidewalks to maintain access to the Water and Wastewater Systems free of ice and snow.
- Vacuum all carpeted areas on a weekly basis, shampoo all rugs/carpeted areas twice per year or more frequently on an as-needed basis.
- Regular cleanup of litter and debris as frequently as required and on a daily basis at all System treatment plants.

### **Utilities**

As of the Commencement Date, the Operator shall be responsible for supplying and paying for all utilities including but not limited to natural gas, heating, fuel oil, telephone and water and electricity. Increases subsequent to Commencement Date in the rates charged by PSE&G (or other future electricity supplier) for electricity shall be a Pass-Through Charge to the City. Similarly, subsequent decreases in the rates charged by PSE&G (or other future electricity supplier) shall be a Pass-through Credit to the City. The rates in effect as of the Commencement Date are attached hereto as Schedule 9.

### **Planning**

The Operator shall be responsible for supporting the City's short and long-term planning for the Systems. The Operator shall be responsible for development and implementation of all planning documents as required by federal, State and local regulations and requirements. In addition, the Operator shall assist the City in preparing on an annual basis its capital improvement plan for the Systems. Plans to be developed and implemented by the Operator include but are not limited to:

- Residuals Disposal Plan
- Wellhead Protection Plan
- Water Conservation and Drought Management Plan
- Assist the City in review of Development Plans (to respond to inquiries from potential water customers)

### **Economic Development**

An important role of the Water System and the Wastewater Collection System is in providing reliable, below market cost water and wastewater services providing an attractive environment for economic development in the City. The Operator shall be a resource to the City in its economic planning by providing all reasonable services requested by the City or potential developers or others regarding potential development or rehabilitation within the City.

### **Permits**

The Operator shall be responsible for maintaining and for obtaining continuous compliance with all federal, State and local permits currently held by the City related to the Water and Wastewater Systems. In addition, the Operator will be required to obtain any permits (federal, State or local) required to operate, maintain, or enhance the Water and Wastewater Collection Systems over the Term of the Management Services Agreement. The Operator shall not be required to obtain permits in connection with construction activities implemented by the City. Costs associated with obtaining and complying with additional permits (permits not required on the Commencement Date) except for those permits required for the Capital Projects identified in Schedule 15 shall be treated as Pass-through Charges.

### **Solid Waste Management**

The Operator shall be required to provide containers for the disposal of and collection of all solid waste from within the Water and Wastewater Systems. The Operator shall be responsible for collection and delivery including disposal costs of all solid waste to City approved disposal facilities.

## **2.2.2 Water System Quantities**

In 1997, the average daily demand and maximum daily demand of water for the City's service area were approximately 12 and 18 MGD, respectively, (including losses). For the purposes of the Management Services Agreement, the Operator shall assume that the annual average and maximum daily water demand will be approximately 12 and 18 MGD respectively, excluding fire flow. The Fixed Management Fee shall be adjusted in the event that water demand changes by more than  $\pm 10$  percent (that is, the sum of the actual daily flow of water and wastewater in a year divided by the number of days in such year exceeds or is less than the sum of the actual daily flow of water and wastewater in 1998 divided by the number of days in 1998 by more than 10%). In the event that average daily and maximum daily demand increases by more than 10 percent, the Operator will be entitled to

an adjustment of the Fixed Management Fee. The City shall be entitled to an adjustment in the Fixed Management Fee if that average annual water demand decreases by more than 10 percent.

### **2.2.3 Raw Water Pumping**

The Operator shall operate, maintain and manage the Water Systems in accordance with the Management Services Agreement. The Operator is responsible for ensuring that the Water Systems comply with all applicable local, State, and federal codes and regulations to ensure safe and adequate drinking water for all consumers 24 hours per day, 7 days per week. Additional operational and maintenance requirements for the Water System are summarized below.

#### **2.2.3.1 General**

##### **Pumps, Motors, and Equipment**

All pumping facilities shall be exercised at least on a weekly basis unless otherwise agreed to by the City in writing. All Equipment not in continuous use shall be exercised weekly unless otherwise agreed to by the City in writing.

##### **Raw Water Wells**

The Operator shall maintain the current permitted, operational and capacity status of all wells identified in Water Allocation Permit No. 5302. The Operator shall be responsible for monitoring, operating and maintaining all wells in accordance with the Water Allocation Permit and NJDEP direction. The Operator shall also be responsible for Implementation of a well head protection program in accordance with all federal and State requirements. The well head protection program shall include implementation of improvements necessary to raise the wellhead of Delair Well Nos. 2 and 3 to above the anticipated high water levels in accordance with applicable rules and regulations.

##### **Raw Water Well Rehabilitation**

The Operator shall be responsible for implementing a proactive well rehabilitation program which at a minimum includes rehabilitation of at least two wells per year. The Operator shall be responsible for identification of the wells to be included in the rehabilitation program. All wells to be rehabilitated and the methods to be used for rehabilitation shall be described in the Operator's annual Operation and Maintenance Plan described in Section 2.5 of this Schedule and approved by the City.

##### **Location of Improperly Abandoned Wells**

The Operator shall locate all of the wells identified by NJDEP on the Prioritized List for the Sealing of Wells of Camden (Prioritized List). The Prioritized List is provided as Table S2-1. The rate at which the wells are to be located shall be acceptable to the City; however, in addition, (a) a minimum of 50 of the wells on the Prioritized List shall be located in each 12-

month period from the commencement of Contract Operations until completion of this task and (b) this task shall be completed prior to December 31, 2000. The Prioritized List may be modified, expanded or changed as the work proceeds, or as new wells are discovered, by written agreement between the Operator and the City. In the event that the Operator cannot locate a well listed on the Prioritized List and the Operator is able to demonstrate and document to the satisfaction of the City and the NJDEP that best efforts have been made but locating a particular well is not feasible, then the obligation to locate that well shall be deleted from this Agreement by written agreement of the Parties. The responsibility for sealing the wells shall remain with the City.

### **Raw Water Metering**

For each operational well, the Operator shall routinely monitor, calibrate, repair and/or replace all existing raw water flow meters in accordance with Manufacturer recommendations and State requirements. All flow meters shall be calibrated at least once every year. For the two operation Parkside Wells Nos 17 and 18, the raw water meter is on the influent line; for the Puchack Well Fields there are both individual well meters and an effluent plant meter; City Well No 11 has its own meter. At the Morris-Delair Well Field there are no individual flow meters on each well; therefore, meters on the influent lines to each of the eight degasifiers shall be maintained for the purpose of monitoring raw water quantities.

### **Facility Security**

The Operator shall develop and implement a plan to minimize vandalism and risks by providing adequate fencing, posting of signs and other security measures at the Morris-Delair Water Treatment Plant and all of other water and wastewater facilities owned by the City.

