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TECHNOLOGIES

Site Management Plan

Volume I

COSCO

15 WEST STREET

SPRING VALLEY, ROCKLAND COUNTY, NEW YORK

NYSDEC Site Number: 3-44-035

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1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at the former Consolidated Stamp Company (COSCO) site (hereinafter referred to as the "Site") under the New York State (NYS) Superfund Program administered by the NYS Department of Environmental Conservation (NYSDEC). The site was remediated in accordance with the March, 1990 Record of Decision (ROD) and subsequent ROD amendment of August, 1999.

COSCO previously owned and operated a manufacturing facility on a parcel of property located at 15 West Street in Spring Valley, Rockland County, New York (**Figure 1**). The Sara Lee Corporation was also a part owner of the property at that time. COSCO and Sara Lee entered into an Order on Consent with the NYSDEC that required investigation and remediation of soil and groundwater impacted with the site-related volatile organic compounds (VOCs) trichloroethene (TCE), tetrachloroethene (PCE), 1,2 dichloroethene (DCE) and vinyl chloride (VC). Additional site-related compounds include semi-VOCs, pesticides and polychlorinated biphenyls (PCBs). A site map is presented as **Figure 2**.

After completion of the remedial activities, some impacted media (including impacted soil and groundwater) was left in the subsurface at this site. This Site Management Plan (SMP) was prepared to manage the remaining residually impacted soil and groundwater. All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by Aztech Technologies, Inc., of Ballston Spa, New York, on behalf of the NYSDEC, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (May, 2010), and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required for the site.

The site contains residually-impacted soil and groundwater left after completion of the remedial action. Engineering Controls have been incorporated into the site remedy to control exposure to residually impacted soil, soil vapor and groundwater during the use of the site to assist with the protection of public health and the environment. This SMP specifies the methods necessary to ensure compliance with all ECs implemented to protect public health and the environment for the residually impacted soil and groundwater that remains at the site. This plan has been approved by the NYSDEC, and may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage residually impacted soil, soil vapor and groundwater after completion of the Remedial Action, including:

(1) implementation and management of Engineering Controls; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (5) defining criteria for termination of treatment system operations.

To address these needs, this SMP includes three plans: (1) an Engineering Control Plan for implementation and management of ECs; (2) a Monitoring Plan for implementation of Site Monitoring, and; (3) an Operation and Maintenance (O&M) Plan for implementation of remedial collection, containment, treatment, and recovery systems.

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The site is located in the Town of Spring Valley, Rockland County, New York and is identified as parcel 57.46-1-1 on the Rockland County Tax Map. The site is part of an approximately 2.5 acre area bounded by an inactive/abandoned railroad track and right of way owned by the Consolidated Rail Company (Conrail) to the north, West Central Avenue to the south and West Street to the east (Figure 2). The western end of the property is bounded by the intersection between the Conrail right of way and West Central Avenue. Various industrial/commercial facilities are located adjacent to the COSCO site on the north side of the right of way. These include the former Continental Plastics Corporation (CPC) facility, a relatively new communications tower and, an active maintenance facility operated by the Spring Valley Department of Public Works.

Investigations specific to the COSCO site began in 1987 when the COSCO and CPC properties were collectively included as a potential source area for impacts noted in the municipal groundwater extracted by the Spring Valley Well Field (SVWF). At that time, investigations associated with the SVWF were conducted under NYSDEC site designation no. 3-44-018. The result of those investigations found that the COSCO/CPC properties were within the capture area of the SVWF. In 1990, the SVWF site (NYSDEC site no. 3-44-018) was delisted and the COSCO/CPC site was listed as an inactive hazardous waste site (NYSDEC site no. 3-44-035). At that time, the property boundaries were defined by West Central Avenue (to the south), West Street (to the east), the Conrail right of way (to the north) and, also, the CPC property located north of the Conrail right of way.

The site boundaries were again modified in May, 1999 when West Central Associates, L.P. (new owner of the former COSCO property) and International Advanced Materials (new owner of the former CPC property) petitioned NYSDEC for boundary modification. NYSDEC subsequently granted the boundary modification to remove the former CPC property and non-impacted areas of the former COSCO property from the site boundary. Based on this 1999 boundary modification, the COSCO site was (and, is currently) defined by a 0.3 acre portion of the site near the intersection between West Central Avenue and the Conrail right of way referred to as the Tailings Dump area.

1.2.2 Site History

In 1978, the Rockland County Department of Health (RCDOH) identified PCE, TCE, 1,1,1-trichloroethane (TCA) and DCE in the well field operated by the Spring Valley Water Company (NYSDEC Site No. 3-44-018). During the course of a subsequent remedial investigation (RI) associated with the Spring Valley Water Company (SVWCo), the COSCO and CPC facilities were identified as potential sources for the compounds found in the SVWCo well field. The COSCO facility is located approximately 3,000 feet south-southwest of the SVWCo well field; the CPC facility is located approximately 200 feet northwest of COSCO.

Both the COSCO and CPC facilities are located in an area that includes light industrial, commercial and residential properties. The CPC facility had historically been used as a machine shop by a variety of owners until 1976 when CPC began to manufacture plastics at that location. According to a July, 1979 report by the RCDOH, CPC was discharging 20 - 30 gallons per minute of PCE and TCE impacted non-contact cooling water (derived from a cooling water supply well located on the CPC facility) into a drainage feature ("Reach B") in the area north of the Conrail right of way. This drainage feature originates southwest of both CPC and COSCO and continues in a northeast direction (toward the Spring Valley well field). During this same time period, COSCO was using TCE in a vapor degreasing process as part of their operation and, was also discharging waste water containing TCE into the same drainage feature.

In 1980, the drainage feature was diverted to extend between the COSCO and CPC facilities with discharge from the "Reach B Diversion" into the West Branch of Pascack Brook. After diversion, multiple locations within the "original" drainage feature were sampled and various site related compounds were identified in surface water and sediment. TCE impacted soil was also identified within the Conrail right of way and adjacent to the north side of the COSCO facility. Semi-VOCs, pesticides and polychlorinated biphenyls (PCBs) were also identified in the tailings dump area located in the western portion of the site. Solid waste from COSCO was reportedly disposed in this area. These source areas are shown on **Figure 3**.

Based on the findings of the SVWCo RI, a feasibility study (FS) was performed to identify, screen and evaluate potential remedial alternatives and resulted in the issuance of the ROD for the SVWCo well field in March 1990. That document identified selected remedies to address the

residually impacted soil and groundwater at the COSCO and CPC properties. These remedies included the following elements:

- Excavation of impacted sediment from the drainage feature and placement of this sediment over the source area soil for treatment via Soil Vapor Extraction (SVE). Effluent from the SVE system would be treated via granular activated carbon (GAC) and, the source area soil and sediment would be capped with a topsoil and vegetative cover after treatment was completed;
- Groundwater extraction from unconsolidated overburden and bedrock in the source area with treatment by chemical oxidation and polishing technologies. After treatment, the treated groundwater would be returned to the subsurface;
- Capping of the Tailings Dump Area with low permeability soil, topsoil and vegetative cover, and fencing the perimeter to restrict access;
- Long-term groundwater monitoring to evaluate the effectiveness of both the groundwater extraction system and the tailings dump cap; and,
- Extraction and treatment of groundwater at the SVWCo water supply wells (this element has been addressed separately by the SVWCo.).

In December 1990, pursuant to the findings of the RI associated with the SVWCo, the boundaries of the COSCO/CPC site were redefined and, the COSCO/CPC site was added to the NYS Registry of Inactive Hazardous Waste Disposal Sites in New York State as site No. 3-44-035; the SVWCo site was removed from the registry at that time.

After issuance of the 1990 ROD, two (2) post-ROD groundwater studies were conducted in an attempt to evaluate the groundwater flow patterns in the bedrock. The first was a supplemental RI conducted during the summer of 1990 by COSCO and the Sara Lee Corporation. The second was a focused supplemental RI, conducted by COSCO, Sara Lee and the Spring Valley Water Company in 1992, which included an extensive pump test of the area between the site and the SVWCo well field. After several years of negotiations for implementation of the remedy, pre-design investigations began in 1997.

In August, 1999, a ROD Amendment was issued for the COSCO/CPC site. The fundamental change to the 1990 ROD was a removal of the requirement for SVE treatment of drainage feature sediments and source area soils. This is because sampling conducted subsequent to the 1990 ROD indicated VOC concentrations that were lower than had been previously reported. The rationale behind this revision was the determination that the relatively low concentrations of site-related VOCs in the source area soil and sediments would not be efficiently removed via SVE technology and, that sediment samples collected from the drainage way did not contain concentrations of site-related VOCs in excess of cleanup objectives. Other elements of the ROD amendment include a change whereby treated groundwater can be discharged to surface water (rather than to the subsurface) and, that an asphalt cap placed over the Tailings Dump Area by the property owner would be maintained in lieu of the originally proposed low permeability soil/topsoil/vegetative cover. This is because the goal of capping the Tailings

Dump Area is to prevent human contact with and migration of site-related VOCs and waste from this area and, the asphalt cap satisfies that goal.

The August, 1999 ROD Amendment includes the following elements:

- No further action for source area soils and sediments;
- Groundwater extraction in the source area with treatment by chemical oxidation and polishing technologies. After treatment, the treated groundwater can be discharged to surface water;
- Maintaining the asphalt cap of the Tailings Dump Area and installing additional asphalt where needed; and
- Long-term groundwater monitoring to evaluate the effectiveness of both the groundwater extraction system and the cap on the Tailings Dump Area.

