A Proposal to the U.S. Environmental Protection Agency and Virginia Department of Environmental Quality under Project XL:

Environmental eXcellence and Leadership in Hopewell Virginia

June, 1999

Prepared by:

City of Hopewell, Virginia

Hopewell Regional Wastewater Treatment Facility

The City of Hopewell, Virginia
Hopewell Regional Wastewater Treatment Facility
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June 30, 1999

Thomas C. Voltaggio
Deputy Regional Administrator
3DA00
USEPA REGION 3
1650 Arch Street
Philadelphia, PA 19103-2029

RE: HRWTF Project XL Proposal

Dear Mr. Voltaggio:

On September 9, 1998 the City of Hopewell, Hopewell Regional Wastewater Treatment Facility, submitted a Preliminary Proposal for a Local Pilot Pretreatment Program under Project XL to Mike Cook, Director, Office of Wastewater Management, U.S. Environmental Protection Agency. This preliminary proposal met the criteria explained in the Federal Register notice dated June 23, 1998.

On January 7, 1999 HRWTF received a letter from Beth A.M. Termini, Region III Office of Reinvention. That letter notified us that EPA approved HRWTF to proceed through full project proposal development.

Enclosed with this letter is a complete proposal to the U.S. Environmental Protection Agency and Virginia Department of Environmental Quality under Project XL entitled: ***Environmental eXcellence and Leadership in Hopewell Virginia***, June, 1999. This proposal was prepared by the City of Hopewell, Virginia, Hopewell Regional Wastewater Treatment Facility, with the assistance of Hagler Bailly Services, Inc., and Malcolm Pirnie, Inc., our consulting management and engineering specialists.

It is our understanding that a cross agency proposal team, consisting of representatives from EPA headquarters, Regions, and States, will review the proposal and determine if additional information is needed to evaluate the proposal. HRWTF determines whether to provide additional information requested by EPA, submit a revised proposal, or withdraw the proposal. After all information is deemed complete, EPA assesses the merits of the proposal relative to the Project XL decision criteria. Decisions to advance or reject proposals are made by the EPA Associate Administrator for Reinvention in consultation with other members of the Agency's Reinvention Action Council and the relevant State environmental agency.

Once proposals advance to the project development phase, HRWTF, EPA, the State, and direct participant stakeholders negotiate a Final Project Agreement (FPA). The FPA outlines the details of the project and each party's commitments. Specifically, the participants define the innovation to be tested, what superior environmental performance must be achieved, what flexibility EPA and other co-regulators will provide, what conditions must be met, and how results will be monitored and reported. After the FPA is signed, the project moves into the implementation phase, where the details of the FPA become operating reality.

HRWTF believes we have designed an XL project that exemplifies the regulatory innovation, superior environmental performance, and stakeholder involvement imagined when the XL program was first conceived. Moreover, our project embodies the spirit and practices of true reinvention as applied to the pretreatment program. We look forward to hearing from EPA on this XL project proposal and working with you to implement this pioneering project in full.

Sincerely,

Mark A. Haley
Director

c: HRWTF Commission
Hopewell Community and Industrial Panel
HRWTF Technical Advisory Committee
Hopewell Environmental Liaison Panel
Mike Cook, EPA Headquarters
Beth A.M. Termini, Esq., EPA Region III
John Lovell, EPA Region III
Larry Lawson, Virginia DEQ
Burton Tuxford, Virginia DEQ
Mike Shelor, Virginia DEQ
file

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I. INTRODUCTION

A. Description of Facility, Community, and Geographic Area

Overview

The Hopewell Regional Wastewater Treatment Facility—HRWTF—is a 50 million gallon per day publicly owned treatment works designed to optimally treat a local mix of industrial wastewater from Organic Chemical, Plastics and Synthetic Fibers (OCPSF) and Pulp and Paper manufacturers. HRWTF currently employs 60 individuals and treats about 35 mgd annually. Five industrial facilities in Hopewell produce 85 percent of the wastewater flow and contribute 85 percent of HRWTF's annual operating revenues. Other customers are residents and small industries of Hopewell and Prince George County, Fort Lee, and the nearby Federal Corrections Institute. HRWTF's Virginia Pollution Discharge Elimination System (VPDES) permit is held in the City of Hopewell's name.

Hopewell is a manufacturing and commercial community of 23,000 residents located 20 miles southeast of the capital of Richmond, Virginia, with major surface, rail and river transportation corridors nearby. The city encompasses 11 square miles and is located at the confluence of the Appomattox and James Rivers. The City Point area of Hopewell is one of the oldest continually occupied English settlements in the Country, first visited in 1607 and continuously occupied since 1613. The area has figured prominently in both the Revolutionary and Civil Wars. Historically linked to significant industrial users, the area first became prominent in chemical manufacturing when DuPont established war-related production facilities in the City in 1915. Currently, Hopewell is host to national and international manufacturing firms producing such diverse and necessary products as paper, fertilizer, intermediate materials for end products such as carpet fiber, ingredients in personal care items, tire cord, and potable water.

Hopewell citizens have a strong commitment to the environment, strengthened by first hand experience with the kepone contamination of the James River in the middle 1970s, a legacy that the community still shoulders today. This environmental insult resulted from a discharge of uncontrolled and toxic industrial wastewaters from Life Science Products Company through the sanitary sewer system that interfered with and passed through the City's primary wastewater treatment plant into the James River. [It is important to note that the HRWTF, a new secondary wastewater treatment plant, was under construction during the kepone years.] This disaster has served to heighten community resolve and develop an attitude toward environmental stewardship unmatched in other localities. The true legacy of kepone to the Hopewell community is therefore not denial of past mistakes but an ever-present environmental ethic that serves to guard against such a tragedy from ever happening again.

Facility History

The HRWTF resulted from a regional solution to a water pollution problem. In 1968, the Virginia State Water Control Board (VSWCB) directed the City to upgrade its primary wastewater treatment to secondary treatment capability. Also, in that year, the U.S. Army asked the City if it would provide wastewater treatment services to nearby Fort Lee. In 1969, engineers prepared final design for a secondary wastewater treatment plant for the City and Fort Lee.

During this same period, major industrial users in Hopewell were faced with installing individual wastewater treatment facilities to meet current and anticipated state and Federal water pollution control laws. These industrial users, through the Hopewell Manufacturer's Association, contracted for a study of joint industrial treatment in 1970.

In September 1970, these parallel efforts led the City to propose, and VSWCB to accept a regional approach that would address domestic and industrial wastewater treatment needs. The City and industrial users jointly conducted further engineering studies, which were completed in March 1971, then they subsequently submitted grant applications for funding to construct the regional facility (PL 660, offering a Federal contribution of 55 percent and a state contribution of 25 percent, with a 20 percent local match). Pilot studies were completed in 1971 and 1972. In early 1973, the Hopewell Regional Wastewater Treatment Facility Commission (Commission) was established to act as an advisory commission during design and construction and as an operating agency after construction with final authority resting in the City of Hopewell City Council. The Commission members include a city council member, who serves as chairperson, the city manager, the city attorney, and representatives of the five major industries. Construction began in July of 1975.

HRWTF began operations on August 8, 1977, after the regional interceptor and treatment plant were constructed at a cost of $44.7 million (in 1977 dollars). Major upgrades include centrifuge installation in 1997 ($10.6 million), volatile organic carbon (VOC) air emissions control in 1997 ($515,000), and disinfection improvements in 1998 ($1.4 million).

HRWTF Wastewater Treatment Process

- **Primary treatment and chlorination (6 mgd)** for domestic waste stream only
- Industrial and domestic wastewater is integrated and enters the treatment facility through the **headworks**
- **Bar screens (3)** filter out large particles
- **Grit chambers (3)** slow velocity, allowing heavier particles like gravel and sand to settle out by gravity
- **Parshall flume** measures flow rate
- **Primary clarifiers (8 tanks)** remove settleable and floatable solids
- **Secondary treatment in covered aeration tanks (4)** rely on biological process where oxygen-fed bacteria consume waste materials (an on-site cryogenic plant generates high purity oxygen for the activated sludge process)
- **Final clarifiers** allow solids to settle to the bottom, completing the treatment process

HRWTF Solids and Biosolids Treatment Process

- **Gravity thickeners** separate water coming from the primary clarifiers from sludge using gravity
- **Air floatation thickeners** remove additional water from solids that remain in the final clarifiers
- **Sludge holding tanks** retain solids during the treatment process and blend primary and secondary sludge
- **Centrifuges** remove another 65 percent of the water in solids, creating “dry” sludge cake
- **Incinerator** destroys the cake and residual ash is sent to an approved landfill

Major Industrial Users & The City of Hopewell

The Hopewell Regional Wastewater Treatment Commission's membership is made up of the five major industrial dischargers to the plant (one representative each) and the City (three representatives). The five major users sit on a Technical Advisory Committee (TAC) with HRWTF staff, and together handle technical issues relating to the treatment plant and industries' processes. These companies engage in various types of chemical manufacturing, paper board production, and water supply treatment and discharge a range of organic pollutants to HRWTF. One local chemical company, Goldschmidt Chemical, is not a member of the Commission and does not sit on the TAC—it does not discharge the minimum flow that triggers mandatory membership in the Commission and its TAC. Nonetheless, it works directly with HRWTF staff and through its City representatives on treatment issues. Organizational relationships and roles/responsibilities of HRWTF's major customers are discussed in more detail in Section III.C., Stakeholder Involvement. Short descriptions of the major dischargers are provided below. Figure 1 shows their relative flow contributions to HRWTF.

- ***AlliedSignal, Churchill Plant***—This plant manufactures polyester fiber and is subject to OCPSF regulations. These fibers are incorporated into a wide variety of industrial and commercial materials. (SIC Code 2824)

- ***AlliedSignal, Hopewell Plant***—This facility is the world's largest manufacturer of caprolactam, the base chemical used to make nylon. Oleum, adipic acid, and specialty oximes also are manufactured here. By-products include ammonium sulfate, ammonia, carbon dioxide, and steam. These products are used to make engineering plastics, carpeting, and packaging materials, among other items. (SIC codes 2869, 2819, 2873, 4961)

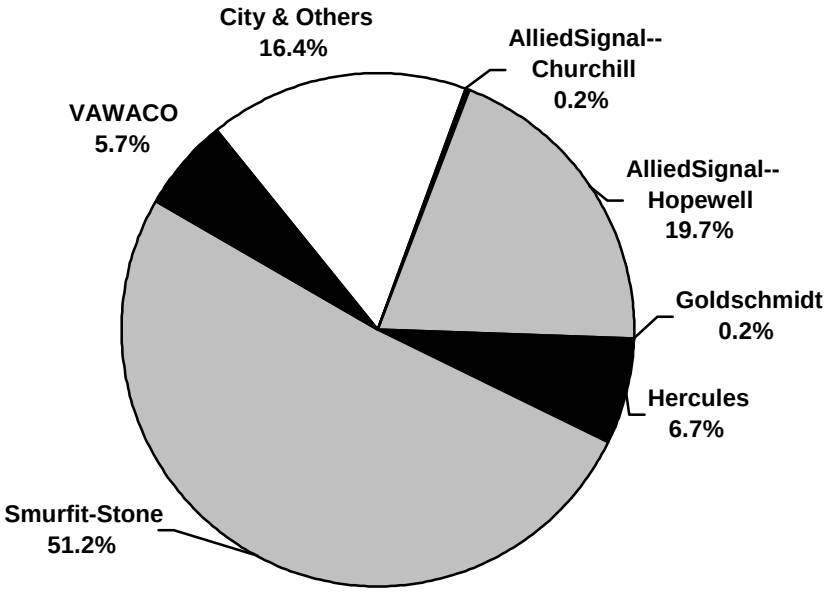
- ***Hercules***—This Aqualon division facility makes products that promote or enable thickening, water retention, adhesive strength, binding power, film formation, and protective colloid, suspending, and emulsifying action. The specific chemicals manufactured here include: hydroxypropyl cellulose; hydroxyethyl cellulose; carboxymethyl cellulose; ethyl cellulose; ethyl hydroxyethycellulose; monochloroacetic acid, and fluidized polymer suspensions. Aqualon's customers include manufactures of paints, construction materials, pharmaceuticals, oral hygiene products, cosmetics, and dairy and bakery products. The facility is subject to OCPSF regulations. (SIC code 2869)

- ***Smurfit-Stone Container***—The Hopewell plant produces unbleached kraft pulp and kraft paper. Kraft paper is the "brown" paper commonly used for lunch bags, grocery and package store bags, and packaging/mailing papers. The facility is subject to Pulp and Paper regulations. (SIC code 2611 and 2631)

- ***Virginia American Water Company (VAWACO)***—The company treats water to appropriate drinking water standards and distributes its product for local residential, commercial, and industrial consumption. Water treatment residuals are sent to the HRWTF for treatment. (SIC code 4941)

- ***Other***—Other dischargers to HRWTF include the City of Hopewell (residents, businesses and 11 small industries), the Federal Correctional Institution, Fort Lee, and Goldschmidt Chemical (which is not subject to OCPSF regulations).

Figure 1. HRWTF Daily Average Flow Data (January 1995 – May 1999)



Total Average Flow (95-99) = 29.4

The Pretreatment Program and Related Environmental Management Areas

HRWTF is currently operating a pretreatment program that the Virginia Department of Environmental Quality (VDEQ) approved in January 1984. The latest re-evaluation of technically-based local limits was approved by VDEQ in March 1998. HRWTF's local pretreatment program has been operational since the plant opened in 1977. HRWTF's pretreatment program currently meets or exceeds the written program description on file with VDEQ and EPA Region III, as well as the programmatic requirements of 40 CFR 403.

Under the pretreatment program, HRWTF enforces national and local requirements on the quality of wastewater discharged to HRWTF that are designed to protect worker health and safety, prevent interference with treatment processes, and prevent or pass through of untreated or partially treated wastewater to HRWTF's receiving water or the air. HRWTF implements the pretreatment program through a City ordinance and permits it issues to all current significant industrial users discharging to HRWTF. The permits are five-year permits, generally stating the user's sampling and reporting requirements, discharge limits, and general and special conditions. Of the current significant industrial users, only five are regulated by Federal categorical standards. Of these five, three are Organic Chemical, Plastic, and Synthetic Fiber Categorical Industries, one is a Pulp and Paper Categorical Industry, and one is a dry Pesticide Chemical Category, Formulating, Packaging, and Repackaging Industry. As indicated earlier, the three OCPSF and one Pulp and Paper categorical industries along with the privately owned water

treatment plant are the five members of the Hopewell Regional Wastewater Treatment Facility Commission.

Several regulatory programs covered under or closely related to HRWTF's pretreatment program will be included in HRWTF's XL project. These are briefly summarized below.

Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF)

Currently, HRWTF, as control authority, applies the OCPSF national pretreatment standard[1] at "end-of-process." The physical location of "end-of-process" occurs at the point of combination of all "end of process" wastewater discharges from all or portions of establishments that manufacture the OCPSF products or product groups included in SIC major groups 2821, 2823, 2824, 2865, and 2869. Based upon information from baseline monitoring reports (40 CFR Part 403.12 (b) (1) – (7)) submitted by the industrial users, it was determined that three significant industrial users (SIUs) are regulated by the OCPSF national pretreatment standard. The process wastewater discharges from the facilities known as AlliedSignal–Hopewell Plant, AlliedSignal–Churchill Plant, and Hercules are subject to 40 CFR Part 414, Subpart G – Bulk Organic Chemicals, § 414.75 (pretreatment standards for existing sources, PSES).