## **2.2.3.2 Raw Water Monitoring**

The Operator is required to perform raw water monitoring in conformance with all federal, State and local laws, regulations and requirements. A summary of the raw water monitoring currently performed by the City is summarized in Table S2-2.

## **2.2.3.3 Monitoring Wells Monitoring**

The Operator shall be responsible for maintaining and for monitoring the wells located adjacent to the Harrison Ave. Landfill in accordance with NJPDES Permit No. 0056111. Current monitoring requirements are summarized in Table S2-3.

## **2.2.4 Water Treatment**

### **2.2.4.1 General**

The Operator shall provide treated water in quantities meeting the production and quality requirements specified in this Schedule 2. The drinking water produced shall be in compliance with

all primary and interim primary drinking water regulations, including primary and secondary MCLs promulgated by the USEPA and NJDEP. The quality of the drinking water provided shall meet all applicable federal and State regulations and requirements at the point of discharge, at the point of entry into the distribution system, throughout the distribution system and at the tap.

#### **Finished Water Metering**

All existing flow meters located on finished water pipelines shall be routinely monitored, calibrated, repaired and or replaced in accordance with manufacturer recommendations and State requirements. All flow meters shall be calibrated at least once each year.

#### **Iron and Manganese Deposits**

The Operator shall be responsible for periodically removing accumulated iron and manganese deposits from exposed equipment surfaces and unit processes including but not limited to degasifiers, rapid mixers, flocculators, clarifiers and all process pipelines, culverts and other conveyances. The Operator shall be responsible for disposal of all accumulated material.

#### **Solids Handling and Residuals Disposal**

The Operator shall be responsible for continuing to operate the Solids Handling and Residuals Disposal System in accordance with NPDES-DGW Permit No. NJ0101991. Services include all monitoring, reporting and disposal of residuals with the NPDES-DGW permit. In addition, the Operator shall be responsible for maintenance and if necessary replacement of the residuals pumps and routing of the residuals collection and transmission pipelines (a minimum of twice annually or as needed).

In addition, the Operator shall furnish all labor, materials, equipment and incidentals required to repair or replace, and then to continuously maintain the embankments of the Morris-Delair Water Treatment Plant residuals lagoon and to allow for operation of the residuals lagoon without overflows. The Operator shall also design, erect and maintain a fencing system on the unprotected portion of the residuals lagoon in accordance with applicable regulations, industry standards and in accordance with existing ACO's within a reasonable time of Commencement Date.

The Operator may modify the current practice of using the residuals lagoon for the dewatering of Residuals and implement a more effective residuals management practice subject to approval by the City and NJDEP.

#### **2.2.4.2 Water Treatment Plant Monitoring**

The Operator is required to perform process and finished water monitoring in conformance with all federal, State and local laws, regulations and requirements. A summary of the current process and finished water monitoring program performed by the City is summarized in Table S2-4.

### **2.2.4.3 Water Treatment Plant Performance and Notification Requirements**

The Operator is required to operate the Water System in compliance with all Federal, State and local laws, regulations, and requirements and in conformance with applicable permits. Without in any way limiting the generality of the previous statement, the Operator shall also operate the Morris-Delair, Puchack and Parkside Water Treatment Plants in conformance with the water treatment plant performance requirements as provided in Table S2-5. A summary of the City's water treatment Conditions for Notification is presented in Table S2-6. The Operator shall at all times comply with these notification requirements as well as any other regulatory notification requirements

### **2.2.5 Distribution and Storage**

#### **2.2.5.1 General**

##### **Water Mains**

All water mains which become frozen or break shall be repaired or replaced as quickly as practicable, typically within 24 hours and in no event shall a repair take longer than three days, so as to minimize disruption of customer service.

##### **Valve Exercising Program**

The Operator shall propose a reasonable valve exercising program to be implemented in a progressive manner over the Term of the Management Services Agreement and to address those valves deemed to be critical to the Water System's operation. In general, many valves throughout the distribution system may not have been exercised in a considerable amount of time. All valves determined to be broken or inoperative shall be reported to the City as part of the Monthly Progress Report described in Section 2.4.1 of this Schedule 2.

##### **Fire Hydrants and Appurtenances**

The Operator shall be responsible for flushing all hydrants and water mains at least twice a year and the condition of and maintenance performed on the hydrants shall be recorded. All hydrants found to be broken or inoperable shall be bagged and shall be immediately replaced or repaired. The Operator shall also be responsible for replacing hydrants as well as associated hydrant locks and valves.

##### **Pressure**

The Operator shall operate all treatment plants and pumping facilities needed to maintain distribution system water pressure at all locations and under all conditions at least five pounds per square inch (psi) above distribution system pressure required by State regulations. In addition, the Operator shall maintain System pressure at a minimum of 40 psi throughout the System at all locations under normal operating conditions and at a minimum of 25 psi throughout the System at all locations under emergency conditions

The Operator shall provide full cooperation to Fire and Police Department personnel or their representatives in times of fire or other emergencies. This shall include but not be limited to coordination with Fire Department personnel in the event of fire fighting to provide as much water as required or practicable to meet fire fighting needs. This assistance shall include but not be limited to turning on additional wells and operation of the storage facilities.

#### **Water Storage**

The Operator shall be responsible for maintaining at least 75% combined water capacity in all storage tanks. Storage tank levels shall be monitored and controlled to ensure proper pressures for satisfactory service and fire fighting capabilities.

#### **Customer Meters and Service Lines**

The Operator shall be responsible for reading all meters on at least a quarterly basis. Broken, inaccurate or inoperable customer meters shall be promptly within 4 business days repaired or removed and replaced. Broken or inoperable meters shall be replaced with new meters provided by the City.

A description of the Operator's annual program for meter replacement shall be provided in the annual Operation and Maintenance Plan described in Section 2.5 of this Schedule.

It is anticipated that as of the Commencement Date, all existing residential connections will be metered. However, to the extent any residential connection is not made by the City prior to Commencement Date, the City will provide the Operator with a list of the remaining residential connections that will need to be metered. The meters and AMR equipment necessary to meter all un-metered connections are to be made available to the Operator by the City.

The Operator shall implement a program to test, repair and replace commercial/industrial meters, and replace residential meters, as described herein. All commercial/industrial meters, that are older than two (2) years, shall be tested within the first year of the contract. After the first year of the contract, commercial industrial meters shall be tested regularly, such that no meter is allowed to be untested for a period of time in excess of five (5) years. Commercial/industrial meters that fail to achieve an accuracy of 96 to 103% shall be repaired or replaced. The Operator shall be required to repair or replace all commercial/industrial meters, consistent with the terms of Schedule 22.