The remedial design for the groundwater extraction and treatment system was completed in 2000, followed by implementation of the selected remedy (groundwater extraction with treatment using ultra-violet (UV)/peroxide oxidation) in November of 2003. Operational issues (including a need for a full time remedial system operator, safety concerns associated with special materials handling, operational costs, etc…) resulted in the system being shut down within two (2) years. NYSDEC subsequently evaluated the groundwater treatment system to develop manageable operational procedures and still remain within the intent of the ROD. The NYSDEC and NYSDOH also initiated soil vapor investigations in 2006 to evaluate the potential for soil vapor intrusion into structures on or near the site. The groundwater treatment system was changed to an air stripper in January 2012.

1.2.3 Geologic Conditions

The Town of Spring Valley is located approximately eight miles west of the Hudson River. The primary surface water feature is the south following Pascack Brook, which runs through the Village of Spring Valley and, is located to the southeast of the site. Pascack Brook joins the Hackensack River which flows south into New Jersey.

The area is underlain by glacial sediments (including glacial till, glacial outwash and glaciolacustrine deposits) that overlie red shale, mudstone, sandstone and conglomerates of the Brunswick Formation. Various phases of investigation at the site have identified unconsolidated overburden that consists of sand and gravel fill that is underlain by native silty clay, sand and gravel, and glacial till to a depth of approximately 40 feet below grade. Bedrock underlying the site includes sandstone and conglomerate. The unconsolidated overburden is generally saturated between 10 feet and 15 feet below grade with groundwater movement generally toward the southeast. Within the bedrock, groundwater movement is generally toward the northeast. A downward vertical hydraulic gradient has been documented between the unconsolidated overburden and the bedrock.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

Various phases of Remedial Investigation (RI) were performed to characterize the nature and extent of impacted media at the site and surrounding area. The results of these investigations are described in detail in the following reports:

- Remedial Investigation (RI) Report, Spring Valley Well Field Site; GHR Engineering Associates (February, 1989);
- Supplemental Remedial Investigation Report, Spring Valley Well Field, Spring Valley, New York; Woodward-Clyde Consultants (August, 1990);
- Focused Supplemental Remedial Investigation Report, Spring Valley Well Field, Spring Valley, New York; Woodward-Clyde Consultants (March, 1992);
- Final Work Plan – Remedial Design, Cosco/CPC Site, Spring Valley, Rockland County, New York; Camp Dresser & McKee (May, 1997);
- Soil Vapor Intrusion & Groundwater Evaluation, Cosco; Aecom Technical Services Northeast, Inc. (October, 2009);
- Groundwater Remediation System – System Evaluation/Re-design; Iyer Environmental Group, PLLC., (September, 2010).

Generally, the investigations performed at the site determined that site related compounds of concern were identified in soil, groundwater and sediment within the source area and, in soil within the Tailings Dump Area. Information provided in the May, 1997 Final Work Plan for Remedial Design (prepared by Camp Dresser & McKee (CDM) of Woodbury, New York) indicates that source area sediments along the former waterway (see Figure 3) were likely disturbed when a communication tower was constructed on the site in that area of the property.

Source Area Soil

The source area soil is a rectangular area that extends east-to-west between the north side of the COSCO building and the unused/abandoned Conrail tracks. This impacted zone of soil is approximately 140-feet long by 40 feet wide. Site related organic compounds identified in this area included TCE (as high as 13 milligrams per kilogram (mg/kg)), PCE (as high as 1.9 mg/kg) and DCE (as high as 2.6 mg/kg). Inorganic constituents identified within the source area soil included cyanide (as high as 28 mg/kg); cadmium (as high as 4.2 mg/l); lead (as high as 1,140 mg/kg and; zinc (as high as 4,120 mg/kg). All other inorganic analytes were within the typical background range for soil.

Source Area Groundwater

Shallow groundwater within the unconsolidated overburden underlying the site and source area has historically been impacted with site-related compounds of concern in excess of NYSDEC standards for Class GA groundwater. These include concentrations of PCE (as high as 8.7 micrograms per liter (ug/l)), TCE (as high as 72 ug/l) and the degradation by-products DCE and vinyl chloride at concentrations as high as 19,000 ug/l and 5,800 ppb, respectively. Existing

well MW-18, which is completed within the unconsolidated overburden, is centrally located within the source area and provides shallow groundwater quality within the source area.

Historically, groundwater quality within the bedrock zone has been characterized by former bedrock monitoring well MW-17B. This well was formerly located on the property north of the site in the area east of the communications tower (see Figure 3). Bedrock groundwater quality from this well indicates historic concentrations of PCE and TCE that have been as much as two (2) orders of magnitude higher than groundwater within the unconsolidated zone (with PCE as high as 4,400 ug/l and TCE as high as 9,700 ug/l). Historic DCE concentrations in well MW-17B have generally been in the 200 ug/l to 600 ug/l range and vinyl chloride has generally been below 5.0 ug/l.

Tailings Dump Area

The Tailings Dump Area is an approximate 18,750 square-foot, triangular-shaped and fenced area at the western end of the property. Site-related VOCs have not historically been identified within this area. However, several semi-VOCs (possible derivatives of coal tar and/or petroleum), the pesticides 4,4-DDT and gamma chlordane and, the polychlorinated biphenyl (PCB) arochlor-1254 were identified in at least one sample from the tailings dump area. Inorganic constituents identified in the tailings dump include cyanide and cadmium (both of which were also identified in source area soil). None of the compounds identified within the Tailings Dump Area have been identified in groundwater.

Site-Related Soil Vapor Intrusion

An on-site soil vapor investigation was conducted at the Site by Environmental Resources Management, Inc. in January 2006. That investigation included the collection of six (6) soil vapor samples and six (6) overburden groundwater samples in the area north of the COSCO building and along the abandoned railroad right of way. Low concentrations of the site-related compounds PCE, TCE, DCE and/or VC (at concentrations less than 100 ug/l) were identified in two (2) groundwater samples. These compounds were also identified in soil vapor. The groundwater and soil vapor results led NYSDEC and NYSDOH both to conclude that a supplemental soil vapor intrusion (SVI) investigation was warranted in the residential area east of the site. This supplemental investigation was conducted by AECOM in December, 2008 through March, 2009.

The off-site SVI investigation included sub-slab soil gas sampling with concurrent indoor air sampling at residential and commercial properties hydraulically downgradient of the site on Commerce Street to the east. The findings of the SVI investigation identified concentrations of TCE and PCE in the sub-slab samples collected at 47 Commerce Street were in excess of the NYSDOH decision matrix thresholds. The analytical results for all of the other properties on Commerce Street that were included in the SVI investigation (#35, #37, #39, #41, #43 and #45) indicated elevated analyte reporting limits. These elevated reporting limits resulted in non-

detections of analytes. Follow-up sampling of all locations was recommended in order to verify the initial SVI results.

Follow-up sampling conducted in February, 2010 verified the results of the initial SVI sampling effort conducted previously. Specifically, elevated concentrations of TCE in the sub-slab vapor at 47 Commerce Street confirmed the recommendation for mitigation in accordance with the NYSDOH decision matrices. As such, a sub-slab depressurization system (SSDS) was installed at 47 Commerce Street in order to mitigate build-up of sub-slab vapors. VOC concentrations in sub-slab and indoor air samples obtained from the other residences on Commerce Street (#35, #37, #39, #41, #43 and #45) did not warrant mitigation or further investigation at that time.

The SVI investigation and installation of the SSDS at 47 Commerce Street resulted in the NYSDEC and NYSDOH to issue a Soil Vapor Intrusion Evaluation Determination, Investigation Complete – Actions Recommended (ICAR) Memorandum on September 28, 2010. The ICAR memorandum concluded that additional off-site SVI monitoring would be conducted on Commerce Street at residences #39, #41, #43, and #45.

A final round of SVI sampling was conducted on Commerce Street in March, 2012. This sampling event included the residences located at #41, #43, and #45. The NYSDOH decision matrices indicated that further monitoring and/or mitigation of sub-slab vapor was not warranted based on the analytical results of those samples. Additionally, SVI sampling was not conducted at #39 Commerce Street because the owner of that property would not continue to grant access to the residence for additional SVI sampling.

The SSDS at #47 Commerce Street continues to operate and will be subject to an annual inspection through this Site Management Plan and the state-wide SSDS maintenance contract.

1.4 SUMMARY OF REMEDIAL ACTIONS

Remedial activities were performed at the site that are consistent with the original 1990 ROD and the August, 1999 ROD amendment. Remedial actions performed at the site include:

1. An asphalt cap and fencing to prevent human exposure to impacted soil/fill in the Tailings Dump Area of the site;
2. Installation and operation of a groundwater extraction and treatment system that utilized ultraviolet and chemical oxidation prior to polishing and discharge in 2003. The ultraviolet and chemical oxidation treatment components of this system were later replaced by an air stripping system in 2012;
3. Installation and operation of a SSDS at an off-site residential property (47 Commerce Street) located east of the site in August, 2010, in order to mitigate potential exposure to soil vapor.

Additionally, development of this Site Management Plan (SMP) is an important aspect of the remedial program for the site. The SMP will provide guidance for future operation and

maintenance of site remedial systems, environmental monitoring and, reporting. Installation of the remedial equipment and subsequent remedial system upgrades were completed at the site by January 2012; operation and maintenance of the groundwater extraction and treatment system and, monitoring of environmental media is on-going.

