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CITY COUNCIL STANDING COMMITTEE

Budget & Finance Committee

Tuesday, March 1, 2011 – 6:00 p.m.

1st Fl. Council Conference Rm. – City Hall

AGENDA

1. *Continued Business:*

A) Stormwater Utility Regulations (referred from 02/15/11 Special City Council Meeting)

2. *City's submission to the EPA on the Public-Comment: Tentative 201(h) Waiver Decision Document; Draft NPDES Permit (referred from City Council 02/08/11)*

3. *Appropriation request to fund first year of Police Contract and additional appropriation Requests from free cash*

4. *Memo from Health Director re: reapplication process for a Drug Free Communities Support Grant*

5. *Memo from Health Director re: Tobacco Control Mini-Grant*

6. *Special Budgetary Transfer Request (#2011-SBT-14) from Assessors Department*

7. *Memo from City Auditor regarding accounts having expenditures which exceed their authorization*

COMMITTEE

Councilor Steven Curcuru, Chair

Councilor Paul McGeary, Vice Chair

Councilor Jacqueline Hardy

Committee members – Please bring relevant documentation

Back-up and Supporting Documentation all on file at the City Clerk's Office, City Hall

CC: Mayor Carolyn Kirk
Jim Duggan
Kenny Costa
Jeffrey Towne
Jack Vondras
Nancy Papows

STORMWATER UTILITY REGULATIONS

11 FEB 10 PM 2:00
CITY CLERK
GLOUCESTER, MA

Sec. I - Purpose

Pursuant to the City of Gloucester Code of Ordinances section 23-2, the city has established a stormwater utility. These regulations are promulgated by the Director of Public Works under the authority of section 23-4(c) of the Code of Ordinances and the City Charter. The regulations establish the utility fees and the administration of the utility.

Sec. II - Definitions

- (1) City: shall mean city government, including staff and elected officials.
- (2) Equivalent residential unit (ERU): The representative impervious area of single family residential property located in the city. The value of one ERU will be established based on the median impervious area size of the City's single family residences, as determined from aerial photography. It will be re-computed periodically as new data becomes available.
- (3) ERU rate: The charge per year for a single ERU. This to be calculated by dividing the budget of the Stormwater Utility by the number of chargeable ERUs.
- (4) Impervious area: Any part of any parcel of land that has been modified by the action of persons to reduce the land's natural ability to absorb and hold rainfall. This includes areas that have been covered with structures. Excluded are all lawns, landscape areas but not excluding any hardscaped area.
- (5) Impervious surface: any material or structure on or above ground that prevents water infiltrating the underlying soil. Impervious surface includes without limitation roads, paved parking lots, sidewalks and rooftops.
- (6) Director: The Department of Public Works Director or designee.
- (7) Multifamily property: All residential development not classified as single-family residential or accessory.
- (8) Nonresidential property: All property not zoned or used as residential property as defined in this article.
- (9) Single-family property: All single-family residential dwelling structures. All other residential development shall be classified as multifamily.

- (10) Stormwater: That part of precipitation that travels over natural, altered, or improved surfaces to the nearest stream or channel or impoundment and may appear in surface waters. Including stormwater runoff, snowmelt runoff, and surface water runoff and drainage.
- (11) Stormwater management plan: An approved plan for receiving, handling, and transporting storm and surface waters within the city stormwater management system.
- (12) Stormwater management systems: All natural and manmade elements used to convey stormwater from the first point of impact with the surface of the earth to a suitable outlet location internal or external to the boundaries of the city. The stormwater management system includes all pipes, channels, streams, ditches, wetlands, sinkholes, detention/retention basins, ponds, and other stormwater conveyance and treatment facilities, whether public or private.
- (13) Stormwater Management Utility (SMU): the utility created pursuant to the Gloucester Code of Ordinances chapter 23-2.
- (14) SMU director: The Department of Public Works Director or designee is responsible for implementing the SMU function.

Sec. III - Stormwater management utility program established

A stormwater management utility (SMU) program is established to provide the operational means of implementing and carrying out the functional requirements of the stormwater management system. The SMU program shall be part of the overall utility systems of the city.

Sec. IV - Customer base

All real property within the jurisdictional boundaries of the city shall be subject to SMU fees unless specifically exempted by the section 23-6 of the code of ordinances. The fees shall also apply to all tax-exempt properties, including properties of federal, state, and county agencies and nonprofit organizations, with the exception of properties owned by the City of Gloucester.

Sec. V - Utility fee categories

The following utility fee categories are established for the purpose of calculating the stormwater fee.

- (1) Single-family property: Each single-family property shall be considered one ERU for billing purposes.

- (2) Multifamily: The Director of the Department of Public Works (Director) may establish the number of units in a single property above which properties will be charged as a multi-family unit. At or beneath this number a multifamily will be charged as a single-family property (a single ERU). Each multifamily unit shall be charged a fixed portion of the ERU rate.

NUMBER OF UNITS x MULTI-OCCUPANCY FACTOR x ERU RATE

The multi-occupancy factor will be established by the Director.

- (3) Residential lots with structures and or uses which are accessory to residential uses shall be charged as follows:

ERU RATE X MULTI-OCCUPANCY FACTOR

- (4) Each condominium unit shall be charged as follows:

ERU RATE x MULTI-OCCUPANCY FACTOR

- (5) Nonresidential property: The annual utility fee for all nonresidential properties shall be billed and calculated in accordance with the following formula:

IMPERVIOUS AREA / ERU size = Number of ERUs

- (6) The Director may set a minimum and maximum number of ERUs for nonresidential or residential property.

Sec. VI - Fee schedule

- (1) ERU fees shall be billed and collected as a separate line item on utility account bills. Separate accounts for stormwater services may be established if other utilities are not furnished to property.
- (2) ERU fees shall be billed as often as other utility accounts are billed.

Sec. VII - Exemptions

Pursuant to section 23-6 of the Code of Ordinances, the following real property located in the city shall be exempt from the imposition of SMU fees:

- (1) Property that is owned by the City of Gloucester.

- (2) Property that is vacant and unimproved and with no impervious area, however, the Director may determine that the land may contain an amount impervious surface which is de minimus and therefore exempt.
- (3) Paved improved public or private right-of-way.

Sec. VIII - Remedies of aggrieved property owners

All requests to abate the stormwater utility fee shall be submitted to the Director of the Department of Public Works and shall be reviewed and processed in the same manner as an appeal of a sewer bill. The provisions of MGL c. 83, section 16E, and all available remedies under MGL c. 165, section 10, may apply. The petition for an abatement must be filed within the time allowed for an abatement of real estate tax, or for exempt properties the time within which a real estate tax would be filed if not tax exempt. If the DPW Director finds that the charge was for more than was properly due, an abatement shall be made. If the appeal is denied, the petitioner may appeal to the appellate tax board upon the same terms as a person aggrieved by the refusal of the assessors of a city to abate a tax.

Sec. IX - Enforcement and penalties

- (1) Bills shall be payable at the same time and in the same manner and subject to the same penalties as set forth in Massachusetts General Law chapter 83 section 16 for sewer bills. Nonpayment of any portion of the stormwater utility fee shall be considered as nonpayment of all other city utilities appearing on the bill and may result in the city's termination of all services appearing on the bill.
- (2) Pursuant to Massachusetts General Laws, the city shall have a lien for delinquent or unpaid stormwater management services charges, which lien shall be prior to all other liens on such property except for tax liens. Enforcement and foreclosure of said liens shall be as provided by law. Interest on the unpaid balance shall be the highest rate as authorized by state law.

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CITY OF GLOUCESTER
OFFICE OF THE MAYOR

February 4, 2011

H. Curtis Spaulding
Regional Administrator
United States Environmental Protection Agency, Region 1 New England
5 Post Office Square
Boston, MA 02109-3912

RE: Public Comment: Tentative 301(h) Waiver Decision Document; Draft NPDES Permit

Dear Mr. Spaulding,

Thank you for extending the public comment period for the city of Gloucester pertaining to EPA's decision to deny our 301(h) waiver request and on the draft NPDES permit. As our letter of January 5, 2011 stated, we continue to be of the belief that the two issues are very different in nature, and the structure of our public comment represents that belief.

In this initial submission, we are providing detailed requirements only regarding the denial of the 301(h) waiver, and the consequences of the denial on the city's and citizen's ability to afford expensive secondary treatment that provides no appreciable environmental benefit. In advance of the public hearing currently scheduled for March 24, 2011, we will submit our detailed public comment regarding provisions of the draft NPDES Permit for secondary treatment.

City of Gloucester Summary – EPA Denial of the 301(h) Waiver Request

Enclosed you will find detailed technical, legal, scientific and financial arguments prepared by the city of Gloucester team. However, as the elected official compelled to represent the best interests of the citizens of Gloucester, I offer EPA this commentary:

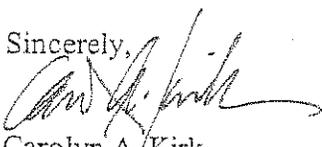
- The ratepayers and taxpayers of the city of Gloucester have just made a \$35 million dollar investment in an EPA-mandated CSO project. In addition, the ratepayers and taxpayers of the city of Gloucester have also just made a \$20 million investment in the Waste Water Treatment Plant. Permanent financing for both these projects is just commencing and there is no debt relief for another 20 years. Rates would double from their already current high levels with secondary treatment expenses.

- As demonstrated in our comments, the Waste Water Treatment Plant satisfies the 301(h) criteria. The positive impacts of the CSO work and the Waste Water Treatment Plant upgrades are likely to improve the situation further, so it is premature at best to deny the waiver.
- The city of Gloucester acknowledges EPA's concerns about a lack of professional and consistent management over many years of our waste water system. However, we have recently switched contract operators, and together we have stabilized and made dramatic improvements to operations at the plant.
- The city of Gloucester needs an over-arching master asset plan. We cannot look at waste water issues in isolation. The ratepayers of Gloucester will also bear the \$15 million we have invested in our drinking water system over the past 18 months – with more urgent projects needed. We need for EPA to take the whole of Gloucester's infrastructure and ability to afford improvements into account. An asset master plan is a missing piece of the puzzle presently.
- From an environmental standpoint, we are asking EPA to look long and hard at the cost / benefit analysis of what we consider to be questionable environmental benefits vs. the enormous cost burden that would be placed on the city in order to provide secondary treatment. The 301(h) waiver that EPA has applied to the Gloucester water pollution control facility for the last 26 years is in complete accord with the letter and intent of the 301(h) provisions Congress put in the Clean Water Act for just the purpose in which Gloucester finds itself, as witnessed by the Congressional record:
 - *"There have been continuing increases in [the cost to construct secondary treatment]. In view of these factors, and in order to achieve needed savings in the cost of treatment of municipal wastes, the Committee considers it desirable to make the operation of ocean discharges available where it can be shown that unacceptable adverse environmental effects will not result." See H.R. Rep. No. 97-270, at 17 (1981), reprinted in 1981 U.S.C.C.A.N. 2629, 2645.*

As we have maintained all along throughout this ongoing dialogue, the city of Gloucester is committed to preserving and protecting the ocean resources that have played a major role in the history of the city, and which are a vital part of Gloucester's identity.

We are asking for a reasonable balance. With the city unable to assume additional debt for at least the next 20 years, we believe that the investment that we can make would better be spent on CSO control, stormwater management, and other wastewater infrastructure improvements that would provide real benefits to beaches, waterfronts, and neighborhoods in Gloucester. We hope that EPA agrees. Thank you.

Sincerely,



Carolyn A. Kirk
Mayor
City of Gloucester

Comments of the City of Gloucester

Regarding

Tentative Decision of the Regional Administrator under 40 C.F.R Part 125, Subpart G
(dated 11/5/2010)

Related to

City of Gloucester, Massachusetts, POTW, NPDES Permit No. MA0100625,
Application for Modification of Secondary Treatment Requirements under Section 301(h)
of the Federal Clean Water Act, 33 U.S.C. § 1311(h)

February 4, 2011

The City of Gloucester, Massachusetts ("Gloucester" or the "City") submits the following comments regarding the tentative decision of the EPA Regional Administrator to deny Gloucester's request for renewal of modification of Clean Water Act secondary treatment requirements for its Water Pollution Control Facility (WPCF).¹

I. INTRODUCTION

Section 301(h) of the federal Clean Water Act ("CWA" or "Act")² allows publicly owned treatment works discharging into marine waters to receive a variance from the Act's technology-based secondary treatment requirements for 5-day biochemical oxygen demand (BOD) and total suspended solids (TSS), as long as certain statutory criteria are met. This provision reflects Congress's determination that secondary treatment provides little environmental benefit for discharges to deep ocean waters, due to the rapid aeration and dispersion of such discharges.³

Pursuant to § 301(h), EPA granted a variance from secondary treatment requirements for Gloucester's WPCF in 1985 and renewed the variance in 2001. Both of these waivers were for the current treatment plant, which has design flows of 7.24 million gallons per day ("MGD") average and 15 MGD maximum. The current average monthly flow is 5.08 MGD.

In 1990, Gloucester relocated the discharge from the WPCF to a location in Massachusetts Bay, more than a mile beyond Gloucester Outer Harbor, through an outfall approximately 15,000 feet long. The effluent is discharged through a diffuser on the ocean floor into a water depth of 90 feet. The effluent receives chemically enhanced primary treatment and chlorination/dechlorination. The 2001 waiver reflected the extension of the plant's outfall to its current location.

¹ In Re: City of Gloucester, Massachusetts, Publicly Owned Treatment Works, NPDES Permit No. MA010065, Application for Modification of Secondary Treatment Requirements under Section 301(h) of the Federal Clean Water Act, 33 U.S.C. § 1311(h), Tentative Decision of the Regional Administrator Under 40 C.F.R. Part 125, Subpart G (November 5, 2010).

² 33 U.S.C. § 1311(h).

³ See discussion in EPA's preamble to the initial 301(h) regulations, 43 Fed. Reg. 17484 (April 25, 1978).