The Operator shall review the City's meter log to determine the age of existing meters. All meters will be replaced consistent with the Capital Improvement Program. All residential meters older than 2-1/2 years shall be replaced, within two years of the start of this Agreement, by the Operator, with radio AMR equipped meters supplied by the City. In the eleventh and twelfth years of the Agreement, the Operator shall again replace all residential meters that are older than 2-1/2 years, with new or rebuilt meters supplied by the City.

The Operator shall maintain the responsibility for the new meters after installation and the City shall retain ownership. The Operator shall maintain responsibility for all service lines that on the street side of the curb line. The customer shall be responsible for the service lines that are located on the property side of the curb line.

For service connections that have been abandoned and are no longer billed, the Operator shall isolate the service connection, remove the existing meter and remove or plug service lateral.

The total cost for providing the services related to the residential meter replacement program is included within Operator's Fixed Management Fee.

#### **Communications System**

The Operator shall be responsible for maintaining the existing radio based communications system. Operator maintenance includes the maintenance, repair and replacement of radio equipment associated with the water and sewer systems. Payment of licensing fees is excluded. The Operator may modify the current method of communication only upon approval of the City and Police Department.

#### **2.2.5.2 Distribution System Monitoring and Notification Requirements**

The Operator is required to perform distribution system monitoring in conformance with all federal, State and local laws, regulations and requirements and in conformance with applicable permits. The Operator shall also continue to perform all distribution system monitoring and notification procedures currently performed by the City as summarized in Table S2-7 and in Table S2-8.

#### **2.2.5.3 Distribution System Operating Requirements**

The Operator shall use its best efforts consistent with industry standards for meeting the Distribution System Operating requirements provided in Table S2-9.

#### **2.2.6 Wastewater Collection System**

The majority of all wastewater and a portion of the stormwater generated within the City is conveyed via interceptor sewer facilities to the Delaware No. 1 Wastewater Treatment Plant owned and operated by the Camden County Municipal Utilities Authority (CCMUA) where same is treated in accordance with an existing contract. Dedicated stormwater sewers discharge directly to the Delaware River. The Operator shall comply with all provisions of said contract. The Operator shall also operate the Systems in conformance with all requirements of said contract, including prohibited discharges and assistance with industrial pretreatment programs.

Further, the CCMUA Contract contains provisions for surcharges and penalties against industry for industrial pretreatment non-compliance. Existing municipal ordinances allow for the initiation of the enforcement action against violations of said ordinances, which are tied to the CCMUA regulations. The Operator must comply with all ordinances. The Operator will assist the City in enforcement actions against said violations including notice to the CCMUA of any violation.

In addition, the Operator shall operate, maintain, and manage the Wastewater Collection System in accordance with the Management Services Agreement. The Operator is responsible for ensuring that operation and maintenance of the collection system complies with all federal, State and local regulatory requirements, and within the standards set forth in the Management Services Agreement. Below are additional operational and maintenance requirements for the Wastewater Collection Systems.

### **2.2.6.1 General**

#### **Sewer Inventory**

The Operator shall be responsible for reviewing available Wastewater Collection System information for the purpose of identifying discrepancies between available sewer system inventories. The Operator shall resolve discrepancies and maintain an accurate inventory of the Wastewater Collection System. The Operator shall be responsible for updating existing GIS information as appropriate.

#### **Collection and Interceptor Sewers**

The Operator shall provide, at its sole cost and expense, all labor, materials, machinery, vehicles and equipment necessary to repair and/or replace of any manhole, or sewer main break, fracture, collapse or blockage including roadway repair. Repairs shall be made as soon as practicable and on a priority basis giving priority attention to situations immediately dangerous to public life and health and to those posing a threat to public and private property.

Repairs to all manholes shall be performed by the Operator. The total cost for repairs to manholes shall be included in the Fixed Management Fee.

The Operator shall also be responsible for cleaning all manholes, catch basins and collection and interceptor sewers at least once every three years or more frequently as needed to maintain pipe capacity and unobstructed flow.

The Operator shall also be responsible for performing CCTV inspections for:

- all manholes, sewer reaches and service connections in excess of 75 years of age,
- all sewer reaches where problems are reported (i.e. backups, road sags, roots, etc.), and

- subsequent to any significant repairs to the sewer system, to the area of repair to confirm that the repairs were successful.

A minimum of 15 miles of pipe and associated manholes shall be internally inspected per year based on priority until all pipes in excess of 75 years of age are inspected. Based on the results of the CCTV inspections, the Operator shall be responsible for development of a Comprehensive Sewer Rehabilitation Program which identifies recommended improvements and provides estimated costs for the rehabilitations.

#### **Service Connections**

The Operator shall conduct the TV inspections and the Comprehensive Sewer Rehabilitation Program identified in this Schedule 2. This program shall include preparation of a list of abandoned service connections to the sewer pipe that was televised. The severing of the service connections will be a Capital Improvement. The Operator shall be responsible for all services lines that are on the street side of the curb line. The customer shall be responsible for the service lines that are located on the property side of the curb line and for all blockages caused by waste material discharged from the property.

#### **Pumping Stations**

The Operator shall be responsible for inspecting and maintaining all City-owned pumping stations on a basis predicated on industry standards, manufacturer's recommendations and field conditions unique to the individual facility. A log shall be maintained of all inspections, services performed, problems encountered and other data as appropriate to the industry standards and regulations. The standby power for those stations so equipped shall be exercised at least weekly.

Based upon inspections of the existing pumping stations performed by the Operator, the Operator shall be responsible for developing a Pumping Station Rehabilitation Program. The Pumping Station Rehabilitation Program shall define all required improvements and associated costs to maintain or return the Pumping Stations to compliance with all applicable federal, State and local rules, regulations and requirements.

#### **Combined Sewer Overflows and Outfalls**

The Operator shall be responsible for the periodic quarterly cleaning and maintenance of all regulators, weirs, flood gates and outfalls (CSO Equipment).

#### **Residuals Disposal**

The Operator shall furnish all labor, materials, Equipment and incidentals required to remove and properly dispose of the residuals/debris collected at the pump stations, overflow structures or through cleaning of the sewer collection system in accordance with the requirements of all applicable federal, State and local regulations.

### **Industrial Pretreatment Program (IPP)**

The Operator shall coordinate with a designated person responsible for the City's IPP and notify the City and the CCMUA regarding known and/or suspected illegal discharges. The Operator shall provide reasonable assistance in the form of access, inspection, or similar activity to the CCMUA for implementation of the IPP

### **Preventive Maintenance Program**

The Operator shall within 90 days of Commencement Date develop and submit to the City for approval a preventive maintenance program for the Wastewater Collection System.

## **2.2.5.2 Wastewater Collection System Monitoring and Notification Requirements**

The Operator is required to perform Wastewater Collection System monitoring in conformance with all federal, State and local regulations and in conformance with applicable permits. Without in any way limiting the generality of the previous statement, the Operator shall also comply at all times with the City's wastewater collection Conditions for Notification as presented in Table S2-10.