1.4.1 Removal of Impacted Media from the Site

During the course of remedial activities at the site, groundwater has been the only impacted media routinely removed from the site. This is because previous evaluations of soil and fill located in the Tailings Dump Area, soil in the source area and sediment in the drainage feature have all been determined to be within the soil cleanup objectives as specified in NYSDEC's Technical and Administrative Guidance Memorandum (TAGM) HWR-92-4046 (11-92). As such, groundwater has historically been the only impacted media routinely removed from the site.

1.4.2 Site-Related Treatment Systems

Treatment systems associated with the site include a groundwater extraction and treatment system located on the COSCO site and, a SSDS located east of the site at a residence (#47) located on Commerce Street.

Groundwater Extraction and Treatment System

The current upgraded groundwater extraction and treatment system became operational at the site in January, 2012. This system extracts groundwater from the unconsolidated overburden via recovery wells RW-1S and RW-8S, and from the bedrock via well RW-3D. Extracted groundwater is conveyed via underground piping from each recovery well to the treatment system shed located in the area along the Conrail right of way north of the COSCO building (see Figure 2).

The groundwater extracted from the overburden and bedrock is temporarily held in a 1,500 gallon polyethylene batch tank prior to treatment. Treatment is via two (2) bag filter units (connected in a parallel configuration) followed by air stripping. Once air stripping is completed, the treated water is discharged to the "Reach B Diversion" via underground piping. The upgraded groundwater extraction and treatment system has processed approximately 24,500,000 gallons of groundwater during the period since operation began (January, 2012) through October, 2014.

Sub-Slab Depressurization System

An SSDS was installed at 47 Commerce Street in order to mitigate build-up of sub-slab vapors in August, 2010. The SSDS consists of an extraction point centrally located and completed beneath the basement concrete slab of the residence. The extraction point is connected to a radon gas mitigation fan mounted on the southwestern exterior of the residence. Communication testing via four (4) test points verified suction in multiple directions from the extraction point. The SSDS at this location continues to operate and is subject to annual

inspections in accordance with this Site Management Plan. Annual inspections are via a state-wide SSDS maintenance contract through NYSDEC.

1.4.3 Remaining Contamination

The 1990 Remedial Investigation (RI) identified residual site-related impacts within the source area soil and sediment; Tailings Dump Area and groundwater within both the unconsolidated overburden and bedrock.

Source Area Soil and Sediment

The 1990 RI found source area soil containing total VOC concentrations as high a 2.27 mg/kg in the area adjacent to the north side of the COSCO building and extending to the north side of the abandoned railroad track. The estimated volume of the source area (location shown in Figure 3) is approximately 3,000 cubic yards. Subsequent investigation of source area soil was conducted in 1997 via installation of six (6) direct push soil borings. Laboratory analytical results indicated total VOC concentrations ranging from "not detected" to 0.726 mg/kg. These concentrations are below the remedial goals specified by NYSDEC in their Technical and Administrative Guidance Memorandum (TAGM) No. HW-92-4046. As such, the concentrations of these compounds in source area soils are within the Standards, Criteria and Guidance (SCG) identified by NYSDEC and, are considered to be protective of human health and groundwater quality.

Sediment samples were collected in the area north of the source area from the drainage feature on the adjacent Department of Public Works (DPW) property. Analytical results from these samples identified up to 38.7 mg/kg of VOCs. Follow-up sampling from this area in 1997 was via five (5) direct push borings. This is because the drainage feature had been filled-in and a communications tower constructed in that area during the time period between the 1990 RI and follow-up work conducted in 1997. As such, the drainage feature sediments were not directly accessible. Three (3) soil samples were collected from these borings and identified VOC concentrations ranging from 0.0012 mg/kg to 0.0099 mg/kg. These VOC concentrations are below the remedial goals specified by NYSDEC in TAGM No. HW-92-4046 and, as such, are considered to be protective of human health and groundwater quality.

Tailings Dump Area

The Tailings Dump is a triangular-shaped area at the west end of the COSCO property. Soil samples collected from this area during the RI indicated that concentrations of VOCs were "not-detected". Semi-VOCs were detected (mostly poly-nuclear aromatic hydrocarbons (PAHs)) in the Tailings Dump samples at total concentrations of approximately 90 parts per million (ppm). These semi-VOC concentrations are below the remedial goals specified by NYSDEC for PAHs in TAGM No. HW-92-4046. Additionally, low concentrations of the pesticides 4,4-DDT and gamma-chlordane were detected at two (2) locations and PCBs were detected in one sample at 5.3 mg/kg. The compounds present in the soil samples obtained from the Tailings Dump Area

have not been detected in groundwater. As such, it does not appear that these compounds have migrated from the Tailings Dump Area.

Groundwater

Unconsolidated overburden groundwater quality was characterized in the 1990 RI report by on-site well MW-18, which is located within the source soil area on the north side of the COSCO building and east of the Tailings Dump Area. Total VOC concentrations in that well were 24,861 micrograms per liter (ug/l) at that time. Total VOC concentrations had declined to 118 ug/l in well MW-18 during the follow-up sampling conducted in 1997 and, two (2) additional shallow groundwater monitoring wells installed and sampled as part of that follow-up investigation indicated total VOC concentrations ranging from "not-detected" to 1,162 ug/l. Analytical results of groundwater samples collected from wells MW-3, GW-4S and MW-18 on October 29, 2014 ranged from "not-detected" to 9.4 ug/l. Wells RW-1S and RW-8S, which are active groundwater recovery wells that are routinely sampled, indicated estimated total VOC concentrations of 77 ug/l (RW-1S) and 56 ug/l (RW-8S), in samples collected on August 5, 2014 and November 12, 2014, respectively. The distribution of PCE, TCE, DCE and total VOCs in the unconsolidated overburden during the October 29, 2014 sampling event is shown in **Figure 4A**. A summary of historic analytical results for overburden groundwater quality is presented in **Table 1A** below:

Table 1A
Historic Analytical Results – Overburden Groundwater Quality

Sample Date	Well ID	PCE	TCE	DCE	VC	Total VOC
1990 RI	MW-18	-	-	-	-	24,681
1997 Follow-Up	MW-18	-	-	-	-	118
	"Other Wells"	-	-	-	-	"ND" to 1,162
October 29, 2014	MW-18	0.5 J	1.7 J	-	4.2 J	6.4 J
	MW-3	-	-	-	-	-
	GW-4S	-	1.5 J	4.5 J	-	6.0 J
	RW-1S+	20	43	13	-	77 J
	RW-8S++	0.8 J	3.3 J	45	6.7	56 J

Notes:
Concentrations in ug/l
- Indicates compound specific information not available
J = Indicates Estimated concentration
+ = Sample collected August 5, 2014
++ = Sample collected November 12, 2014
Identification of "other" wells not specified in 1999 ROD amendment

Bedrock groundwater quality was characterized in the 1990 RI report by former bedrock well MW-17B, which was located on the adjacent Spring Valley DPW property in an area that is believed to be hydraulically downgradient of the source area (see Figure 3). This well contained a total VOC concentration of 15,437 ug/l. The 1997 follow-up sampling was not able to locate well MW-17B. However, a sample was obtained from a nearby well (MW-5D) which indicated a total VOC concentration of 2,208 ug/l. Two (2) other bedrock monitoring wells installed during

the 1997 follow-up sampling indicated total VOC concentrations ranging from "not-detected" to 3,110 ug/l. Analytical results of groundwater samples collected from wells DW-1 and GW-4D on October 29, 2014 ranged from "not-detected" to an estimated concentration of 9.4 ug/l. A sample collected from active groundwater recovery well RW-3D on November 12, 2014 indicated a total VOC concentration of 225 ug/l. The distribution of PCE, TCE, DCE and total VOCs in the bedrock groundwater during the October 29, 2014 sampling event is shown in **Figure 4B**. Historic Analytical Results for bedrock groundwater quality are presented in **Table 1B** below:

Table 1B
Historic Analytical Results – Bedrock Groundwater Quality

Sample Date	Well ID	PCE	TCE	DCE	VC	Total VOC
1990 RI	MW-17B	-	-	-	-	15,437
1997 Follow-Up	MW-5D	-	-	-	-	2,208
	"Other Wells"	-	-	-	-	"ND" to 3,110
October 29, 2014	DW-1	5.1	3.6 J	-	-	9.4 J
	GW-4D	-	-	-	-	-
	RW-3D	87	100	38	-	225

Notes:
Concentrations in ug/l
- Indicates compound specific information not available
- Identification of "other" wells not specified in 1999 ROD amendment

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

The presence of residually impacted soil, groundwater and soil vapor have required that engineering and institutional controls (ECs and ICs, respectively) be put in place in order to protect human health and the environment. This EC and IC Plan describes the procedures for the implementation and management of all ECs and ICs at the site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

This EC/IC Plan provides:

- A description of the ECs and ICs associated with the site;
- The basic implementation and intended role of each EC and IC;
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of the ECs and ICs; and
- Any other provisions necessary to identify or establish methods for implementing the ECs and ICs required by the site remedy, as determined by the NYSDEC.

2.2 ENGINEERING CONTROLS

The ECs implemented at the site include an asphalt cap placed over the Tailings Dump Area; an SSDS installed at a nearby residence, and; a groundwater extraction and treatment system. The current array of monitoring wells completed in the unconsolidated overburden and, underlying bedrock is also considered one of the ECs for the site.

Procedures for operating and maintaining the GWE&T system are summarized in Section 4.0 (Operation and Maintenance) and presented in greater detail in **Volume 2** (Operations and Maintenance Plan) of this SMP. Procedures for monitoring the GWE&T system are included in Section 3.0 (Monitoring Plan) of this SMP. The Monitoring Plan presented in Section 3.0 also includes additional inspections to be conducted subsequent to extreme circumstances (such as weather conditions, power interruptions, accidents, etc…).