Toxics Release Inventory (TRI) Reporting

Significant industrial users in Hopewell report management and releases of toxic chemicals to EPA's TRI database, under Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) and Section 6607 of the Pollution Prevention Act (PPA).[2] TRI is a public "report card" for the industrial community, creating a powerful motivation for waste reduction. This annual accounting of the nation's management of industrial toxic chemical wastes is a valuable source of information for concerned individuals and communities. Citizens can use TRI to evaluate local facilities through comparisons, determine how toxic chemicals are used, and, with other information, evaluate potential health risks for their community.

On an annual basis, HRWTF and its users report the following information to EPA:

- The chemicals were released into the local environment;
- How much of each chemical went into the air, water, and land;
- How much of the chemicals were transported away from the reporting facility for disposal, treatment, recycling, or energy recovery (including, in this case, transfers from industrial users to HRWTF);
- How chemical wastes were treated at the reporting facility;
- The efficiency of waste treatment; and
- Pollution prevention and chemical recycling activities.

National Emission Standards for Hazardous Air Pollutants (NESHAP), Fugitive Air Emissions

HRWTF is required to control air emissions from the treatment works under a variety of state and Federal emission standards.[3] Smurfit-Stone Container also is covered by NESHAP requirements and must control emissions from its facility.[4] Some of these requirements relate to emissions that come directly from process-related wastewater, solids, or biosolids through evaporation (i.e., volatilization or fugitive emission). It is these requirements that will be featured in HRWTF's XL project.

To date, HRWTF has submitted its 503 permit application to EPA Region III and its Title V permit application to Virginia DEQ. As of May 1999, neither agency has issued a draft or final permit. HRWTF has generated data on air emissions of criteria air pollutants and hazardous air pollutants from pumping stations and the treatment works. Data has been generated using wastewater sampling and analytical data, continuous emission monitoring, pollutant specific air monitoring using various EPA methodology and computer modeling for dispersion and emission (e.g., ISCLT2, BASTE, TOXCHEM+ and WATER8). Notably, future regulation to control air emissions at HRWTF and other POTWs is anticipated by 40 CFR Part 503, Subpart E, Standards for the Use or Disposal of Sewage Sludge (self implementing Phase II) and 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works (proposed rule December 1, 1998).

Geographic and Environmental Context

HRWTF discharges into Gravelly Run, a tributary of the James River. Discharge into Gravelly Run occurs approximately 300 feet upstream of the confluence with the tidal freshwater James River at Bailey's Bay.

Nitrogen levels at the fall line of the James River are close to the state median. Down river from Richmond, water clarity is decreasing in some of the river and is insufficient to support growth of aquatic vegetation throughout most of the tidal waters. Nitrogen levels in the tidal river are decreasing but remain quite high. The entire tidal portion of the river has been designated as nutrient enriched by the State Water Control Board. Levels of chlorophyll, an indicator of algae production, are decreasing in some of the tidal river but are still quite high. About 53 percent of the controllable nitrogen (and 58 percent of the phosphorus) entering the river originates from point sources.

Despite these issues, the water quality of Gravelly Run, Bailey's Bay, and the James River is in consistent compliance with most applicable water quality standards, with the following exceptions:

- Bailey Bay in Hopewell City is listed on the 1998 Virginia 303(d) Part I impaired waters for ammonia, dissolved oxygen and fecal coliform—the source of impairment is listed as municipal point source, industrial point source, and urban runoff;

- Bailey Creek in Hopewell City is listed on the 1998 Virginia 303(d) Part I impaired waters for dissolved oxygen and fecal coliform—the source of impairment is listed as unknown; and

- EPA has identified nutrients as a pollutant causing impairment of water quality standards for aquatic life use attainment in the James River estuary sections already listed in Part I of the Commonwealth's 1998 list of waters.

Local and regional initiatives are working hard to evaluate these water quality issues and craft solutions. The Virginia Departments of Conservation, Environmental Quality and Chesapeake Bay Local Assistance within the office of the Secretary of Natural Resources have been working with stakeholders (municipal and industrial point sources, non-point sources, citizens, academicians, soil and water conservation districts, planning district commissions and others) to develop the James River Tributary Strategy. The goal of the strategy is to improve water quality conditions, including water clarity and dissolved oxygen levels, in order to reestablish habitat for underwater grasses, finfish, shellfish, and other living resources.

Stakeholders in the James River Basin have demonstrated their commitment to this initiative and their willingness to work in partnership with state agencies to asses existing efforts and identify additional actions that could be taken to reduce nutrient and sediment pollution. HRWTF has been an active stakeholder in this process since 1997, first as a stakeholder and then serving on the James River Tributary Strategy Technical Review Committee and representing the City of Hopewell and the Crater Planning District Commission.

The tributary strategy process is to set nutrient and sediment reduction goals and identify the mix of control actions required to meet those goals. A final draft report from the Virginia Secretary of Natural Resources detailing nutrient and sediment reduction goals and the mix of control actions required to meet those goals is expected July 1, 1999.

Future issues identified relevant to the issue of the James River Tributary Strategy and the implementation of the Hopewell XL project include:

1. Re-issuance of the VPDES permit (VA0066630) for the City of Hopewell, Hopewell Regional Wastewater Treatment Facility in December 1999;
2. Implementation of the Total Maximum Daily Load (TMDL) process in point source dominated stream segments in Virginia;
3. Nutrient water quality standards;
4. Triennial review of Virginia's water quality standards;
5. The year 2000 Virginia 303(d) listing of impaired waters;
6. The year 2000 Chesapeake Bay Agreement review; and
7. Continued funding of Virginia's Water Quality Improvement Act (WQIA) Fund.

B. Contact Information

For further information regarding this proposal, contact:

Role and Responsibility	Contact
◆ Project Management ◆ Liaison with EPA Region III and Headquarters ◆ Coordination of the XL Project Submission ◆ Permitting ◆ Implementation of Air and TRI Issues	Robert C. (Bob) Steidel Environmental Manager Hopewell Regional Wastewater Treatment Facility 231 Hummel Ross Road Hopewell, VA 23860 Ph. 804.541.2210 Fx. 804.541.2441 e-mail. steidel@erols.com
◆ Project Management ◆ Liaison with Virginia DEQ ◆ Coordination of the XL Project Implementation ◆ Coordination of Stakeholders ◆ Implementation of Pretreatment Program Issues	Eugenia E. (Jeanie) Grandstaff Technical Services Supervisor Hopewell Regional Wastewater Treatment Facility 231 Hummel Ross Road Hopewell, VA 23860 Ph. 804.541.2214 Fx. 804.541.2441 e-mail. jgrandstaff@hrwtf.org
◆ Project Quality Control ◆ Liaison with City Manager ◆ Liaison with HRWTF Commission	Mark A. Haley Director Hopewell Regional Wastewater Treatment Facility 231 Hummel Ross Road Hopewell, VA 23860 Ph. 804.541.2212 Fx. 804.541.2441 e-mail. mhaley@hrwtf.org

II. XL PROJECT DESCRIPTION

A. HRWTF's XL Project Summary

Background and Rationale

The Hopewell Regional Wastewater Treatment Facility was specifically designed and built to treat the unique combination of wastewaters from the organic chemical and pulp and paper mill facilities located in Hopewell. Well before the creation and implementation of the national pretreatment program and relevant national standards, HRWTF began using—and still uses—treatment technologies equivalent to national best available technology (BAT) standards applicable to pulp and paper, and organic chemical, plastics and synthetic fibers (OCPSF) industries. As stated in the introduction, HRWTF was first conceived in 1973 and began operations in 1977. EPA promulgated the General Pretreatment Regulations in 1978, promulgated Pulp, Paper, and Paperboard Categorical Standards in 1983, and promulgated OCPSF Categorical Standards in 1988. By 1989, when HRWTF formally began implementing a pretreatment program, it had been successfully treating a majority industrial mix wastestream for over a decade.

Importantly, national categorical standards were not developed with facilities like HRWTF in mind. Instead, they were developed to protect *conventional* POTWs, for which domestic wastewaters are the basis of design—and for these facilities, categorical standards are by and large appropriate. Conventional POTWs rarely install treatment technologies that could treat one or more types of industrial wastewater to BAT. It generally is not cost-effective for them to do so, without some special financial arrangement with a firm or industrial group. Further, operating and maintaining BAT-level equipment and processes requires special skills and training, which POTWs typically do not have on staff, again, for the same reasons they don't install the equipment in the first place.

In contrast to typical POTWs, HRWTF is the BAT equivalent for the OCPSF and Pulp and Paper manufacturers. Application of the OCPSF and Pulp and Paper categorical standards upstream at the manufacturers' end of pipe rather than at HRWTF's end of pipe is misdirected and can create redundant treatment that provides no additional environmental benefit in terms of reduced effluent loading or improved ambient water quality in the receiving stream.

Additionally, application of categorical standards at the manufacturer's end of pipe adversely impacts HRWTF treatment operations by removing a significant carbon source from the wastewater prior to discharge to the HRWTF—effectively *underloading* the activated sludge system. Inadequate and inconsistent carbon levels make it more difficult to optimize treatment performance at the plant, resulting in higher overall operational costs and greater variability in biosolids-related quality measures such as incinerator ash, air emissions, as well as effluent quality.

Finally, the prospect of stricter Federal pretreatment standards in the future creates financial and economic uncertainty for the government-industry partnership in HRWTF. To date, manufacturers in Hopewell have only had to install limited satellite technology-based pretreatment units within the facilities to meet categorical standards promulgated to date for

OCPSF and Pulp and Paper. But there is a concern that without this XL project, future regulations may require additional and more significant investments in redundant and technologically unnecessary treatment at indirect dischargers facilities.

HRWTF and its partners have recently entered the basis of design phase for a major facility upgrade that would provide significant reductions in key pollutants. The upgrade will be HRWTF's single largest project since it began operation.

Should additional pretreatment requirements come about, HRWTF's industrial partners may see their continuing considerable investment in HRWTF—and in the community—as duplicative of on-site pretreatment costs. This situation would undermine the unique partnership in Hopewell, and it is conceivable that some firms might ultimately disconnect from the HRWTF system, removing the POTW as a secure buffer between their plants and the river, and ending their support for this community resource.

A new approach is needed that will provide greater economic and financial certainty that the pending capital investment for advanced wastewater treatment will be prudent and sound. This can be accomplished by designing a regulatory framework that better matches the technological capabilities in Hopewell and provides opportunities to create enhanced opportunities for superior environmental performance and continuous improvement.

Overview of HRWTF's XL Project

To recognize and take advantage of HRWTF's unique treatment capabilities, to minimize redundant pretreatment, and to create opportunities to reduce pollutant loadings below what otherwise would be possible, HRWTF and its stakeholders have designed an XL project that places HRWTF and selected industrial users under a regulatory "bubble" for all wastewater-related requirements. The HRWTF Bubble includes indirect dischargers and those portions of their wastestreams determined to be *compatible* with HRWTF, including discharges currently covered by OCPSF and Pulp and Paper regulations. The bubble also includes Toxics Release Inventory (TRI) program reporting of wastewater-based releases, and wastewater-related National Emission Standards for Hazardous Air Pollutants (NESHAP) and Fugitive Air Emission requirements. Additionally, HRWTF will reconfigure certain administrative, monitoring, and reporting activities currently prescribed by the national pretreatment program to support assessing and tracking the environmental performance of "the bubble."

The HRWTF XL Project:

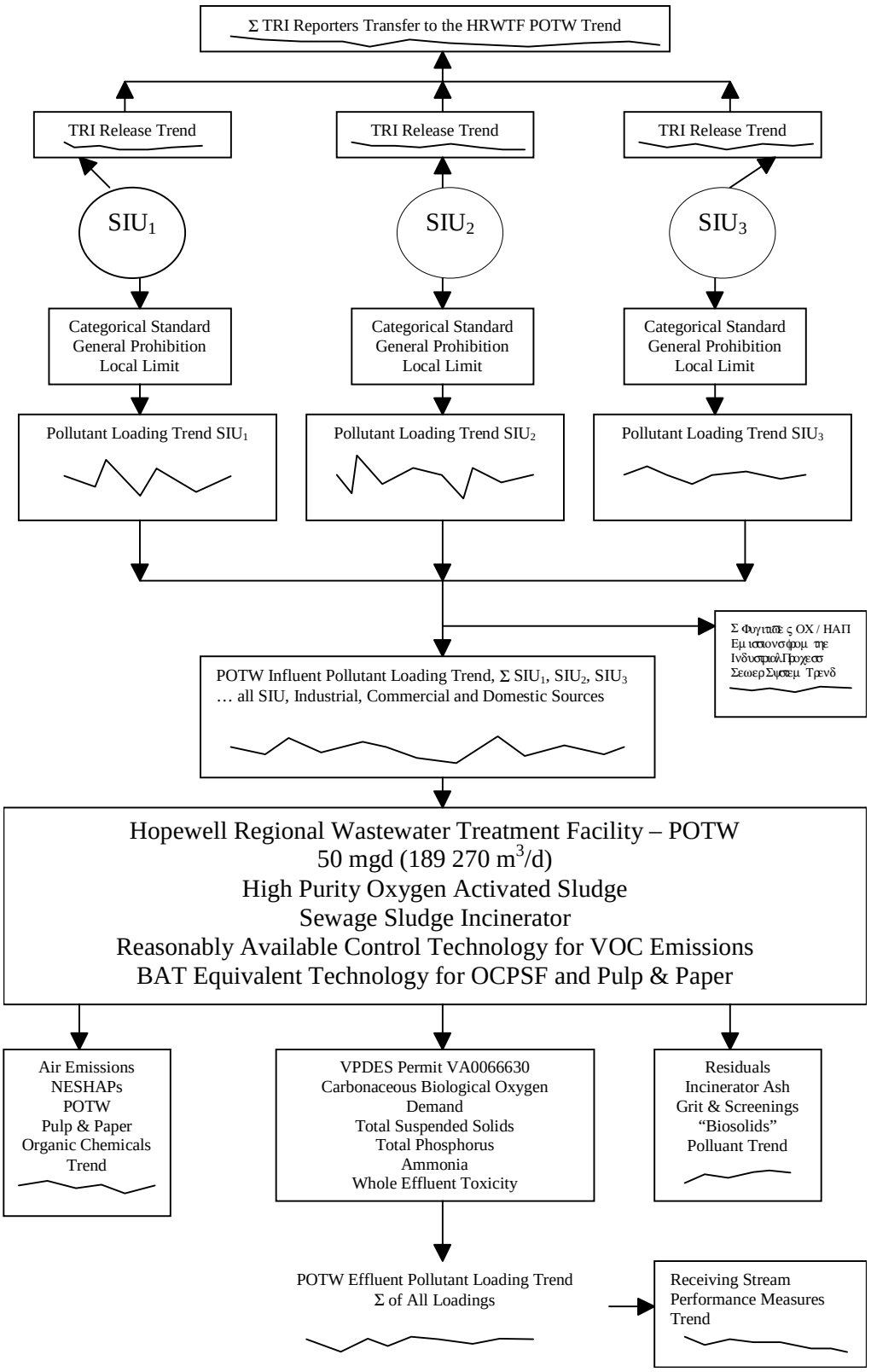
- Moves the BAT performance standard for three OCPSF industries from their end of pipe to HRWTF's end of pipe and measures performance/compliance at HRWTF's outfall (the project also lays the groundwork to do the same for one Pulp and Paper industry if future regulations promulgated for pulp and paper would create redundant pretreatment);
- Moves performance standards for other compatible pollutants to HRWTF's end of pipe and measures performance/compliance at HRWTF's outfall;
- Brings all wastewater-related TRI releases from HWTRF and its industrial users together to report such releases from the Bubble;

- Counts HRWTF air emission control capabilities as credit toward industrial users' NESHAP requirements;
- Enhances existing pollution prevention and source control programs; and
- Enhances existing monitoring, evaluation, and reporting activities to focus more on performance measures to support the XL project and improve HRWTF's overall management program.