## **2.3 OPERATION AND MAINTENANCE COSTS**

The Operator shall provide, at its sole cost and expense and within its Fixed Management Fee, all labor, materials, machinery, vehicles, storage areas, Equipment, office equipment (i.e., copiers, computers, etc.), fuel, chemicals, supplies, materials, spare parts, expendables, consumables, testing and laboratory analysis, and any items required for the Services, in accordance with the terms and provisions of the Management Services Agreement and the Schedules attached hereto.

## **2.4 OPERATIONS REVIEW**

The City shall have the right to and intends to exercise its right to actively participate in review of Services performed by the Operator and any subcontractor throughout the term of the Management Services Agreement.

### **2.4.1 Monthly Progress Report**

Within its Fixed Management Fee, the Operator shall prepare the Monthly Progress Reports regarding the Services for submission to the City. The Monthly Progress Reports shall be prepared by the 10th of every month for the previous month of Services. The Monthly Progress Reports shall be submitted to the City for review. The Operator shall prepare the Progress Reports in a format subject to approval by the City. The Monthly Progress Reports shall include data pertaining to performance, including analysis of permit requirements, flows and any other information required by the applicable regulatory agencies and outlined in this Schedule 2. The Monthly Progress Reports shall also include a description of maintenance activities and emergency services performed during the previous month.

For the Water System, the Operator shall include the following in the Monthly Progress Report and any other information required by the City:

- Quantities of raw water received from each groundwater well equipped with a flow meter. For wells in the Morris and Delair Well Fields, quantity of raw water entering each aerator at the Morris-Delair Water Treatment Plant.
- Static water level and total head measurements for each well field
- A summary of quantity and type of process chemicals used
- A summary of quantity and description of process residuals.
- A projection of available treatment for the current month.
- A projection of supply capacity for current month
- A projection of source needs based on source water quality analyses
- A description of plant shutdowns, repairs, during the prior month, and predicted for the current month.
- List any adverse conditions which may be expected to arise during the current month that may affect the ability of the Operator to receive and treat a raw water source or supply the distribution system
- The results of any regulatory or insurance inspections conducted during the prior month including follow-up actions by the Operator.
- Summary of unscheduled repairs and action taken.
- Summary of scheduled inspections and repairs and action taken or postponed
- Explanations for unscheduled repairs and postponements of repairs.
- Inventory of repair parts
- Information on utility outages.
- Quantities of utility services used during the month.

- The results of safety tests or other monitoring procedures conducted by staff or Regulating Agency.
- Status of Valve Exercising Program

Copies of all final reports as submitted to the regulatory agencies will be sent to the City and appropriate consultants of the City as directed by the City.

#### **2.4.2 System Inspections**

The City and/or its authorized agents and representatives from the governing regulatory agency (e.g., NJDEP) reserve the right to visit or inspect the Water and Wastewater Systems at any reasonable time. The City and/or its authorized agents and representatives may call upon the Operator at any time for an oral review of any matter pertaining to the Services. The Operator shall also provide the City and/or authorized agents and representatives adequate office working space during inspections and reviews as necessary.

The City and/or its authorized agents and representatives shall perform an annual inspection of the Water and Wastewater Systems which shall be scheduled at a time of mutual consent between the Operator and the City or its authorized agents or representatives. The purpose of this annual inspection is to verify that Services are properly performed in accordance with the Management Services Agreement. At least two weeks prior to the annual inspection, the Operator shall submit to the City three copies of the Operator's annual Operation and Maintenance Report. This report shall include detailed information about the completed year's operation and maintenance of the System and current conditions of the System.

In the event that any such inspections reveal work not in accordance with the Management Agreement or a lack of repairs or necessary maintenance to the facilities or equipment, the City or its authorized agent shall identify such items in writing to the Operator. The Operator shall perform the repairs and maintenance activities identified by the City on a mutually agreeable schedule.

The Operator shall maintain all records of operating data and information relevant to the System, including accounting and financial records. The Operator shall provide the City access to all such records upon request.

#### **2.4.3 Operations Records**

Within its Fixed Management Fee, the Operator shall maintain a computerized record keeping system for all operation and maintenance functions performed. The Operator shall provide the City with view only access to all computerized databases and programs in use by the Operator. Operator shall provide all equipment, materials and software necessary to provide view only access to the City. Records shall include, but not be limited to, records

of operations, operation and maintenance costs, maintenance procedures, emergency incidents, personnel, inventory (Equipment and chemicals) and accounting and financial records. Records shall be maintained as required by State and federal regulations and as prudent industry and utility practices shall dictate. In performing Services for the Water and Wastewater Systems the Operator shall provide and maintain compatible computer systems to generate record reports. These records will include but not be limited to process evaluation and modification; operating and maintenance activities; detailed costs for operations and maintenance; and monthly and annual reports in a format reasonably requested by the City. The Operator shall be obligated to provide the City, upon reasonable request, with copies of all operating data, accounting, financial and other information kept by the Operator in accordance with this Agreement.

#### **2.4.4 Meetings**

The City and the Operator shall meet on a monthly basis to discuss performance of services, maintenance issues, equipment conditions, environmental and permit compliance, invoicing issues, public relations, and other relevant issues. Copies of documentation of these meetings shall be the responsibility of the Operator and shall be distributed to all attendees. The Operator shall also attend and participate at any other neighborhood meetings (i.e., City Council, Water Board, neighborhood civic groups) as requested by the City.

The Operator shall also be responsible for participating in up to two meetings a month on behalf of the Department of Utilities with other City organizations including but not limited to other City Departments, Civic and Regulatory Organizations.

#### **2.4.5 Audit of Systems and Review at Expiration of Agreement**

The Operator shall be responsible for all renewals and replacements over the term of the Management Services Agreement pursuant to the terms and conditions of the Management Services Agreement. Within 60 days of the Commencement Date, the Operator shall conduct a complete Water and Wastewater Systems audit to determine the condition of the Water and Wastewater Systems. Such audit shall be presented to the City upon completion for verification and approval of the conclusions drawn therefrom. The City shall be notified of the audit schedule and offered an opportunity to participate directly. Periodically, but in no case less than every five years, throughout the term of the Management Services Agreement, a complete audit in accordance with the requirements of this Section shall be conducted. The cost of the audit shall be borne by the Operator as part of the Fixed Management Fee. In any event, at the City's discretion, the City may conduct its own audit at any time.