2.2.1 Asphalt Cap – Tailings Dump Area

Exposure to impacted soil/fill in the Tailings Dump Area is prevented by an asphalt cap that is placed over this area of the site. A perimeter fence is also installed around this area to limit access. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 3 of this SMP.

2.2.2 Sub-Slab Depressurization System

A sub-slab depressurization/soil vapor intrusion mitigation (SSD) system was installed by the NYSDEC at a nearby residence (47 Commerce Street) in order to mitigate potential exposures to VOCs via the vapor intrusion pathway. The SSD system consists of a centrally located extraction

point that is connected to a radon gas mitigation fan (RadonAway™ model RP-145) mounted on the southwestern exterior of the residence. Continued operation of the SSD system is an element of the overall remedial strategy for the site.

Inspection and maintenance of the SSD system is managed under a separate state-wide maintenance contract through the NYSDEC. As such, specific inspection/maintenance procedures and schedules for operation of the SSD system are not addressed herein. This SMP, in conjunction with the state-wide contract, is considered an institutional control with respect to vapor intrusion.

2.2.3 Groundwater Extraction and Treatment System

The groundwater extraction and treatment (GWE&T) system at the site includes groundwater extraction via three (3) recovery wells (RW-1S, RW-3D and RW-8S) followed by treatment of the extracted groundwater via air stripping.

Recovery wells RW-1S and RW-3D are repurposed monitoring wells that were previously identified as monitoring wells GW-1S and GW-3D, respectively. They are both installed within the soil source area north of the COSCO building. Well RW-1S is a 4.0-inch inside diameter (ID) well that is screened in the unconsolidated overburden from 10 feet to 25 feet below grade. Well RW-3D is a 4.0-inch ID well screened from approximately 41 feet to 102 feet below grade. Both wells were installed in December, 1997 by American Auger and Ditching, of Constantia, New York. Well RW-8S is located in the area adjacent to the former drainage feature and adjacent to the east side of the communication tower on the Town of Spring Valley DPW property. The well is 4.0-inches in diameter and consists of 15-feet of no. 10 slot continuous wire-wound stainless steel screen and 10 feet of black steel riser. The well is completed at an approximate total depth of 25-feet below grade.

Groundwater from the recovery wells is conveyed via underground piping to the treatment system shed, which is located in the area north of the COSCO building and east of the soil source area. Inside the treatment system shed, extracted groundwater is temporarily held in a 1,500-gallon batch treatment tank followed by filtration via a 100 micron bag filter prior to air stripping. The air stripping unit is a Shallow Tray model 2341-P, which is comprised of four (4) stripper trays and sump tank. Air is pumped into the sump tank at the base of the unit and flows upward through perforations in the trays as the extracted groundwater flows from top to bottom following a convoluted path through each stripper tray. Once its pathway through the stripper trays is completed, the treated groundwater is temporarily stored in the sump tank. The air stripper is equipped with a sight tube and various alarm switches and gauges that provide feedback to a programmable logic controller (PLC) which monitors and controls operation of the air stripper and overall treatment system.

Treated groundwater is stored in the sump base of the air stripper until a level switch is activated that initiates discharge of treated groundwater, through below grade piping, to

Drainage Reach B (located to the southwest of the treatment system shed). Drainage Reach B eventually discharges into Pascack Brook.

2.2.4 Groundwater Monitoring Wells

The site includes eight (8) groundwater monitoring and/or recovery wells from which monitoring of groundwater quality can be conducted. Five (5) of these wells are completed within the unconsolidated overburden and three (3) are completed within the bedrock. Monitoring/recovery well specifications are included below in **Table 2**; well locations are shown on Figure 2.

Table 2
Monitoring and Recovery Well Specifications

Well	TOC	Formation	Diameter	Total Depth	Screened Interval
MW-3	98.64'	Overburden	2"	16.75'	? – 16.75'
MW-18	99.32'	Overburden	2"	23'	11' – 23'
GW-4S	101.49'	Overburden	2"	25'	10' – 25'
RW-1S	101.00'	Overburden	4"	28'	10' – 25'
RW-8S	97.74'	Overburden	4"	25'	10' – 25'
DW-1	100.12'	Bedrock	4"	66'	51' – 61'[a]
GP-4D	101.01'	Bedrock	2"	99'	41' – 99'
RW-3D	100.54'	Bedrock	6"	102.5'	41' – 102.5'[b]

Notes:
Depths represent feet below grade
a = Indicates 5.0' sump present from 61' – 66' below grade
b = indicates obstruction in well at ~49 feet below grade
Wells RW-1S, RW-3D and RW-8S are groundwater recovery wells

2.2.6 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

Asphalt Cap – Tailings Dump Area

The asphalt cap over the Tailings Dump area is a permanent EC and, as such, the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity. The inspection procedures and inspection schedule for this EC is included in Section 3.0 (Monitoring Plan) of this SMP.

Sub-slab Depressurization System

Inspection and maintenance of the SSD system at 47 Commerce Street is managed under a separate state-wide maintenance contract through the NYSDEC. As such, specific inspection/maintenance procedures and schedules for operation of the SSD system are not addressed herein. However, as a general rule, the operation of this active SSD system will not

be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicates that the SSD system at this location is no longer required, a proposal to discontinue its operation will be submitted by the property owner to the NYSDEC and NYSDOH or, will be developed by NYSDEC and approved-by NYSDOH.

Groundwater Extraction and Treatment System

Operation of the GWE&T system will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that groundwater monitoring data indicates that the GWE&T system is no longer required, a proposal to discontinue its operation will be prepared for review by NYSDEC. Conditions that warrant discontinuing operation of the GWE&T system include reductions in the concentrations of site related VOCs (PCE, TCE, DCE and VC) in groundwater that: (1) that are consistently below ambient water quality standards, or (2) have become asymptotic over an extended period of time as accepted by the NYSDEC. Operation of the GWE&T system may also be discontinued if NYSDEC determines that it has reached the limit of its effectiveness.

The assessment of continued GWE&T system operation will be based in part on the concentrations of the site-related VOCs in the samples collected from the site monitoring wells. The GWE&T system will remain in place and operational until NYSDEC determines that discontinuing its operation is appropriate. NYSDEC will convey their desire to discontinue GWE&T system operation in writing.

Monitored Natural Attenuation

Once operation of the GWE&T system is discontinued, groundwater monitoring activities to evaluate natural attenuation will continue, as determined by the NYSDEC, until residual groundwater concentrations of site-related VOCs are found to be consistently below NYSDEC standards (or have become asymptotic at concentrations that are acceptable to the NYSSDEC) over an extended period of time. Groundwater monitoring activities will continue until permission to discontinue is granted in writing by the NYSDEC. If site-related VOCs in groundwater become asymptotic at concentrations that are higher than is acceptable to the NYSDEC, then additional remedial measures will be evaluated.

2.3 INSTITUTIONAL CONTROLS

The August, 1999 ROD Amendment is the current IC governing the site and includes the following elements:

- No further action for source area soils and sediments;
- Groundwater extraction in the source area with treatment by chemical oxidation and polishing technologies. After treatment, the treated groundwater can be discharged to surface water;
- Maintaining the asphalt capping of the Tailings Dump area and installing additional asphalt where needed; and

- Long-term groundwater monitoring to evaluate the effectiveness of both the GWE&T system and cap over the Tailings Dump Area.

The purpose of these amendments is to operate, maintain and monitor the EC system for the site, and; to prevent future exposure of the public to site related VOCs present within the source area soil and soil/fill materials within the Tailings Dump Area by controlling disturbances of the subsurface. Adherence to these ICs will be implemented under this Site Management Plan. These ICs include:

- Compliance with the SMP by the owner and remedial party (the remedial party for the purpose of this SMP is the NYSDEC);
- All ECs must be operated and maintained as specified in this SMP;
- All ECs on the site must be inspected at a frequency and in a manner defined in the SMP.
- Groundwater, soil vapor and any other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to management of the site must be reported at the frequency and in a manner defined in this SMP;

The ICs (and associated site restrictions) may not be discontinued without an amendment to this SMP and approval by the NYSDEC. The following restrictions apply to the site are:

- The site may only be used for commercial/industrial use provided that the long-term ECs and ICs included in this SMP are employed.
- The site may not be used for a higher level of use, such as unrestricted or restricted residential use, without additional remediation and amendment of this SMP, as approved by the NYSDEC;
- All future activities on the site that will disturb remaining source soil and/or fill material containing site-related VOCs must be conducted in accordance with this SMP;
- The use of the groundwater underlying the property is prohibited ;
- Vegetable gardens and farming on the property are prohibited;
- A written statement certifying that: (1) the ECs and/or ICs employed at the site are unchanged from the previous certification or that any changes to the ECs and/or ICs were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the ECs and/or ICs to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access the site at any time in order to evaluate the continued maintenance of any and all ECs and/or ICs. This certification shall be submitted annually (or an alternate period of time that is acceptable to the NYSDEC) and, will be made by an expert that the NYSDEC finds acceptable.

2.3.1 Excavation Work Plan

Any future intrusive work that will penetrate the asphalt cap over the Tailings Dump Area or, the soil source area, will be performed in compliance with an Excavation Work Plan (EWP) that

will be prepared prior to commencing with the intrusive work. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site. The HASP must be in compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. The EWP, HASP and CAMP will each be subject to approval by NYSDEC. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan of this SMP (See Section 5.0).