Admittedly, this is a relatively complex XL project, involving several different, but related sets of regulations in addition to pretreatment program regulations. Nonetheless, each project element is directly related to the wastestream coming from industrial users to HRWTF and is consistent with the bubble concept. In no way do any of the elements reduce the net treatment capabilities. Instead the elements give full recognition to the treatment capabilities that do exist and allow resources to be reallocated away from redundant and unnecessary activities to initiatives that provide as great or greater environmental benefits.

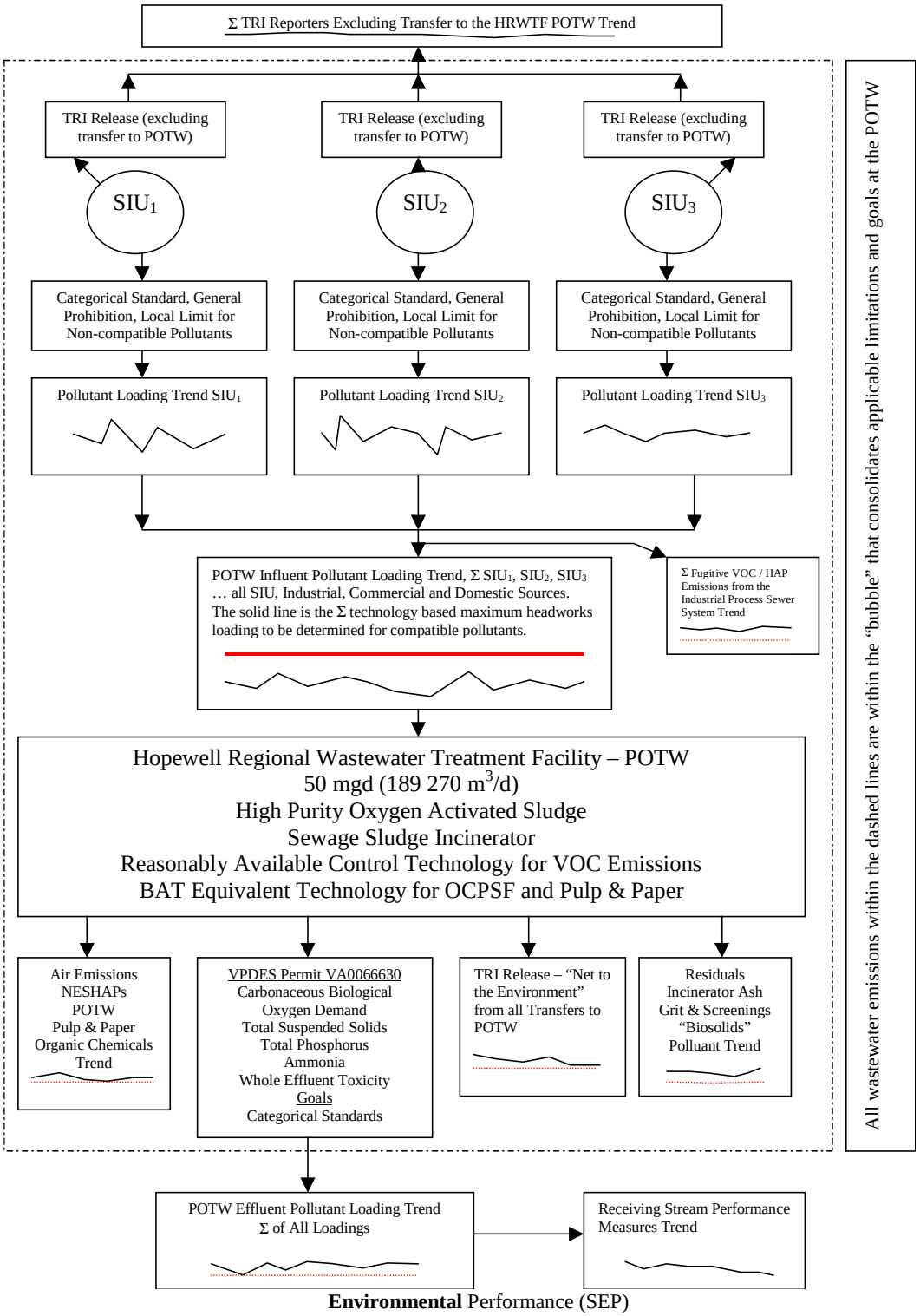
THE CURRENT PICTURE – WITHOUT REGULATORY FLEXIBILITY OF EPA'S PROJECT XL

Solid Trend Lines Represent Actual Environmental Performance



THE FUTURE – WITH REGULATORY FLEXIBILITY FROM EPA'S PROJECT XL

Solid Trend Lines Represent Actual Environmental Performance, Dashed Trend Lines Represent Superior



Environmental Performance (SEP)

B. Specific Project Elements

OCPSF BAT Standards at HRWTF's End of Pipe

Under this project, the three OCPSF-covered industrial users will move the process wastewater discharge point from the "end-of-process" at each regulated industrial user to the end-of-pipe at HRWTF. The three users are AlliedSignal's Hopewell and Churchill plants, and Hercules. Sampling and analysis will take place at the "end-of-pipe" at the HRWTF for comparison with the allowable pollutant loadings (See Appendix A). The industrial users will not be required to self-monitor for these pollutants at their end-of-process. As described above in Section II.A, HWRTF's treatment are equivalent to the technology basis for 40 CFR Part 414, Subpart G—Bulk Organic Chemicals, §414.75 (pretreatment standards for existing sources, PSES) and 40 CFR Part 414, Subpart I—Direct Discharge Point Sources That Use End-of-Pipe Biological Treatment, §414.90.

Under this XL project, allowable pollutant loadings are based upon 40 CFR Part 414, Subpart I effluent limitations (BAT and NSPS). These allowable loadings are goals (See Section III.G.). HRWTF will sample and analyze the treatment plant effluent at an appropriate frequency (See Section III.G) to determine consistent compliance with these goals. These results will be reported to the approval authority in a format and at a frequency to be determined in the implementation of this XL project.

As stated above, SIUs in Hopewell are currently regulated by 40 CFR Part 414, Subpart G–Bulk Organic Chemicals, § 414.75. There are 45 pollutants regulated by this subpart and section. With this XL project proposal, HRWTF is committing to use 40 CFR Part 414, Subpart I–Direct Discharge Point Sources That Use End-of-Pipe Biological Treatment, § 414.90, to determine the allowable effluent goals. There are 62 pollutants regulated by this subpart and section. Implementation of the XL project will provide EPA, DEQ, and other stakeholders pollutant discharge data on an additional 17 pollutants.

Treatment plant performance will be measured as pollutant loading in the final effluent for select pollutants. The HRTWF database contains results for regulated OCPSF pollutants from 40 CFR Part 414, Subpart G – Bulk Organic Chemicals, §414.75. Additional pollutants will be added to include all in 40 CFR Part 414, Subpart I – Direct Discharge Point Sources That Use End-of-Pipe Biological Treatment, §414.90.

Pulp, Paper, and Paperboard BAT Standards at HRWTF's End of Pipe

Currently, HRWTF's one pulp and paper user, Smurfit-Stone Container, is not subject to pretreatment standards that require on-site treatment redundant to HRWTF's technology. If future regulation is promulgated for the Pulp, Paper and Paperboard Category that would limit pollutants which are compatible with the treatment processes at HRWTF, under this XL project, HRWTF would seek regulatory flexibility using the same approach as described above for the three OCPSF category users.

Determining and Managing Compatible Dischargers/Discharges

In conjunction with moving certain BAT standards to HRWTF's end of pipe, HRWTF will create a new class for users discharging pollutants that are compatible with HRWTF's treatment capabilities and "regulate" them under a different set of rules than currently applied. *Compatible* pollutants are those pollutants, primarily organic compounds, that HRWTF is specifically designed to treat to standards comparable to those BAT achieves. To develop alternative requirements to national pretreatment standards, HRWTF will determine the maximum allowable headworks loading for each compatible pollutant, including a proper margin of safety to ensure BAT standards are attained at the end of HRWTF's pipe, and then allocate that load among eligible users. HRWTF has allocated resources in the fiscal year 1999-2000 budget to perform these treatability studies. An amount of $135,000.00 is encumbered to perform phase I (technology basis for BAT, existing treatment plant) in our existing pilot plant. An additional $135,000.00 is reserved for phase II (technology basis for BAT, advanced wastewater treatment) to be performed in our exiting pilot plant. In conjunction with this *compatible dischargers* model, HWRTF's source control program will establish performance goals to measure the removal of specific, compatible pollutants such as methanol, methyl ethyl ketone, acetone, ethylene glycol, acetaldehyde, tertiary butyl alcohol, phenol, benzene, toluene, 2-nitrophenol, 4-nitrophenol, chloroform, chloroethane and catechol.

In lieu of pretreatment permits, HRWTF will then enter into enforceable agreements with each facility that will establish loading caps and any needed monitoring and reporting requirements to ensure that total loadings do not exceed a safe margin below HRWTF's treatment capacity. Notably, HRWTF will conduct daily and/or periodic monitoring at each industrial facility to ensure compliance with these agreements (HRWTF currently operates automated monitoring stations at each industrial facility).

HRWTF will maintain technically-based local limits and require spill/slug control plans covering unanticipated discharges or stronger than normal wastes for the new class. HRWTF also will maintain its legal authority through the City of Hopewell and will continue to implement its enforcement response plan. HRWTF's treatment capabilities meet or exceed that implied by categorical standards for every pollutant that would be defined as "compatible" and therefore compliance with categorical standards will be maintained in the HRWTF effluent.

TRI Reporting

The Hopewell XL project will bubble all wastewater-related issues (all media and all program areas) and centralize compliance with applicable standards and limitations for pollutants compatible with the POTW design at HRWTF. By applying the bubble, HRWTF moves inside the fence-line of those industrial users who become part of the XL project.

Either HRWTF becomes a separate TRI reporter (and the industrial users do not report any transfer or release of TRI chemicals sent for treatment/destruction) or the industrial users report HRWTF treatment efficiency as on-site treatment (sections 7a, 8.1 and 8.6 of Form R). This results in a more accurate reporting of releases to the environment by the TRI reporter when HRWTF treats/destroys the TRI chemical.

The specific details of this element will need to be refined during development of this XL project. HRWTF has consulted with its attorneys on the matter, and their opinions are provided in Appendix B. As requested by EPA, these opinions specifically address the question: Does the Emergency Planning and Community Right-to-Know Act (EPCRA) statute or any of the existing rules and regulations pertaining to TRI place insurmountable barriers in the way of Hopewell implementing the idea on reporting TRI transfer to POTW as part of an XL project? If the answer is "no", but regulatory relief will be necessary, what regulatory relief has Hopewell identified that will be needed? This also is discussed in Section IV, Regulatory Relief.

National Emission Standards for Hazardous Air Pollutants (NESHAP), Fugitive Air Emissions

Under this element, HRWTF's wastewater-related emission control capabilities will be creditable toward existing and future NESHAP requirements covering selected industrial users—i.e., these users' NESHAP requirements will be met at the HRWTF, as if HRWTF was the users' on-site wastewater treatment. Additionally, HRWTF will meet or exceed the emission standards in the proposed POTW NESHAP through operational and technical controls. The 1970 Amendments to the Clean Air Act (first enacted by Congress in 1963) included a new provision to address air toxics. NESHAP's were promulgated for a small number of hazardous air pollutants. These NESHAPs have now been implemented. Rather than NESHAP's for each pollutant, the Clean Air Act, as amended in 1990, directs EPA to set source category, technology based, standards requiring companies to sharply reduce routine emissions of toxic air pollutants. EPA is required to establish and phase in specific performance based standards for all of the industries that emit one or more of the pollutants in significant quantities. EPA has issued 23 air toxics rules that EPA has issued since 1990 under Section112. As part of a NESHAP for a source category, requirements to address hazardous air pollutants from wastewater treatment for that source category may be included. Since HRWTF provides wastewater treatment for industries in at least two of the NESHAP source categories, HRWTF proposes to comply with applicable requirements as part of the XL proposal.

At present, the only NESHAP promulgated to date affecting HRWTF and its users is the Pulp and Paper NESHAP covering Smurfit-Stone Container.[5] A rule proposed December 1, 1998, would implement a NESHAP for POTWs, although as described in the Introduction, HRWTF already is covered by a variety of state and Federal air emission regulations. Additionally, it is anticipated at some time in the future EPA will promulgate additional NESHAPs for the organic chemicals category, which could affect three of HRWTF's major users—the two AlliedSignal facilities and Hercules' plant.

Through this XL project, HRWTF will demonstrate that the emission controls it provides, through existing equipment and planned improvements are sufficient to keep pollutant emissions at or below levels equivalent to the applicable NESHAP requirement. This XL project element, like other key elements, bubbles HRWTF and selected users together, sets a performance target for the group, and measures progress/compliance against that group target.

An important consideration of this XL proposal regards compliance with the wastewater portion of the Pulp & Paper NESHAP or "Cluster Rule". We believe that adequate cover and control of air emissions through the pumping stations and treatment works (collection system and

wastewater treatment plant) to be the regulatory equivalent of "hard piping" stated in the Cluster Rule and anticipated for future NESHAP. The concept of "hard piping" is to collect and pipe the wastewater streams that need treatment to comply with NESHAP limitations directly to the treatment unit (biological or other treatment process) in a closed pipe. The purpose of the closed pipe is to prevent the release of fugitive air emissions. HRWTF will demonstrate that adequate cover and control of air emissions through the pumping stations and treatment works will prevent the release of fugitive air emissions.

Without this element, HRWTF, Smurfit-Stone Container (and perhaps eventually three other major users) will face hard piping requirements. Allowing the existing system of collecting wastewaters (pumping stations, collection system and treatment plant) to bring wastestreams regulated by NESHAP to HRWTF (the centralized treatment plant) for control, treatment and destruction to meet the treatment requirements of applicable NESHAP, versus "hard piping" through a separate process sewer system, will be better, cheaper, and faster.

As part of the NESHAP bubble, HRWTF and affected users can avoid constructing new hard pipe process sewers and instead invest those "freed" resources in improving the existing pumping stations and treatment works, in turn improving measurement and control of emissions through these existing pumping stations and treatment works. These investments will collectively reduce the air emissions of regulated *and unregulated* pollutants from *all sources*, not just sources regulated by applicable NESHAP. Without the bubble, resources would be targeted exclusively to meeting requirements covering NESHAP pollutants. Additionally, bubble-based NESHAP implementation will bring equivalent or better control levels to wastestream-based air pollutants *much sooner* than if NESHAP is implemented on an individual facility basis. The existing system of collecting wastewaters is already constructed (with existing easements obtained and exiting stream and road crossings constructed). The addition of improvements for necessary controls will be faster than constructing "hard pipe" from the NESHAP and regulated sources.

As will be described in more detail in later sections, HRWTF has the: 1) ability to measure performance at no-net increase goal of air emissions (upon the implementation of XL) and future improvement of air emission levels (upon the implementation of additional controls) as a result of an existing database of information (503, RACT, Title V); and 2) resources (expertise) in how to monitor and measure air emissions from the treatment works. This is important to demonstrate that pollution is not being transferred from the water media to the air media (superior environmental performance) at the pumping stations and treatment works (the definition of treatment works includes the collection system).