The Operator's Audit will include a detailed, comprehensive survey and inspection of the facilities to identify the physical and operational conditions and general status of repair of

all Equipment, buildings, structures, pavements, grounds, utility lines and system, spare parts inventories, operation and maintenance records, etc. The Audit will include a detailed report documenting the findings of the survey/inspection. The report will include an assessment of the current condition of each item or component, its estimated remaining service life, and whether the current condition is consistent with the maintenance and general upkeep requirements of the Management Services Agreement and expected normal wear and tear. An estimated cost for repair, renewal or placement will be included for each item or component which is judged deficient. Estimates will include a reasonable contingency allowance that will vary depending on the nature of the work required. If any repair, renewal or replacement is required due to Operator's negligence or willful misconduct, the cost of such shall be borne by Operator.

A draft version of the Audit report will be provided to the City for review and comment.

## **2.5 OPERATIONS AND MAINTENANCE PLAN**

The Operator shall prepare and submit to the City for approval three separate comprehensive O&M Plans for the Water and Wastewater Collection Systems and Billings and Collections Services within 90 days after the Commencement Date. The O&M Plans shall be updated annually. Each O&M Plan shall specify all procedures and tests to be conducted for the performance of the Services, inclusive of all facilities and Equipment, throughout the Management Services Agreement. Each O&M Plan shall be a comprehensive manual organized into separate sections addressing each of the unit processes involved, the overall system operation and control, auxiliary system equipment and systems, and grounds and building maintenance. The cost of preparing the O&M Plans are included in Operator's Fixed Management Fee. A summary of the O&M Plan components for each System is provided below:

### Water System

- a. Schedule of expected shutdowns for routine maintenance.
- b. Schedule of permits applications to be submitted to regulatory agencies.
- c. Emergency plan of operation, including on-call backup capability.
- d. Copies of all permits, licenses, and other regulatory documents obtained for Operator's services, if not previously submitted.
- e. Staffing plan showing a breakdown by staff classification of all personnel to be utilized during operations and maintenance.
- f. Maintenance schedule for all facilities.

- g. Operation procedures for all major equipment within the System during start-up, normal, alternate, and emergency operation modes.
- h. Equipment and system manufacturers/suppliers O&M manuals.
- i. Forms and checklists to be used to monitor Equipment and process system operation and preventative maintenance.
- j. Monitoring and reporting requirements
- k. Updates to the O&M Plan.

Each separate unit process, auxiliary system processes and grounds/building section of the O&M Plan shall include a detailed written explanation of the following:

- The process or system including its key components.
- The system function including its purpose and normal operating parameters.
- Equipment summary including nameplate data, supplier/local representative, and manufacturer
- Description of instrumentation and control system, including an alarm summary.
- Description of normal system operations including startup and shutdown, adjustment of variable functions and settings, interface with other plant systems, routine monitoring checklists and record keeping forms.
- Emergency system operations including procedures to be followed in the event of probable plant or system upset conditions such as temporary power outages, chemical spills, localized or area-wide flooding, etc.
- Maintenance, including predictive and preventative maintenance for: process functions such as cleaning and hose down, flushing and inspection; mechanical functions such as changing lubricating fluids and filters, checking rotating equipment balance, and changing valve seals and packing; electrical functions such as checking tightness of wiring terminal connections, exercising breakers, and recalibrating meters; instrument and control functions such as sensor calibration, and structural maintenance such as crack repairs and restoration of surface corrosion protection systems.
- Trouble shooting system malfunctions.
- Safety and emergency procedures.

### Wastewater Collection System

- a. Schedule of permits applications to be submitted to regulatory agencies.
- b. Copies of all permits, licenses, and other regulatory documents obtained for Operator's services, if not previously submitted.
- c. Staffing plan showing a breakdown by staff classification of all personnel to be utilized during operations and maintenance.
- d. Maintenance schedule for all facilities.
- e. Operation procedures for all major equipment within the System during start-up, normal, alternate, and emergency operation modes.
- f. Equipment and system manufacturers/suppliers O&M manuals
- g. Forms and checklists to be used to monitor Equipment and process system operation and preventative maintenance
- h. Monitoring and reporting requirements
- i. Updates to the O&M Plan

For each Pumping Station and regulator overflow include a detailed written explanation of the following:

- The process or system including its key components
- The system function including its purpose and normal operating parameters.
- Equipment summary including nameplate data, supplier/local representative, and manufacturer.
- Description of instrumentation and control system, including an alarm summary.
- Emergency system operations including procedures to be followed in the event of pump station emergencies including temporary power outages, localized or area-wide flooding, etc.
- Maintenance, including predictive and preventative maintenance for: process functions such as cleaning and hose down, flushing and inspection; mechanical functions such as changing lubricating fluids and filters, checking rotating Equipment balance, and changing valve seals

and packing; electrical functions such as checking tightness of wiring terminal connections, exercising breakers, and recalibrating meters; instrument and control functions such as sensor calibration, and structural maintenance such as crack repairs and restoration of surface corrosion protection systems.

- Trouble shooting system malfunctions.
- Safety and emergency procedures.

#### Billings and Collections

- a The system function including its purpose and normal operating parameters.
- b The process or system including its key components
- c Strategy for implementing required programs in Schedule 3.
- d Staffing plan showing a breakdown by staff classification of all personnel to be utilized.
- e Maintenance schedule for all billings and collections systems
- f Monitoring and reporting requirements.
- g Emergency procedures

City will review the draft O&M Plan and return one marked-up copy with comments and required corrections within 30 days of the initial submittal. The Operator shall submit five copies of a final version of the O&M Plan incorporating City's requested changes and comments 30 days following the return of the draft manual.

The O&M Plan shall dedicate a separate section to detail the Operator's major maintenance, repair and replacement program. Such program shall contain a detailed description of major maintenance, repair, and replacement activities which would be required to be performed by the Operator over the term of the Agreement to maintain operability, durability and reliability of the Water and Wastewater Systems. The Operator shall make and complete all major maintenance, repairs and replacements to the Facilities which are necessary to achieve such standard of repair and replacement by performing all such listed activities within time frame indicated in the O&M Plan.

#### **2.6 CONTINUOUS OPERATION**

During the Term of the Management Services Agreement, the Operator shall continue to operate and maintain all of the City's Water System and Wastewater Collection System. At termination of the Agreement, the Operator shall return the Systems to the City in the following condition:

- all components of the Systems shall be in well-maintained, working order equal to or greater than the condition of the components at the Commencement Date, (taking into consideration normal wear and tear); and
- all components of the Systems which have been improved through capital improvements shall be in well maintained condition, similar to that at the time the improvements were completed (taking into consideration normal wear and tear).

The Operator shall operate the Systems on a continuous basis, twenty-four hours a day, seven days a week, in accordance with the terms and provisions of the Management Services Agreement, and in compliance with all applicable permits and other federal, State, and local requirements

## **2.7 CONTINUITY OF SERVICE**

The Operator shall cooperate in good faith with the City, its agents, contractors, and subcontractors and shall provide for the orderly transition of Services from the City and/or its contractors to the Operator without interruption or disruption of Services and without adverse impacts to customers of the System or to the City.