The parties performing intrusive work on the site are completely responsible for the safe performance of all associated work, including the structural integrity of excavations, proper treatment and disposal of fluids generated via excavation de-watering, controlling runoff from open excavations, and for building footings that may be affected by excavation. Site development activities will not interfere with, or otherwise impair or compromise, the ECs described in this SMP without prior authorization of the NYSDEC.

2.4 INSPECTIONS

Inspections of all remedial components installed at the site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. This includes the asphalt cap over the Tailings Dump Area (and perimeter fencing) and, the GWE&T system. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether the ECs implemented at the site continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with the requirements of this SMP;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If site records are complete and up to date; and
- Changes, or needed changes, to the ECs or monitoring well array;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3.0). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5.0).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the site will be conducted within five (5) days of the event by a qualified environmental professional (as determined by NYSDEC) in order to verify the effectiveness of the ECs and ICs implemented at the site

2.5 CONTINGENCY PLAN

In the event that an emergency situation arises that may present a hazard to the public (including injury to personnel, fire, explosion, or an environmental release), arrangements will be made to mitigate the emergency situation immediately upon discovery (to the extent practical). NYSDEC will be notified as soon as possible, but, within a maximum of 24 hours of discovery.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring emergency assistance, the appropriate party from the list below (**Table 3**) will be contacted. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to the qualified environmental professional if appropriate. These emergency contact lists must be maintained in an easily accessible location at the site.

Table 3: Emergency Contact Numbers	
Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362
NYSDEC – Central Office NYSDEC – Project Manager (Mr. Carl Hoffman)	(518) 402-9706 (518) 402-9813

2.5.2 Map and Directions to Nearest Health Facility

Site Location: COSCO, 15 West Street, Spring Valley, N.Y.
Nearest Hospital Name: Good Samaritan Hospital
Hospital Location: 255 Lafayette Avenue, Suffern, New York 10901
Hospital Telephone: (845) 368-5000; (800) 336-9813

Directions to the Hospital:

1. From Site, travel south on West Street approximately 0.1 miles (500 feet) to Route 59 West (Alturas Road).
2. Turn Right onto Route 59 West (Alturas Road) and travel 4.4 miles. Good Samaritan Hospital complex is on left.
3. Follow signs for emergency room

Total Distance: 4.5 miles
Total Estimated Time: 16 minutes

Map Showing Route from the site to the Hospital:

3.0 SITE MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Site Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, as well as the cover system, and all affected site media identified below. Monitoring of other ECs is described in Chapter 4, Operation and Maintenance. This Site Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Site Monitoring Plan describes the methods to be used for:

- Sampling and analysis of groundwater;
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (particularly ambient groundwater standards);
- Assessing achievement of the remedial performance criteria.
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Site Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Monitoring well locations and specifications;
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for the cover system (Tailings Dump Area); groundwater recovery wells and groundwater monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Groundwater monitoring/sampling via existing monitoring wells and the active recovery wells will be conducted on a semi-annual basis and, the combined quality of groundwater extracted and treated via the GWP&T system will be sampled on a monthly basis. This includes sampling of the combined influent, post bag filters and system effluent. The information obtained as part of these efforts will be used to evaluate the trends in concentration for the site related compounds in groundwater and, to determine if the remedy continues to be effective in achieving remedial goals. The overall monitoring programs associated with the COSCO site are summarized below in **Table 4** and outlined in detail in Section 3.2 (Soil Cover System – Tailings Dump Area) and Section 3.3 (Media Monitoring) below.

Table 4: Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Soil Cover System & Perimeter Fencing – Tailings Dump Area	Annual	Asphalt	Visual Inspection
Groundwater Recovery Wells	Semi-Annual	Groundwater via RW-1S, RW-8S & RW-3D	VOCs by method 624
Groundwater Monitoring Wells	Semi-Annual	Groundwater via GW-4S, GW-4D, MW-18, DW-1 & MW-3	VOCs by method 624
GWP&T System	Monthly	Combined Influent, Post Bag Filters & System Effluent	VOCs by method 624
Sub-Slab Depressurization System**	**	**	**

Notes:
* The frequency of events will be conducted as specified until otherwise approved by NYSDEC
** Inspection and maintenance of the SSDS is managed by NYSDEC

3.2 COVER SYSTEM – TAILINGS DUMP AREA

The cover system in the Tailings Dump Area consists of an asphalt cap that restricts infiltration of precipitation and, restricts human and wildlife contact with the soil. Access to this area is also restricted by perimeter chain link fencing. The asphalt cap and perimeter fencing will be inspected once a year at a minimum. Additional inspections will be conducted following any work that can potentially affect the integrity of the asphalt cap or, the perimeter fencing. No sampling is required as part of the annual cover system inspection.

3.3 MEDIA MONITORING PROGRAM

The media monitoring program for the site includes groundwater sampling via the three (3) active groundwater recovery wells, five (5) additional groundwater monitoring wells completed in overburden or bedrock and, the combined influent of the GWP&T system. Inspection and maintenance of the SSD system is managed separately by NYSDEC.

3.3.1 Groundwater Monitoring

Groundwater monitoring will be performed on a semi-annual basis via recovery wells RW-1S, RW-3D and RW-8S and monitoring wells GW-4S, GW-4D, MW-18, DW-1 & MW-3. Well completion specifications for each of these wells are included in Table 2. Samples will be analyzed for the full list of VOCs via analytical method 624.

The analytical results obtained via these locations will be used to evaluate the performance of the remedy. The frequency and locations included in future sampling events may be modified based on the analytical results if NYSDEC determines that adjustments to the groundwater

monitoring program are appropriate. The SMP will be modified to reflect any changes relating to sampling locations and/or frequency made by NYSDEC.

Each groundwater monitoring event will proceed by first opening all monitoring wells and allowing the water levels within each well to equilibrate with atmospheric conditions. After equilibration, depth to groundwater will be measured in each well using an electronic water level tape calibrated in 0.01-foot increments. Based on the depth to water and the known total depth of each monitoring well, the volume of groundwater within each casing will be calculated. Three (3) volumes of groundwater will be purged from each monitoring well using dedicated, disposable bailers to ensure the collection of representative groundwater samples. The wells will be allowed to recharge prior to sample collection.

Groundwater samples obtained from monitoring wells will be transferred from the sampled well via the dedicated, disposable bailers into pre-preserved, laboratory-supplied sampling vials containing dilute hydrochloric acid. Groundwater samples obtained from the active groundwater extraction wells will be transferred directly into the sampling vials via sampling ports located inside of the remedial system building. Samples will be placed on ice in a cooler and will be transported under a chain of custody to the analytical laboratory for analysis.

All groundwater sampling activities will be recorded in a field book and groundwater-sampling log (presented in **Appendix A**). Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

3.3.2 Monitoring Well Repairs, Replacement and Decommissioning

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be responsible for decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning will be performed in accordance with NYSDEC's CP-43 "Groundwater Monitoring Well Decommissioning Procedures" (November 3, 2009). Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.4 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (Appendix A). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that site records are up to date.

3.5 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept in a dedicated project file. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted with quarterly system monitoring; semi-annual post groundwater monitoring reports and/or the annual Periodic Review Report. A summary of the groundwater monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report and, the analytical results will be submitted to NYSDEC via the EquiS database as they become available. The quarterly system monitoring reports will include information regarding monthly operation and maintenance (O&M) of the GWE&T system; each semi-annual post groundwater monitoring report will include the following information:

- Date of sampling event(s);
- Personnel conducting sampling;
- Description of the O&M and sampling activities performed;
- Type of samples collected (e.g., grab groundwater samples from specific wells or GWE&T system influent composites);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and

- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC; analytical data will also be provided via the EquiS database as it becomes available. A summary of the monitoring program deliverables are summarized in **Table 5** below.

Table 5: Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Quarterly System Monitoring Report	Quarterly
Post Groundwater Monitoring Report	Semi-Annual
Site Wide Inspection (including Tailings Dump Area Cover)	Annual
Periodic Review Report	Annual
* The reporting frequency will be conducted as specified until otherwise approved by NYSDEC	

4.0 OPERATION AND MAINTENANCE

4.1 INTRODUCTION

This Operation and Maintenance (O&M) section briefly describes the measures necessary to operate, monitor and maintain the mechanical components of the GWE&T system operating at the site. The full O&M Plan for the COSCO site can be found in its entirety as **Volume-2, Operations and Maintenance Plan**. The purpose of this section and the O&M Plan is to:

- Provide the steps necessary to allow individuals unfamiliar with the site to operate and maintain the GWE&T system; and,
- Provide an operation and maintenance contingency plan.

The O&M Plan will be updated periodically to reflect changes in site conditions or the manner in which the GWE&T system is operated and maintained.

Information on non-mechanical Engineering Controls (i.e. soil cover system) is provided in Section 3 (Engineering and Institutional Control Plan) of this SMP. A copy of the O&M Plan (Volume 2 of the SMP), along with the complete SMP, will be kept at the site. The O&M Plan (Volume 2 of the SMP) is not to be used as a stand-alone document, but as a component document of the SMP.

4.2 GWE&T SYSTEM OPERATION AND MAINTENANCE

A site-wide Remedial Investigation (RI) in March of 1990 identified a need for measures to reduce the potential for contact with site-related VOCs in groundwater. The original GWE&T system installed and activated at the site in November, 2003 was replaced by an upgraded GWE&T system in 2012.