In 2006, the City submitted an application to EPA Region 1 for a renewal of its 301(h) variance. On November 5, 2010, the EPA Regional Administrator issued a tentative decision (the "tentative decision," or "TD") denying the variance.⁴ The denial is based on EPA's assertion that Gloucester has not demonstrated that it meets two of the nine 301(h) statutory criteria. EPA's tentative decision is not consistent with 301(h) regulations and guidance, or EPA's prior decisions regarding the WPCF. In fact, Gloucester's WPCF meets all of the 301(h) criteria as detailed below and EPA's tentative decision is therefore arbitrary and capricious, and not in accordance with the law.

II. DESCRIPTION OF THE TREATMENT FACILITY AND RECEIVING WATERS

II.A. The WPCF

Gloucester's WPCF began operation in 1984. In 1985 it was issued a 301(h) waiver and NPDES permit based on primary treatment. The plant was designed for an average daily flow rate of 7.24 million gallons per day (MGD) with a peak hydraulic flow rate of 15 MGD. The plant's average daily flow for the past five years is as follows:

Year	Average WPCF flow (MGD)
2010	4.27
2009	4.34
2008	4.49
2007	4.17
2006	4.69

The WPCF currently serves approximately 7,727 customers in Gloucester (6,928 residential households, 328 commercial facilities, 68 industrial facilities, and 777 mixed-use and public facilities). The industrial users include four permitted Significant Industrial Users and six permitted smaller users. The WPCF also serves approximately 600 households in Essex and 150 in Rockport (mostly seasonal use). The plant also receives trucked septage, sludge, and holding tank wastes from Gloucester and Essex. Some of the Gloucester flow is from combined sewers receiving both sanitary and stormwater flow.

The plant implements chemically enhanced primary treatment (CEPT), which uses ferric chloride and polymer to increase removal of oil and grease, BOD, and TSS. The effluent is chlorinated to eliminate bacteria, then dechlorinated to remove residual chlorine. The plant discharges effluent through a 15,690-foot outfall to a location approximately a mile beyond Dog Bar Breakwater (Figure 1) into 90 feet (27.4 m) of water. The effluent is discharged at the bottom of the water column through a 61-meter-long multiport diffuser with ten risers (Figures 2 and 3).

⁴ The public comment period was extended by EPA on December 16, 2010 to February 2, 2011, and then again through the date of the public hearing to be held in this matter, currently scheduled for March 24, 2010. See letter dated January 24, 2010 from Stephen S. Perkins, Director of Office of Ecosystem Protection, EPA Region I to Mayor Carolyn A. Kirk.

II.B. WPCF Improvements

Since EPA's 2001 renewal of the WPCF's 301(h) waiver, numerous improvements have been made to the WPCF. Improvements from 2004-2006, which included the addition of dechlorination in 2006, are summarized in EPA's tentative decision and not restated here.

In addition, the City is currently in the midst of a two-phase set of upgrades to the WPCF. Phase I construction began in January 2010, with substantial completion expected by March 31, 2011, at a cost of approximately \$6.5 million. Phase I improvements include:

- Replacement of the mechanisms and tank overflow for the two existing gravity thickeners and sludge holding tank. Installation of a new sludge holding tank mixing system and two new rotary sludge presses with a new polymer system, dewatering system control panel and dewatered sludge conveyors.
- Changes to process flow such that septage and scum will be pumped directly to the sludge holding tank where it will be thoroughly mixed with thickened primary sludge prior to dewatering.
- Replacement of all sludge and scum pumps including two primary sludge pumps, two primary scum pumps, two thickened primary sludge pumps, two thickened primary scum pumps and two sludge dewatering feed pumps. All pumps with the exception of the two thickened primary scum pumps are preceded by an in-line grinder.
- Replacement of the three plant effluent pumps with new higher capacity pumps and new variable frequency drives (VFDs).
- Electrical system upgrades including three new double-ended motor control centers for improved reliability and redundancy and upgrades to the existing fire alarm system and emergency lighting system.
- Upgrades to the SCADA computer control system including new programmable logic controllers (PLCs) at each sludge pumping station and operator work stations in the Control Building so operators can monitor process operations and begin to develop a data base on plant flows, loads and performance.
- A new influent sampler upstream of any side streams and chemical addition to give plant operators a true indication of influent wastewater characteristics.
- Replacement of the scum troughs in the chlorine contact tanks, which will further lower oil and grease concentrations in plant effluent.

In addition to the Phase I upgrades, in November 2009 the City contracted Veolia Environmental Services to operate and maintain the WPCF. Under this contract, the City tripled the repair and maintenance budgets, engaged Veolia technical specialists to review and optimize process operations of the facility and undertook significant improvements to immediately improve operations and effluent quality at the plant. Among other things, Veolia has modified the sodium hypochlorite feed pump suction and discharge piping to ensure reliability during low flows at night, and has made repairs to the effluent flume ultrasonic level indicator and transmitter that have restored the ability to pace sodium hypochlorite and bisulfite based on flow, improving treatment of bacteria. These improvements and more focused attention to the operations of the plant have resulted in substantial improvement in effluent quality as shown in the data presented below.

The Phase II design was completed and submitted to DEP for review in December 2010; it is anticipated to be bid in March-April 2011 with a construction notice to proceed in August 2011. Completion of Phase II construction is scheduled for August 1, 2013, at an expected cost of \$13.5 million. Phase II improvements include:

- A new headworks building, which will include two mechanical bar screens with ½-in bar spacing each rated for peak wet weather flow, a screenings wash press for each screen, vortex grit removal with grit pumps and a grit washer and preliminary treatment (screening and grit removal) of all septage, a new polymer feed system to enhance primary treatment, and a new double-ended motor control center to replace two existing single-ended motor control centers for improved reliability and redundancy.
- New standby power generator for the entire plant.
- New transformer and switchgear for the entire plant.
- New odor control facilities for the control building and the new headworks building.
- Yard piping modifications to allow one primary sludge pump to feed one gravity thickener. A new flow meter on the pump discharge will allow the operators to monitor the flow and load to the gravity thickener.
- Additional SCADA system enhancements with connections to new equipment.
- Replacement of an existing primary sludge plunger pump.

These changes will further enhance the WPCF's performance and will result in significantly improved process redundancy.

II.C. Collection System Improvements

Like many older cities, Gloucester's sewer system includes some combined sewers, designed to transport stormwater along with sanitary sewage. This results in high flows in the collection system during wet weather and can result in combined sewer overflows (CSOs). Gloucester has been working on correcting this problem by replacing combined sewer pipes with separate sewer and stormwater pipes. The first area addressed was the basin draining roughly 87% of the area served by combined sewers. Most of the separation of this basin was completed in March of 2009, with the remainder completed in July 2010. Of the total stormwater flow to the sewers within the project area, approximately 90% has been eliminated, resulting in an estimated reduction of 95 million gallons of flow per year to the WPCF. The impacts of this project at the treatment plant have been noticeable and significant. Recovery from peak flows occurs very quickly, and there have been no flooding incidents in spite of extreme rain events, making operation of the plant easier, increasing reliability and effluent quality. Completion of the remaining sewer separation work is expected within the next four years. The CSO project costs total approximately \$35 million.

II.D. "Current" vs. "Improved" Discharge

EPA's 301(h) regulations allow applicants to meet waiver requirements based on either a "current discharge" or an "improved discharge," which are defined as follows (40 CFR §

125.58(h)-(i)):

Current discharge means the volume, composition, and location of an applicant's discharge at the time of permit application.

Improved discharge means the volume, composition, and location of an applicant's discharge following:

- (1) Construction of planned outfall improvements, including, without limitation, outfall relocation, outfall repair, or diffuser modification; or
- (2) Construction of planned treatment system improvements to treatment levels or discharge characteristics; or
- (3) Implementation of a planned program to improve operation and maintenance of an existing treatment system or to eliminate or control the introduction of pollutants into the applicant's treatment works.

These definitions reflect EPA's determination that it was Congress's intent that applicants that could not demonstrate compliance with the waiver requirements using empirical data from their current discharge could still obtain waivers based on "thoroughly planned and studied" future improvements.⁵

As EPA's tentative decision notes, the City's 2006 application stated that it was "based on an improved discharge because of the completion of the 'construction of planned treatment system improvements to treatment levels or discharge characteristics,'" including "the addition of a dechlorination and odor control system in the spring of 2006." This statement reflected a misunderstanding of the regulatory term "improved discharge," because the statement describes the improvements as completed, and the remainder of the application demonstrates that the discharge at the time of application complied with 301(h) requirements. Although it was correct to note that many improvements to the WPCF had been made since the previous waiver renewal, the application should have stated that it was based on a "current discharge."

The City's discharge at the time it submitted its application and its current discharge meet the 301(h) requirements. Since 2006, the City has continued to collect data on both the effluent and the environment in the vicinity of the discharge and has submitted those data to EPA. The City can demonstrate compliance with the 301(h) requirements based on this empirical data, and does not need to rely on predicted future improvements in discharge quality. Thus, the City believes that EPA should consider the WPCF discharge at the time of submission of these comments to be its "current discharge." Moreover, even if EPA considers the City's request for a waiver to be based on an "improved" discharge as compared to when the waiver application was submitted in 2006, the City's empirical data on the composition of the discharge meets the regulatory requirements for proof that an "improved" discharge will meet 301(h) requirements. See 40 CFR § 125.62(e). In any case, EPA should not deny the 301(h) waiver for the WPCF on the basis of a semantic distinction that bears no relation to water quality in the vicinity of the outfall.

⁵ Environmental Protection Agency, Modification of Secondary Treatment Requirements for Discharges into Marine Waters: Final Rule, 44 Fed. Reg. 34784, 34788-90 (June 15, 1979).

II.E. Receiving Waters

The WPCF discharges to Massachusetts Bay, which is classified in the Massachusetts Water Quality Standards ("MWQS," 314 CMR 4.00) as a Class SA water. Gloucester has conducted extensive monitoring in the vicinity of the outfall since 1990.

In anticipation of the completion of the pipeline extension, in 1990 sampling was initiated at sites outside the harbor to establish a baseline for the monitoring of the effluent from the new diffuser (Figures 1 and 4). In October 1990, the discharge was transferred from the old single point discharge inside the harbor to the new outfall beyond the breakwater. Monitoring at the stations located around the new diffuser has been conducted continuously since March of 1990.

Major changes to the monitoring program over the years (all approved by EPA) have been:

- Priority pollutant scans of water samples were discontinued in 1990 because of the lack of detections of these compounds in samples, even at Station 1 next to the old outfall inside the harbor with no diffuser (e.g. Table 1). The new outfall with a diffuser that has an almost instantaneous dilution of 59:1 (based on conservative modeling) made it even more unlikely these compounds could be ever be detected. There have been very few detects in priority pollutants at the treatment plant and these have been at very low levels.
- Sampling for oil and grease ended in the year 2001 because most of the results were non-detects (Tables 2 and 3) and there was no evidence of accumulation in the sediments. The very few isolated detects were more probably associated with the heavy commercial and recreational boat traffic through the area.
- TSS sampling was discontinued in 2001 because 10 years worth of data had shown there was no association between concentrations in the water column and distance from the outfall. There was also no increase in solids in the sediments near the diffuser.

III. APPLICATION OF 301(h) CRITERIA

Section 301(h) of the Clean Water Act requires an applicant for a waiver to demonstrate that it meets nine statutory criteria. EPA acknowledges that Gloucester has met all but two of the criteria, but concludes in its 2010 tentative decision that Gloucester has failed to demonstrate that the WPCF discharge:

- will meet water quality standards for toxicity; oil, grease, and petrochemicals; and bacteria as required by 33 V.S.C. § 1311(h)(1); and
- will not interfere with the protection and propagation of a balanced indigenous population of fish, shellfish, and wildlife, and will not negatively impact recreational activities as required by 33 V.S.C. § 1311(h)(2).

EPA's application of these criteria to the WPCF in 2010 is strikingly inconsistent with its application of the same criteria in 2001, in ways not justified by updated data or changed water quality standards.

As is demonstrated in the detailed comments below, the discharge from the WPCF meets all water quality standards and will not interfere with the balanced indigenous population or recreation in the vicinity of the outfall. EPA's decision to tentatively deny the 301(h) waiver for the WPCF therefore has no basis in fact or law, and EPA should grant Gloucester a renewal of its 301(h) waiver and issue a new primary treatment permit for the WPCF.

IV. THE WPCF DISCHARGE MEETS THE RELEVANT WATER QUALITY STANDARDS IN THE WATERS OUTSIDE THE ZONE OF INITIAL DILUTION AS REQUIRED BY SECTION 301(h)

Section 301(h) requires that the discharge from a WPCF comply with all applicable state water quality standards at and beyond the boundary of the zone of initial dilution (ZID). As discussed below, contrary to EPA's tentative decision, the discharge from the WPCF complies with all water quality standards at the ZID boundary, and the 301(h) waiver should be granted.

IV.A. EPA Appropriately Defined the ZID

IV.A.1. Definition of the Zone of Initial Dilution

Congress added Section 301(h) to the Clean Water Act to address discharges into marine waters subject to rapid initial mixing. Therefore, under the 301(h) regulations, the effects of an applicant's discharge on the receiving waters are generally assessed at and beyond the boundary of a "zone of initial dilution (ZID)."⁶ The 301(h) regulations define "zone of initial dilution" as "the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, provided that the ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards." 40 CFR § 125.58(dd).

EPA guidance for calculation of the dimensions of the ZID is provided in EPA's 1994 *Amended 301(h) Technical Support Document* (EPA842-B-94-007). The *Technical Support Document* specifies the ZID to be that area circumscribed by a distance d (equal to the water depth) from any point on the diffuser.

The Massachusetts Water Quality Standards (MWQS) allow for mixing zones. 314 CMR 4.03(2). EPA's tentative decision concludes that, "as a general matter, the MSWQS do not create a more strict limitation on the size of the ZID than that contained in the 301(h) regulations themselves" (p. 9).

IV.A.2. EPA Has Applied a Conservatively Small ZID for the Gloucester WPCF Discharge

The existing outfall diffuser is a linear multiport diffuser 61 m in length, with ten six-inch (0.1524 m) diameter ports spaced at 6.1 m intervals.⁷ EPA's tentative decision calculates the

⁶ The only requirement within the zone of initial dilution for ocean discharges is that conditions "must not contribute to extreme adverse biological impacts, including, but not limited to, the destruction of distinctive habitats of limited distribution, the presence of disease epicenter, or the stimulation of phytoplankton blooms which have adverse effects beyond the zone of initial dilution." 40 CFR § 125.62(c)(3).

⁷ The EPA tentative decision document and other references to the diffuser state a port diameter of 1.52 meters, which is obviously

surrounding ZID to be approximately 55.1 m by 115.2 m.

The ports discharge at a depth of 90 feet (27.43 meters) perpendicular to the diffuser barrel (which is generally perpendicular to the local bathymetric contours and principal current direction) at an upward angle of 11.25° from the horizontal. The design flow per port (for the maximum design flow of 15 MGD) is 0.0657 m³/sec, giving a port velocity of 11.8 ft/sec. At the modeled wet weather maximum flow of 10 MGD (see below), the port flow is 0.0438 m³/sec and the port velocity is 7.9 ft/sec. The diffuser design provides rapid initial dilution. The location of the discharge is well flushed by ambient currents and does not result in a build up of effluent in the vicinity of the discharge, as demonstrated by receiving water monitoring.

Critical initial dilution ("CID") as described in the EPA tentative decision is stated as 65:1 for dry weather (6.3 MGD effluent flow) and 59:1 for wet weather (10.0 MGD effluent flow). The City recently recalculated the CID using more recent data and modeling. Using the EPA-approved model UDKHDEN, the critical density profile from 2007⁸, and a critical ambient current of 3 cm/sec⁹, the initial dilution for an effluent flow of 10.0 MGD was calculated to be 79:1 as the plume rises past the eventual equilibrium depth (trapping level) and 103:1 at the point of maximum rise. The simulation was done using an effluent temperature of 15°C.¹⁰ If this simulation is done at an ambient current speed of zero the results are consistent with the existing CID. Thus, it appears that the existing CID is conservative, since the ambient current speed will almost always be greater than zero.

IV.B. The Discharge Can and Will Comply with Water Quality Standards for Toxicity

Although explicitly acknowledging that the WPCF's effluent would meet numeric state water quality standards for toxicity at the edge of the ZID, EPA nonetheless denies the 301(h) waiver on the basis of the results of effluent toxicity testing. It is arbitrary and capricious and without legal foundation for EPA to equate these test results with a failure to meet 301(h) criteria.

The Massachusetts water quality standard for toxicity for all waters includes a general narrative standard as well as numeric standards for most pollutants:

All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. For pollutants not otherwise listed in 314 CMR 4.00, the *National Recommended Water Quality Criteria: 2002, EPA 822-R-02-047, November 2002* published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department either establishes a site specific criterion or determines that naturally occurring background concentrations are higher. 314 CMR 4.05(5)(e).

a typographical error.

⁸ This critical density profile is that profile resulting in the lowest initial dilution, with all other parameters constant (and at critical conditions). The July 11, 2007 density profile at Station 3C appears to be a good representation of critical conditions with a strong density gradient throughout the profile.

⁹ For tidally influenced marine waters, currents are constantly and rapidly varying in space and time and seldom, if ever, are zero. The typical practice is to use the 10th percentile current speed in the vicinity of the discharge as the critical condition. A value of 3 cm/sec is reasonable, and is consistent with current data collected in the vicinity of the discharge.

¹⁰ Effluent temperature has a minor effect on initial dilution: effluent temperature variation between 5°C and 25°C changes dilution by < 5%.

The MWQS standards allow water quality criteria to be exceeded inside of mixing zones "...so long as there is safe and adequate passage for swimming and drifting organisms with no deleterious effects on their populations." 314 CMR 4.03(2).

EPA acknowledges that the WPCF meets all of the numeric water quality standards for toxicity in its tentative decision (p. 23). However, EPA concludes that the WPCF discharge does not meet the narrative MWQS for toxicity. This is incorrect. EPA's tentative waiver denial states that "an end-of-pipe WET limit of 1 TU [i.e., $LC_{50} \geq 100\%$ effluent] is required by the [MassDEP] Toxics Policy" (p. 15). EPA then states (TD at 16-17):

The WPCF's effluent has frequently exceeded the existing permit's state water quality standards-based effluent limit for preventing acutely toxic effects. Based on this information, and in the absence of any data or analysis indicating that this pattern of exceedances would change if the WPCF's waiver were renewed, EPA Region 1 concludes that the applicant has failed to show that, at the time the renewed modification would become effective, its discharge would meet the state standards for toxicity at and beyond the ZID.

EPA is wrongly conflating end-of-pipe limits with ambient water quality standards. The "Toxics Policy" EPA cites is a document entitled "Massachusetts Water Quality Standards: Implementation Policy for the Control of Toxic Pollutants in Surface Waters, February 23, 1990" ("Toxics Policy").¹¹ EPA erroneously relies on the Toxics Policy for the premise that an end-of-pipe limit of 1.0 acute toxic units (TUa) employing Whole Effluent Toxicity Testing is a "water quality standard" that the WPCF must meet. Effluent limits are not water quality standards. Rather, "applicable water quality standards" for toxic pollutants for the 301(h) evaluation are those contained in 314 CMR 4.05(e), as referenced above.¹²

Moreover, EPA's reliance on WET testing to conclude that the effluent is causing toxicity at and beyond the ZID is flawed. In fact, the WPCF discharge meets the narrative and numeric water quality standards for toxicity at and beyond the zone of initial dilution, as required by the 301(h) regulations. First, the fact that all numeric effluent standards are met at the boundary of the ZID provides strong evidence that the narrative standard ("free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife") is also met. Second, the WET testing results upon which EPA relies reflect unrealistic laboratory conditions not representative of the conditions at the boundary of the ZID.¹³

¹¹ The tentative waiver decision states that the Toxics Policy provides information required by EPA under 40 CFR § 131.11(a)(2). (Tentative waiver decision at 14.) However, that regulation requires states to provide information on applying narrative standards to "point source discharges of toxic pollutants on water quality limited segments." Massachusetts Bay is not "water quality limited" for any pollutants, including toxic pollutants.

¹² Similarly, the supposed "technology-based limit" of 2.0 TU cited by EPA as MassDEP policy is an effluent limit, not a water quality standard. Moreover, neither EPA nor MassDEP provides any justification for this arbitrary number.

¹³ A number of WET test conditions differ from ambient conditions in the vicinity of the WPCF outfall in ways that increase toxicity to test organisms, making the test inappropriate for use in evaluating Gloucester's 301(h) application. Some of the differences include:

Dilution and Exposure Time

The toxicity tests bear no resemblance to what any organism is subjected to at the diffuser. In the laboratory, the exposure time is 48 hours. Because of the diffusers, the highest concentration an individual organism could experience at the edge of the ZID is a 1:59 dilution of the effluent, and that would only be for a matter of seconds. Further dilution occurs rapidly.

Finally, the City's discharge also meets the MWQS mixing zone provision inside the ZID,¹⁴ providing "safe and adequate passage for swimming and drifting organisms with no deleterious effects on their populations." To assess compliance with these narrative criteria, the MassDEP Toxics Policy document recommends 0.3 TUa as "a conservative (non-time-dependent) acute limit," "[i]n the absence of detailed site-specific exposure histories for all important species." However, this generic guidance is not part of the duly promulgated MWQS regulations and is not appropriate for the Gloucester WPCF discharge, for which there is site-specific evidence that the narrative MWQS standard is met. In the open ocean area receiving the discharge, there is clearly no blockage of passage, and the mixing resulting from the diffuser jet velocity results in rapid dilution. Based on the initial dilution modeling described earlier, the conservative CID of 59:1 is reached within 8 meters of the discharge point and within 20 seconds of the initial time of discharge. Organisms entrained in the plume would, therefore, not be exposed to purported acute toxicity levels for more than a few seconds. More than 20 years of ecological monitoring data support the assessment that there have been no deleterious effects on marine populations (see Gloucester's annual 301(h) reports submitted to EPA). The WPCF's discharge does not violate the MWQS for toxicity.

IV.C. The Discharge Can and Will Comply with Water Quality Standards for Oil and Grease

The MWQS state that Class SA waters "...shall be free from oil and grease and petrochemicals." 314 CMR § 4.05(4)(a)(7). EPA has inexplicably turned this narrative standard into a requirement that absolutely no oil, grease or petrochemicals be discharged in the WPCF's effluent, which it knows is impossible in a WPCF with *any* level of treatment, and which does not take into account the application of a ZID as allowed by Section 301(h).

In Gloucester's 2001 permit, EPA used this same narrative standard to develop an effluent limit of 25 mg/l monthly average for oil and grease (O&G) based on the discharge's dilution factor. EPA's 2010 tentative decision, without justification, states that the current permit limitation was

Dissolved Oxygen

Unrealistically low levels of dissolved oxygen in test chambers can stress test organisms. In the laboratory tests, oxygenation of the test chambers is not permitted unless DO drops to 4 mg/l and then oxygenation is only allowed at the rate of 100 bubbles/min. In the results for tests done on the Gloucester effluent since 2001, there was a statistically significant correlation ($p < 0.001$) between the average oxygen concentration at 24 hrs in the test chambers and survival rates of both *Menidia* and *Mysidopsis*. In reality, the effluent of the Gloucester wastewater treatment plant is released into an oxygen-rich environment. Regular testing of dissolved oxygen levels at the outfall over the last 20 years show that there is never an issue with concentrations of dissolved oxygen (see, e.g., Table 4). Phytoplankton in the ocean produce at least half of all the oxygen on the planet (e.g. Field et al., 1998) and the photic zone in Massachusetts Bay is very productive.

Temperature

The laboratory tests are conducted at either 20 or 25 degrees Celsius although the temperature at the outfall never approaches these temperatures. The diffuser releases the effluent at 30 meters depth in Massachusetts Bay where the maximum summer temperature is 10 - 11 degrees C. For most of the year the temperature is well below 10° C. A toxicity identification evaluation (TIE) study conducted on the Gloucester treatment plant effluent identified ammonia as the likely primary cause of toxicity (Brown and Caldwell, 2007). The percentage of unionized ammonia, the fraction toxic to marine organisms, is greatly affected by pH and temperature. Higher temperature and pH increases the amount of un-ionized ammonia. At a pH of 8 and salinity of 32 ppt (approximate conditions at the outfall), the percentage of un-ionized ammonia changes from 1.44% at 10°C degrees to 2.96% at 20° C and 4.28% at 25° C (EIFAC, 1986). Clearly, the temperature of the seawater during the laboratory tests has a dramatic effect on results, essentially doubling or tripling the toxicity of the ammonia component.

¹⁴ Gloucester does not concede that the 301(h) criteria contemplate the application of water quality standards inside the ZID, or that the Toxics Policy's contemplation of an acute toxicity limit inside a mixing zone is a water quality standard for Section 301(h) purposes, particularly since these requirements are inconsistent with 40 CFR § 125.62(c)(3), which provides requirements for within the ZID. There is no dispute that the discharge meets those requirements.

“inappropriate.” In the tentative decision, EPA states that the renewal permit limitation should be 0 mg/l, with a compliance limit of 5 mg/l because that is the lowest reliably measurable concentration. O&G has been detected above 5 mg/l in the plant’s discharge, and therefore EPA concludes that Gloucester has failed to show that its discharge would meet water quality standards for O&G at and beyond the ZID.

EPA’s translation of the “free from” water quality standard for oil and grease into a 5 mg/l standard for the WPCF effluent lacks a rational basis. Based on the critical initial dilution of 59:1 posited by EPA, even an effluent concentration of 25 mg/l will result in an ambient concentration of 0.42 mg/l at the edge of the ZID. This is an order of magnitude below the ML of 5 mg/l, which EPA indicates is an appropriate compliance level. Thus, the effluent limitation of 25 mg/l previously implemented by EPA was appropriate and even conservative based on the initial dilution. Because the current discharge consistently meets this limitation, there is no basis to conclude that the effluent will result in any violations of the criterion at the edge of the ZID.

Further, compliance with the MWQS criterion in the receiving waters has been well demonstrated. For the first 12 years of Gloucester’s 301(h) monitoring program, levels of oil and grease were measured in the receiving waters. Samples were taken from surface and bottom waters at four stations around the diffuser and at two control sites. In spite of commercial and recreational boat traffic through the area, positive detects were exceedingly rare.¹⁵ As a result, EPA has not required sampling for oil and grease in the waters around the outfall since 2002.

Moreover, the City is unaware of any permits for Massachusetts POTWs discharging to SA waters for which the O&G limit is set at the level EPA says is required. Below are some examples from the EPA Region 1 website of permits for POTWs discharging to SA waters. None of these even have an O&G limit, much less a 0 mg/l requirement.

- Cohasset Wastewater Treatment Plant (NPDES Permit MA0100285, 7/18/2007): No O&G limit or monitoring requirement.
- Rockport Wastewater Treatment Plant (Draft NPDES Permit MA0100145, public notice date 5/20/2009): No O&G limit or monitoring requirement.
- South Essex Wastewater Treatment Facility (NPDES Permit MA0100501):
 - Permit dated 2/9/2001: O&G monitoring/reporting requirement only.
 - Draft permit (2008): No O&G limit or monitoring requirement. The fact sheet states:

The current permit includes an effluent limit of 15 mg/l for oil and grease. This value meets the narrative “free from oil and grease and petrochemicals” in the SA criteria. Since the current permit became effective on October 10, 2001, the maximum daily value for oil and grease has not exceeded 9 mg/l and has an average maximum daily value of 7.83 mg/l (n=70). EPA has determined that there is no reasonable potential and has removed the requirement from the permit.

- Dartmouth Water Pollution Control Facility (NPDES Permit MA0101605,

¹⁵ In 2000 and 2001 there were no detects for oil and grease in more than 500 samples (Tables 2 and 3).

6/19/2009): No O&G limit or monitoring requirement.

EPA should not arbitrarily impose an oil and grease standard which is not achievable and which has not been applied to other WPCFs discharging to marine SA waters. The existing standard has already been determined to be adequately protective, and thus Gloucester has demonstrated its discharge can and will comply with the water quality standard for oil and grease.

IV.D. The Discharge Can and Will Comply with Water Quality Standards for Total Petroleum Hydrocarbons (TPH)

Similar to the oil and grease analysis, EPA again arbitrarily translates the "free from" water quality standard into a 0 mg/l permit limit with a 5 mg/l compliance limit, regardless of data showing that the effluent does not contribute detectable TPH to the receiving waters. Using data from January 2006 to March 2009, EPA's tentative decision states that "the WPCF's discharge violated the 5 mg/l TPH limit nine times out of the last thirty-nine sampling events." (p. 17). First, EPA's determination that the WPCF's discharge violates the 5 mg/l standard ignores the fact that the limit is consistently met at the boundary of the ZID, which is what is required by Section 301(h). Moreover, EPA ignores more recent data and wrongly fails to recognize the significant improvement in the quality of the discharge since the City's application was submitted in 2006. The WPCF effluent only exceeded the 5 mg/l TPH limit *once* between April 2007 and December 2010 (see TD, p. 18, and WPCF 2009-2010 monthly Discharge Monitoring Reports submitted to EPA). Not coincidentally, the City began to implement a program to separate its combined sewer system soon after the application was submitted. The majority of TPH in the discharge was almost certainly a result of stormwater run-off from streets and parking lots. The Phase I CSO Abatement Project was completed in March 2009. There have been no violations of the TPH limit since then.

The fact that the WPCF effluent is not a significant contributor to TPH in the receiving waters has also been demonstrated in the results of sediment sampling in the vicinity of the outfall reported annually since 1991. Priority pollutants scans for volatile and semi-volatile organics were originally performed on samples from both the water column and sediments. Water column sampling was discontinued in 1991 due to the failure to detect any of these compounds. Sediment sampling has continued for the last 20 years at sites ranging from 30 m to 1500 m from the diffuser. Only a few pyrogenic semi-volatile hydrocarbons have been detected and these at very low levels (parts per billion) typical of background levels for Massachusetts Bay (Table 5). The sampling site nearest the outfall usually has the lowest concentrations of these compounds. There have been no indications of increases in the concentrations of any of these materials in the 20-year time period. The sources are most likely atmospheric deposition, runoff and boat traffic. There is simply no basis to conclude that TPH from the WPCF discharge is having any impact on the marine environment in the vicinity of the outfall.

IV.E. The Discharge Can and Will Comply With Bacteria Water Quality Standards for Primary Contact Recreation

Once again ignoring the provisions of Section 301(h) that mandate the determination of compliance at the ZID boundary, EPA concludes that the discharge from the WPCF will violate primary contact bacteria water quality standards. Compounding the error, EPA faults Gloucester

for not providing data to support compliance with enterococci standards that it acknowledges did not even exist at the time the City's application was submitted.

As an initial matter, the existing Gloucester WPCF is designed to meet and has demonstrated it can consistently meet the applicable fecal coliform effluent limits in the permit. The permit limit exceedances indicated in Table 5 of the tentative denial were all the result of operational issues that have since been corrected or of one-time events unlikely to be repeated. Most of the exceedances of the fecal coliform limit occurred in 2006-2007, during the commissioning of the dechlorination system. The dechlorination system was designed for the dosage to be controlled automatically, flow-paced and altered by a feed back loop from a residual analyzer, but the automatic system was not reliable. Eventually, after numerous attempts and system modifications, the system was set up to run with manual dosage adjustments and exceedances of the fecal coliform limit stopped. The handful of bacteria violations since then have been the result of one-time mechanical problems or operator error, as shown in the table below.

Exceedances of Daily Maximum Permit Limit for Fecal Coliform Bacteria in Effluent Gloucester WPCF 2009-2010		
MONTH	NUMBER OF EXCEEDANCES	REASON FOR EXCEEDANCES
September 2009	1	The failure of hypochlorite pump to deliver adequate chemicals (due to wear) caused inadequate disinfection.
December 2009	2	Both violations appear directly related to mechanical problems caused by sludge accumulations in the clarifiers. Primary sludge piping was blocked by grit preventing sludge removal, causing the clarifier rake arms to torque out and solids washouts. During the preceding 6 or 7 months, it had been impossible to remove grit at the headworks because of the placement of temporary emergency bypass pumps (required by Mass DEP) while one of the influent screw pumps was being replaced due to failure.
April 2010	1	Inadequate chlorination due to operator setting dosage too low, in error.
September 2010	1	Chlorine mixers tripped out during a generator load test. Operators failed to notice and the mixers were not restarted for some 90 minutes, during which time a sample had been collected for bacteria analysis.

In any case, the permit limit exceedances in Table 5 of the TD do not translate into violation of state water quality standards in the receiving waters at the boundary of the ZID. Employing the dilution factors used by EPA, there would be no exceedances of the monthly geo-mean and only six exceedances of the daily maximum concentration of bacteria over the three years of results in Table 5 of the TD, all but one of which occurred during the commissioning of the dechlorination system in 2006-2007. EPA seeks to avoid Section 301(h)'s recognition of the use of a ZID by stating that EPA and Massachusetts traditionally do not allow dischargers to meet bacteria criteria through dilution. However, the TD cites to no Massachusetts regulations or guidance on this point, and the EPA document it cites is a 2008 memorandum that references mixing zones in

"rivers and streams," where presumably access to waters immediately adjacent to an outfall could be more common. The Gloucester discharge is clearly not to a river or stream, so the referenced policy is inapplicable. Finally, EPA bases its conclusion that the discharge does not meet the bacteria water quality standard for primary contact recreation on the "fact" that there are popular scuba diving locations in the vicinity of the outfall. However, EPA itself recognized in its 2001 decision that the area in the vicinity of the discharge has never been identified as a popular scuba diving location, and that the discharge is not impacting recreational activities. There has been no change in recreational uses in the vicinity of the discharge, and EPA's 2001 conclusions remain valid.

Also, with regard to EPA's criticism that Gloucester did not submit any data regarding enterococci levels in the WPCF's discharge, the City's application for permit renewal was submitted on May 26, 2006. The MWQS fecal coliform standard for primary contact recreation was not changed to the enterococci criterion until December 2006. The City had no requirement to sample for enterococci or meet the enterococci criterion prior to the submittal of its application, nor has the WPCF NPDES permit been modified to require enterococci monitoring. Therefore, inclusion of discharge-specific enterococci information in the application was not only impossible but unnecessary at the time of the submittal.

In the absence of actual data, EPA's opinion that the Gloucester WPCF will not meet the enterococci requirements is conjecture, and not based on facility-specific information or analyses of the Gloucester WPCF or its influent or discharge characteristics. Instead, EPA simply recites the existing bacteria data and states that "This result [*based on studies from Southern California*] tends to suggest that the new single sample standard for enterococci in the MSWQS for SA waters is likely to be even more difficult to meet than the old fecal coliform standard" (emphases added). Conjecture and guess-work are not sufficient grounds to deny the 301(h) waiver.¹⁶

IV.F. The Discharge Can and Will Comply With Bacteria Criteria for Shellfishing

On the basis of inapplicable water quality standards, EPA concludes that the discharge will not comply with bacteria criteria for shellfishing. This is not correct.

The TD states that the numeric criterion for bacteria for Class SA waters designated for shellfishing applies to the area to which the WPCF discharges. For such waters, the MWQS state that "fecal coliform shall not exceed a geometric mean Most Probable Number (MPN) of 14 organisms per 100 ml, nor shall more than 10% of the same exceed a MPN of 28 per 100 ml..." EPA states that, according to Gloucester's annual 301(h) monitoring reports, "23 out of 192 samples (approximately 12%) taken at Station 3A, which is located at the edge of the ZID, exceeded 28 organisms per 100 ml." (p. 22) (EPA does not state which years' reports it used to make this calculation.)

EPA's conclusion is unjustifiable for a number of reasons. First, the MWQS for shellfishing do not apply to the area of the WPCF discharge. EPA itself acknowledges that the area of the

¹⁶ Although the City believes that it will meet the new enterococci standard, at a minimum it would be appropriate for EPA to condition the waiver on the implementation by the City of a compliance plan that would include operational and monitoring activities that would be undertaken over the next permit cycle to demonstrate that the WPCF can meet the enterococci criterion.

WPCF discharge is classified as "Prohibited" by the Massachusetts Division of Marine Fisheries (DMF) under the National Shellfish Sanitation Program (Figure 5).¹⁷ The MWQS for Class SA waters designated for shellfishing only apply to "Approved and Conditionally Approved Shellfish Areas." 314 CMR 4.05(4)(a). Thus, an area that is classified not as "Approved" or "Conditionally Approved" by the DMF, but rather as "Prohibited," is not subject to the MWQS for shellfishing.

Further, even if the shellfishing bacteria standard did apply in the vicinity of the outfall, EPA has again ignored the time trends in the data. Results for 2009 monitoring (Table 6) show that at each station in the vicinity of the outfall (including at the boundary of the ZID; see Figure 1), the geometric mean of all samples did not exceed 14/100 ml, nor did more than 10% of samples exceed 28/100 ml.

Finally, even if the area were opened to shellfishing (which, as discussed above, will not be the case as long as *any* WPCF discharge, primary or secondary, is present), there is no potential for shellfishing in the area of the outfall. There are only two species found in the area of the discharge that could be considered potential resource species. These are the soft-shell clam, *Mya arenaria*, and the ocean quahog, *Arctica islandica*. Both of these species are typically found in "beds" where high densities make it feasible to collect enough individuals to make the effort worthwhile. *Mya arenaria* beds are found in intertidal areas and ocean quahog beds in sandier sediments offshore. Small numbers of juveniles of both these species have been reported in benthic grab samples in the monitoring program, but fewer than 10 adult individuals of *Arctica islandica* and no adult specimens of *Mya arenaria* were collected in more than 1000 benthic grab samples taken over 20 years. Further, there is not presently a commercial or recreational market for *Arctica islandica* in Massachusetts.¹⁸

As demonstrated above, the discharge from the WPCF meets all water quality criteria, and therefore the 301(h) waiver should be granted.

V. THE DISCHARGE WILL ALLOW MAINTENANCE OF A BALANCED INDIGENOUS POPULATION OF SHELLFISH, FISH AND WILDLIFE AS WELL AS RECREATIONAL ACTIVITIES IN AND ON THE WATER

Despite acknowledging that actual biological monitoring in the vicinity of the outfall has revealed no adverse impacts on shellfish, fish and wildlife, EPA improperly relies on end-of-the-pipe WET test results to conclude that the 301(h) waiver should be denied. Also, with regard to recreational impacts, EPA relies on the same incorrect bacteria impact analysis discredited in Section IV, above. These conclusions are arbitrary and capricious and incorrect as a matter of law.

¹⁷ The outfall is considered a point source under the National Shellfish Sanitation Program, regardless of whether pollution from the point source is actual or potential and whether the POTW uses secondary treatment, and as such there must be a prohibited buffer around that outfall for the harvesting of shellfish. Thus, denying the 301(h) waiver and imposing a secondary treatment requirement is not going to result in the area of the discharge being opened to shellfishing.

¹⁸ Based on discussions with the Gloucester Shellfish Constable.

V.A. EPA Incorrectly Ignores Biological Data Demonstrating a Balanced Indigenous Population and Instead Relies on Unreliable WET Testing

Pursuant to 301(h), Gloucester's discharge "must allow for the attainment or maintenance of water quality which assures protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife" beyond the ZID boundary. 40 CFR 125.62(c)(1-2). EPA's *Amended Section 301(h) Technical Support Document* prescribes the use of a biological assessment (not laboratory toxicity testing) to address this criterion (see pp. 78-92). Despite its own conclusion that biological monitoring data show no adverse effects from the Gloucester WPCF outfall, EPA relies solely on laboratory toxicity testing to conclude that "the applicant has failed to demonstrate that a modified discharge would not interfere with the attainment or maintenance of that water quality which assures protection and propagation of a balanced indigenous population." This conclusion does not comport with the approach laid out in the *Amended 301(h) Technical Support Document*.¹⁹

V.A.1. Biological Monitoring Demonstrates the Presence of a Balanced Indigenous Population

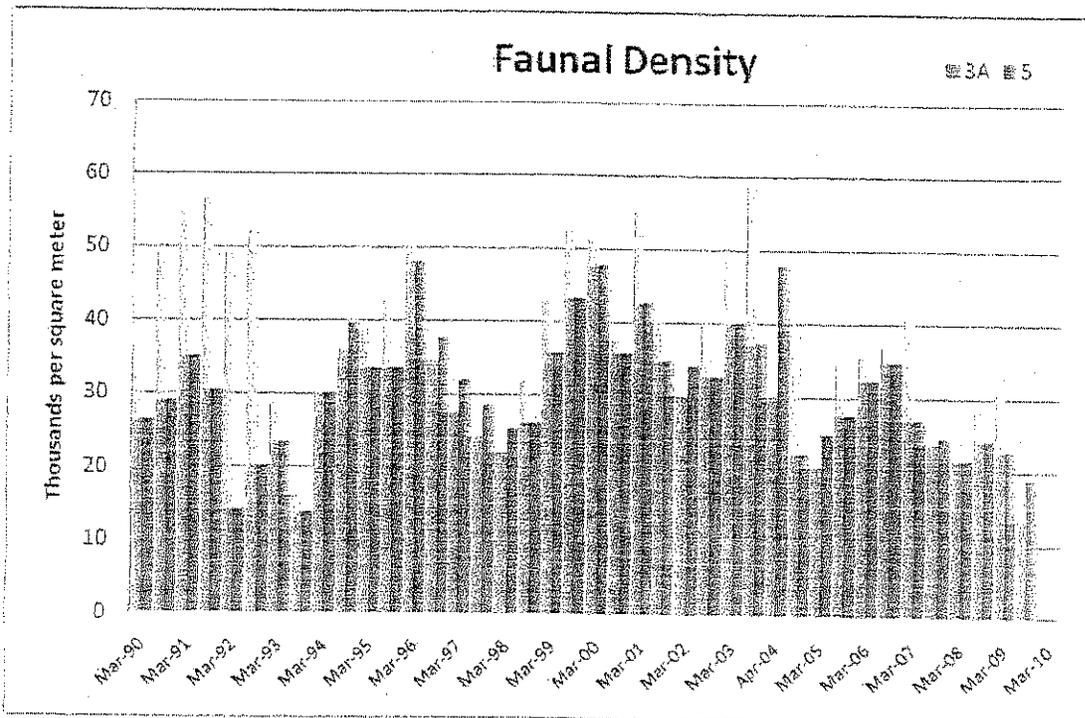
The City has spent in excess of \$3 million over the last 20 years conducting an extensive EPA-approved monitoring program designed in accordance with the *Amended 301(h) Technical Support Document* to identify any possible effects of the effluent on the receiving waters. The city believes that EPA has erred in ignoring this powerful data set which clearly demonstrates no impacts from the Gloucester effluent and instead, inconsistently with its own 301(h) guidance, basing its decision on a laboratory test which produces highly variable results of questionable relevance.

The key focus of the monitoring program is the benthic community. These small organisms living in the sediments on the sea floor do not move significant distances and are subject to any organic and contaminant loadings that reach the sediments. There is a very well established base of ecological theory developed over the last 40 years and supported by thousands of peer-reviewed scientific papers that identifies benthic community changes induced by organic loading or contaminant stress. See, e.g., Pearson and Rosenberg (1978); Rhoads and Germano (1982). Pearson and Rosenberg described the differences in community structure (number of species, faunal densities, and species composition) along a gradient from a highly contaminated point source to an uncontaminated area. Changes in the benthic fauna caused by organic loading and contaminants range from very subtle differences in species composition to major reduction in species richness and densities (Figure 6). Gloucester's monitoring program has provided a wealth of data that the City has used to evaluate whether the outfall has led to any changes in the benthic community.

One parameter is species density. In the monitoring program, the five replicate benthic grab samples at each site collect show densities of from 20,000 to more than 50,000 organisms per square meter. Densities are highly variable and are affected by the time of sampling with respect

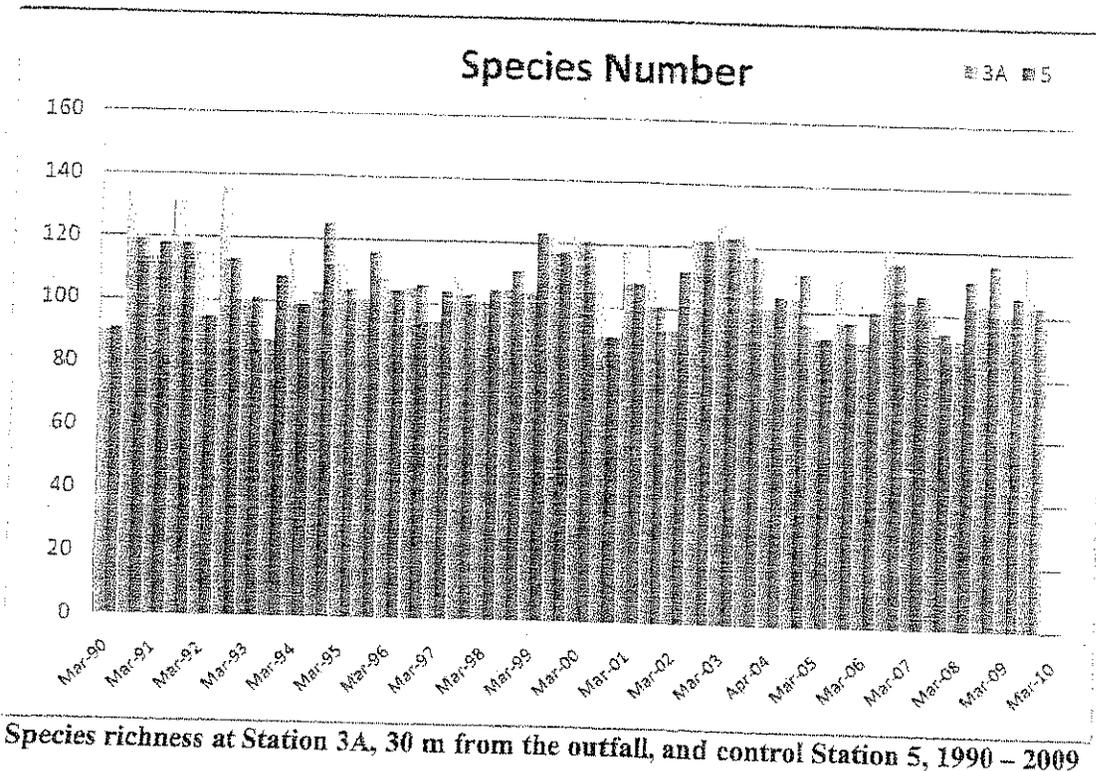
¹⁹ The waiver denial quotes a different guidance document, the *Technical Support Document for Water Quality-based Toxics Control*, for the premise that toxicity testing results can trump field-based biological monitoring. However, that guidance is not appropriate for the 301(h) evaluation because it is intended to be used for the purpose of establishing end-of-pipe water quality based effluent limits.

to breeding cycles. A recent settlement of juveniles out of the water column produces much higher densities. While the numbers vary widely, there has been no trend of decreasing density at Station 3A, 30 m from the outfall, when compared with a control site, Station 5. Annual variations in faunal density at Station 3A parallel that at Station 5, located more than 500 m distant (see figure below).



Faunal density at Station 3A, 30 m from the outfall, and control Station 5, 1990 - 2009

A more conservative index is species richness, the total number of species found in 5 replicate grabs. This has ranged from about 85 to 130 species in each sampling for the period from 1990 to 2009. There has been no trend of either an increase or decrease in species richness at either the outfall site, Station 3A or the control site, Station 5 (see figure below).



Species richness at Station 3A, 30 m from the outfall, and control Station 5, 1990 – 2009

An even more sensitive parameter is species composition. The slightest environmental stress, be it natural or due to some anthropogenic source, will cause changes in species composition which can be dramatic or very subtle. There have been no such changes in the fauna near the outfall. There has always been a very high level of similarity between the fauna at Station 3A, near the outfall and the other sampling sites (Figure 7). Multivariate classification is an analysis based on all the species present in individual samples. A similarity coefficient is calculated between all possible pairs of samples and a clustering strategy is used to group samples based on the resulting similarity indices. In a very uniform environment, Bray/Curtis similarity between replicate samples taken at the same site will be on the order of 70 – 80%. In Figure 7 it is clear that there is a very high degree of similarity between all sampling sites around the Gloucester outfall after 20 years.

Finally, an inspection of the dominant species at Stations 3A, located 30 m from the diffuser, shows that there has been no change in community structure over a very long time period. In March 1993, 18 months after discharge started at the new outfall, a small polychaete worm, *Prionospio steenstrupi*, was the most abundant organism followed by a small bivalve, *Nucula delphinodonta* (Table 7). The same two species were dominant organisms at the outfall station 16 years later. Most of the sub-dominant species were small polychaetes all of which were found in both samplings at the site. *Prionospio* has been the most common species in all samplings at stations near the outfall except in 1992 when a physical disturbance that affected the whole area allowed more opportunistic polychaetes of the genus *Polydora* to dominate the fauna for a short period of time. *Prionospio* was still present but not as the dominant species (ADM, 1994). The benthic community recovered by the end of the year and has shown

remarkable stability and persistence over the 20-year period, clearly not affected by the presence of the Gloucester outfall.

The 20 year biological monitoring program conducted by Gloucester has consistently demonstrated that the discharge from the WPCF allows for a balanced indigenous population of shellfish, fish and wildlife.

V.A.2. WET Toxicity Testing is Not an Appropriate Tool for Evaluating Impacts from the WPCF's Discharge

Consistent with the 301(h) guidance, there are many reasons that a biological assessment is most appropriate for evaluating the impacts of Gloucester's discharge and WET testing should not be used. First, a toxicity test is nothing more than a screening tool which tells little or nothing about what actually happens in the environment. The WET testing of Gloucester's effluent does not replicate ambient conditions at the outfall, for a number of reasons, as discussed in Section IV.B. Second, toxicity test results can be quite variable from laboratory to laboratory. Quality assurance testing done annually by regulatory agencies has demonstrated wide variability in results on the same toxicant among various laboratories. Similarly, in a "split-sample" test done during the TIE study on the Gloucester effluent, the effluent passed the test at one laboratory but failed at the other (Brown and Caldwell, 2007). WET testing is unreliable and should not be considered to the exclusion of the 20 years of biological monitoring data demonstrating a balanced indigenous population. Finally, EPA's regulations specify that "[a] balanced indigenous population of shellfish, fish, and wildlife must exist...*beyond the zone of initial dilution.*" 40 CFR § 125.62(c)(2) (emphasis added). Beyond the zone of initial dilution, the effluent is diluted by at least a 59:1 ratio. Thus, WET testing of 6.25% - 100% effluent (1:1 - 16:1 dilutions) provides no information on conditions at and beyond the zone of initial dilution.

V.B. Recreational Activities

In its tentative decision, EPA claims that "the WPCF is very likely currently causing violations of the single sample, primary contact water quality criterion for Class SA waters under the MSWQS," and thus "reflects a threat to the health of persons engaged in water-contact recreation in these waters" (p. 24). As discussed in Section IV.E, above, EPA's claim that the WPCF is "very likely" violating bacteria water quality criteria is unfounded. Further, it is highly unlikely that anyone is engaged in water-contact recreation in the immediate vicinity of the outfall. In its July 2001 Final Decision Document (V.C.4), EPA concluded that the location of the relocated outfall "...has never been identified as a popular scuba diving location." In fact, the closest potential area to the outfall for diving or other recreational activities is the shipwreck Chester C Poling. It is located more than a third of a mile from the outfall. For these and other reasons, EPA determined in 2001 that the "...primary discharge at the relocated outfall site is not impacting recreational activities." Recreational use of the area near the outfall has not changed since 2001, and EPA's conclusion that the discharge is not impacting recreational activities remains valid.

VI. THE DISCHARGE WILL COMPLY WITH PROVISIONS OF OTHER STATE, LOCAL AND FEDERAL LAWS

VI.A. Ocean Sanctuaries Act

The waiver denial states (pp. 28-29) that the WPCF is covered by the "grandfathering" provisions of the Massachusetts Ocean Sanctuaries Act, M.G.L. c. 132A §§ 12A-18, which would require a variance for any flow increase.

This statement is incorrect. Gloucester's WPCF is not subject to the requirements of the Massachusetts Ocean Sanctuaries Act. A Special Act of the General Court made a specific exception for the Gloucester facility (see Attachment A):

Notwithstanding the provisions of sections fourteen, fifteen, sixteen and eighteen of chapter one hundred and thirty-two A of the General Laws, the city of Gloucester may build and discharge from a primary wastewater treatment facility with an extended outfall as described in the application submitted to the administrator of the Environmental Protection Agency of the United States for a waiver of the secondary wastewater treatment requirement as provided by 33 USC 1343.

Chapter 120 of the Acts of 1981 (May 1, 1981).

The application Gloucester had submitted to the Environmental Protection Agency described a facility with design average flow of 7.24 MGD and design maximum flow of 15 MGD (see Attachment A); the facility was constructed as designed, and Gloucester is not proposing to significantly increase flow at all, much less beyond the design flow of the plant as contemplated in Chapter 120 of the Acts of 1981. Thus, the discharge from the Gloucester WPCF is exempt from the requirements of the Massachusetts Ocean Sanctuaries Act.

VI. B. Compliance with Other State and Federal Laws

The relevant state and federal agencies concurred with EPA's 2001 waiver decision, and there are no changed circumstances that would warrant disapproval of this waiver renewal now. Moreover EPA has not stated any reason to believe that renewal of Gloucester's 301(h) waiver would fail to comply with other state or federal laws, and does not appear to have even contacted any of the relevant state or federal agencies to seek their opinions.

VII. COMMENTS ON DRAFT NPDES PERMIT REQUIRING SECONDARY TREATMENT

At the same time it issued its draft denial of the 301(h) waiver, EPA also released a draft NPDES permit for the Gloucester WPCF incorporating secondary treatment requirements. As stated to EPA in a letter dated January 5, 2011, the City believes that drafting of the NPDES permit should take place after EPA has issued its final decision on the 301(h) waiver. Nonetheless, the City is preparing comments on the draft permit, which it will submit before the close of the public comment period, which has been extended until the date of the public hearing in this

matter, currently scheduled for March 24, 2010.

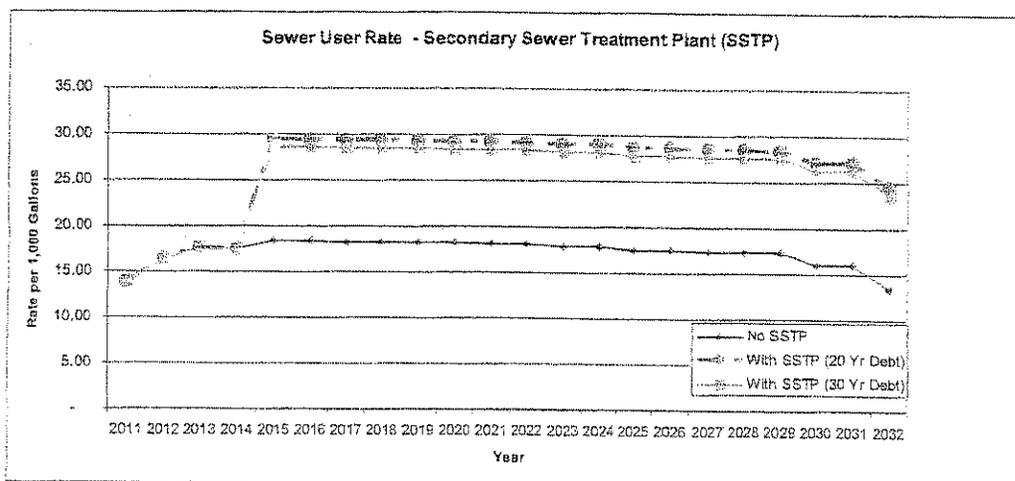
VIII. SOUND PUBLIC POLICY FAVORS THE ISSUANCE OF A 301(h) WAIVER FOR THE WPCF

VIII.A. The Financial Impacts to the City of a Secondary Treatment Plant Would Be Enormous

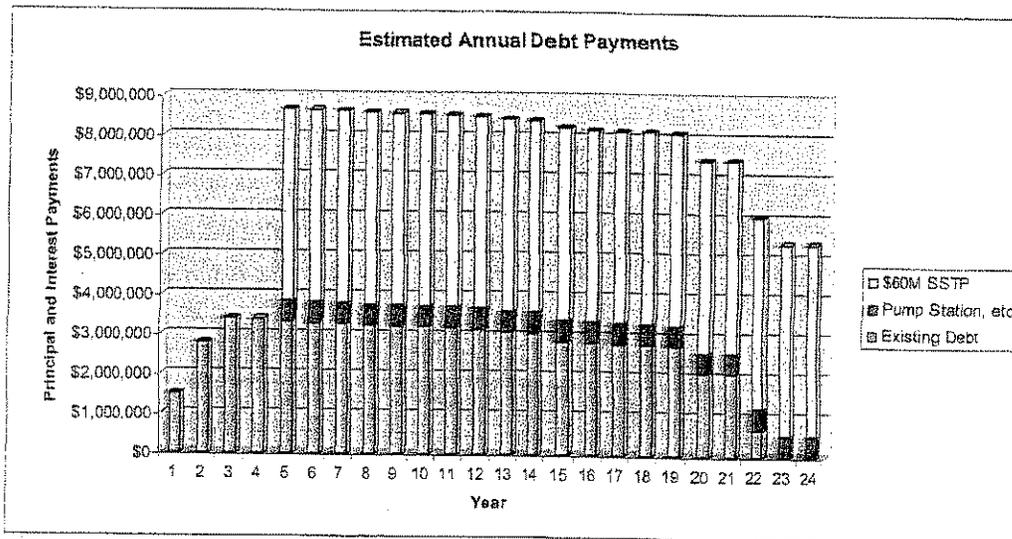
The City has completed a preliminary evaluation of the impacts of this proposed waiver denial on the financial situation of the City and affordability to ratepayers (Attachment B). The analysis is based on preliminary estimates of the capital and operating costs of a new secondary wastewater treatment plant to replace the existing advanced primary plant. Preliminary estimates indicate that a new secondary facility would cost approximately \$60,000,000, not including land and other ancillary costs. Annual operation and maintenance costs would be approximately \$1,000,000 per year above the existing operating costs.

The following would be the consequences of EPA's proposed action:

1. Without the Construction Grants program, which EPA instituted in 1972 to pay 75% of the cost of secondary treatment plant for communities that did not receive a 301(h) waiver, the full cost of the new facility would fall on the ratepayers of Gloucester. There are currently no federal grants available for secondary treatment plant construction, as there were for all of the secondary plants built between 1972 and 1990.
2. Including the increased operations and maintenance costs with capital costs, annual charges for the average Gloucester household would increase from \$1,251 per year presently to approximately \$2,570 per year (see figure below). By comparison, the average 2009 rate per household in Massachusetts was \$584 per year. The highest rate in Massachusetts in 2009 was \$1,632.²⁰



3. This annual charge would be about 5.4% of the Median Household Income in the City, *almost three times the percentage that EPA considers a "very high" burden on residential customers in its guidance on affordability of sewer infrastructure improvements.*
4. The total sewer enterprise debt of the City would more than double, which could have a significant impact on the City's bond rating (see figure below).



5. Because of the current high employment and foreclosure rates and the high number of citizens on fixed incomes, such an increase in user charges would likely result in payment defaults and decrease user charge collection percentages.
6. The large increase in rates could cause Gloucester to lose businesses to other towns or areas of the country, exacerbating the unemployment rate and increasing residential user rates (above those estimated above) as operating and debt service costs are reallocated from the commercial – industrial base to the residential base.
7. The ability of the City to operate, maintain, repair and replace aged sewerage infrastructure, as well as comply with existing commitments to CSO control in addition to new EPA regulations on stormwater, would be seriously limited. The risk and danger of the failure of critical existing equipment and systems would increase, adding additional burden to municipal budgets.

In the current and probable future economic climate, the mere perception of dramatically increased future costs of public utilities, especially water and wastewater services such as those

that would be required in this case, could be expected to have serious and immediate repercussions in the business and real estate sectors of the City. The very large increases in user rates resulting from EPA's proposed decision might be justified by clear, beneficial environmental improvements that would increase property values, quality of life, or other social or economic conditions in a community. In this case, the threat of quantum increases in the cost of wastewater service, combined with no measurable environmental improvement, only poses a long-term economic threat to the City of Gloucester, with no associated benefits. In summary, EPA's tentative decision creates a very critical and serious economic threat to the City.

VIII.B. Congress Recognized the Financial Burden of Upgrading to Secondary Treatment and Enacted Section 301(h) to Alleviate the Burden

On passage of the Clean Water Act in 1972, Congress recognized the very heavy financial burden of secondary treatment being mandated on publicly owned treatment plants. In light of this burden, Congress enacted two interrelated provisions that allowed cities to meet the enormous capital and operating requirements:

1. The 301(h) waiver provisions; and
2. The Construction Grants Program that provided 75% grants to communities for upgrade to secondary treatment.

VIII.B.1. Waiver Intent

Congressional intent in creating the § 301(h) waiver provision was to establish an alternative to costly secondary treatment for municipalities that are located near coastal waters with adequate assimilative capacity when there would be no significant impact on the marine environment.²¹ The legislative history contains numerous references to Congress' concern about the enormous costs associated with secondary treatment especially in contrast with the small marginal benefits when the outfall was in an active, deep-water marine environment.²² A key congressional report stated it clearly:

There have been continuing increases in [the cost to construct secondary treatment]. In view of these factors, and in order to achieve needed savings in the cost of treatment of municipal wastes, the Committee considers it desirable to make the operation of ocean discharges available where it can be shown that unacceptable adverse environmental effects will not result.²³

²¹ See H.R. REP. 97-270, at 17 (1981), reprinted in, 1981 U.S.C.C.A.N. 2629, 2645.

²² See H.R. REP. NO. 97-270, at 17 (1981), reprinted in 1981 U.S.C.C.A.N. 2629, 2645 ("In view of these factors, and in order to achieve needed savings in the cost of treatment of municipal wastes, the Committee considers it desirable to make the operation of ocean discharges available where it can be shown that unacceptable adverse environmental effects will not result.") (emphasis added); see 95 Cong. Rec. S19,679 (1977) (daily ed. Dec. 7, 1977); see also *Rite-Research, Etc. v. Costle*, 650 F.2d 1312, 1318 (5th Cir. 1981) ("There are a number of communities that have been and will be subjected to administrative burdens way beyond their financial and administrative capacity because of the need to comply with the secondary treatment requirement ... [T]he Congress has announced its intention to put some sense into the treatment of municipal wastes"); see S. REP. NO. 95-370, at 44 (1977), reprinted in 1977 U.S.C.C.A.N. 4326, 4369 ("This provision's goal is to limit unnecessary treatment for treatment's sake").

²³ See H.R. REP. NO. 97-270, at 17 (1981), reprinted in 1981 U.S.C.C.A.N. 2629, 2645 (emphasis added).

Federal courts have also emphasized the importance Congress placed on the avoidance of the unnecessary cost of constructing secondary treatment facilities by municipalities that can discharge to an active ocean environment. For example, the United States Court of Appeals for the District of Columbia Circuit said that § 301(h) was designed to “allow some savings in sewage treatment through harmless marine discharges.”²⁴ Furthermore, the Court found “[t]he purpose of § 301(h) is to permit some coastal municipal sewage treatment plants to avoid costs associated with secondary treatment so long as environmental standards can be maintained. If a treatment plant can discharge a pollutant and meet the criteria of § 301(h), unnecessary expenditures may be avoided.”²⁵

EPA rightfully granted Gloucester a 301(h) waiver in 1985, consistent with the intent of Congress and consistent with the provision that a 301(h) waiver was appropriate “where it can be shown that unacceptable adverse environmental effects will not result.” As shown in this document, and in light of the total absence of any evidence from EPA to the contrary, 20 years of monitoring and testing at the site of the discharge has shown that there are no adverse environmental impacts and that EPA’s decision to grant the waiver was justified and in accordance with the intent of the law.

VIII.B.2. Construction Grants Provision

Most municipal secondary wastewater plants built under the Clean Water Act received 75% grants to pay for the construction of the facilities. The \$5 billion per year authorized through the first 12 years of the Act recognized that cities could not handle the financial burden without government financial support. Where appropriate, POTWs were granted 301(h) waivers to avoid unnecessary government spending in situations with no contingent environmental benefits.

With the elimination of the Construction Grants program over 20 years ago, for EPA to reverse an appropriate 301(h) waiver decision that has stood for 25 years, including a renewal confirming that there were no impacts of the discharge, without any reasonable basis is not only unwarranted, but places Gloucester in an extremely untenable financial position. Such a decision would result in a gross waste of public moneys with no measurable environmental benefit and is a clear violation of the intent of the Clean Water Act and public policy.

VIII.C. Sustainability Principles Favor Granting the 301(h) Waiver

There is an emerging focus on the benefits of integrating principles of sustainability into environmental solutions and decisions. Sustainability can be defined as “*Meeting the needs of the present generation without compromising the ability of future generations to meet their needs.*”²⁶ The following assessment analyzes the environmental, social and economic benefits, of secondary treatment as compared to advanced primary treatment at the Gloucester WPCF.

²⁴ *Natural Resources Defense Council, Inc. v. U.S. Environmental Protection Agency*, 656 F.2d 768, 780 (D.C. Cir. 1981) (citation omitted).

²⁵ *Id.* at 784 (emphasis added).

²⁶ United Nations General Assembly (March 20, 1987). *Report of the World Commission on Environment and Development: Our Common Future*; Transmitted to the General Assembly as an Annex to document A/42/427 - Development and International Co-operation: Environment; Our Common Future, Chapter 2: Towards Sustainable Development; Paragraph 1. United Nations General Assembly. <http://www.un-documents.net/ocf-02.htm>. Retrieved 1 March 2010.

The clear conclusion of this assessment is that EPA's decision to deny the waiver would violate the principles of sustainability, burdening the citizens of Gloucester for this and at least the next generation with severe economic and social consequences that would compromise their ability to operate, maintain, repair and replace their existing water and wastewater infrastructure, as well as provide for public safety, education and other basic services with no measurable environmental improvement in water quality or beneficial water uses. On this basis, the EPA decision violates the often-stated priorities of both the Federal Government and Commonwealth of Massachusetts that environmental decisions should produce sustainable environmental quality results commensurate with the commitment of resources.

VIII.C.1. Sustainability Metrics

The Gloucester WPCF currently uses polymer addition to enhance settling, which provides for advanced primary treatment; this is considered as the baseline alternative. The sustainability metrics evaluation of this alternative is based on plant processes, operation, and performance. For comparative purposes, it was assumed that a secondary treatment plant would be built and that the existing primary treatment facilities would remain.²⁷ The main differences between these two alternatives, then, are that secondary treatment would require several (as many as six) additional processes, but would eliminate the need to add polymer at the primary clarifiers.

The following goals were selected to compare the sustainability of the change from advanced primary treatment to secondary treatment, as measured by the environmental and social impact that would result from that change:

- **Biosolids.** Minimize the generation of wastewater residuals. The potential impact of increased residuals generation on regional residuals processing, demand and disposal capacity is a significant factor.²⁸
- **Greenhouse Gas Emissions.** Minimize greenhouse gas (GHG) pollution from electricity and fuel consumption (and related transportation) during construction and operation.
- **Other Air Pollutants.** Minimize other air pollution other than GHG emissions, primarily criteria pollutants from electricity and fuel consumption (and related transportation) during construction and operation.
- **Water Quality.** Minimize water quality impacts from the effluent discharge.
- **Land Resources.** Conserve land resources for beneficial uses by future generations.
- **Economic Impacts.** Maximize the benefit/cost ratio of environmental decisions to ensure the most environmental benefit for limited public moneys in an increasingly difficult municipal financial setting.
- **Social Impacts.** Ensure that environmental decisions provide maximize sustainability of local employment, promote environmental justice and minimize negative secondary and tertiary impacts (higher commuting distances, housing prices, etc.).

²⁷ This is probably not the case. The existing WPCF is on a site with serious expansion limitations. The land requirements for secondary treatment would most probably require relocating the existing WPCF to a new site of 10 acres or more. Given the land availability in Gloucester this would be extremely difficult and expensive.

²⁸ There is a general need to greatly reduce the volume of all forms of solid waste, including wastewater residuals, to extend the useful life of available landfills, and not create unnecessary additional waste. Although the Gloucester WPCF currently sends its processed residuals to New England Fertilizer for beneficial reuse, there is no certainty that this market will continue. In addition, all disposal options have their own environmental consequences and sustainability problems.

VIII.C.2. Sustainability of Denial of 301(h) Waiver for Gloucester WPCF

The following table demonstrates that EPA's decision to require a secondary WPCF violates the above sustainability metrics.

Sustainability Issues Related to the EPA's Waiver Denial Decision

Sustainability Metric	Sustainability Outcome	Magnitude of Change
GHG Emissions	Reduced	There would be an increase of CO ₂ (e) (carbon dioxide equivalent; a combination of CO ₂ , CH ₄ and N ₂ O) emissions during construction; and an increase of CO ₂ (e) annual emissions during operation.
Air Pollutant Emissions	Reduced	There would be an increase of CO, NO _x , particulate matter (PM10 and PM2.5), and SO ₂ during construction. Additional power consumption required for operating a secondary treatment facility would increase NO _x and SO ₂ emissions.
Biosolids Impact on Landfill Capacity	Reduced	Biosolids quantities would increase by more than two-fold, with associated solids disposal issues. (It is well-established that secondary treatment generates significantly more sewage sludge for disposal compared to the amount produced by primary treatment. In fact, a Federal court noted this as one of the main reasons it rejected secondary treatment for San Diego, California, in <i>United States v. City of San Diego</i> , 1994 WL 521216. *5-6 (S.D. Cal. 1994).
Land resources	Substantially Reduced	Additional requirement for 10 to 12 acres for a new wastewater plant would severely strain very limited land resources in the City
Economic impacts	Substantially Reduced	Burden to the ratepayers in Gloucester of between \$50 M and \$70M in new debt, as well as substantially higher operating costs, which, along with other regulatory requirements (CSO, stormwater, CMOM, etc.), will seriously inhibit the ability of the town to operate, maintain, repair and replace its existing water and wastewater infrastructure and create a debt burden that severely compromises the financial capacity of the town to provide other basic municipal services.
Social impacts	Substantially Reduced	Increased wastewater user rates would seriously impact local business survival, especially in the food processing industry, resulting in further relocations out of the City, consequent reduction in jobs, reduction in City revenues, further reallocation of the costs of services to residential customers, resulting in extreme unaffordability and associated negative impacts to the already stressed housing market and the provision of public services such as education and public safety. (See Financial Assessment and Affordability section)
Water Quality Benefits	No change	There would be no measurable improvement in water quality, no increase in human use benefits and no measurable reduction in risk to either human or aquatic water uses. There would be a reduction of effluent BOD and TSS loads; however, these are not pollutants of concern and the existing plant meets permit and water quality requirements for the parameters.
Noise/Odor/Traffic Impacts to the Community	Reduced	There would be a relatively large increase in noise/odor/traffic impacts during construction. These impacts would be reduced, but still incrementally present, during operation due to increased solids management and disposal needs.

The following impacts are not included in the above analysis, but are still very real and not avoidable if the WPCF were to be converted from advanced primary treatment to secondary treatment.

- Fuel consumption associated with shipping the materials to the point of distribution and fuels used by the vehicle and machinery of manufacturing facilities
- Harvesting of raw material for manufacturing
- Travel of construction and operations personnel to and from the site

Thus, the resource needs and associated impacts for converting from advanced primary treatment to secondary treatment are understated in this analysis.

In conclusion, EPA's tentative decision to deny the 301(h) waiver for the Gloucester WPCF, which has been in place for over 25 years, is directly in conflict with critical sustainability principles as outlined above. The EPA decision seriously violates the goal of both the federal government and the Commonwealth of Massachusetts that environmental decisions produce sustainable environmental quality results commensurate with the commitment of resources. The 301(h) waiver should be granted.

IX. CONCLUSION

The City's comments have demonstrated the following points:

1. EPA's assertion that the WPCF discharge will not meet water quality standards as required by Section 301(h) is incorrect. In fact, the Gloucester discharge satisfies MWQS criteria at and beyond the boundary of the ZID, and the permit limit exceedances noted by EPA were either corrected by upgrades to the WPCF or are due to minor operational problems common in virtually every wastewater treatment plant, regardless of the level of treatment provided. Based on a sustainability analysis, the current discharge is preferable to secondary treatment and has less impact on environmental resources.
2. EPA has cited no actual impacts to human, aquatic or other environmental uses of the waters in the area of the discharge. Twenty years of data from the discharge location confirm that there is, in fact, no measurable impact due to the discharge.
3. The tentative denial is founded on mis-application and mis-interpretation of fundamental principles of water quality impairment, dilution and dispersion in the marine environment and risk to human and aquatic uses. It is based on technicalities of policies and regulations that point to minor operational issues that have already been or are being corrected, to justify enormous capital expenditure that will provide no improvement to water quality or beneficial uses, thus subverting the express intent of the 301(h) provision in the law.
4. The enormous additional capital and operating cost of secondary treatment will dramatically and negatively impact the ability of the City of Gloucester to sustain its critical infrastructure and its basic social, economic and environmental quality of life, including its ability to provide basic public services such as public safety and infrastructure.

The capital expenditure of \$60 million for a secondary treatment facility is not the answer to historical problems that have been fundamentally operational in nature and have, in fact, been

corrected. The expenditure and resulting annual debt resulting from construction of an unnecessary secondary WPCF would severely threaten the ability of the City to commit adequate O&M budgets necessary to ensure proper operation, maintenance and performance of the facility. The City is committed to providing sufficient operating budget into the future to ensure proper maintenance and operation of the existing facility, which will enable it to continue to meet all of the criteria of Section 301(h).

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CITY OF GLOUCESTER
OFFICE OF THE MAYOR

MEMORANDUM

TO: City Council
FR: Mayor Kirk
RE: Free Cash Appropriations
DT: February 16, 2011

Councillors:

Consistent with the plan put forward on November 22, 2010 (copy attached), please find enclosed the following free cash appropriation requests from Chief Financial Officer Jeff Towne:

1. \$750,000 to the Stabilization Fund. We are delighted to be able to propose this amount to the Stabilization Fund. This action is a strong indicator that the City of Gloucester is headed out of its fiscal distress. The appropriation of this amount to the Stabilization Fund will enhance the City's bond rating and strengthens the overall financial standing of the City.
This is the most meaningful contribution to the City's Stabilization Fund in 10 years.
2. \$150,000 reimbursement to Snow & Ice. This is the amount taken to pay for unanticipated school repairs earlier this fiscal year.
3. \$50,000 as promised to the School Department for parity in settling union contracts.
4. \$51,396 to the Police Department budget to fund the FY11 portion of the contract settlement.
5. \$25,293 to Reserve for City Council Appropriation. I would request that the City Council consider using these funds as payment towards mediation services for the Fort master plan.

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CITY OF GLOUCESTER
OFFICE OF THE CHIEF FINANCE OFFICER

Memorandum

To: Mayor Kirk
From: Jeffrey C. Towne, CFO
Date: February 16, 2011
Re: Appropriations from free cash

As you outlined to the City Council on November 22, 2010, the Department of Revenue certified \$1,992,293 for free cash in the City's general fund. I recommend that you submit to the City Council for referral to Budget and Finance for their recommendation of the following appropriations from free cash:

1. \$750,000 to the City's "Stabilization Fund # 294004". This additional appropriation to the Stabilization Fund will bring that funds total to just under \$2,300,000. This is a very favorable step in the City's plan to maintain a positive and healthy combination of unreserved fund balance and stabilization fund balance. The City's plan it to have a combined balance of approximately \$4.5 Million within the next 4 years.
2. \$150,000 to snow and ice budget of the City, Department 423 which will restore the funds used earlier in the fiscal year for repair work performed on various school buildings. This will restore the total snow and ice budget back to \$600,000 as originally budgeted for in FY11.
3. \$50,000 to the school department budget of the City which will be used by the school department for personnel related expenses.
4. \$51,396 to the police department budget which will be used for FY11 personnel related expenses resulting from contract settlement.
5. \$10,000 to establish an O.P.E.B. stabilization fund for the purpose of funding "other post employment benefits" for retired city employees.
6. \$25,293 to reserve for council appropriation in the City's general fund for a purpose to be determined by the City Council.

Page 2

The combination of what was previously appropriated from free cash (\$308,519) and these appropriations (\$1,036,689) totals \$1,345,208. The remaining amount of free cash will remain in the general fund.

Please request of the City Council that they refer this matter to Budget and Finance for recommendation.

GLOUCESTER POLICE DEPARTMENT			
PATROLMAN CONTRACT APPROPRIATION REQUEST			
ITEM		1.50% FY11 INCREASE	
PATROLMAN BASE SALARIES		\$ 33,022.54	
PATROLMAN OVERTIME		\$ 6,409.76	
JULY 4TH HOLIDAY TIME 1/2		\$ 4,837.78	
HOLIDAY PAY INCREASE		\$ 2,108.91	
NIGHT DIFFERENTIAL		\$ 2,518.84	
PATROLMAN CAREER INCENTIVE		\$ 2,497.69	
TOTAL		\$ 51,395.52	
FY11 TRANSFER REQUIRED (COUNCIL APPROVAL)			\$ 51,395.52
ACCOUNT	DESCRIPTION		
101000.10.211.51100.0000.00.000.00.051	Police-Uniform, Sal/Wage-Perm Pos	\$ 30,046.56	
101000.10.212.51100.0000.00.000.00.051	Police-Investigation, Sal/Wage-Perm Pos	\$ 2,975.98	
101000.10.211.51320.0000.00.000.00.051	Police-Uniform, Overtime E911	\$ 8,907.45	
101000.10.211.51430.0000.00.000.00.051	Police-Uniform, Night Differential	\$ 2,518.84	
101000.10.211.51450.0000.00.000.00.051	Police-Uniform, Holiday Pay	\$ 6,020.46	
101000.10.212.51450.0000.00.000.00.051	Police-Investigation, Holiday Pay	\$ 926.21	
101000.10.900.51100.0000.00.000.00.051	Special Reserve For Appropriation	\$ (51,395.52)	

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CITY OF GLOUCESTER
OFFICE OF THE MAYOR

TO: City Council
FROM: Carolyn A. Kirk, Mayor 
DATE: November 22, 2010
RE: Addendum for the Mayor's Report for the November 23, 2010
City Council Meeting

CITY CLERK
GLOUCESTER, MA
10 NOV 22 PM 12:16

Enclosure 1 is a memorandum for your information regarding the City's FY10 free cash position.

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CITY OF GLOUCESTER
OFFICE OF THE MAYOR

MEMORANDUM

TO: City Council
FR: Mayor Kirk
RE: FY10 Certified Free Cash
DT: November 22, 2010

Councilors,

Please join me in celebrating a significant turning point in the fiscal health of the city of Gloucester. This milestone is significant in a number of ways:

1. Nine years ago was the last time there was positive free cash certified for Gloucester which was in 2001.
2. When my Administration took office in 2008, free cash was at an all time record low of negative \$3,818,442. It took three years of focused effort to turn this around. Not only did we have to recover the ground that was lost and causing the negative balances, we had to produce positive balances in the fiscal year for which the free cash is being certified (FY10).
3. The turnaround was made more difficult because of the local, state and national recession and the corresponding multi-million dollar loss of local and state revenues.
4. Positive free cash is a sign of fiscal health and discipline. For any fiscal year, it demonstrates:
 - a. Accurate and conservative budgeting on revenues;
 - b. Effective oversight of expenditures;
 - c. Strong tax collections;
 - d. Elimination of deficit spending and spending beyond our means;
 - e. Appropriate responsiveness to volatile conditions as a result of the recession, i.e., with mid-year cut of state aid and local revenue estimations, the city cut expenses mid-year in response (FY09).
5. Positive free cash has been certified by the DOR in the Water, Sewer, and Waterways Enterprise accounts as well which demonstrates good financial management across-the-board. See Notification of Free Cash Approval from DOR dated Nov. 18, 2010.

TEAM EFFORT

Many people worked diligently to achieve this milestone, and we would like to recognize them:

- **Mayer's Office** – myself, and Chief Administrative Officer Jim Duggan have focused relentlessly on this goal, analyzing the problem, and executing a plan to solve it.
- **Jeff Towne, CFO** – Jeff Towne has been the force behind the effort to systematically close out deficits, and drive forward budgets that represent the Administration's philosophy of spending restraint and conservative planning. To improve the city's financial position during an historic recession will pay dividends to the citizens of Gloucester in the form of improved quality of life for years to come.
- **City Council Budget & Finance Chairman / City Council** – Steve Curcuro's leadership role on Council and Liaison role with the City Auditor's office was instrumental in ensuring the plan was carried out to the satisfaction of the City Council. The Administration is grateful for the Council's dedication to restoring fiscal health to the city of Gloucester.
- **Collections Staff** – diligence and many times compassion in collecting overdue taxes was shown by staff.
- **Kristen Lindberg, Fiscal Analyst** – secured a \$1.2 million reimbursement from the state on the Title V program after the city fell behind in its paperwork
- **Department Heads** – all cooperated to clear up deficits that were in some cases many years old but contributing to the negative free cash position
- **Tom Markham, School Business Manager** – cooperated in clearing up deficits occurring in school accounts.
- **City Auditor** – In June 2010, Kenny Costa stepped right in and brought his considerable experience to bear to finalize the transactions and paperwork to the satisfaction of the DOR

In keeping with the Administration's financial philosophy of spending restraint and conservative planning, we are pleased to submit the following free cash savings and spending plan. NOTE: Transfers will be forthcoming.

AMOUNT	DEDICATED PURPOSE	EXPLANATION
\$750,000	Stabilization Fund	No significant deposit has been made to the city's slim stabilization fund in nine years. A financial goal of the city is to build a combination of fund balance and reserves of at least 5% of operating revenues. Balance of stabilization fund as of 6/30/10 is \$1,542,721. This deposit will bring the level up to \$2,292,721. See chart.
\$500,000	Fund Balance Retention	Fund balance is the reserve held for operating expenses. Fund balance is also very slim. 5% of fund balance and stabilization reserves is our target and approximately \$4.5 million which is still on the low side of healthy.
150,000 150,000	School Buildings	This represents a reimbursement to the snow and ice account which was tapped for emergency repairs of school buildings for the start of the school year.
\$150,000	School Buildings	This represents the anticipated additional repairs needed this year to school buildings according to the DPW Director.
\$130,000	Pension Payment Shortfall	This is a reimbursement to the Workmen's Comp. account which was tapped to make up a shortfall in the pension line item when an anticipated pension reform failed to deliver the savings that Gloucester was counting on when the FY11 budget was set.
\$200,000	Employee Contracts: \$150,000 City \$ 50,000 to add to School contract line item which was budgeted at \$100,000	Most employee contracts have expired. No funding was carried in the city budget to settle contracts, however, the school budget carries \$100,000. This brings the total amount to settle city and school contracts to \$150,000 each for FY11.
\$27,000	High School Locker Room	Per the Superintendent's request for a "clean start" for students, this represents the amount required to repair damage that has occurred over a dozen years to the boy's locker room at the High School.
\$10,000	O.P.E.B.	This is for the establishment of a stabilization fund as recommended by the CFO and City Auditor for the purpose of funding liabilities for Other Post-Employment Benefits (OPEB), e.g., health insurance
\$25,293	Reserve for City Council Appropriation	The Administration recognizes the constraints under which all departments have been operating for the past few years. It is prudent to set aside a small amount for the Council to appropriate as it deems necessary.
\$2,992,293	TOTAL	CERTIFIED FREE CASH FOR FY10

CAK
 \$ 1,942,293

CAK

Carolyn Kirk

From: recapdata@dor.state.ma.us
Sent: Thursday, November 18, 2010 11:26 AM
To: ckirk@ci.gloucester.ma.us; Jeff Towne - Treasurers; Kenny Costa - Auditors; Mary Richardson - Auditors
Subject: Freecash Approval Notification for Gloucester

Massachusetts Department of Revenue Division of Local Services
Navjeet K Bal, Commissioner
Robert G. Nunes, Deputy Commissioner & Director of Municipal Affairs

Thursday, November 18, 2010

Kenny Costa
City Auditor
City of Gloucester

Re: **NOTIFICATION OF FREE CASH APPROVAL - Gloucester**

Based upon the unaudited balance sheet submitted, I hereby certify that the amount of available funds or "free cash" as of July 1, 2010 for the City of Gloucester is:

General Fund		\$ 1,992,293
Water Enterprise	Enterprise Fund	\$ 324,152
Sewer Enterprise	Enterprise Fund	\$ 1,163,595
Waterways Enterprise	Enterprise Fund	\$ 545,638

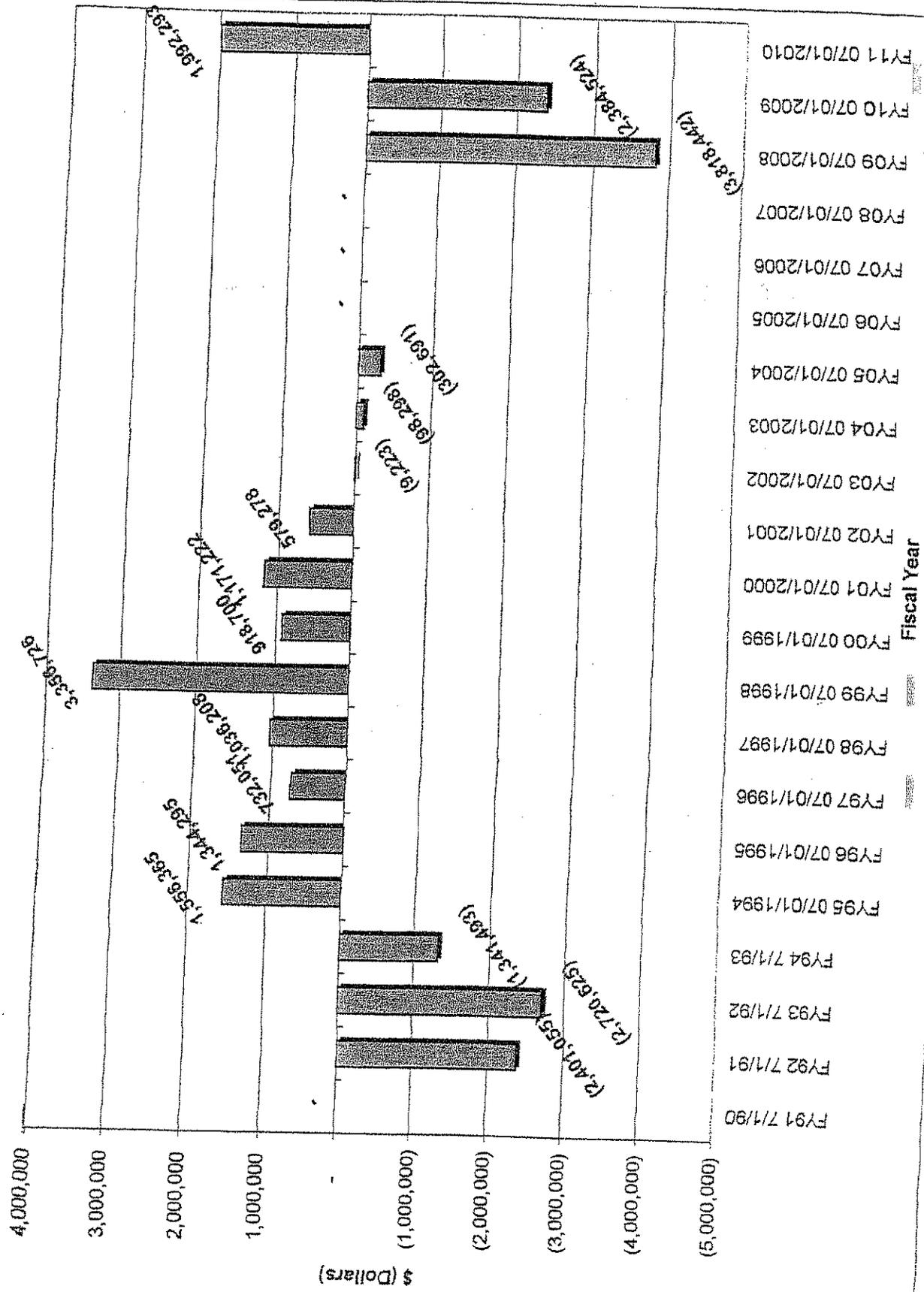
This certification is in accordance with the provisions of G. L. Chapter 59, §23, as amended.

Certification letters will be e-mailed to the mayor/manager, board of selectmen, prudential committee, finance director and treasurer immediately upon approval, provided an e-mail address is reported in DLS' Local Officials Directory. Please forward to other officials that you deem appropriate.

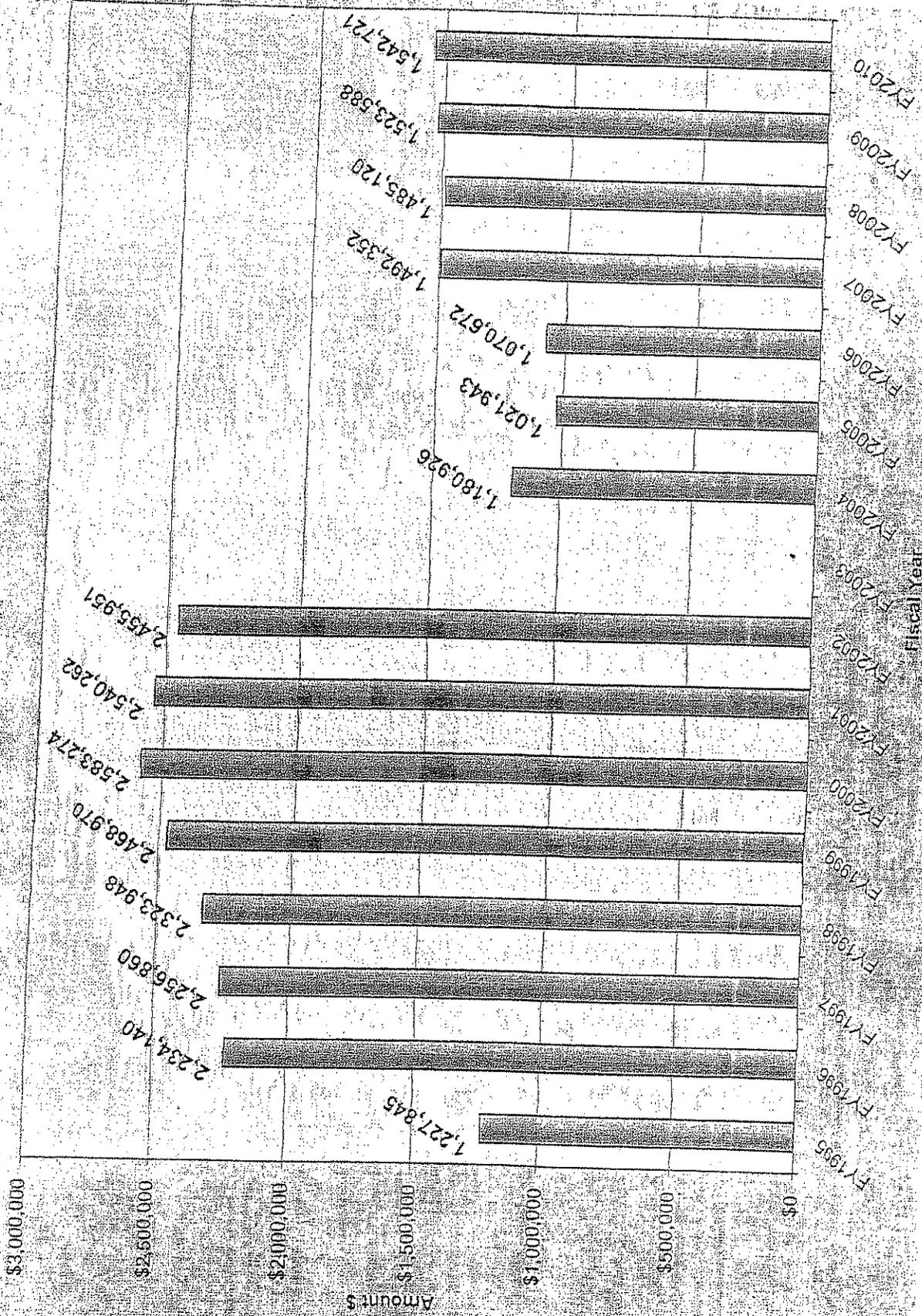
Sincerely,
Gerard D. Perry
Director of Accounts

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system manager at postmaster at dor.state.ma.us.

Free Cash FY1991 - 2011



Stabilization Fund Balances





CITY OF GLOUCESTER

Health Department
3 Pond Road, City Hall Annex
Gloucester, Massachusetts 01930
PHONE: 978-281-9771 Fax: 978-281-9729
EMAIL: healthdept@ci.gloucester.ma.us
WEBSITE: www.ci.gloucester.ma.us



Public Health
Prevent. Promote. Protect.

Memorandum

To: Carolyn Kirk, Mayor
From: Jack Vondras, Health Director
Date: February 8, 2011
Re: Drug Free Communities Support Program Grant Process

The City of Gloucester did have a grant titled "Drug Free Communities Support Program" (DFC) from the federal government from 2004 to 2009 and applied last year for a new 5 year funding cycle, yet, while it was a competitive application, we did not receive approval. We have been encouraged to re-apply for the renewal cycle that would start September 30, 2011.

The DFC was one of our core funding streams for our community coalition, the Healthy Gloucester Collaborative, under the strong leadership of Joan Whitney, Director of Substance Abuse Prevention Services in the Health Department. The mission of the Healthy Gloucester Collaborative is to prevent youth substance abuse and promote the health and well-being of all residing in the City of Gloucester.

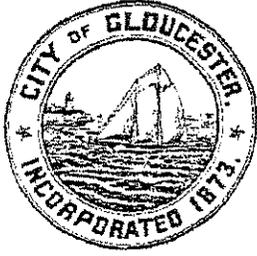
The total amount for this grant award would be \$625,000 over five years. **The grant funding cycle has reopened and we have begun the reapplication process.**

There is a 100 percent match requirement. The match of \$125,000 per year is mostly made up of local volunteer residents, volunteer professionals from many local non-profits as well as school and city services (i.e., Dr. Wolf, Dr. Thompson, teens from the community based Youth Collaborative, etc.). All volunteer hours have been logged in and calculated to be used as the match requirement. There are more than 200 active volunteers that work with Healthy Gloucester Collaborative. Also, the match can use other off-sets from other grants that the city receives like the United Way that funds a Student Assistant Program at the Middle School.

The due date on this renewal grant is **March 18th**, 2011. I am available to answer questions from the City Council.

Thank you in advance.

Cc: Claudia Schweitzer, Chair, Board of Health
Jim Duggan, Chief Administrative Officer
Joan Whitney, Director, Substance Abuse Prevention Services



CITY OF GLOUCESTER

Health Department
3.Pond Road, City Hall Annex
Gloucester, Massachusetts 01930
PHONE: 978-281-9771 Fax: 978-281-9729
EMAIL: healthdept@ci.gloucester.ma.us
WEBSITE: www.ci.gloucester.ma.us



Public Health
Prevent. Promote! Protect.

Memorandum

To: Carolyn Kirk, Mayor
From: Jack Vondras, Health Director
Date: February 3, 2011
Re: Tobacco Control Mini-Grant

The Gloucester Health Department has received a tobacco control mini grant from the Massachusetts Health officers Association for a total of \$1080. These funds are to pay for our tobacco compliance officer, Patrick Mulligan to conduct retail inspections of all licensed tobacco vendors in Gloucester. There are no grant matching requirements for these funds. All mini-grant activities must be completed by April 30, 2011.

I am available to answer questions from the City Council. Thank you in advance.

Cc: Claudia Schweitzer, Chair, Board of Health
Jim Duggan, Chief Administrative Officer to the Mayor



Tobacco Control Director:
Sarah McColgan
Phone/Fax: 413-596-8967
smccolgan@mhoa.com



Public Health

January 27, 2011

Jack Vondras
Gloucester Board of Health
3 Pond Road
Gloucester, MA 01930

Dear Jack,

This letter serves as confirmation of approval for the MHOA Tobacco Control mini-grant application that you submitted for the City of Gloucester,

Your total possible award is \$1080 based on 36 tobacco vendors. I will process the payment to the Gloucester Board of Health for \$540 to provide your start-up funds. You should expect to receive that payment in the near future.

You have agreed to conduct one retail inspection and one compliance check of all vendors, entering the data into the Retail Data Management System upon completion. Please plan to have all activities completed by April 30, 2011.

Please don't hesitate to contact me should you have any questions.

Sincerely,

Sarah McColgan