In the event of termination or non-renewal of the Management Services Agreement, the Operator shall provide for continuity of the Services during a reasonable period of transition of operations back to the City or to another contract partner designated by the City.

## **2.8 CUSTOMER SERVICE AND EMERGENCY RESPONSE**

The Operator shall respond promptly (within 2 hours) to the extent practicable and in a reasonable manner to all customer problems and emergencies pertaining to the System in accordance with the Management Services Agreement. In addition, requests for utility mark outs will be completed within three business days. The Operator shall maintain a toll-free 24 hour telephone number throughout the term of the Management Services Agreement so that customers of the System can report any problems and emergencies. The Operator shall immediately notify the City of any activity, problem, or circumstance of which it becomes aware that threatens the safety, health or welfare of the customers of the Water and Wastewater Systems. The Operator shall maintain a log of all problems and emergencies identified and measures taken by the Operator to remedy such problems and emergencies. Emergency procedures shall address at a minimum:

- Chemical Spills
- Personnel Emergencies
- Fire and Explosions
- Pipe, Valve, or Pump Failure
- Equipment and Process Failure
- Power Failure
- Acts of God (i.e., Hurricanes, Wind storms, and Floods)
- Wastewater bypass discharges

- Emergency Telephone Numbers
- Emergency Equipment Inventory
- Records Preservation
- Industrial Waste Inventory and Monitoring System
- Coordinating Instructions with Public Safety Agencies
- Troubleshooting Guides

The cost of such customer service and emergency response is included in Operator's Fixed Management Fee.

**2.9 CROSS CONNECTION PROGRAM**

The Operator shall continue the City's Cross Connection Program in accordance with Ordinance MC-3128 attached hereto as Schedule 23. The Operator shall be entitled to reimbursement from the customer consistent with such ordinance. However, any permit fee charged by the City shall be paid to (and for the benefit of) the City.

**Table 2-1  
Prioritized List for the Sealing of Wells by the City of Camden**

<p>Refer to the comprehensive list of Camden wells, and the well permits and records on file with the Bureau of Water Allocation for more details on wells and their locations. This list updates the status of wells in the list dated March 6, 1995, prepared by Nicole Griscom (NJDEP). The 7-digit number in parentheses is the well permit number, where it is known. Some wells are further identified by the year they were drilled.</p>
<p>1. Well on Jackson Street (3100706) - located and scheduled to be sealed.</p>
<p>2. Wells in the vicinity of sealed Well No. 14 (3100905) near Harrison and 17th Street. Some of this property has been sold:</p> <ul style="list-style-type: none"> <li>-8 gauge holes (3100906 to 3100913) - 2 have been found and sealed; 6 not yet located.</li> <li>-Test Well 3 (3100841) and Test Well 4 (3100842) - not yet located.</li> </ul>
<p>3. Wells listed in Camden's well status report of December 15, 1993 which were tentatively scheduled to be sealed:</p> <ul style="list-style-type: none"> <li>-Both wells numbered 4 at Rose and Whitman park) - 1922 well has been found but is not sealed yet; 1935 well still has to be found and sealed.</li> <li>-Well No. 6 (3100013), 1948, at 9th and Jackson Streets, located approximately 60 feet from Well No. 6, 1928, which USGS wants to survey; (3100013) is not sealed yet.</li> <li>-Test Well (3109488), 1975, Euclid and Park Blvd. - must be found and sealed</li> <li>-Test Well No.5 (3100840), south of housing development opposite Pierce Avenue - must be found and sealed.</li> <li>-Well No.16 (3101249), 22nd and Hayes - found but not sealed.</li> </ul>

Table 2-1  
Prioritized List for the Sealing of Wells by the City of Camden

<p>4. Wells which Camden said USGS wanted to monitor; however, USGS expressed no interest:</p> <ul style="list-style-type: none"><li>-Two Wells No.8, 1928 and 1953 at 2nd and Mechanic - both must be located and sealed. (One may already be sealed.)</li><li>-Well No. 10, 1935, at River Road Treatment Plant - found but not sealed yet.</li><li>-Test Well No. 5 (3100845), 1953, at Kaighn and Euclid - must be found.</li><li>-Well No. 2, Morris Wellfield - sealed. Well No. 2A is being reconstructed and returned to service as Well No. 2.</li></ul>
<p>5. A sweep of the 20+8" suction wells at the Delair Wellfield. Some of these wells are in the Delaware River - four wells have been sealed.</p>
<p>6. A sweep of the 90+ suction wells and the 15 air lift wells at the Morris Wellfield - ten wells have been sealed.</p>
<p>7. Wells of the North and South Morris Wellfield no longer in use:</p> <ul style="list-style-type: none"><li>-One Well No.2 (as noted above, one Well No. 2 was sealed and the other is undergoing reconstruction and will returned to service.</li><li>-both Wells No. 3</li><li>-both Wells No. 4</li><li>-Well No. 5 - sealed</li><li>*Well No. 6</li><li>*Well No. 7</li><li>*Well No. 7N (5100162) - lost</li><li>*Well No. 8</li><li>*Well No. 9</li><li>*Test Well No. 6 (3114568)</li><li>*Test Well No. 7 (3114569)</li></ul>

**Table 2-1**  
**Prioritized List for the Sealing of Wells by the City of Camden**

8. Wells in the Puchack Wellfield are out of service due to chromium contamination. Only Well No. 1 is being pumped at the request of Site Remediation to contain the plume. The following wells were shown on the March 6, 1995 list:

- \*Test Well No. 1
- \*Test Well No. 2
- \*Well No. 4R (3105450)
- \*Well No. 6 (3105451)

(It has been determined that the well listed here as Well No. 4R is actually Well No. 6. While it is unusual for well permits for a test well and a public supply well to be obtained at the same time, that is the way it was done. The record for well permit 3105450 gives the owner's number as 4R and its use as a public supply well. The record for well permit 3105451 gives the owner's number as test well #1-70 and its use as a test well. Since Well No. 6 was drilled to replace Well No. 4, 3105450 is the correct well permit number for Well No. 6. The two permits actually refer to a single well.)

\* Indicates wells which are to remain open at this time for Site Remediation and United States Geological Survey (USGS) purposes.

9. Wells within the City of Camden no longer in use:

- Well No. 3, 1922 - sealed
- Well No. 5, 1928 - sealed in 1966
- Well No. 9, 1935 - sealed in 1973
- Test Wells No. 1(3100138), 2 (3100138B), and 5 (3101245) must be found and sealed.