4.2.1 GWE&T System Description

The GWE&T system has historically withdrawn groundwater via three groundwater extraction wells (RW-1S, RW-3D and RW-8S). Two (2) of these wells (RW-1S & RW-8S) are shallow wells completed within the unconsolidated overburden and well RW-3D is completed within bedrock. Each well has been equipped with an electric submersible pump. Well locations are shown on Figure 2; completion specifications are summarized below on **Table 6**.

Table 6
Recovery Well Specifications

Well	TOC	Formation	Diameter	Total Depth	Screened Interval
RW-1S	101.00’	Overburden	4”	28’	10’ – 25’
RW-8S	97.74’	Overburden	4”	22’	
RW-3D	100.54’	Bedrock	6”	102.5’	41’ – 102.5’

Notes:
Depths represent feet below grade

Groundwater extracted from the subsurface is conveyed via underground piping to a remedial structure that houses the GWE&T system and controls. The remedial structure consists of an oversized corrugated steel shipping container that is placed upon a concrete slab. On either end of the structure a rollup door allows for the larger system components to be brought in and out easily. A standard size door with functioning lock is located on the side. The structure is insulated and has painted sheet metal floors and walls covered with polyester resin composite panels.

The remedial structure is serviced by a public electric supply provided by Orange and Rockland Utilities as well as cellular telecommunication services provided by Verizon Wireless. The electrical distribution includes high and low-voltage electrical panels. The interior of the remedial structure is heated via individual electric heaters and, includes a settling tank, shallow tray air stripper unit (with blower, transfer and discharge pumps), as well as system sensors, meters and controls. Security lighting illuminates the exterior of the remedial structure during night time hours.

4.2.2 Scope

The scope of the O&M Plan is to provide the operator of the GWE&T system with information that will help them to:

- Maintain compliance with all pertinent permit requirements relating to operation of the GWE&T system;
- Provide personnel involved with operation and maintenance of the GWE&T system with general knowledge of the site, the GWE&T system, and associated responsibilities;
- Troubleshoot problems with the GWE&T system when they arise;
- Conduct necessary electrical/mechanical alterations and upgrades in accordance with the Operations and Maintenance Plan and its equipment reference guides.
- Provide guidance when a subcontractor is required.
- Remotely monitor system operational parameters and investigate control alarms.
- Conduct routine sampling of the GWE&T system in accordance with the Site Management Plan.
- Maintain records of GWE&T system operation and sampling.

4.2.3 System Start-Up and Testing

Startup and testing of the GWE&T system after a system failure should be conducted as recommended in Volume 2 (Operations and Maintenance Plan). Prior to conducting with a manual system restart, careful attention should be paid to determine the cause of the system shutdown. If the system shutdown is unknown and cannot be determined, each component of the GWTS should be carefully inspected prior to system startup. Manufacturer's recommendations can be found for each system component in their respective manuals (See Volume 2 – Operations and Maintenance Plan).

Procedures for system startup and testing are discussed in detail in Volume 2 – (Operation and Maintenance Plan) of this SMP.

4.2.4 Routine System Operation

Routine system operation includes daily systems reports generated by the Programmable Logic Controller that are transmitted via e-mail to the office of the standby remedial contractor. Additionally, bi-weekly inspection and maintenance site visits are conducted and system influent/effluent sampling is conducted monthly. Items found to in need of attention via either the daily e-mails or biweekly site visits shall be addressed as soon as reasonably possible. System components found to be working below their typical performance capabilities should be reported to the site's NYSDEC Project Manager for further evaluation and troubleshooting.

Procedures for routine system operation and maintenance site visits are discussed in detail in Volume 2 – (Operation and Maintenance Plan) of this SMP. These procedures should be referenced during any system failure or malfunction.

4.2.5 System Operation: Routine Equipment Maintenance

Procedures for routine equipment maintenance are discussed in detail in Volume 2 – (Operation and Maintenance Plan) of this SMP.

4.2.6 System Operation: Non-Routine Equipment Maintenance

Non-routine maintenance activities include various tasks that should be conducted on an annual basis at a minimum. This includes annual inspection and maintenance of various system components such as well pumps, transfer pumps, the air stripper (trays, sump, blower etc…), system controls, remedial building, etc… Procedures for non-routine equipment maintenance are discussed in detail in Volume 2 – (Operation and Maintenance Plan) of this SMP.

4.3 ENGINEERING CONTROL SYSTEM PERFORMANCE MONITORING

The GWE&T system has historically been supplied groundwater derived from three (3) extraction wells that are each equipped with electric submersible pumps. Extracted groundwater is first deposited into a 1,500 gallon polyethylene batch tank. A transfer pump draws water from the batch tank and filters it via a 100 micron bag filter prior to treatment via air stripping. After air stripping, the treated groundwater is collected in the air stripper sump until it is discharged to the "Reach B Diversion".

4.3.1 Monitoring Schedule

The GWE&T system is equipped with sampling ports that allow an evaluation of the operating efficiency of the air stripper. Samples are collected via an influent sampling port for untreated combined influent from the batch tank, a post bag filter combined influent sample and, system effluent sampling of treated water prior to discharge to the Reach B Diversion. Treatment system samples are collected on a monthly basis.

Grab samples are also collected on a semi-annual basis from each of the extraction wells (RW-1S, RW-3D & RW-8S). Samples from active extraction well locations are obtained inside of the remedial structure from sampling ports located along the influent lines from each well prior to entering the batch tank; grab samples from inactive extraction wells will be collected directly from the inactive wells via purging/sampling with dedicated bailers.

Samples associated with the GWE&T system are analyzed for the full list of VOCs via analytical method 624. Concentrations of the site-related VOCs (TCE, PCE, DCE and VC) in the system effluent samples will be compared to the Effluent Limitations established by NYSDEC – Division of Water for the site. The effluent limitations are listed below in **Table 7**.

Table 7
GWE&T System Effluent Limitations

Analyte	Effluent Limitation		Analyte	Effluent Limitation
Flow (GPM)	18 – 45		Barium	4,000
pH (Range)	6.5 – 8.5		Iron	1,800
Vinyl Chloride	10		Copper (Total)	75
1,1 Dichloroethene	10		Copper (Dissolved)	50
1,2 Dichloroethene (Total)	10		Lead (Total)	100
Trichloroethene	10		Lead (Dissolved)	24
Tetrachloroethene	6.0		Manganese	2,000
Aluminum	4,000		Vanadium	84
Arsenic (Total)	1,800		Zinc (Total)	600
Arsenic (Dissolved)	900		Zinc (Dissolved)	400

Notes:
GPM = Gallons per Minute
Total metals concentration via analysis of an acidified, unfiltered sample
Dissolved metals concentration via filtration using a 0.45 micron particulate filter prior to acidification.
Effluent Limitations established by NYSDEC – Division of Water

4.3.2 General Equipment Monitoring

A visual inspection of the complete system will be conducted during the routine site visits/monitoring events. The system components to be monitored include, but are not limited to, the following:

- Air Stripper;
- Transfer pump(s);
- Filter housings;
- Flow meters;
- System controls.

A complete list of components to be checked is provided in the Inspection Checklist, which is presented in Volume 2 – Operations and Maintenance Plan of this SMP. If any equipment readings are not within their typical range, any equipment is observed to be malfunctioning, or

the system is not performing within specifications, maintenance and repair in accordance with the O&M Plan is required immediately, and the GWE&T system restarted.

4.3.3 System Monitoring Devices and Alarms

The GWE&T system is equipped with a PLC that provides a daily report (via e-mail) that summarizes various system inputs/outputs such as flow rates, pressures, amperage loads etc. These system e-mails are reviewed to verify that the system is operating properly. When appropriate, non-routine site maintenance visits will be scheduled in order to address issues that need attention. System maintenance and/or repairs will be conducted as specified in Volume 2 (Operations and Maintenance Plan) of this SMP. Operational problems will be noted in the subsequent quarterly letter report for system operation.

4.3.4 Sampling Event Protocol

The GWE&T system is equipped with sampling ports at appropriate locations for collecting representative samples of the combined influent from recovery wells RW-1S, RW-3D and RW-8S, post bag filter combined influent samples and, post treatment effluent from the air stripper. Sampling ports are also appropriately located for collecting individual grab samples from each active recovery well.

System influent/effluent sampling is conducted on a monthly basis by first inspecting the sampling ports for debris. Debris is physically removed, if present, with a clean cloth or paper towel, and the sampling port is activated to "pre-rinse". Water generated during this procedure is captured in a plastic container and returned to the batch tank after sampling is completed. Samples are collected from the sampling port directly into appropriately labeled and preserved, laboratory supplied glassware. The samples are placed in sample coolers and stored following Chain-of-Custody protocols until they are delivered to the analytical laboratory for analysis of the full list of VOCs via analytical method 624.

4.4 MAINTENANCE AND PERFORMANCE MONITORING REPORTING REQUIREMENTS

Maintenance reports and any other information generated during regular operations at the site will be kept on-file at the site. All reports, forms, and other relevant information generated will be available upon request to the NYSDEC and submitted as part of the Quarterly Letter Report , as specified in the Section 5 of this SMP.

4.4.1 Routine Maintenance Reports

Checklists/forms will be completed during each routine maintenance event. Checklists/forms will include, but not be limited to the following information:

- Date;
- Name, company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;

- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

Copies of the checklists/forms to be completed during the site visits are included in Volume 2 – (Operation and Maintenance Plan) of this SMP

4.4.2 Non-Routine Maintenance Reports

During each non-routine maintenance event, a form will be completed which will include, but not be limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Nature of repair;
- Date of repair;
- Other repairs or adjustments made to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).
- Copies of the checklists/forms to be completed during the site visits are included in Volume 2 (Operation and Maintenance Plan) of this SMP.