Enhance Activated Sludge System Performance

This XL project will help maintain consistently adequate levels of organic loading to the wastewater treatment plant. This will allow HRWTF to:

(1) establish and consistently reach performance goals that are more stringent than current levels for one or more effluent or sludge-related quality measures (i.e., effluent limitations and goals, sludge limitations and goals and incinerator ash goals) for relevant parameters; and

(2) operate the biological treatment system in a more efficient and cost-effective manner, creating cost-savings that can be applied to improvements in this system and/or in other plant operations.

Overall Source Control Program

Given the fact that the HRWTF treatment works as the BAT equivalent for the OCPSF and Pulp and Paper categorical standards, under this project, HRWTF will operate a source control program structured around the local, site-specific conditions. The HRWTF source control program will commit the same level of resources currently allocated to the approved pretreatment program. However, the site-specific source control program will be focused on those actions necessary to demonstrate superior performance through the protection of the treatment works, surface waters and worker health and safety versus the programmatic elements of the national pretreatment program model. The resources of the site-specific, local program option will be focused on:

- Pollution prevention (following the Pollution Prevention Act hierarchy);
- Spill prevention, containment, control;
- Establishment of maximum allowable headworks loading for compatible and incompatible pollutants to protect against inhibition in the treatment works;
- Performance measurement to protect against inhibition in the treatment works;
- Performance measurement in the receiving surface waters;
- Performance measurement in the air and solid waste releases from the treatment works; and
- Performance measurement to protect worker health and safety.

In Hopewell, the application of over 40 combined years of pretreatment program expertise has resulted in a quality pretreatment program based on the EPA model. HRWTF has developed a knowledge-based system that results in managed risk and the application of best professional judgement and interpretive guidance. This expertise will be brought to the development of the site-specific, local source control program template to develop new ideas that will be transferable to the EPA's pretreatment program model.

HRWTF will measure the performance of the local source control program through:

- OCPSF goals at "end of pipe" at HRWTF,
- Compatible pollutants at "end of pipe" at HRWTF,
- Applicable permit limits at HRWTF (VPDES, Title V),
- Pollutants of concern (PBTs / incompatible) in HRWTF outfall 001,
- "Net to the environment" releases from the Hopewell community reported through TRI,
- Sludge quality at HRWTF,
- Worker health and safety at HRWTF,

- Air emissions from HRWTF pumping stations and treatment works (including collection system),
- Inflow / infiltration in the City of Hopewell,
- Receiving surface water quality trends,
- Pollution prevention reductions at targeted pollutant sources, and
- Pollution prevention reductions for unassigned compounds of concern.[6]

III. PROJECT XL CRITERIA

A. Superior Environmental Performance

HRWTF Will Implement the XL Project in Two Periods. The timing of HRWTF's VPDES permit renewal and decisions about a major capital upgrade to the treatment plant necessitate implementing the XL project in two distinct periods, which are roughly concurrent with HRWTF's permit cycle. The first period will run from execution of the final project agreement (estimated early 2000) to 2005. The second period will run from 2005 to 2009. The traditional five-year initial XL project period will overlap the two HRWTF permit cycles.

The primary implication of this strategy is that superior environmental performance (SEP) may dramatically increase in Period 2, compared to Period 1. Period 1 SEP will rely primarily on operational improvements, pilot testing new or modified treatment processes (i.e., enhanced treatment for part of the total flow only), pollution prevention, and reallocation of cost-savings to produce superior, but modest gains. The advanced tertiary treatment upgrade that HRWTF is assuming will begin operations on or about December 2005, in addition to full- or expanded-scale operations of successfully piloted technologies and processes, is expected to provide significant reduction in loadings of nutrients, bioconcentrateables, and toxic compounds to both water and air media. All specific project elements identified in Section II.B will begin in XL Project Period 1, but may be modified and enhanced prior to or during XL Project Period 2.

Tier 1—Without XL: Baseline Performance

Table III.A.1 presents HRWTF's baseline environmental performance for this XL project for each specific parameter that HRWTF will use to measure performance. Other measures will be developed to describe environmental performance for the surface receiving water, worker health and safety, water reclamation, and other indicators of outcome as a result of implementing the XL project (based on measures in Performance Measurement and the National Industrial Wastewater Pretreatment Program (1994), Benchmarking Wastewater Treatment Plant Operations (1996) and Case Studies in the Application of Performance for POTW Pretreatment Programs (1997) as well as other sources of performance measures). These "specific parameter baselines" assume the following, unless otherwise noted:

- Baseline represents an average of January 1997 to December 1998 information;
- Growth is not capped and is assumed to be the same as the allowed increase in flow (30 to 50 mgd) between 1998 and 2025 (the expiration of the current agreement among Commission members), the population/flow growth rate is assumed to be constant, and all growth-driven influent pollutant loadings are assumed to increase at the same rate across pollutants;
- The baseline reflects pollutant loading reductions that already have occurred from capital and operational improvements implemented in 1996, 1997, and 1998 (e.g., upgrade of the solids handling facilities at HRWTF, control of VOC emissions from the HRWTF headworks, significant reductions in HRWTF influent ammonia loadings due to a pollution prevention project at AlliedSignal – Hopewell Plant); and

- The baseline reflects the temporary benefit of full-scale operation of certain processes and technologies that HRWTF was allowed to pilot in 1998 (e.g., anoxic reactors to reduce ammonia, denitrification reactors to reduce total nitrogen).

Table III.A.1. HRWTF XL Baseline Ranges

Pollutant or Pollutant Characteristic	Effluent, Solid Waste, or Air Emission Baseline Range[7]
Carbonaceous Biochemical Oxygen Demand (total)[8]	6 – 30 mg/L
Chemical Oxygen Demand (total) [9]	50 – 211 mg/L
Ammonia (total)[10]	9 – 37 mg/L
Nitrogen (total)[11]	20 – 62 mg/L
Whole Effluent Toxicity (acute toxic units) [12]	1.0 – 2.33 TUa
Benzene[13]	0.005 mg/L
Chloroform[14]	0.002 – 0.018 mg/L
Phenol[15]	Not Detected at the MDL – 0.024 mg/L
Toluene[16]	0.002 – 0.010 mg/L
Acetaldehyde[17]	0.013 – 0.666 mg/L
Acetone[18]	Not Detected at the MDL – 4.916 mg/L
Ethylene Glycol[19]	Not Detected at the MDL – 8.477 mg/L
Methanol[20]	Not Detected at the MDL – 0.871 mg/L
Methyl Ethyl Ketone[21]	Not Detected at the MDL – 0.676 mg/L
Inflow & Infiltration Event (flow > 50 mgd = upset) [22]	1 – 2 events (actual) / year
Bioaccumualtive Compounds of Concern[23]	Detected above the MDL
Biosolids (total metals) [24]	Not Detected at the MDL - 157 mg/kg
Incinerator Ash (total metals[25])	0.7 – 0.9 mg/L
Volatile Organic Compound (VOC) Air Emissions (total) [26]	98,500 – 136,500 lbs/yr

Tier 2—With XL: Superior Environmental Performance

As stated above, HRWTF will establish and measure SEP targets separately for the two implementation periods of this XL project. Activities that HRWTF will undertake to provide SEP during the periods are discussed below. Table III.A.2. presents SEP targets for the two periods, and compares those targets to the baseline values presented above in Table III.A.1.

Period 1—FPA Execution to 2005

Period 1 will focus on translating reallocated and newly applied resources into actions that will provide continuous improvements in the performance in the operations of the treatment works in the following areas:

- Biosolids management;
- BAT and AWT pilot studies
- Nitrogen reduction projects;

- Effluent Dissolved Oxygen enhancement; and
- Continuous improvement and pollution prevention covering a wide variety of activities and pollutants, including toxics, OCPSF pollutants, bioconcentratables, ammonia, and VOCs.

These activities that will provide SEP during Period 1 are discussed in more detail below. In addition, valuable new information will be generated that will document increased performance in the treatment works and also describe the positive and negatives of implementing the local control option for the pretreatment program.

Process Control Enhancement. Implementation of this XL proposal will result in a more consistent influent loading (i.e., food source for the biomass in the pure oxygen activated sludge system) as industrial users are assured of the ability to discharge compatible pollutants to the treatment works. Pilot plant studies will provide HRWTF and the industrial users with scientific data on operational enhancements for the unique combination of compatible pollutants in the treatment plant influent. More importantly, pilot plant studies will provide HRWTF operators with new and improved process control operating strategies with the consistent influent loading. Continuous improvement in process control operating strategies will result in continuous improvement in the quality of emissions to the surface receiving water, biosolids and air. Performance will be measurable through the parameters shown in Table III.A.2.

Pilot Treatability Studies—BAT and AWT. In anticipation of Project XL, the 1999-2000 operations and maintenance budget for the Hopewell Regional Wastewater Treatment Facility contains an appropriations request for $240,000 (contingent on approval of regulatory flexibility requests) to conduct pilot treatability studies. Existing pilot treatment units will be used in a study designed to demonstrate the technology basis for BAT as operated by the unit processes at HRWTF. It is anticipated that the award-winning team of plant, industry, consulting and academic personnel will conduct this study.[27] Phase I of the study will examine the existing treatment plant. Phase II of the study will examine proposed advanced wastewater treatment for the HRWTF. Goals of the study will be to determine the maximum allowable headworks loading for the unique combination of compatible pollutants in the treatment plant influent and develop new and improved process control operating strategies. These strategies will be the basis for providing continuous improvement in the reduction of emissions from the treatment works. Performance will be measurable through the parameters shown in Table III.A.2.

Nitrogen Reduction Projects. During Period 1, denitrification treatment technology will be installed to reduce nitrates at the Regional Wastewater Treatment Facility. This reduction in nitrates (approximately 40 percent of total nitrogen) will result in a reduction of total nitrogen in the wastewater treatment plant discharge to surface waters.

Effluent Dissolved Oxygen Enhancement. During Period 1, HRWTF proposes to install post aeration facilities to increase the dissolved oxygen in the final effluent. The benefit will be achieved during the summer months when the water temperatures are warmer and the dissolved oxygen content is lower**.**

Continuous Improvement & Pollution Prevention. Following the example of the Pollution Prevention Act of 1990, the Hopewell "local control" option for the pretreatment program will shift focus from an output basis (individual pretreatment systems at industrial users, number of

samples collected, number of inspections conducted, number of permit modifications written) to an outcome basis (source control of incompatible pollutants to allow the centralized regional treatment plant to remove compatible pollutants from all points of release: surface water, land and air). This source control program will be structured on the hierarchy of waste management options established in the Pollution Prevention Act. That hierarchy begins with source reduction as the preferred method of management followed by recycling, energy recovery and then treatment. Release of a pollutant occurs only as a last resort when the waste management options are not 100% effective. Application of this hierarchy will bring new and different concepts to the operation of the pretreatment program (which focuses solely on treatment management at the industrial user). The outcome from implementing this source control program will be incremental improvement in the release of pollutants from the HRWTF "bubble". Performance will be measurable through the parameters shown in Table III.A.2.

HRWTF is committed to continuous improvement and has demonstrated its ability to implement this philosophy. The projects listed below exemplify HRWTF's continuous improvement commitment and document its technical and innovation management skills. At this time, future continuous improvement projects are predominantly related to investigation of and planning for AWT upgrades, as described in Sections I and II of this document and below under Period 2. More generally, HRWTF expects future continuous improvement efforts to be similar to those undertaken in the past, in scope and scale.

- Implementation of a successful pretreatment program;
- Solid record of consistent compliance;
- Comprehensive toxicity identification evaluation and the successful implementation of a toxicity reduction control plan;
- Phenol treatability study in response to the proposed and final OCPSF categorical standards;
- Comprehensive bioconcentratable compound identification evaluation and ongoing monitoring;
- Ammonia pollution prevention at the AlliedSignal Hopewell Plant;
- Ammonia pollution prevention at the HRWTF as a result of a solids handling upgrade;
- Volatile organic carbon (VOC) reductions as a result of implementing Reasonably Available Control Technology (RACT);
- Disinfection upgrades at HRWTF and the City of Hopewell Primary Plant;
- Implementation of a comprehensive watershed monitoring program in the Hopewell estuarine area of the James River, Bailey's Bay and Bailey's Creek and
- High-temperature, biological nitrogen removal pilot study at HRWTF.

Period 2—2005-2009

At the completion of Period 1 activities, successful elements of the XL project will be maintained or improved to gain additional superior environmental performance into Period 2. Performance will be measurable through the parameters shown in Table III.A.2. The long-term plan for HRWTF is to implement advanced tertiary treatment (AWT) during Period 2. As a result, AWT will provide additional and expanded opportunities for achieving SEP, especially with respect to the following pollutants:

- **Nitrogen** – nitrification and denitrification will reduce ammonia and nitrates to barely detectable levels resulting in total nitrogen of less than 10 mg/L;
- **OCPSF pollutants and compatible organic pollutants** – the additional treatment stages for AWT and the resulting ability to make modifications to existing unit processes should reduce specific organic pollutants to barely detectable levels – using current methods of measurement, this will be demonstrated during pilot plant treatability studies in Period 1;
- **Toxicity** – the additional treatment stages for AWT and the resulting ability to make modifications to existing unit processes will reduce or eliminate acute and chronic toxicity – using current methods of measurement;
- **Bioconcentrateables** – the additional treatment stages for AWT and the resulting ability to make modifications to existing unit processes will reduce or eliminate bioconcentratables – using current methods of measurement;
- **Air emissions** – additional controls on emission points will reduce fugitive emissions of VOCs;
- **BOD and TSS** – the additional treatment stages for AWT and the resulting ability to make modifications to existing unit processes will reduce BOD and TSS – using current methods of measurement;
- **Heat** – the proposed installation of cooling towers in AWT will control the temperature to 42^{o} C in the biological nitrogen removal system and in the final effluent; and
- **Dissolved oxygen** – the additional treatment stages for AWT and the resulting ability to make modifications to existing unit processes, and the reduction in water temperature will increase dissolved oxygen concentrations – using current methods of measurement, this will be demonstrated during pilot plant treatability studies in Period 1.

<u>Voluntary SEP Targets for Periods 1 and 2, Compared to Baseline Ranges</u>

HRWTF has established voluntary performance targets shown in Table III.A.2.

- Period 1 performance is estimated at a 10% reduction of the baseline range.
- Period 2 performance is estimated at a 15% reduction of the Period 1 range (24% over the baseline) and the following assumptions:

- Advanced wastewater treatment upgrades are installed at the Hopewell Regional Wastewater treatment Facility on or about 2005;
- The City of Hopewell provides continuous improvement to the sanitary sewer infrastructure during 2000 – 2009; and
- Air emissions control upgrades for select emission points are installed incrementally during 2000 – 2009.

Achieving these voluntary performance targets at the point of release will provide for superior environmental performance over the baseline. These voluntary performance targets will need to be constantly evaluated during Period 1 from the measurement data. Re-evaluation will be necessary as the pilot work described earlier begins to provide data or as actions implemented early in Period 1 begin to show results. A mid-term target setting exercise will take place in 2002 based on progress tracked in 2000 and 2001. This exercise will include stakeholders, EPA, and DEQ in the fine-tuning effort for these voluntary performance targets.