**Table S2-2  
Monitoring Requirements**

Type	Location/Frequency
Monthly Water Diversion	For each Well on a monthly basis: <ul style="list-style-type: none"> <li>☐ Diversion</li> <li>☐ Static water level</li> <li>☐ Total Head</li> </ul>
Groundwater Supply	Annually from all operating and permitted wells: <ul style="list-style-type: none"> <li>☐ VOCs</li> </ul> Quarterly from all operating and permitted wells: <ul style="list-style-type: none"> <li>☐ Chloride</li> <li>☐ Conductivity</li> </ul>
Volatile Organic Compounds	Annually from all wells: <ul style="list-style-type: none"> <li>☐ Methyl Tertiary Butyl Ether</li> <li>☐ Vinyl chloride</li> <li>☐ Benzene</li> <li>☐ Carbon tetrachloride</li> <li>☐ Trichloroethylene</li> <li>☐ 1,1-Dichloroethylene</li> <li>☐ cis-1,2-Dichloroethylene</li> <li>☐ trans-1,2-Dichloroethylene</li> <li>☐ 1,1,1-Trichloroethane</li> <li>☐ 1,2-Dichloropropane</li> <li>☐ 1,1-Dichloromethane</li> <li>☐ 1,2-Dichloromethane</li> <li>☐ Ethylbenzene</li> <li>☐ Monochlorobenzene</li> <li>☐ o-Dichlorobenzene</li> <li>☐ m-Dichlorobenzene</li> <li>☐ p-Dichlorobenzene</li> <li>☐ Styrene</li> <li>☐ Tetrachloroethylene</li> <li>☐ Napthalene</li> <li>☐ Toluene</li> <li>☐ Methylene Chloride</li> <li>☐ Xylenes (total)</li> <li>☐ 1,2,4-Trichloro- benzene</li> <li>☐ 1,1,2-Trichloro- ethane</li> <li>☐ 1,1,2,2-Tetrachloro- ethane</li> </ul>

**Table S2-3  
Monitoring Well Monitoring Requirements**

Type	Location/Frequency	Permit
Harris Ave. Landfill	<p>Monitor 7 groundwater monitoring wells Annually:</p> <ul style="list-style-type: none"> <li>☐ Arsenic and compounds</li> <li>☐ Barium</li> <li>☐ Cadmium</li> <li>☐ Chromium and compounds</li> <li>☐ Coliform Bacteria</li> <li>☐ Cyanide</li> <li>☐ Fluoride</li> <li>☐ Hardness</li> <li>☐ Mercury and compounds</li> <li>☐ Manganese</li> <li>☐ Selenium and compounds</li> <li>☐ Silver and Compounds</li> <li>☐ Total Volatile Organics</li> <li>☐ Turbidity</li> </ul> <p>Monitor 7 groundwater monitoring wells quarterly:</p> <ul style="list-style-type: none"> <li>☐ Ammonia Nitrogen</li> <li>☐ Biochemical Oxygen Demand</li> <li>☐ Chemical Oxygen Demand</li> <li>☐ Chloride</li> <li>☐ Color</li> <li>☐ Copper</li> <li>☐ Foaming Agents</li> <li>☐ Iron</li> <li>☐ Lead and compounds</li> <li>☐ Nitrate Nitrogen</li> <li>☐ Odor and Taste</li> <li>☐ Sodium</li> <li>☐ Sulfate</li> <li>☐ Total Dissolved Solids</li> <li>☐ Total Organic Carbon</li> <li>☐ pH</li> <li>☐ Phenols</li> <li>☐ Zinc and compounds</li> </ul>	All monitoring and reporting to be in accordance with NJPDES Permit No. 0056111.

**Table S2-4  
Water Treatment Plant Monitoring**

Type	Location/Frequency	Permit
Treatment Process Monitoring— On Site Analytical Testing Capability	<p>The Contract Partner must maintain laboratory facilities on-site at the Morris-Delair Water Treatment Plant for the following:</p> <ul style="list-style-type: none"> <li>☐ pH</li> <li>☐ Alkalinity</li> <li>☐ Temperature</li> <li>☐ Turbidity</li> <li>☐ Color (true &amp; apparent)</li> <li>☐ Chlorine (free &amp; total) residual</li> <li>☐ Iron (total)</li> <li>☐ Manganese (low range)</li> <li>☐ Conductivity</li> <li>☐ Hardness (total and calcium)</li> <li>☐ Coliform (Total, Fecal, HPC)</li> </ul>	
Treatment Process Continuous Online Instrument Monitoring	<p>Continuous (24 hr/day) on-line monitoring and recording of the following:</p> <ul style="list-style-type: none"> <li>☐ Finished water turbidity (Morris-Delair and Puchack Run only)<sup>(1)</sup></li> <li>☐ Filtered water turbidity (Parkside only)</li> <li>☐ Finished water pH</li> <li>☐ Finished water free chlorine residual</li> </ul>	
Treatment Process - Bacteriological Analyses	<p>Once per day for total coliform, fecal coliform, HPC (2 replicates) and background colonies (m-Endo) from the following locations at each treatment facility:</p> <ul style="list-style-type: none"> <li>☐ Plant Tap - Finished Water</li> </ul>	
Volatile Organic Compounds	<p>Annually at points of entry to the distribution system:</p> <ul style="list-style-type: none"> <li>☐ Methyl Tertiary Butyl Ether</li> <li>☐ Vinyl chloride</li> <li>☐ Benzene</li> <li>☐ Carbon tetrachloride</li> <li>☐ Trichloroethylene</li> <li>☐ 1,1-Dichloroethylene</li> <li>☐ cis-1,2-Dichloroethylene</li> <li>☐ trans-1,2-Dichloroethylene</li> <li>☐ 1,1,1-Trichloroethane</li> <li>☐ 1,2-Dichloropropane</li> <li>☐ 1,1-Dichloromethane</li> <li>☐ 1,2-Dichloromethane</li> <li>☐ Ethylbenzene</li> <li>☐ Monochlorobenzene</li> <li>☐ o-Dichlorobenzene</li> <li>☐ m-Dichlorobenzene</li> <li>☐ p-Dichlorobenzene</li> <li>☐ Styrene</li> <li>☐ Tetrachloroethylene</li> <li>☐ Napthalene</li> <li>☐ Toluene</li> <li>☐ Methylene Chloride</li> <li>☐ Xylenes (total)</li> <li>☐ 1,2,4-Trichloro- benzene</li> <li>☐ 1,1,2-Trichloro- ethane</li> <li>☐ 1,1,2,2-Tetrachloro- ethane</li> </ul>	

**Table S2-4  
Water Treatment Plant Monitoring**

Type	Location/Frequency	Permit
Parkside Water Treatment Plant Filter Backwash	Two samples quarterly for the following parameters: Zinc <input type="checkbox"/> Copper <input type="checkbox"/> pH <input type="checkbox"/> Total Toxic Organics <input type="checkbox"/> Total Suspended Solids <input type="checkbox"/> BOD	In accordance with CCMUA Industrial Wastewater Discharge Permit No 4941-Ca-1.
Morris-Delair Water Treatment Plant Residuals Lagoon	Semi-Annually from the sludge pump discharge: <input type="checkbox"/> pH <input type="checkbox"/> Aluminum <input type="checkbox"/> Arsenic <input type="checkbox"/> Cadmium <input type="checkbox"/> Chromium <input type="checkbox"/> Copper <input type="checkbox"/> Iron <input type="checkbox"/> Manganese <input type="checkbox"/> Nickel <input type="checkbox"/> Zinc	In accordance with New Jersey Pollutant Discharge Elimination System Discharge to Ground Water Permit (NPDES DGW) No. NJ0101991.