5.0 INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 (Monitoring Plan) and Section 4 (Operation and Maintenance) of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted during routine site visits, when a breakdown of any treatment system component has occurred or, whenever a severe condition has taken place (such as erosion or flooding event) that may affect operation of the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms for their respective system. Copies of the appropriate forms pertaining to the general site inspections and groundwater monitoring are included in Appendix A; forms specific to operation, maintenance and sampling of the GWE&T system are included in Volume 2 (Operations and Maintenance Plan) of this SMP. Each of these forms is subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the site during the reporting period will be provided as appropriate in electronic format in the Quarterly Letter Report, Groundwater Sampling Report, Site Wide Inspection Report and/or Periodic Review Report.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,
- The site remedy continues to be protective of public health and the environment and is performing as designed.

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, a [qualified environmental professional or Professional Engineer licensed to practice in New York State will prepare the following certification:

- For each IC or EC for the site, I certify that all of the following statements are true:
  - The inspection of the site to confirm the effectiveness of the IC and EC required by the remedial program was performed under my direction;

- The IC and/or EC employed at this site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- The EC(s) for the site are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as the Professional Engineer/Qualified Environmental Professional.

The signed certification will be included in the Periodic Review Report described below.

5.3 PERIODIC REVIEW REPORT

A Periodic Review Report (PRR), prepared in accordance with NYSDEC DER-10, will be submitted to the Department on an annual basis until such time that operation of the GWE&T system (or any other active remedial system) is no longer necessary. The PRR will be submitted within 30 days of the end of each certification period. The PRR will be an evaluation of the media sampling results collected during the reporting period covered by the PRR as well as the following information:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of site-related compounds of concern in groundwater. Summary tables will include a listing of all compounds analyzed, along with the applicable standards, and all exceedances will be highlighted. Data summary tables will also include a presentation of past data as part of an evaluation of concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will have been

previously submitted electronically in a NYSDEC-approved format. Laboratory analytical reports will not be included as part of the PRR;

- A site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the site-specific ROD;
  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
  - Any new conclusions or observations based on inspections or data generated by the Monitoring Plan;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
  - The overall performance and effectiveness of the remedy.

The PRR will also include an evaluation of the GWE&T system performance that will summarize various operational parameters such as:

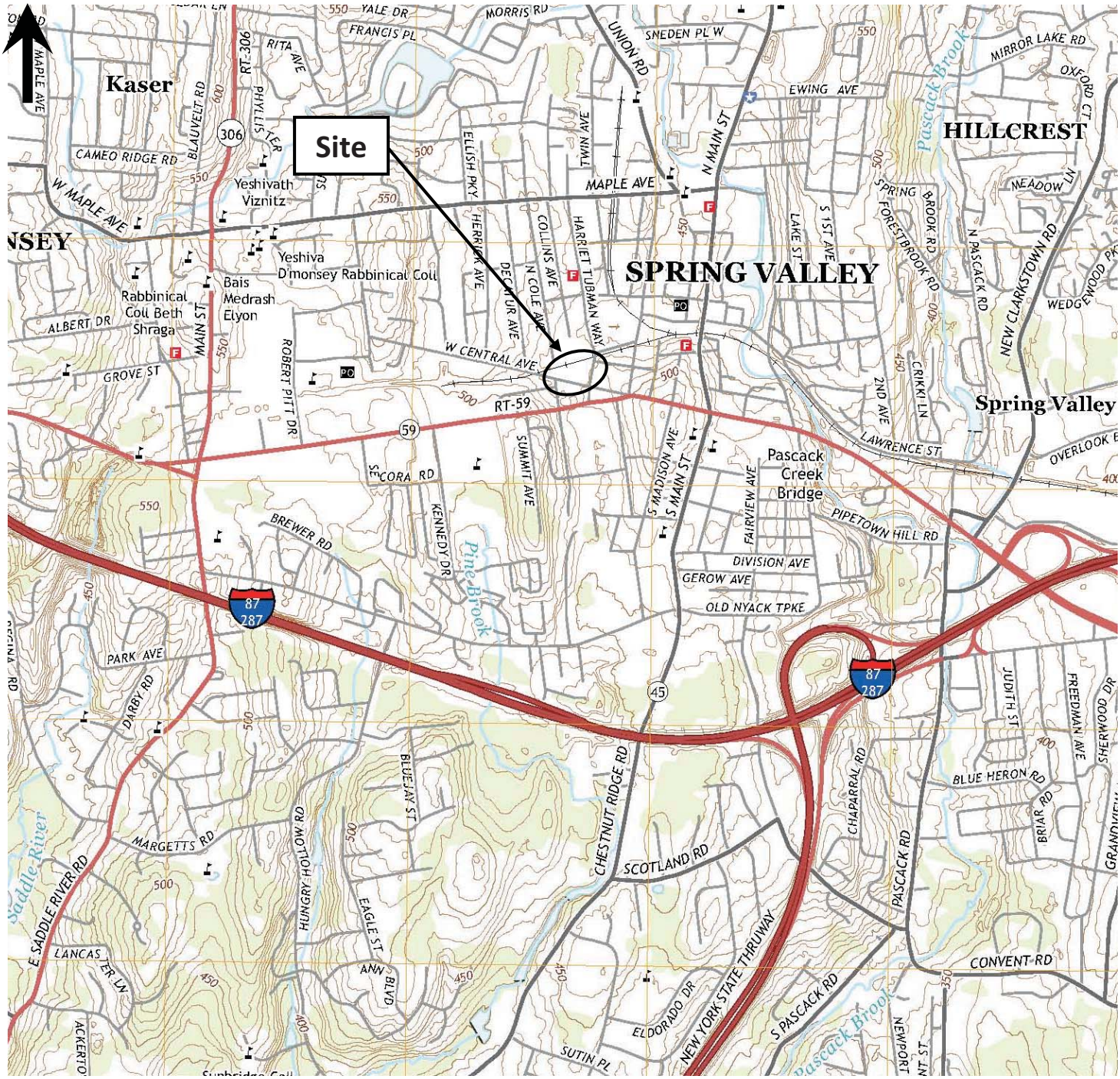
- The number of days the system was run for the reporting period;
- The average, high, and low flows per day;
- The mass of site-related compounds of concern removed;
- A description of breakdowns and/or repairs (as applicable);
- A description of the resolution to GWE&T system operational issues (if any);
- A summary of the performance, effluent and/or effectiveness monitoring; and
- Comments, conclusions, and recommendations based on data evaluation.

The PRR will be submitted in electronic format, and upon request by the NYSDEC, in hard-copy format, to the appropriate NYSDEC office(s).

5.4 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

FIGURES



USGS Topographic Quadrangle Map – Park Ridge, NJ

Scale 1:24,000

Remediation • Environmental • Drilling

Woman Owned Business

Aztec Environmental TECHNOLOGIES

SITE: NYSDEC – Site # 3-44-035
COSCO
15 West Street
Spring Valley, New York

FIGURE 1

Site Location Map

North Cole Ave

Maint. Ga.

Former Waterway

DPW Maintenance Garage

Raised Area

Commerce Street

Former CPC

Reach B Diversion

Comm. Tower

RW-8S

Remedial System Shed

MW-3

DW-1

Storage Area

GP-4D

RW-1S

RW-3D

MW-18

GW-4S

Stream

Former COSCO

West Street

Tailings Dump Area

South Cole Ave

West Central Ave

N

W

E

S

FIGURE 2

Site Map

LEGEND:

- Monitoring Well
- Groundwater Recovery Well
- Railroad Track
- Fence line

DATE: 9-11-2014

0 15 30 60

Approximate Scale 1" ~ 60'

COSCO
15 West Street
Spring Valley (Rockland Co.), New York
NYSDEC Site No. 3-44-035

Remediation Solutions • Environmental Consulting • Drilling Applications

Aztech Environmental
TECHNOLOGIES
Woman Owned Business
5 McCrea Hill Road, Ballston Spa, NY 12020
518.885-5383 | aztechenv.com

North Cole Ave

Maintenance Garage

Former Waterway

DPW Maintenance Garage

Raised Area

Commerce Street

Former CPC

Reach B Diversion

Comm. Tower

MW-17B (Destroyed)

RW-8S

Remedial System Shed

MW-3

DW-1

Storage Area

GP-4D

RW-1S

RW-3D

MW-18

GW-4S

Stream

Former COSCO

West Street

Tailings Dump Area

South Cole Ave

West Central Ave

N

W

E

S

FIGURE 3

Source Area Locations

LEGEND:

- Monitoring Well
- Groundwater Recovery Well
- Railroad Track
- Fence line
- Source Area

DATE: 9-11-2014

0 15 30 60

Approximate Scale 1" ~ 60'

COSCO
15 West Street
Spring Valley (Rockland Co.), New York
NYSDEC Site No. 3-44-035

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Aztech Environmental Technologies
Woman Owned Business
5 McCrea Hill Road, Ballston Spa, NY 12020
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North Cole Ave

Former CPC

Maintenance Garage

Former Waterway

Raised Area

DPW Maintenance Garage

Commerce Street

Comm. Tower

Reach B Diversion

Storage Area

Remedial System Shed

RW-8S

PCE	TCE	DCE	VC
0.8	3.3	45	6.7

November 12, 2014

MW-3

PCE	TCE	DCE	VC
<100	<100	<200	<100

October 29, 2014

RW-8S

MW-3

DW-1

GP-4D

GW-4S

RW-3D

MW-18

RW-1S

Stream

Tailings Dump Area

Former COSCO

West Street

RW-1S

PCE	TCE	DCE	VC
20	43	13	<5.0

August 5, 2014

GW-4S

PCE	TCE	DCE	VC
<5.0	1.5	4.5	<5.0

October 29, 2014

MW-18

PCE	TCE	DCE	VC
0.5	1.7	<10	4.2

October 29, 2014

South Cole Ave

West Central Ave

N

W

E

S

FIGURE 4A

VOC Distribution in Overburden Groundwater
(results from dates indicated)