Table III.A.2. HRWTF XL BASELINE RANGES AND PEFORMANCE TARGETS

Pollutant or Pollutant Characteristic	Effluent or Air Emission Baseline Range[28]	Long Term Average for Period 1 Effluent or Air Emission Performance Target Range	Long Term Average for Period 2 Effluent or Air Emission Performance Target Range
Carbonaceous Biochemical Oxygen Demand (total)[29]	6 – 30 mg/L	5 – 27 mg/L < Applicable Limit	4 – 23 mg/L < Applicable Limit
Chemical Oxygen Demand (total)[8]	50 – 211 mg/L	45 - 190 mg/L	38 – 162 mg/L
Ammonia (total)[30]	9 – 37 mg/L	8.1 – 18.9 < Applicable Limit	Not Detected at the MDL – Less than the Applicable Limit
Nitrogen (total)[31]	20 – 62 mg/L	18 - 56 mg/L	Not Detected at the MDL - 10 mg/L
Whole Effluent Toxicity (acute toxic units – TUa) [8]	1.0 – 2.33 TUa	1.0 - < Applicable Limit	1.0 - < Applicable Limit
Benzene[10]	0.005 mg/L	Not Detected at MDL – 0.013 mg/L	Not Detected at MDL – 0.013 mg/L
Chloroform[10]	0.002 – 0.018 mg/L	Not Detected at MDL – 0.007 mg/L	Not Detected at MDL – 0.007 mg/L
Phenol[10]	Not Detected at the MDL – 0.024 mg/L	Not Detected at MDL – 0.005 mg/L	Not Detected at MDL – 0.005 mg/L
Toluene[10]	0.002 – 0.010 mg/L	Not Detected at MDL – 0.009 mg/L	Not Detected at MDL – 0.009 mg/L
Acetaldehyde[10]	0.013 – 0.666 mg/L	Not Detected at MDL – 0.6 mg/L	Not Detected at MDL – 0.5 mg/L
Acetone[10]	Not Detected at the MDL – 4.916 mg/L	Not Detected at MDL – 4.424 mg/L	Not Detected at MDL – 3.760 mg/L
Ethylene Glycol[10]	Not Detected at the MDL – 8.477 mg/L	Not Detected at MDL – 7.629 mg/L	Not Detected at MDL – 6.485 mg/L
Methanol[10]	Not Detected at the MDL – 0.871 mg/L	Not Detected at MDL – 0.784 mg/L	Not Detected at MDL – 0.666 mg/L
Methyl Ethyl Ketone[10]	Not Detected at the MDL – 0.676 mg/L	Not Detected at MDL – 0.608 mg/L	Not Detected at MDL – 0.517 mg/L
Inflow & Infiltration Event (flow > 50 mgd = upset) [8]	1 – 2 events (actual) / year	1 event / year	0 event / year
Bioaccumualtive Compounds of Concern[10]	Detected above the MDL	Detected above the MDL - Not Detected at the MDL	Not Detected at the MDL
Biosolids (total metals) [32]	Not Detected at the MDL - 157 mg/kg	Not Detected at the MDL – 141 mg/kg < Applicable limit (299,764 mg/kg)	Not Detected at the MDL – 120 mg/kg < Applicable limit (299,764 mg/kg)
Incinerator Ash (total metals)[33]	0.7 – 0.9 mg/L	0.63 – 0.81 mg/L < Applicable limit (173 mg/L)	0.54 – 0.69 mg/L < Applicable limit (173 mg/L)
Volatile Organic Compound (VOC) Air Emissions (total) [2, 34]	98,500 – 136,500 lbs. / yr.	88,650 – 122,850 lbs. / yr.	75,353 – 104,423 lbs. / yr.

B. Cost Savings & Paperwork Reduction

HRWTF and its industrial users believe that implementation of this XL project will produce long-term savings by allowing wastewater treatment to occur where it is most cost-effective. HRWTF users have agreed, contingent on implementation of this XL project, to apply these savings to fund continuous improvements in effluent, air, and solids-related emissions. Additionally, HRWTF will shift program resources from administrative functions to enhanced operational and process tracking functions. As a result, HRWTF is not projecting any significant net cost reductions or cost savings, as any savings will be reallocated and reinvested in environmental protection technologies and activities at HRWTF and its users' facilities. The focus of this XL project is on increasing cost-effectiveness—maximizing environmental results per dollar spent.

In the short term, HRWTF expects some environmental expenditures to increase as new technologies are tested and implemented, and as HRWTF and its users complete the design of this XL project and move to implementation. Over the longer term, HRWTF and selected users will be making investments in equipment and human resources that would not have been made without XL. By the same token, HRWTF has identified a number of user expenditures that would decrease or disappear under the XL project. The net effect is largely a wash.

The most significant cost-savings are really avoided costs—under the XL project, major users can avoid significant capital and operating expenditures that would be associated with installing additional on-site pretreatment, redundant to that which HRWTF provides, should new standards for OCPSF and pulp and paper industries be promulgated. These avoided costs are estimated in the millions of dollars per user for avoided capital expenditures, and in the hundreds of thousands to millions of dollars annually per user for avoided operation and maintenance expenses. As stated above, with this XL project, HRWTF, users, and the Commission will commit to significant investments to upgrade HRWTF, in lieu of user-based upgrades. We believe this allocation of resources will be more cost-effective and will produce superior environmental results than without XL

Cost-Savings/Resource Reallocations Among Selected Industrial Users

Under this project, HRWTF will transfer the OCPSF monitoring point from the "end-of-process" to the "end-of-pipe", eliminating selected industrial self-monitoring (HRWTF will continue its SIU monitoring to ensure that critical loading levels are not exceeded). A preliminary analysis of pretreatment program-related expenditures among the six largest users indicated that net savings with XL could run between $10,000 and $50,000 annually. The majority of the savings are attributed to monitoring and reporting that would "go away" under the XL project, and are projected to run between $15,000 and $65,000. The net savings would have been greater, but under the XL project, most of the users will have to install some additional equipment and conduct some monitoring that is not currently required. These costs are expected to run in the $5,000 to $15,000 range, annually. The net savings are relatively insignificant compared to the multi-million dollar annual operating and capital budgets of the major users.

Selected users also may see direct cost savings, or avoid costs, under the TRI and NESHAP elements of HRWTF's XL project. The extent of cost savings under the TRI element will depend on exactly how the element is implemented. Some reporting expenditures certainly will still exist. Under the NESHAP element HRWTF and users will accrue direct cost savings. HRWTF will avoid costs that would be associated with hard piping.

Cost Savings/Reallocations at HRWTF

Similarly, HRWTF does not anticipate any net cost-savings in the near term, and in fact expects net expenditures to increase in the first several years of XL implementation. This may also be the case in the later years of implementation. By eliminating the requirements for SIU permits, resources allocated to permitting and DMR tracking for compatible discharges will be shifted to more treatment works performance tracking. More emphasis will be placed on sampling and analyses of treatment capability and water quality benefits. Manpower resources will shift from managers to technicians. In addition, through the implementation of an information management system, more electronic transfer of information will occur which, will eliminate the need for redundant data entry for multiple functions.

The TRI element of HRWTF's Project XL will create additional costs that are not incurred by HRWTF under its current operational functions. However, some of resources shifted out of the pretreatment program administrative activities will be reallocated to monitoring, tracking, and reporting TRI chemical releases in the effluent, air and sludge.

As discussed briefly above, the NESHAP element will allow HRWTF and its users to avoid additional costs that would be associated with installing a completely new hard piping system. Instead, HRWTF will make significant investments to improve measurement and control of emissions though the pumping stations and treatment works, collectively reducing the air emissions of regulated and unregulated pollutants from all sources, not just sources regulated by applicable NESHAP.

HRWTF estimates it will spend an additional $100,000 annually on in-house labor dedicated to XL development and implementation from 1999 to 2009. Also, HRWTF estimates XL-related consulting and legal expenditures at $60,000 per year beginning in 1998, decreasing to $5,000 annually by 2004. Any cost savings that do accrue are expected to be related to streamlined reporting and management efficiencies.

Paperwork Reduction

Regarding paperwork reduction, HRWTF anticipates no significant net change in the paperwork burden.. As discussed earlier, some reporting requirements (and therefore paperwork) will go away under this XL project, but at the same time, several new reporting requirements will take their place. During the course of the XL project, HRWTF and its users will work to streamline all reporting and identify areas where paperwork can be reduced or eliminated, including through increased use of electronic reporting.

C. Stakeholder Involvement

HRWTF, including its governing commission and members thereof (see Introduction) is sponsoring this XL project, and have already begun expanding a strong and successful stakeholder involvement framework to support the proposed XL project in addition to other ongoing initiatives. The plant has a strong history of working with community stakeholders, as well as with state and Federal officials. It has been ramping up its efforts throughout the last several years in conjunction with its Treatment Plant Process Enhancement and Enrichment (TPPEE) initiative launched in 1996 (related to AWT upgrade), and in conjunction with its participation in development of the James River Basin Tributary Strategy.

HWRTF has already identified the following stakeholders and has begun involving them in development of this project:

- Hopewell Community and Industrial Panel;
- Hopewell Environmental Liaison Panel;
- Richmond Regional Planning District Commission;
- Crater Planning District Commission;
- Regional Soil and Water Conservation Districts;
- James River Association—a local environmental advocacy group;
- Merck's Elkton Virginia Facility currently implementing its own XL project;
- Virginia Association of Municipal Wastewater Agencies—an organization representing POTWs;
- Virginia Manufactures Association—an organization representing industrial users;
- The Association of Metropolitan Sewerage Agencies—an organization representing POTWs nationally;
- Virginia Department of Environmental Quality;
- Virginia Department of Health;
- Virginia Department of Conservation and Recreation;
- The Chesapeake Bay Foundation; and
- Public Citizens, locally and regionally.

Activities Conducted as of May 1999

HRWTF is currently working with two local community groups, which we expect to be an integral part of our stakeholder group. The first group is the Hopewell Environmental Liaison Panel that is composed of environmental managers from the industries within Hopewell. The purpose of this group is to stay abreast of environmental concerns that may be affecting individual industries and the community. The second group is the Hopewell Community and Industrial Panel (HCIP) that involves citizens and industry plant managers for the purpose of communicating concerns and transferring information. The HRWTF Director has been recently appointed to the HCIP steering committee and will represent the XL issue in this forum.

In addition to these two key groups, HRWTF is reaching out to environmental groups, Virginia Department of Environmental Quality, local planning district commissions, and municipal organizations. Finally, since state support is a condition of acceptance into Project XL, HRWTF has been working closely with State of Virginia officials for several years. The City of Hopewell believes that the State strongly supports the collective approach to industrial wastewater treatment taken at HRWTF. Finally, the State has consistently supported Hopewell's efforts to address the regulatory barriers to HRWTF achieving better and more cost-effective environmental performance. The City of Hopewell believes that the State of Virginia will be an enthusiastic participant in further development of this proposal. Table III.C.1 identifies major stakeholder activities conducted to date.

Table III.C.1. HRWTF Project XL Stakeholder Activities to Date

Group	Activity	Dates
Hopewell Environmental Liaison Panel	Monthly Meetings	September 1998 – May 1999
Pretreatment Workgroup Meeting	Presentation on Project XL pre-proposal – Water Environment Federation Annual Meeting in Orlando	October 1998
EPA	EPA/Sponsor Workshop – AMSA Pretreatment Conference – Kansas City	November 1998
AMSA Pretreatment Membership	Project XL Presentation – AMSA Pretreatment Conference – Kansas City	November 1998
Crater Planning District Commission, Richmond Regional Planning District Commission, James River Association, Chesapeake Bay Foundation	Letters requesting Stakeholder involvement	November 1998
VAMWA Pretreatment Membership	Project XL Presentation – Virginia Association of Municipal Wastewater Agencies Pretreatment Committee Meeting	December 1998
HICP Membership	Project XL Presentation – Hopewell Industrial and Community Panel Quarterly Meeting	December 1998
VDEQ	Project XL Presentation – HRWTF Meeting with Virginia Department of Environmental Quality	February 1999
EPA	Telephone and Conference Calls	February – May 1999

HRWTF's Stakeholder Involvement Strategy

HRWTF plans to use existing and new mechanisms to identify and involve stakeholders and citizens in our XL project. In order to achieve meaningful involvement of stakeholders in this XL project, HRWTF believes that communication is the key to developing a relationship with the stakeholders and to achieve active dialog and exchange of information and ideas.

Key strategy elements are listed below.

- Identify and receive commitment from stakeholder representatives.
- Through conversations and organized meetings, educate stakeholders on the pretreatment program and the goals and objectives of HRWTF's Project XL.
- Once the stakeholder group is established, the group will initially:
  - Establish appropriate methods to relay information and updates; and
  - Create mechanisms and organizational structure to accommodate different levels of involvement and interest to ensure stakeholder input.
- HRWTF also will:
  - Provide accessible points of contact;
  - When appropriate, involve outside expertise to present technical information or facilitate discussions;
  - Keep information on the project updated and available to stakeholders; and
  - Organize meetings for presentation of information and data and to obtain roundtable discussions and input from the stakeholders.

Activities Planned for September 1999 through FPA Submission and Execution

Once HRWTF has established its stakeholder group, a series of meetings will be held with the group. These initial meetings will be designed to educate the stakeholders on the pretreatment program, Project XL, HRWTF's Project XL proposal, and to establish an organizational structure. The schedule for these initial activities are outlined in the table.

Table III.C.2. Stakeholder Activities Planned for September through November 1999

Target Dates	Activity	Forum	Purpose
September 1999	Initial Meeting	Presentation by HRWTF, DEQ, and EPA on the existing pretreatment program.	To educate stakeholders on the purpose, goals, and procedures of the existing pretreatment program.
October 1999	Meeting	Presentation by EPA and HRWTF on Project XL.	To educate stakeholders on the purpose and goals of Project XL and to outline the specific program elements of HRWTF's project.
November 1999	Meeting	Roundtable Discussions	To determine the best method for ongoing communication, what information should be communicated, points of contact, etc.
December 1999	Meeting	Roundtable Discussions	To establish an organizational structure that will allow involvement based on time and specific interests.

Stakeholder involvement during implementation will be decided by the stakeholders. As a part of the November and December meetings, discussions will be held to determine the interest of each of the individual stakeholders. Based on this level and area of interest, individual involvement will be organized or categorized to meet individual needs. Responsibilities will be

divided and distributed among the group to prevent overburden of any of the stakeholders and to insure continued interest and involvement.

Communication Among and With Stakeholders

As with stakeholder involvement, HRWTF plans to obtain the groups input into which methods of communication are the most effective for each individual. HRWTF will propose the use of a web site, newsletters, and personal contact as methods to be considered. Several personnel at HRWTF will be designated as points of contact for the stakeholders, so that open and convenient dialog can be maintained on the project.

For example, upon submission of this proposal to EPA, HRWTF intends to take advantage of EPA's electronic infrastructure dedicated to the XL program (including e-mail and web sites) to facilitate communication among participants and other interested parties, organize comment submissions, accept other project input, and generally serve as a clearinghouse for information about the initiative. HRWTF will work with EPA to identify and develop linkages to and between other web sites where such linkages would enhance communication and stakeholder involvement, for example to a project sponsor or direct participant site. This approach is consistent with Hopewell's and EPA's commitment to a visible and accessible process. As we will provide for in our stakeholder involvement plan, other avenues of communication will not be neglected to ensure that those parties who may not have access to electronic media can still participate and be informed.

D. Innovation/Multi-Media Pollution Prevention

HRWTF's XL project incorporates several innovative approaches to structuring and managing a pretreatment program, and including bringing selected air and solid releases related to industrial user loadings into the project for more comprehensive environmental management.

First and foremost, HRWTF's "bubble" approach to reinventing its pretreatment program represents an innovation that has been discussed and advocated in many forums, for different pollutants, but tested and applied in relatively few instances, considering the scope and scale of potential applications. Air trading programs, including intra-facility efforts, are one example. The several watershed-based trading programs being implemented and developed are another. As discussed in Section II and III at length, HRWTF's XL project will place the wastewater treatment plant inside the fenceline of its major industrial users with respect to those pollutants that are compatible with HRWTF's treatment capabilities. As in other programs that implement a bubble, HRWTF and its users performance along selected performance measures (i.e., pollutant loadings) will be judged on the performance of the group as a whole, and not on individual's performance. Through the cost-efficiencies provided by this approach, HRWTF and its users will be able to reduce loadings for selected pollutants below what would otherwise be possible without the bubble approach.

The bubble proposed for HRWTF and its users goes beyond most, if not all currently employed or contemplated because it encompasses not only one media, but three (water, air, and solid waste), and not only one regulatory program, but three:

- The bubble moves the point of pretreatment program compliance measurement for selected pollutants from the users' end of pipe, to HWRTF's;
- The bubble consolidates wastewater-related releases from selected industrial users and HRWTF into one release per pollutant, eliminating the confusion and potential inaccuracies associated with reporting TRI transfers to POTWs; and
- The bubble groups HRWTF and selected industrial users together for purposes of measuring and reporting NESHAP-related performance and compliance.

These innovations represent alternative and creative management systems that are targeted toward achieving superior environmental performance beyond what has been possible under a traditional pretreatment program. From a technological perspective, most of the treatment and controls are tried and true. However, this project does include one technological innovation—HRWTF will treat nitrates in Period 1 of this project using denitrification at the first stage of wastewater treatment, using a process that is unlike any being implemented at any POTW or industrial facility that HRWTF is aware of.

Along with these innovative management strategies, this proposal incorporates alternative performance measures that focus on documenting and evaluating environmental outcomes, over administrative outputs. These concepts and approaches have been widely discussed and documented in EPA and AMSA pretreatment program reinvention and streamlining documents, and other literature on performance measurement and are therefore not discussed at length here. See Section II, Section III.A, Superior Environmental Performance, and Section III.C, Stakeholder Involvement, and Section III.G, Accountability, Monitoring, Reporting, and Evaluation, for references to such measures and management strategies.

Finally, the enhanced source control program discussed in Section II.B will expand the exploration, coordination, and eventually implementation of waste reduction and pollution prevention at selected major industrial user facilities. As discussed there, such activities are not currently coordinated between HRWTF and its users, in part due to the regulator-regulatee relationship that a traditional pretreatment program engenders and the consequent lack of incentives for pretreatment industries to share information about pollution prevention capabilities with HRWTF, or to coordinate with HRWTF and/or among themselves. This XL project will help lower and ultimately take down that wall to bring source control activities under the bubble with the other elements of this project, strengthening pollution prevention in a way not otherwise possible.

E. Transferability

HRWTF's XL project is potentially applicable in other communities in several respects. First, the approach of "bubbling" a POTW and certain industrial users discharging compatible pollutants enables treatment to levels equivalent to or better than pretreatment standards. HRWTF "bubbling" will serve as an example for other communities of how they might create opportunities to more cost-effectively achieve their environmental objectives. Second, HRWTF's collective approach to planning and financing regional municipal and industrial wastewater treatment provides general lessons in sustainability for other communities seeking ways to implement economic development and environmental protection in concert.

General Pretreatment Lessons

Among POTWs, transferability issues differ somewhat within two distinct groups of POTW communities (along with their regulators, trade associations, users, and user associations); the two groups are:

- Publicly owned *industrial* treatment works (POITWs) where industrial inflows account for the majority of total inflows; as well as
- POTWs that treat a significant amount of industrial and/or commercial wastewater, from one or more sectors, representing one or more specific pollutant(s) or classes of pollutants.

At present, a small subset of POITWs find themselves in a situations similar HRWTF's. These POITWs also are designed specifically to treat industrial wastewater and receive a majority of their influent from industrial sources. Such facilities treat wastestreams that are substantially different than more traditional POTWs that mainly treat household or commercial influent. As a result, not only must such plants invest in technology that can handle industrial-dominated wastestreams, but they also are much more financially dependent on their industrial users than a typical POTW. As with HRWTF, certain pretreatment program requirements and categorical standards may result in redundant treatment that provides no additional environmental benefits. HRWTF's XL project will help these POITWs, EPA, AMSA, and industrial partners learn more about how to design and implement a regulatory and management structure for POITWs that have, or are willing to invest in technology that safely and sufficiently treats industrial and other influent to applicable end-of-pipe technology or water quality-based standards that better matches these situations and provides equivalent or better environmental protection.

The same lessons are applicable, only on a different scale, for POTWs that serve a significant industrial and/or commercial base. This could be a POTW with a few large users with the same or relatively similar wastestream compositions. Or, it could be a POTW with a diverse set of users, representing a range of sizes and wastestreams. Any POTW with industrial and commercial users that operates a pretreatment program is concerned about treatment issues moving forward and many are examining the trade-offs—both environmental and financial—between user-based upgrades and POTW-based upgrades. HRWTF's XL project provides insight on these trade-off issues and some clues about how to maximize environmental performance cost-effectively. At a minimum, POTWs could draw lessons from Hopewell's experience and find examples of how to work more closely with their industrial and commercial customers on technology and financial planning matters.

TRI-Specific Transferability

HRWTF's XL project can provide information to EPA on several important concerns expressed in recent discussions of the Toxics Data Reporting (TDR) Committee of the National Advisory Council for Environmental Policy and Technology (whose mission is to provide advice to EPA regarding the Agency's TRI Program). This XL project will provide information on:

- Cost and practicality of POTW reporting;
- Difference in data reported as released from POTW as opposed to transferred to POTW;

- Satisfaction of industrial users with the ability of a POTW to report TRI releases and the treatability of TRI compounds; and
- Satisfaction of the community in the information provided by the TRI.

NESHAP-Specific Transferability

HRWTF's XL project will explore alternatives to "hard piping" upgrades advocated in existing NESHAP regulations for pulp and paper industries, and anticipated in NESHAPs being developed for POTWs and OCPSF industries. Many POTWs and industries are probably in the same situation that HRWTF and its users are in: namely, that upgrading existing treatment works and collection systems to comply with the hard piping standard will be expensive. In this XL project, HRWTF is proposing to be judged on the same emission standard for NESHAP-affected pollutants as implied by the hard piping standard, but without having to make those upgrades. Instead, HRWTF will make investments in the existing system to provide the same or greater environmental benefit/protection that the hard piping would have. Whether its more bang for the same buck, or the same bang for fewer bucks, the HRWTF XL project will show others how such cost-effectiveness analysis can be carried out and applied in a real-world setting.

F. Feasibility

HRWTF can demonstrate that its XL project is technically, administratively, and financially feasible.

Technical Feasibility

HRWTF and its industrial partners have the technical skill and expertise needed to successfully implement this XL project. Period 1 SEP will be driven by operational improvements at the plant and pollution prevention and environmental management systems implemented at the industrial facilities. The TPPEE, VOC, ammonia stripper, and nitrogen reduction pilots have demonstrated these skills. New practices and technologies during this period will be pilot tested before full implementation. Period 2 SEP will rely on continued implementation, and possible expansion of Period 1 activities, as well as the implementation of AWT. HRWTF developed and evaluated technological and operational alternatives with the assistance of a consulting engineering firm with extensive expertise in AWT design, construction, and operation. HRWTF is confident that the selected design is technically sound and will perform as expected.

Administrative Feasibility

Senior management at HRWTF and its industrial partners are committed to ensure that sufficient and appropriately qualified staff are available to implement this XL project. These HRWTF staff members are integrally involved in managing recent and ongoing efforts related to this XL project, including the TPPEE study, the VOC project, the centrifuge project, and pilots of new treatment processes/technologies. They also are instrumental in initiating and developing this XL project. Additionally, the major industries' environmental managers and their staff are also involved in overseeing these HRWTF projects and have the administrative capabilities to support this XL project.

Financial Feasibility

The HRWTF Commission and their Technical Advisory Committee are committed to ensure that sufficient resources are available to pretreatment program staff and other HRWTF staff, both for labor and for non-labor expenses, to carry out this XL project. HRWTF is aware of and has planned appropriately for the fact that the XL project may generate a net increase in expenses in the first year or two as HRWTF reinvents its pretreatment program and scales up related operations. Also, some in-kind and contractor expenses have been associated with preparing this proposal, which may continue at some level during implementation. With respect to the AWT project, upon final decision of the Commission to proceed, the five major industries and the City of Hopewell will finance the project, and pay for ongoing operation and maintenance, according to their joint operating agreement and any subsequently developed schedules.[35] HRWTF is financially sound, as evidenced in its 1997 Annual Report, and has the financial expertise to monitor the expenses and resource reallocations that will be associated with this project.

Stakeholder Support and Involvement

As described in Section III.C, this XL project has strong support among the core group of stakeholders, including HRWTF staff and management, major industrial users, the City of Hopewell, and several HRWTF governing and management bodies (the TAC and the Commission). During the Fall of 1999, HRWTF will be working to expand this support among other organizations, including local business interests and environmental groups. Additionally, HRWTF has the full support of the relevant state agencies and local planning commissions, as described in Section III.C.

G. Accountability, Monitoring, Reporting, and Evaluation

HRWTF's XL project will perform monitoring and develop reports that evaluate the data to test the innovative strategies for achieving superior environmental performance (SEP). SEP is described in Sections II and III.A. The demonstration of SEP is based on measurements of pollutant concentrations in water, air and solid waste media. Monitoring will be planned to collect data required to conduct all measurements necessary to document performance in Periods 1 and 2.

Monitoring data will be summarized and evaluated using a variety of analytical tools in order to prepare concise charts and tables to summarize the results. The results will then be used to demonstrate the effect of the performance of the "bubble" concept to achieve pollution reduction and SEP. The performance demonstration will include a comparison to the baseline found in Table III.A.1 of this proposal. This evaluation will be transmitted in the form of various reports (hard copy and web site) for EPA, DEQ, stakeholders and interested persons according to the schedule in Section VI. In addition, HRWTF will publish results achieved from this XL project and submit to the refereed literature for peer review.

Accountability

Enforceable Commitments

- HRWTF will maintain consistent compliance with the terms and limitations of the existing (and future) VPDES permit. The current permit is due to expire December 5, 1999. An application for renewal has been submitted. As detailed elsewhere in this Project XL proposal, regulatory relief is being sought from the special condition requiring the City of Hopewell to operate the approved pretreatment program. Instead of the existing special condition, it is proposed that the City of Hopewell operate the local control option presented in this proposal. In this special condition, HRWTF will commit to annual reporting on the performance of the local control option presented in this proposal. In addition, the State and EPA through its stakeholder involvement will be kept abreast of periodic progress.

- HRWTF will maintain consistent compliance with the terms and limitation of the Title V air operating permit to be issued by the Virginia Department of Environmental Quality.

- HRWTF will establish the maximum allowable headworks loading for compatible and incompatible pollutants to protect against inhibition in the treatment works.

Voluntary Commitments

- HRWTF will commit to voluntary performance goals based upon the OCPSF effluent guidelines (and detailed elsewhere in this proposal). Using the same wastewater treatment technologies in use at the POTW, HRWTF also will commit to voluntary performance goals based upon future effluent guideline promulgation.

- HRWTF will commit to voluntary POTW Performance Measurement based upon Performance Measurement and the National Industrial Wastewater Pretreatment Program (1994), Benchmarking Wastewater Treatment Plant Operations (1996) and Case Studies in the Application of Performance for POTW Pretreatment Programs (1997) as well as other sources of performance measures.

- HRWTF will commit to voluntary Watershed Performance Measurement based upon site specific performance goals as well as other sources of performance measurement.

- HRWTF will commit to perform continuous improvement in the reduction of TRI release from the POTW.

Aspirations

- HRWTF will aspire to develop and measure performance for worker health and safety as applicable to the proposal based on Performance Measurement and the National Industrial Wastewater Pretreatment Program (1994) and Benchmarking Wastewater Treatment Plant Operations (1996) as well as other sources of performance measures.

- HRWTF will aspire to perform continuous improvement in the reduction of total TRI release from the Hopewell community.

Monitoring

To thoroughly evaluate HRWTF's treatment performance and reduction of categorical pollutants, HRWTF will continue its aggressive monitoring program, with expansions in key activities. The program is designed to measure not only the categorical pollutants but also most of the organic constituents on the 129 priority pollutant list and Hopewell's TRI compounds released through wastewater. The program will be organized as described below.

Industry Monitoring

Sampling and monitoring programs are set up differently for the five Commission Member industries and the 12 other SIUs.

HRWTF will sample Commission Member industries discharges:

1. Daily at one sampling point with permanent composite samplers for conventional pollutants (BOD, TSS, COD, nutrients); and

2. Monthly for categorical and/or organic and TRI chemical pollutants. Depending on the parameter, some samples are composite and others are grab samples.

HRWTF will sample the other 12 industries as follows:

1. Four day monthly sampling for conventional pollutants (BOD, TSS, COD, nutrients). These samples are usually grab samples, although a few are monitored via permanent composite samplers; and

2. Depending on the industry, the volume and pollutants discharged, the discharge is monitored quarterly for various organic pollutants, usually volatile organics. These samples are usually grab samples.

OCPSF Monitoring

As stated above, currently SIUs in Hopewell are regulated by 40 CFR Part 414, Subpart G – Bulk Organic Chemicals, § 414.75. There are 45 pollutants regulated by this subpart and section. With this XL project proposal, the City of Hopewell Regional Wastewater Treatment Facility is committing to use 40 CFR Part 414, Subpart I – Direct Discharge Point Sources That Use End-of-Pipe Biological Treatment, § 414.90, to determine the allowable effluent goals. There are 62 pollutants regulated by this subpart and section. Implementation of the XL project will provide EPA, DEQ and other stakeholders pollutant discharge data on an additional 17 pollutants. HRWTF will monitor these 62 pollutants through the internal and effluent waste streams.

Internal and Effluent Waste Streams

In addition to industrial monitoring, HRWTF will continue to monitor its internal waste streams as follows:

1. Influent, pure oxygen activated sludge system (UNOX), and effluent are sampled daily for conventional pollutants, monthly for most of the organic constituents of the 129 priority pollutant list, NESHAP pollutants, and quarterly for metals and salts;
2. Sludge cake is monitored monthly for metals and quarterly for TCLP constituents, oil and grease, and organic pollutants;
3. Incinerator ash and screenings are monitored semi-annually for mercury and beryllium and semi-annually for TCLP constituents and organic pollutants; and
4. Primary Plant influent and effluent are monitored quarterly for most of the organic constituents of the 129 priority pollutant list.

Water Quality of the Receiving Stream

A monitoring program will be maintained to evaluate the effect of HRWTF's discharge on the water quality of Gravelly Run, Baileys Creek and Bay, and the James River. This program involves semi-monthly sampling of six (6) stations for CBOD, TSS, FSS, ortho phosphorus, total phosphorus, nitrate, nitrite, ammonia, TKN, chlorophyll, fecal coliform along with field parameters: dissolved oxygen, temperature, pH and conductivity.

HRWTF also employs three continuous monitoring probes to evaluate water quality. The YSI 6920 multi-parameter water quality monitors samples at three locations every 15 minutes for dissolved oxygen, pH, ammonia, turbidity, and conductivity. The probes are moved periodically to allow comparison between stations of the short-term effects such as tidal cycles, diurnal cycles, and variations in the effluent flow and characteristics.

In addition to this long term monitoring program, HRWTF is currently sponsoring two short-term water quality studies. Both of these short-term studies will provide critical information on the health of the receiving stream and the James River and will determine if HRWTF's discharge influences water quality in the Hopewell Estuary Region of the James River.

- One study of Baileys Creek, which is an impaired water body, is being conducted under a Federal 604(b) grant. The purpose of this study is to determine the cause of dissolved oxygen and fecal coliform water quality standards violations. This study will also evaluate water quality vs. substrate effects on benthic organisms. Completion date for this grant study is September 30, 1999.

- The second study, in conjunction with the Virginia Institute of Marine Science, is designed to determine if submerged aquatic vegetation (SAV) can survive in selected sites in the Hopewell Estuary Region of the James River and if the response of the transplants can be related to specific water quality conditions, site characteristics, and/or physical disturbance. This study will be completed in July 2000.

Reporting

All of the conventional pollutant data collected on the industries, internal waste streams and effluent are reported monthly to the Virginia Department of Environmental Quality (VDEQ) as a

part of the monthly discharge monitoring reports (DMR). This information is public information and is available to anyone through files at HRWTF or VDEQ.

All of the organic pollutant and metals data on the industries, internal waste streams, and effluent are reported yearly to VDEQ as a part of the annual pretreatment report, which is submitted by January 15 of each year. Again, this information is public information and is available to anyone through files at HRWTF or VDEQ.

At a minimum, HRWTF will submit semi-annual reports describing the progress of its XL project and monitoring to the stakeholders for their information and input on the program. Additionally, HRWTF will take advantage of other avenues to share information about this project. For example, HRWTF staff expects to present papers at key state and national conferences and local events about their XL project during the course of the project. HRWTF also will begin reporting Hopewell's TRI wastewater release constituents.

HRWTF has significant experience successfully providing information about its various operations to many different audiences at a level of detail and in a format that is easily understandable. During 1998 and 1999, HRWTF and its consultants have presented and will present several presentations on the water quality information that has been collected and evaluated thus far. We plan to continue updating and presenting this information, as opportunities are available.

Evaluation

As an enhancement of the XL project and a tool to evaluate the data generated and trends developed, HRWTF plans to install an information management system. A RFP was awarded for the design, installation, and implementation of a system that will integrate data from various sources and statistically evaluate and report the data. Data collected from the industries and within HRWTF treatment plant will be maintained within the information management system. HRWTF will review, evaluate, and report the data to stakeholders in accordance with the schedule outlined in Section VI. Due to budget constraints, the proposed project will take about four years to implement completely. However, the first phase of the project will allow HRWTF to enter previous data from 1991 forward into a database for future evaluation and trend analyses. With this management tool, HRWTF will also be able to customize and simplify reporting of monitoring data and Project XL progress.

H. Shifting of Risk Burden

HRWTF's XL project will have no negative environmental impacts, and therefore it is consistent with Executive Order 12898 on Environmental Justice. Pollutant loadings for key pollutants under XL will be maintained at or below levels that would have occurred absent XL, as described in Section II and III.A. With respect to worker safety, HRWTF's XL project will keep in place all existing Pretreatment Program requirements necessary to protect worker safety. HRWTF is requesting regulatory flexibility only for those pollutants and indirect dischargers that are compatible with HRWTF's treatment capabilities—i.e., that HRWTF can treat to levels equivalent or better than BAT provides.

Additionally, HRWTF anticipates no adverse shifts in loadings across media. Notably, selected changes are proposed in the location that some releases are reported as coming from (i.e., HRWTF, instead of an indirect discharger), as described in Section II, relating to TRI reporting and NESHAP compliance. Again, HRWTF projects no shifts in loadings from one media to another and projects no net increases in loadings. Finally, HRWTF believes that the environmental benefits from its XL project will be evenly distributed across the community and watershed, and will not result in any one group receiving a disproportionate share of the benefits.

IV. REQUESTED FLEXIBILITY

What does HRWTF want to change?

- Remove the requirement for industrial users regulated by the Organic Chemical Plastics and Synthetic Fibers category to meet "end of process" pretreatment standards for existing or new sources (40 CFR Part 414). Remove the requirement for industrial users regulated by Subchapter N – Effluent Guidelines and Standards to meet "end of process" pretreatment standards for exiting or new sources when the treatment processes utilized by the City of Hopewell Regional Wastewater Treatment Facility are equivalent to the technology basis for the effluent guideline.

- Allow the City of Hopewell, Hopewell Regional Wastewater Treatment Facility to change the approved pretreatment program as described in this XL proposal (40 CFR Part 403.8, 403.12, 403.18).

- Allow City of Hopewell industry to report Toxics Release Inventory (TRI) releases from the Hopewell Regional Wastewater Treatment Facility as an on-site treatment facility as described in this XL proposal. [The Emergency Planning & Community Right-To-Know Act (EPCRA); 42 U.S.C. 11001 et seq. (1986); The Pollution Prevention Act (PPA); 42 U.S.C. 13101 et seq. (1990)]

- Allow the treatment at the City of Hopewell, Hopewell Regional Wastewater Treatment Facility POTW to enable existing industrial users to comply with the applicable wastewater treatment requirements of National Emission Standards for Hazardous Air Pollutants (NESHAPs), 40 CFR Part 63.

- Allow the City of Hopewell, Hopewell Regional Wastewater Treatment Facility to provide adequate cover and control of air emissions through the pumping stations and treatment works to be the regulatory equivalent of "hard piping" as the concept is applied in 40 CFR Part 63, Subpart S – National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry and anticipated for future NESHAPs that require "hard piping".

Additional research is needed to specifically and thoroughly identify all regulations, codes, and statutes, at the Federal, state, and local level that would need to be amended to implement HRWTF's XL project. While identification of necessary amendments to the national pretreatment regulations is relatively straightforward, crafting changes to TRI- and air-related requirements are more complex. HRWTF has been investigating these issues and stands ready to work with EPA to craft workable solutions for them.

To help explain where regulatory flexibility is sought for the local source control program option, the following table compares the pretreatment program elements from EPA's template with the current HRWTF pretreatment program and the "local control" option supported in the XL proposal.

Table IV.1. EPA's Template Pretreatment Program Elements Compared to HRWTF's Pretreatment Program and the XL Proposal's "Local Control" Option

Pretreatment Program Element	Current HRWTF Pretreatment Program	The HRWTF "Local Control" Option With XL
National Standards: Categorical Pretreatment Standards	✓	[36]
National Standards: Technology – Based Standards	✓	✓
National Standards: Prohibited Discharge Standards	✓	✓
Modification: Net/Gross Adjustment	✓	
Modification: Removal Credit	✓	
Modification: Fundamentally Different Factors Variance	✓	
Local Pretreatment Program: Legal Authority	✓	✓
Local Pretreatment Program: Information on IU Discharges and POTW Removal Efficiency	✓	✓
Local Pretreatment Program: Staffing & Funding	✓	✓
Local Pretreatment Program: Effluent Limits		
Local Pretreatment Program: National Pretreatment Standards	✓	[36]
Local Pretreatment Program: Local Limits	✓	✓
Local Pretreatment Program Implementation: Information Handling	✓	✓
Local Pretreatment Program Implementation: POTW Information Base	✓	✓
Local Pretreatment Program Implementation: Public Access	✓	✓
Local Limits Established to Protect Against Interference	✓	✓
Local Limits Established to Protect Against Sludge Contamination	✓	✓
Local Limits Established to Protect Against VPDES Permit Violations	✓	✓
Local Limits Established to Protect Against Surface Water Impacts (water quality standards)	✓	✓
Local Limits Established to Protect Worker Safety	✓	✓
Local Pretreatment Program Implementation: Notification	✓	✓
Local Pretreatment Program Implementation: Permit Administration	✓	
Local Pretreatment Program Implementation: Industrial Self-Monitoring	✓	
Local Pretreatment Program Implementation: Scheduled POTW Monitoring and Inspection	✓	✓
Local Pretreatment Program Implementation: Unscheduled POTW Monitoring and Inspection	✓	✓
Local Pretreatment Program Implementation: Enforcement	✓	✓

V. COMPLIANCE & ENFORCEMENT PROFILE

A. Effluent Violations

The following table is a listing of permit violations that have occurred between January 1995 and April 1999. As you can see from the list, most of the violations were minor in nature. Corrections or operational changes were made immediately to bring the plant back into compliance. Most violations were less than a day in duration, but were large enough to cause violations of the VPDES permit limitations. The following discussion explains the reasons for violations, which resulted in NOVs.

- February 1996. During January, the plant experienced problems, which did not affect permit compliance. However, because of this coupled with high loadings in February, the biomass was less efficient than normal, which ultimately affected effluent quality.

- November 1997. During November 1997, Stone experienced several process upsets which resulted in higher than normal effluent loading. Specifically, on November 12, Stone started up a recovery boiler that was taken out of service for periodic maintenance. During the refilling of the concentrators, heavy black liquor began flowing out of a drain from a product pump. The accidental discharge continued for over an hour before it was observed. Once the discharge was observed, it was stopped and contained by Stone's powerhouse personnel. The heavy black liquor raised BOD, COD, and pH concentrations in the mill effluent. This additional loading coupled with the high inflow/infiltration from rain events on November 12, 13,and 14, caused HRWTF to exceed its VPDES TSS-weekly average permit limitation for the reporting week of November 9–15, 1997 and resulted in the issuance of an NOV. An administrative order was issued to Stone requiring revision of their Slug Control Plan.

- May 1998. During May 1998, HRWTF was experimenting with full-scale operation of a nitrification scenario, which required maintaining high mix liquor suspended solids in the aeration basin. Because of heavy rains on May 7, some of the excess solids were washed out of the plant and resulted in an excursion of the weekly and monthly TSS limitations.

- June 1998. The CBOD violation that occurred in June 1998 was caused by operating the plant with anaerobic zones to control filamentous organisms. This creased some physical and chemical changes in the aeration basins, which interfered with COD removal and ultimately, resulted in a higher CBOD result.

Table V.1. HRWTF Permit Violations

Month/Year	Violation	NOV Issued
June 1995	DO Minimum Concentration	
July 1995	Failure to sample pH and Fecal Coliform	
February 1996	CBOD Monthly Maximum Concentration	April 17, 1996
August 1996	DO Minimum Concentration	
September 1996	TSS Monthly Average and Maximum	
June 1997	DO Minimum Concentration	
July 1997	DO Minimum Concentration	
August 1997	Fecal/Coliform Monthly Maximum	
November 1997	TSS Monthly Maximum Loading and Concentration	February 3, 1998
May 1998	TSS Monthly Maximum Loading	August 20, 1998
May 1998	DO Minimum Concentration	August 20, 1998
May 1998	TSS Monthly Maximum Concentration	August 20, 1998
June 1998	DO Minimum Concentration	August 20, 1998
June 1998	CBOD Monthly Maximum Concentration	August 20, 1998
June 1998	CBOD Monthly Average Concentration	August 20, 1998
June 1998	TSS Maximum Concentration	August 20, 1998
July 1998	DO Minimum Concentration	
September 1998	DO Minimum Concentration	
October 1998	Failure to Sample	
November 1998	pH Minimum	
December 1998	Failure to Sample	
March 1999	Incomplete Sample	
March 1999	Failure to Record ORP	
April 1999	Cl_2 Instantaneous Minimum Concentration (Outfall 102)	

B. Sanitary Sewer Overflows

The following table lists the SSO events that occurred within the City of Hopewell's sewerage system. These overflows were caused primarily from power outages, sewer line blockages, or infiltration/inflow. Except for the one event in June 1998, the cause of the overflow was corrected as soon as possible.

The event, which occurred in June 1998, was the result of cinder blocks being placed in a remote part of the sewer line. It remained undiscovered until flows to the downstream pump station began to diminish. Once the blockage was located, work began immediately to eliminate the overflow.

Table V.2. Sewerage System Overflows

Date	Location	Cause	Estimated Overflow – gallons	Estimated BOD Loading – kg/d	Estimated Duration
January 19, 1996	Primary Plant	I/I			
April 29, 1997	Primary Plant	I/I	100,000	25.812	
January 28, 1998	Primary Plant	I/I	0.5 – 1.0 MGD	115 – 230	
February 4, 1998	Primary Plant	I/I	0.5 – 1.0 MGD	134 – 268	
June 1– August 11, 1998 (estimated)	Queen Anne Pump Station	Blockage due to vandalism	3,255,048	32	2.5 months
December 24-25, 1998	Holly Lane Pump Station	Power Outage	54,000	41	20 hours
December 24-27, 1998	Colonial Hills Pump Station	Power Outage	112,320	85	96 hours
December 24-25, 1998	Mansion Hills Pump Station	Power Outage	115,740	88	48 hours
December 27-29, 1998	Jackson Farm Pumping Station	Power Outage	300,000	228	20 hours
January 12, 1999	Manhole – Sherwood Avenue	Blockage	3000	2.3	2 hours
January 20, 1999	Manhole – Pine and Winston Churchill Avenue	Blockage	10,000	7.6	13 hours
March 14, 1999	Primary Plant	I/I	<5,000	2.8	<15 minutes
March 14, 1999	Main Street Pump Station	Blockage	15,000	8.3	90 minutes
March 21, 1999	Main Street Pump Station	Storm event	7,000	2.1	45 minutes

C. Enforcement Profile

In the last decade Hopewell has demonstrated excellence and leadership in the operation of the approved pretreatment program and compliance. However, in December 1988, EPA issued an Administrative Order to the City of Hopewell for failure to operate properly its pretreatment program. The order cited the following deficiencies:

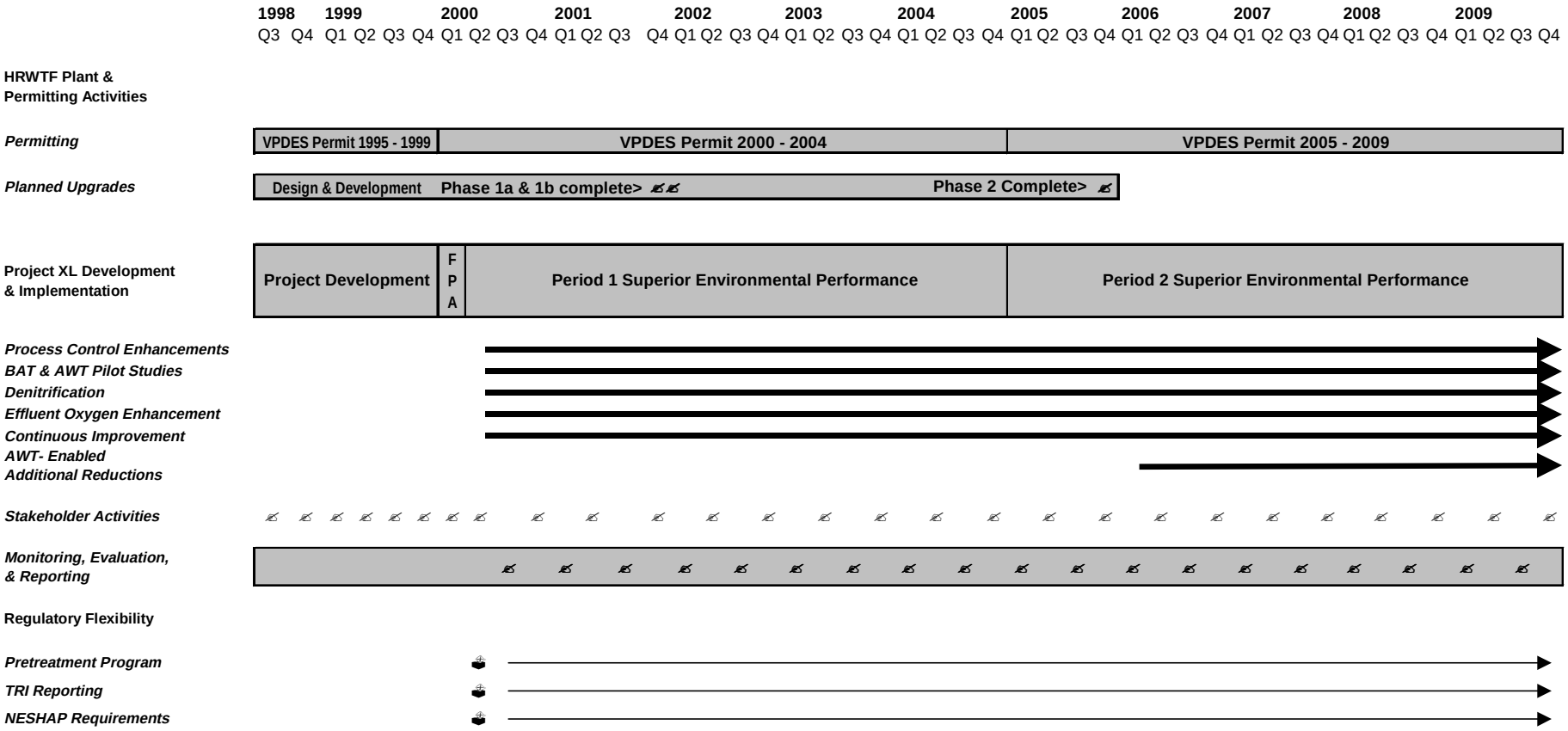
- Failure to monitor industrial users for compliance with local limits.
- Failure to require industrial users to self monitor for compliance with local limits.
- Failure to take enforcement actions against industrial users who violate local limits.

The order required the City of Hopewell, HRWTF to:

1. Submit a written notice of commitment to comply with the conditions of the order.
2. Submit a written response to the pretreatment audit report.
3. Submit a schedule of specific actions to achieve full implementation of an EPA acceptable pretreatment program.

HRWTF complied with each of the requirements of the order in a letter dated February 17, 1989 and implemented all of the specific actions required for full implementation of an acceptable pretreatment program. As of January 1991, HRWTF is no longer subject to the requirements of the Administrative Order, because all of the requirements of the order were implemented.

VI. SCHEDULE



APPENDIX A.

APPENDIX B. LEGAL OPINION: TRI REPORTING FLEXIBILITY

The question was posed by the EPA Region III Office of Reinvention: Does the Emergency Planning and Community Right-To-Know Act of 1986, as amended ("EPCRA"), or any of the existing rules and regulations pertaining to TRI place insurmountable barriers in the way of Hopewell implementing the idea on reporting TRI transfer to POTW as part of an XL project? If the answer is "no," but regulatory relief will be necessary, what regulatory relief has Hopewell identified that will be needed?

Therefore, HRWTF asked legal counsel to review the Emergency Planning and Community Right-To-Know Act of 1986, as amended ("EPCRA"), and regulations promulgated thereunder, to determine whether the EPCRA program presents insurmountable obstacles to the TRI reporting flexibility Hopewell is considering for the XL project. Legal counsel correctly restated HRWTF's instructions to assess the feasibility, with or without regulatory flexibility, of the following TRI reporting options as follows:

Option 1: Industrial users would use a calculated "net" in reporting releases and offsite treatment on their TRI reporting forms. This "net" number would reflect Hopewell's treatment efficiency.

Option 2: In connection with the "bubble" concept advanced elsewhere by Hopewell in connection with its XL proposal, Hopewell would be considered to be functionally bubbled within its industrial users' fence lines. Under this scenario, Hopewell would become the TRI reporter and would report its treatment efficiency as "onsite treatment" in Sections 7A and 8.6 of Form R for each of its industrial users. Alternatively, the industrial user would continue to be the TRI reporter but would identify Hopewell's treatment efficiency as "onsite treatment" in Sections 7A and 8.6.

Based upon review and analysis of the EPCRA program, counsel concluded that Option 1 is presently viable and does not require regulatory relief. Hopewell would need some form of regulatory flexibility, however, before it could pursue Option 2. Text from the memorandum of March 31, 1999 is shown in italic:

OPTION 1

Facilities that (1) have ten or more full-time employees, (2) fall within one of the enumerated SIC codes, and (3) exceed any one threshold for manufacturing, processing, or otherwise using a listed toxic chemical must report release and other waste management information on Form R pursuant to Section 313 of EPCRA.[1] Form R, in relevant part, requires regulated facilities to report (1) "discharges to publicly owned treatment works" ("POTWs") in Section 6.1, (2) "quantities released" in Section 8.1, (3) "quantities treated onsite" in Section 8.6, and (4) "quantities treated offsite" in Section 8.7. Although neither EPCRA nor the regulations promulgated thereunder by the Environmental Protection Agency ("EPA") specifically

[1] 42 U.S.C. §11023(b)(1)(a).

describe how to calculate "quantities released," EPA's instructions to Form R provide that onsite and offsite treatment should not be included.[2] This is consistent with the concept that Sections 8.1, 8.6 and 8.7 are mutually exclusive.[3]

In some circumstances, a facility may not have adequate data to determine the treatment efficiency of a POTW, and, therefore, would have to report all amounts sent to the POTW as "released" in Section 8.1.[4] However, where a POTW's treatment efficiency is calculable, a facility should net out the amount of chemical destroyed by such POTW in Section 8.1. Accordingly, Hopewell's industrial users may currently use calculated "net" numbers in Section 8.1 of Form R, reflecting Hopewell's treatment efficiency as offsite treatment in Section 8.7.

OPTION 2

Unlike Option 1, Option 2 poses two distinct obstacles. First, EPCRA defines "facility" to mean "all buildings, equipment, structures, and other stationary items which are located on a single site or on contiguous or adjacent sites and ***which are owned or operated by the same person*** *(or by any person which controls, is controlled by, or under common control with, such person)."[5] Although Hopewell's bubble concept may place the POTW functionally within a facility's fence line, it does not make Hopewell part of the "facility" under the statutory definition. To the extent that Hopewell is not a part of the facility, it is unlikely that its treatment efficiency will be considered "onsite treatment."*

Second, EPCRA reporting obligations fall squarely on regulated facilities.[6] Although Congress did empower EPA to subject additional facilities to EPCRA,[7] it did not give EPA any express authority to exempt regulated facilities from their reporting obligations (or to transfer such obligations). Clearly, industrial users cannot presently avoid their TRI reporting obligations by designating substitute TRI reporters.

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[2] *See* footnote ** on page 5 of Form R, "Toxic Chemical Release Inventory Reporting Form and Instructions," EPA 745-K-99-001 (February 1999)("Instructions").
[3] *See* Instructions at page 51.
[4] For example, EPA guidance on completing Form R includes the following question and answer: Question: "A covered facility treated its wastewater onsite and discharged it to a pipe which runs through a POTW and then on to a stream. The POTW does not treat the waste but it monitors the wastewater and allows it to pass into the stream if it meets treatment standards. If it does not meet standards, the POTW shuts a valve in the pipe and the wastewater is released to a water body under the POTW's NPDES permit. How should the wastewater be listed in Form R?" Answer: "The facility should consider the wastewater as a transfer offsite to the POTW since the POTW is ultimately responsible for the release. *** Because the covered facility knows that the POTW does not treat (destroy) the listed toxic chemical but allows it to pass through into the stream, the facility should also report the quantity sent offsite in Part II, Section 8.1 (Quantity Released)." "EPCRA Questions and Answers," EPA 745-B-98-004 (December 1998).
[5] Emphasis added.
[6] "The owner or operator of a facility subject to the requirements of this section shall complete a toxic chemical release form …." 42 U.S.C. §11023(a).
[7] *Id.* at 11023(b)(2).

Hopewell will need relief from EPA in order for industrial users to be able to report onsite treatment by Hopewell, or for Hopewell to be able to "step into the shoes" of its industrial users for purposes of TRI reporting. Such relief may be available under Project XL.

The Federal Register notice clarifying EPA's definition of regulatory flexibility under Project XL identifies several tools for creating flexibility, including alternative permits, existing waiver mechanisms, generally applicable interpretive statements and site-specific rules that replace otherwise applicable requirements.[8] *Although EPA has acknowledged that specific statutory provisions may limit the scope of flexibility available to certain XL projects, it has also noted that this concern has not yet been a real barrier to implementation of XL projects.*[9]

Hopewell should ask for relief from EPA in the form of an interpretive statement or a site-specific rule providing (1) that Hopewell is functionally part of a facility's onsite treatment process, or (2) that for purposes of wastewater discharges to the POTW only, TRI reporters can transfer their reporting obligations to Hopewell.

The regulatory relief for TRI reporting requested by Hopewell as part of this XL proposal is consistent with EPA's concept of "eXcellence in Leadership" and should be approved. **An element of the XL project will be to report TRI release from HRWTF (as an on-site treatment facility) through all media instead of the industrial users individually reporting transfer to POTW. The phrase "all media" is defined as the water, air and solid waste media releases from the HRWTF treatment works only.** The methods to generate this TRI information will be evaluated during implementation of the XL project. The appropriate mechanism will be developed with the assistance of the stakeholders, Virginia DEQ and EPA.

[8] 62 Fed. Reg. 19872, 19876 (April 23, 1997).
[9] *Id.*

ENDNOTES

[1] A regulation containing pollutant discharge limits promulgated by the EPA in accordance with section 307 (b) and (c) of the Federal Water Pollution Control Act as amended, 33 U.S.C. 1251, et seq. The term national pretreatment standard includes prohibitive discharge limits established pursuant to §403.5.

[2] A facility is required to report under TRI if it: has ten or more full-time employees, and manufactures or processes (1) over 25,000 pounds of the approximately 600 designated chemicals, or (2) 28 chemical categories specified in the regulations, or uses more than 10,000 pounds of any designated chemical or category; and engages in certain manufacturing operations in the industry groups specified in the U.S. Government Standard Industrial Classification Codes (SIC) 20 through 39; or is a Federal facility which are all now required to report per the August, 1995 Executive Order.

[3] Applicable State Requirements: Emission Standards for Odor (9 VAC 5, Chapter 50, Article 2); and Emission Standards for Toxic Pollutants (9 VAC 5, Chapter 50, Article 3). Applicable Federal Requirements: Visible Emissions and Fugitive Dust/Emissions (9 VAC 5, Chapter 50, Article 1); General Process Operations (9 VAC 5, Chapter 40, Article 4); Emission Standards for Incinerators (9 VAC 5, Chapter 40, Article 7); Registration (9 VAC 5-120-160); Permit Program Fees (9 VAC 5, Chapter 80, Part II, Article 2); Existing Permit Conditions (9 VAC 5-80-10); Standards of Performance for Sewage Treatment Plants (NSPS, 40 CFR Part 60, Subpart O; National Emission Standards for Hazardous Air Pollutants (NESHAP, 40 CFR Part 61, Subpart C – National Emission Standards for Beryllium); National Emission Standards for Hazardous Air Pollutants (NESHAP, 40 CFR Part 61, Subpart E – National Emission Standards for Mercury); Accidental Release Prevention/Risk Management Programs (40 CFR Part 68); Compliance Assurance Monitoring (40 CFR Part 64); and Consent Agreement (May 1996) between the City of Hopewell and Virginia State Air Pollution Control Board Reasonably Available Control Technology (RACT) standard for the Hopewell Regional Wastewater Treatment Facility for the control of volatile organic compound (VOC) emissions.

[4] 40 CFR Parts 63, 261 and 430, National Emission Standards for Hazardous Air Pollutants for Source Category: Pulp and Paper Production; Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards: Pulp, Paper, and Paperboard Category, April 15, 1998.

[5] 40 CFR Parts 63, 261 and 430, National Emission Standards for Hazardous Air Pollutants for Source Category: Pulp and Paper Production; Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards: Pulp, Paper, and Paperboard Category, April 15, 1998.

[6] Surfactants/oxygen scavangers; Mercury; PBTs / BCCs; Benzene, 1,1'-oxybis; Benzene, 1-fluoro-3-(phenylmethyl)-; 1,1':2',1"-Terphenyl; Pyrene, 1,3-dimethyl-; Chlorpyrifos; Anthracene; 1,4,dimethoxy; Dibenzothiophene; 1,2,3,4-tetrahydro Benzene (2,4-cyclopentadiene-1-ylidene-phenylmethyl)-; 4H-Cyclopenta [def] phenanthrene; Naphthalene, 1,6-dimethyl-4-(1-methylethyl)-; and Azulene, 1,4-dimethyl-7-(1-methylethyl)-.

[7] Plus and minus one standard deviation unit from the mean (64% of values). Data from January 1997 – December 1998 except for WET, 1994 – 1999.

[8] Non-specific indicator pollutant characteristic with an applicable limitation and can demonstrate treatment plant performance.

[9] Non-specific indicator pollutant characteristic with an applicable limitation and can demonstrate treatment plant performance.

[10] Specific indicator pollutant with an applicable limitation and can demonstrate treatment plant performance.

[11] Specific indicator pollutant that can demonstrate treatment plant performance.

[12] Non-specific indicator pollutant characteristic with an applicable limitation and can demonstrate treatment plant performance.

[13] Specific indicator pollutant with an applicable limitation and can demonstrate treatment plant performance.

[14] Specific indicator pollutant with an applicable limitation and can demonstrate treatment plant performance.

[15] Specific indicator pollutant with an applicable limitation and can demonstrate treatment plant performance.

[16] Specific indicator pollutant with an applicable limitation and can demonstrate treatment plant performance.

[17] Specific indicator pollutant with an applicable limitation and can demonstrate treatment plant performance.

[18] Specific indicator pollutant with an applicable limitation and can demonstrate treatment plant performance.

[19] Specific indicator pollutant with an applicable limitation and can demonstrate treatment plant performance.

[20] Specific indicator pollutant with an applicable limitation and can demonstrate treatment plant performance.

[21] Specific indicator pollutant with an applicable limitation and can demonstrate treatment plant performance.

[22] Non-specific indicator pollutant characteristic with an applicable limitation and can demonstrate treatment plant performance.

[23] Specific indicator pollutant with an applicable limitation and can demonstrate treatment plant performance.

[24] Total metals equals the sum of the total mg/kg of 40 CFR Part 503 regulated metals in a grab sample. Regulated metals are arsenic, beryllium, cadmium, chromium, lead, mercury and nickel. For example, HRWTF biosolids currently well below the ceiling standard (40 CFR 503.13, Table 1) and the standard for "exceptional quality" sludge (40 CFR 503.13, Table 3).

[25] Total metals equals the sum of the total mg/kg of TCLP regulated metals in a grab sample. Regulated metals are arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver.

[26] Non-specific indicator pollutant characteristic with an applicable limitation and can demonstrate treatment plant performance.

[27] American Academy of Environmental Engineers 1999 Superior Achievement for Excellence in Environmental Engineering.

[28] Plus and minus one standard deviation unit from the mean (64% of values). Data from January 1997 – December 1998 except for WET, 1994 – 1999.

[29] Non-specific indicator pollutant characteristic with an applicable limitation and can demonstrate treatment plant performance.

[30] Specific indicator pollutant with an applicable limitation and can demonstrate treatment plant performance.

[31] Specific indicator pollutant that can demonstrate treatment plant performance.

[32] Total metals equals the sum of the total mg/kg of 40 CFR Part 503 regulated metals in a grab sample. Regulated metals are arsenic, beryllium, cadmium, chromium, lead, mercury and nickel.

[33] Total metals equals the sum of the total mg/kg of TCLP regulated metals in a grab sample. Regulated metals are arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver.

[34] The VOC emission reduction estimates are conservative.

[35] Amended and Restated Hopewell Wastewater Treatment Facility Agreement between: City of Hopewell, Virginia; Stone Container Corporation (now Smurfit-Stone); Hercules, Incorporated; AlliedSignal Corporation; and Bridgestone/Firestone, Inc. (now AlliedSignal); and Virginia-American Water Company. June 1, 1995.

[36] Sources that discharge pollutants incompatible with HRWTF and regulated by a categorical standard will have those standards applied to end of process.