(1) - Not currently monitored continuously.

**Table S2-5  
Water Treatment Plant Performance Requirements**

Parameter	Requirements
Total Trihalomethanes (TTHMs) which include Total Dibromomethane, chchlorodibromomethane, bromoform and chloroform	<100 µg/L
Finished Water Total Coliform	Not detected 100% of time based on daily grab samples.
Iron	≤ 0.30 mg/L
Manganese	≤ 0.05 mg/L
Sodium	≤ 28 mg/L
Finished Water Chlorine (Free) Residual - Normal Operating Ranges	0.4 - 1.0 mg/L leaving plants based upon continuous monitoring
Volatile Organic, Inorganic, Synthetic Organic and Other Secondary Compounds and characteristics	Less than Federal and NJ State Primary and Secondary Drinking Water Standards as of November 1996.
<b>Additional Performance Requirements - Morris-Delair Water Treatment Plant</b>	
Finished Water: pH operating range Calcium Carbonate Precipitation Potential (CCPP)	8.5 - 9.0 S.U. 4 - 10 mg/L as CaCO <sub>3</sub>
<b>Additional Performance Requirements - Parkside Water Treatment Plant</b>	
Finished Water: pH operating range CCPP	8.5 - 9.0 S.U. 4 - 10 mg/L as CaCO <sub>3</sub>
Filter Backwash: Total Suspended Solids BOD Zinc Copper pH Total Toxic Organics	<750 mg/L <750 mg/L <4.0 mg/L <1.0 mg/L >6.0 but <9.0 S.U. 5.00 mg/L
<b>Additional Performance Requirements - Puchack Run Water Treatment Plant</b>	
Finished Water: pH operating range CCPP	8.0 - 8.5 S.U. 4 - 10 mg/L as CaCO <sub>3</sub>

**Table S2-6  
Conditions for Notification<sup>(1)</sup>**

Item/Parameter	Notification Level <sup>(2)</sup>
Free Chlorine Residual Leaving Plant	<p>&lt;0.4 mg/l for more than one hour. - And - &gt;2.0 mg/l for more than one hour.</p> <p>High free chlorine levels require notification of sensitive users.</p>
Finished Water Turbidity Leaving Plant	[>1.0 NTU for more than one hour]
pH Leaving Water Treatment Plants or City Well No. 11	Less than 6.2 pH units for more than one hour.
Finished Water Total or Fecal Coliform Leaving Plant	Detected in initial daily grab sample.
Odors	Any odor of high intensity or other than normal.
Power Outages	Greater than five minutes.
Plant Shutdown - Scheduled	Seven calendar days advance notice for all scheduled plant shutdowns, regardless of duration of or reason for shutdown.
Plant Shutdown - Unscheduled/Emergency	All unscheduled/emergency plant shutdowns require immediate notification.
Water Main Break	Immediate Notification.
Additional Notification	Notification procedures shall also begin immediately when failure of any plant or laboratory equipment occurs which can adversely affect plant operation and/or water quality.
Increase in Water Demand	Demand increases more than 15% over the previous 2-hour period.
(1)	<p>In addition to notification requirements contained in State and federal regulations.</p> <p>(2) If, at any time, any of the notification points listed are reached, then a second (repeat) sample shall be taken 15 minutes after the first. If the condition still exists in the repeat sample, then notification requirements shall be in effect.</p>

**Table S2-7  
Distribution System Monitoring**

Type	Location/Frequency <sup>(1)</sup>
Distribution System - Coliform and Chlorine Monitoring	Total of 60 samples per month for the following parameters: <ul style="list-style-type: none"> <li>■ Free chlorine residual</li> <li>■ Total coliform</li> <li>■ HPC if free chlorine residual &lt; 0.10 mg/L</li> </ul>
Distribution System - Corrosion Control Monitoring	One sample from each of 40 locations annually for the following parameters: <ul style="list-style-type: none"> <li>■ Lead</li> <li>■ Copper</li> <li>■ Temperature</li> <li>■ pH</li> <li>■ Alkalinity</li> <li>■ Conductivity</li> <li>■ Calcium</li> </ul>
Distribution System - Secondary Water Quality Parameters	Annually from two locations: <ul style="list-style-type: none"> <li>■ Iron</li> <li>■ Manganese</li> </ul>

(1) Does not include re-testing as may be required by State requirements or public notification.

**Table S2-8  
Conditions for Notification<sup>(1)</sup>**

Item/Parameter	Notification Level <sup>(2)</sup>
Water Main Break	Immediate Notification
Public Notification in Response to Distribution System Water Quality Events	Immediate Notification to City and Regulatory Agencies in accordance with federal and State regulations.

<sup>(1)</sup> In addition to notification requirements contained in State and federal regulations.

<sup>(2)</sup> If, at any time, any of the notification points listed are reached, then a second (repeat) sample shall be taken 15 minutes after the first. If the condition still exists in the repeat sample, then notification requirements shall be in effect.

**Table S2-9  
Distribution System Operating Requirements**

Parameter	Requirement	Comments
Metered Water Ratio	100% annually <sup>(1)</sup>	at least 100% of all water (excluding fire flow, etc.) shall be metered
Unaccounted for water loss	< 18% in the first year < 16% in the second year < 14% in the third year < 12% in the fourth year < 10% in the fifth year	

**Table S2-10  
Conditions for Notification**

<b>Item/Parameter</b>	<b>Notification Level</b>
Equipment Failure (i.e. pumps)	Immediate notification required.
Sewer collapse, sewer backup/overflow or other system deficiency which can adversely affect wastewater collection and transmission.	Immediate notification required.
Pump Station Shutdown - Scheduled	Seven calendar days advance notice regardless of duration or reason for shutdown.
Pump Station Shutdown - Emergency	Immediate notification required.
Spills/illegal discharges which may present health hazard or adversely affect wastewater transmission and/or treatment plant performance	Immediate notification required.
Dry weather CSO Event [any other CSOs]	Seven calendar days notice of any recorded dry weather CSO event.