LEGEND:

- Monitoring Well
- Groundwater Recovery Well
- Railroad Track
- Fence line
- * Concentrations in ug/l

DATE: As Indicated

0 15 30 60

Approximate Scale 1" ~ 60'

COSCO
15 West Street
Spring Valley (Rockland Co.), New York
NYSDEC Site No. 3-44-035

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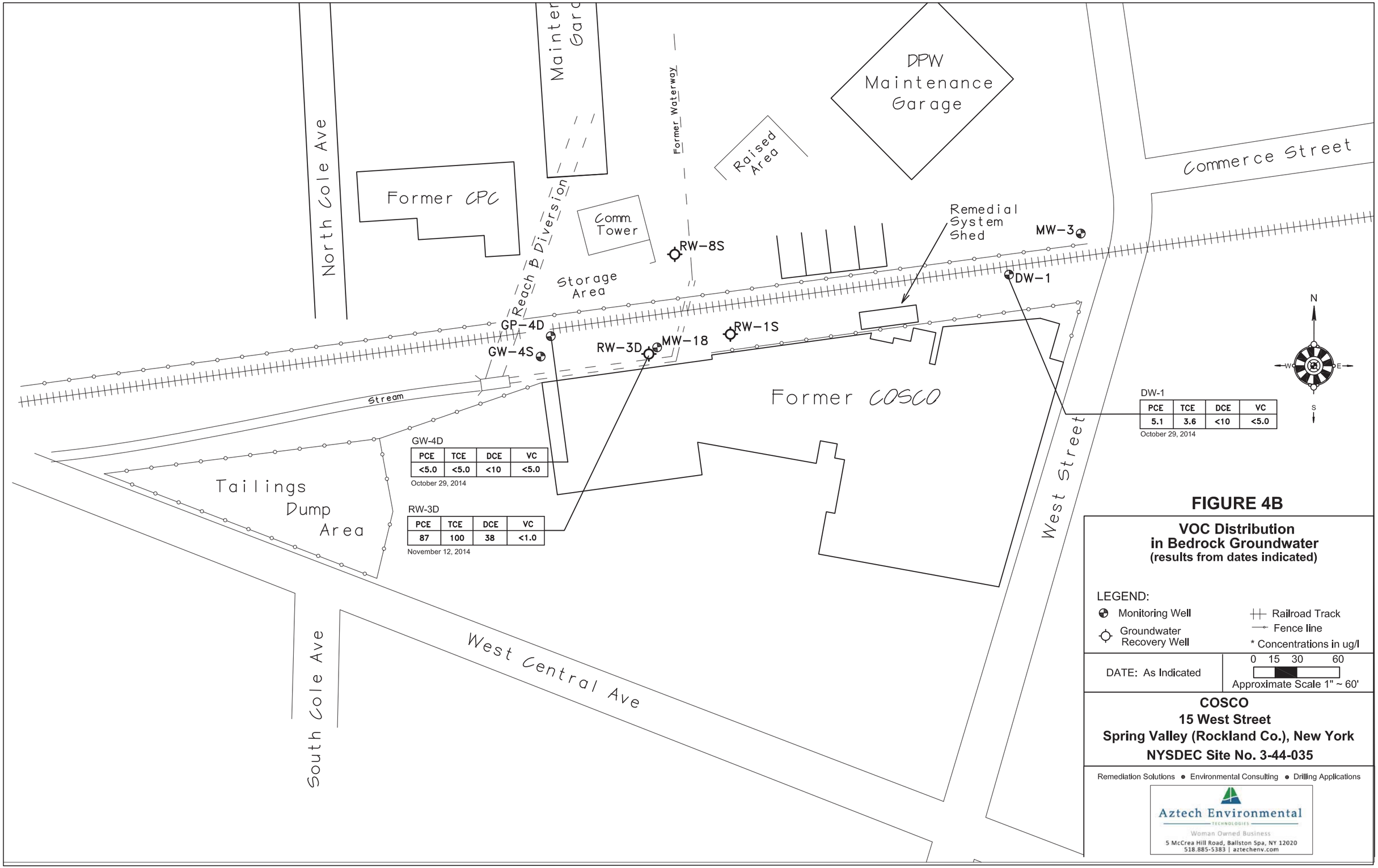

FIGURE 4B

VOC Distribution in Bedrock Groundwater
(results from dates indicated)

LEGEND:

- Monitoring Well
- Groundwater Recovery Well
- Railroad Track
- Fence line
- * Concentrations in ug/l

DATE: As Indicated

0 15 30 60

Approximate Scale 1" ~ 60'

COSCO
15 West Street
Spring Valley (Rockland Co.), New York
NYSDEC Site No. 3-44-035

Remediation Solutions • Environmental Consulting • Drilling Applications

Aztech Environmental Technologies
Woman Owned Business
5 McCrea Hill Road, Ballston Spa, NY 12020
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APPENDIX A

FORMS

Sampling Data
COSCO
15 West Street, Spring Valley, NY
NYSDEC Site No. 3-44-035

Well ID	Diam. (in)	Depth (ft)	Measured Depth (ft)	Static DTP/DTW (ft)	Notes
RW-1S	4”	28			If active, sample from sampling port inside remedial trailer. Otherwise purge & sample via dedicated sampling bailer.
Volume Purged:		Odor:			
Color:		Sheen:			
RW-8S	4”	25			If active, sample from sampling port inside remedial trailer. Otherwise purge & sample via dedicated sampling bailer.
Volume Purged:		Odor:			
Color:		Sheen:			
RW-3D	6”	102.5			If active, sample from sampling port inside remedial trailer. Otherwise purge & sample via dedicated sampling bailer.
Volume Purged:		Odor:			
Color:		Sheen:			
MW-3	2”	16.75			
Volume Purged:		Odor:			
Color:		Sheen:			
MW-18	2”	23			
Volume Purged:		Odor:			
Color:		Sheen:			

Data Collected by: _____ **Date:** _____

Sampling Data COSCO (Continued) NYSDEC Site No. 3-44-035					
Well ID	**Diam. (in)**	**Depth (ft)**	**Measured Depth (ft)**	**Static DTP/DTW (ft)**	**Notes**
GW-4S	2”	25			
Volume Purged:		Odor:			
Color:		Sheen:			
DW-1	4”	66			
Volume Purged:		Odor:			
Color:		Sheen:			
GP-4D	2”	99			
Volume Purged:		Odor:			
Color:		Sheen:			

Notes:

Data Collected by: **Date:**

Annual Site Wide Inspection
COSCO
15 West Street, Spring Valley, NY
NYSDEC Site No. 3-44-035

	Yes	No	Notes
Tailings Dump Area:			
Perimeter Fencing Intact ?			
Asphalt Cap Intact ?			
Remedial Shed:			
Piping Leaks Observed ?			
Biofouling/Sediment in 1,500 Gallon Influent Tank ?			
Transfer Pump Operational ?			
Check Bag Filter Housings?			
Air Stripper Trays Plugged/Fouled ?			
Air Stripper Sump Fouled ?			
Air Stripper Sump Floats Operational ?			
Air Stripper Internal Cleaning Recommended ?			
Air Stripper AIR Intake Free of Debris ?			
Air Stripper Blower Sound OK ?			
Check Air Stripper Stack for Plumbness.			
Check Guy Wires for Plumbness.			
Discharge Pump Operational ?			
Flow Meters Operational ?			
Pressure Gauges Operational ?			
Interior Lighting Operational ?			
Exterior Lighting Operational ?			
Roll-Up Doors Operational ?			
Floor Sump Operational ?			
Heater Operational ?			
Louver/Vent Fan Operational ?			
Roof Condition ?			
Floor Condition			
Roof Condition ?			
Haz Waste Drums On-Site ?			
First Aid Kit ?			
Fire Extinguisher up to Code ?			
Lock/Keybox Condition ?			

Inspected By: **Date:**

Annual Site Wide Inspection
COSCO
(Continued)
NYSDEC Site No. 3-44-035

	Yes	No	Notes
General Site Condition:			
Locate all Monitoring Wells ?			
Monitoring Well Road Box Repairs Needed ?			
Overgrown ?			
Trash ?			
Vandalism ?			
Have Any New Businesses Opened on the Property ?			
Have Any Businesses Vacated the Property ?			

Notes/Comments:

Inspected By: **Date:**

COSCO- Groundwater Remediation System Checklist

Date: **Personnel Onsite Initials:**

NOTE: Bag filters should only be changed during **non-sampling** site visits. If bag filters are changed, note filter pressures **before** and **after** the change.

Location	*Flow Rates (GPM)*
RW-1S	
RW-3D	
RW-8S	
Effluent	

Location	*VFD Frequency (Hz)*
Transfer Pump	
Effluent Pump	
Blower	

Location	*Pressure (psi)*
Transfer Pump	
Left-Bagfilter	Old Filter:
	* New Filter:
Right Bagfilter	Old Filter:
	* New Filter:
Effluent Pump	

* Only if bag filter is changed

(Circle One):
Samples Collected?: Yes / No

Bag Filters Changed: Yes / No

Comments: